

**Using longitudinal administrative data to  
characterise the use of out-of-home care among  
looked after children in England**

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## **Declaration**

I, Louise Mc Grath-Lone, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

## **Abstract**

**Background:** Children in out-of-home care are a vulnerable population. In England, disaggregated data related to out-of-home care have been collected since 1992 through the Children Looked After (CLA) dataset. However, official analyses of CLA data produce annual statistical ‘snapshots’, which cannot account for the complexity of care placements throughout childhood.

**Aim:** To characterise the use of out-of-home care among children in England using longitudinal administrative data.

**Methods:** Using longitudinal CLA data for a large, representative sample of children born 1992-94 ( $N=19,848$ ), I estimated the cumulative incidence of placement in out-of-home care during childhood, described variation in childhood care histories and identified latent classes of out-of-home care. I also explored the stability of care placements and exits from care using sequence analysis and Cox proportional hazards modelling. Finally, I described how the use of out-of-home care changed over time using data for children born between 1992 and 2012 ( $N=93,652$ ).

**Results:** Overall, one in thirty children born 1992-94 (3.3%) entered out-of-home care by age 18, with higher rates observed among ethnic minorities. Although childhood care histories were varied, distinct sub-groups based on legal status, duration and stability of care were evident and more than 40% of children had a single, short, voluntary placement. Most children appeared to achieve some form of permanence either within or outside the care system; however, some groups were at increased risk of exiting and re-entering care. Since 1992, the cumulative incidence of entering care has increased and placements have become longer and more stable.

**Conclusions:** Longitudinal analyses of administrative social care data can refine our understanding of how out-of-home care is used as a social care intervention among children in England. However, the utility of the CLA dataset for evaluating changes in practice and policy is limited by the scope of information it collects.

## **Achoimre as Gaeilge**

**Cúlra:** Is grúpa leochaileacha iad leanaí i gcúram. I Sasana, bailíodh sonraí a bhaineann le cúraim lasmuigh den bhaile ó 1992 tríd an Tuairisceán Leanaí atá faoi Chúram (TLC). Mar sin féin, ní féidir anailís oifigiúla ar shonraí TLC cur síos ar socrúcháin casta cúraim a chothú ar fud na hóige mar tá siad trasghearrthach.

**Aidhm:** Chun cur síos a dhéanamh le húsáid cúraim lasmuigh den bhaile i measc leanaí i Sasana ag baint úsáid as sonraí riaracháin fadaimseartha.

**Modhanna:** Ag baint úsáide as sonraí TLC le haghaidh sampla mór ionadaíoch de leanaí a rugadh 1992-94 ( $N=19,848$ ), mheas mé an minicíocht carnach socrúcháin i gcúraim lasmuigh den bhaile le linn na hóige, chuir mé síos ar an éagsúlacht i stair chúraim óige agus d'aithin mé fo-ghrúpaí de chúraim lasmuigh den bhaile. Rinne mé iniúchadh freisin ar chobhsaíochta stair chúraim trí úsáid a bhaint as anailís seicheamhach agus samhltú Cox comhréireach contúirtí. Mar fhocal scoir, thuairiscigh mé an modh a athraigh úsáid cúraim lasmuigh den bhaile le himeacht ama ag baint úsáid as sonraí do leanaí a rugadh idir 1992 agus 2012 ( $N=93,652$ ).

**Torthaí:** Tríd is tríd, chaith le duine as gach tríocha leanaí a rugadh 1992-94 (3.3%) am i chúraim lasmuigh den bhaile de réir aoise 18, agus bhí na rátaí níos airde a bhreathnaíodh i measc mionlaigh eitneacha. Cé go raibh stair chúraim éagsúil, d'aithin mé fo-ghrúpaí ar leith bunaithe ar stádas dlíthiúil, fad agus cobhsaíocht chúraim. Bhí stair chúraim fanacht aonair, gearr, saorálach an chuid is mó ná 40% de na leanaí. Bhí is mó de pháistí in ann cineál éigin buan a bhaint amach laistigh nó lasmuigh den chóras cúraim; áfach, bhí níos mó seans a fhágáil as cúraim agus dul isteach arís ag roinnt grúpaí. Ó 1992, tháinig méadú ar an minicíocht carnach cúraim iontrála agus tháinig socrúcháin níos faide agus níos cobhsaí.

**Conclúidí:** Is féidir le hanailísí fadtéarmacha ar shonraí cúraim shóisialta riaracháin ár dtuiscint ar an gcaoi a n-úsáidtear cúram lasmuigh den bhaile mar idirghabháil cúraim shóisialta i measc leanaí i Sasana. Mar sin féin, tá fónais tacar sonraí TLC chun athruithe i gcleachtas agus i mbeartas a mheas teoranta ó raon feidhme an eolais a bhailíonn sé.

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## Abbreviations

- A&E Accident and emergency department.
- ACE Adverse childhood experience.
- AIC Akaike information criterion: a measure of the relative fit of a statistical model for a given set of data.
- AUC Area under the curve: a measure of the predictive power of a model in classification analysis.
- BCS70 British Birth Cohort Study1970: a longitudinal cohort study of children born in the UK in 1970.
- BIC Bayesian information criterion: a measure of the relative fit of a statistical model for a given set of data.
- CI Confidence intervals.
- CIC Children in Care dataset: an administrative social care dataset collected between 1977 and 1991 that contained disaggregated information about episodes of out-of-home care provided in England and Wales.
- CLA Children Looked After dataset: an administrative social care dataset collected since 1992 that contains longitudinal, disaggregated information about episodes of out-of-home care provided in England.
- df Degrees of freedom.
- DfE Department for Education.
- DHM Dynamic hamming matching: a method of matching sequences that is based on the frequency of differences in state at a given point in time.

- DI Disproportionality index: an absolute measure of disproportionality in an outcome for a population group.
- DMAP Data Management Advisory Panel: the Department for Education panel who assesses and decides on applications for sensitive data from the National Pupil Database.
- DR Disproportionality ratio: a relative measure of disproportionality in an outcome for a population group.
- EM Expectation-maximisation: an iterative algorithm that searches for the maximum likelihood solution.
- GCSE General Certificate of Secondary Education
- HR Hazard ratio.
- ID Identifier.
- KM Kaplan-Meier.
- KS Key stage.
- LCA Latent class analysis: a form of finite mixture modelling that can be used to identify latent groups in an empirical dataset.
- LMR LRT Lo-Mendell-Rubin likelihood ratio test: a measure of the relative fit of a latent class model with  $n$  classes with one that has  $n-1$  classes.
- MAR Missing at random: a distribution of missing data in which the probability of have a missing value of a variable of interest is not associated with the variable of interest.
- MCAR Missing completely at random: a distribution of missing data in which the probability of have a missing value of a variable of interest is not associated with the variable of interest or any other observed variable.

- MCS Millennium Cohort Study: an ongoing cohort study of children born in the UK in 2000-01.
- ML Maximum likelihood: the solution of parameter values for which the empirical data in a dataset are most likely to be observed.
- MNAR Missing not at random: a distribution of missing data in which the probability of have a missing value of a variable of interest is associated with the variable of interest.
- NCDS National Child Development Study: a cohort study of children born in the UK in 1958.
- NEET Not in education, training or employment.
- NPD National Pupil Database: an administrative educational dataset that collects information about pupils in schools and colleges in England.
- NSPCC National Society for the Prevention of Cruelty to Children.
- ONS Office of National Statistics.
- OR Odds ratio.
- PMR Pupil matching reference: a pseudonymised, unique pupil-level identifier used in the National Pupil Database.
- PSA Public Service Agreement: a specified aim of a UK government department between 1998 and 2010.
- RCT Randomised controlled trial.
- SDQ Strengths and Difficulties Questionnaire: a brief behavioural screening questionnaire for children aged 3-16 years.
- SGO Special guardianship order: a legal order conferring parental responsibility for a child to a special guardian.



SSDA903 Social Services Department Activity 903: an ongoing, annual collection of data related to the provision of social care services in England.

UASC Unaccompanied asylum seeking child.

UK United Kingdom.

UPN Unique pupil number: a unique, pupil-level identifier used in the National Pupil Database.

US United States of America.

YOI Young offender institution: a type of prison that caters for young or juvenile offenders.

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## **Chapter 1 Introduction**

### **1.1 Content and structure of Chapter 1**

Chapter 1 introduces my thesis by providing an overview of its scope, content and structure. First, I briefly outline the rationale for my PhD study: a more detailed rationale and description of how I formulated my research questions is given in Chapter 2. I then describe the main aspects of my study and explain the structure of this thesis.

## 1.2 Rationale for this study

In England, 'out-of-home care' is a broad term for a social care intervention that encompasses a range of diverse experiences in terms of legal status, reason(s) for accommodation outside of the family home and placement setting, duration and stability (Department for Education, 2017g; Thoburn & Courtney, 2011). There is a considerable body of empirical evidence demonstrating that placement in out-of-home care is associated with a range of adverse outcomes across health, educational and social domains, both in childhood and in later life (Priestley & Kennedy, 2015). These outcomes have been shown to vary by characteristics of children's care histories; for example, unstable care placements have been associated with poorer mental health (Beck, 2006) and educational attainment (Sebba *et al.*, 2015). However, issues related to the heterogeneity of care histories and confounding by indication (i.e. background factors associated with an increased likelihood of being placed in out-of-home care also being independently associated with having poorer outcomes) mean that these apparent associations between adverse outcomes and out-of-home care cannot be assumed to be causal. Before we can explore the potential effects of out-of-home care, we must first understand how this social care intervention is used; however, there are currently fundamental gaps in the knowledge base related to out-of-home care.

Official statistics primarily take a cross-sectional approach to describing the size of the population of children who are placed in care and the characteristics of their care placements (Department for Education, 2017g). However, such 'snapshots' do not present the full picture as they cannot account for the complex and longitudinal nature of out-of-home care, whereby a child can enter and exit multiple times during childhood and remain in care for varying lengths of time. Research exploring the cumulative use and characteristics out-of-home care placements is limited and longitudinal studies are often hindered by short time frames, small sample sizes and biases due to non-response and attrition of study participants (Wade *et al.*, 2014; Ward, 2009; Skuse, Macdonald & Ward, 2001). Moreover, changes over time in the use of out-of-home care have not been well-described despite considerable changes in policy related to children's social care services since the enactment of

the Children Act 1989 (Thoburn, 2008). For instance, changes in the stability of out-of-home care placements and exits from care have not been explored, despite the increased policy focus on achieving permanence for children in care and care leavers (Marsh & Thoburn, 2002).

In this study, I aim to produce a more nuanced description of how out-of-home care is used among children in England through secondary analysis of administrative social care data, namely the Children Looked After (CLA) dataset. The CLA dataset represents an under-utilised source of data for research related to out-of-home care in England. The main advantages of this administrative dataset are that it has complete coverage and follow-up for a large, nationally-representative population of children placed in out-of-home care and contains longitudinal care histories. Given that it is an administrative dataset, the types of research questions that can be addressed using CLA data are limited by the type of information that it records; however, it is particularly well-suited to address questions related to quantifiable and/or longitudinal characteristics of out-of-home care. Though the findings that can be drawn from analysis of administrative data are limited by its observational nature (Connelly *et al.*, 2016), I propose that, by taking a longitudinal and child-centred approach, analysis of CLA data could refine our understanding of how out-of-home care is used in England, and ultimately inform policy and practice.

### **1.3 Overarching aim of this study**

To characterise the use of out-of-home care among children in England using longitudinal, administrative data.

### **1.4 Study design**

This is an exploratory study based on secondary analysis of longitudinal records of out-of-home care for a large, nationally-representative sample of children. In this study, I sought to characterise the use of out-of-home care among looked after children in England through a series of analyses of CLA data. Each set of analyses aimed to address a gap in the existing knowledge base using a variety of quantitative methods. Full details of the development of my research questions are given in Chapter 2. Briefly, the aim of each set of analyses was to:

1. Estimate the relative size, demographic composition and geographic distribution of the population of children who are ever placed in out-of-home care in England.
2. Explore the characteristics of cumulative out-of-home care histories.
3. Identify common types of out-of-home care.
4. Describe the stability of out-of-home care in terms of placement patterns.
5. Describe the stability of out-of-home care in terms of re-entries to care.
6. Describe changes over time in aspects of out-of-home care that have previously been explored in analyses 1 to 5, above.

### **1.5 Scope of this study: population, period and aspects of out-of-home care**

The scope of this study was looked after children in out-of-home care in England for reasons other than respite care. I excluded children in out-of-home care for respite reasons (i.e. as part of an agreed series of short-term breaks (Department for Education, 2017e)) as this type of care is used for children with complex health needs, who are not representative of the overall population of looked after children (Department for Children Schools and Families, 2010). In addition, when recording episodes of respite care, local authorities are not obliged to record each one individually and can simply record the start and end date of the total period of care.



It is therefore not possible to accurately determine the duration of episodes or the time a child spends in respite care from the CLA dataset (Department for Education, 2017e).

My study covered a 21-year period in total, from the 1<sup>st</sup> January 1992 to the 31<sup>st</sup> December 2013. This period of time represented all complete calendar years for which longitudinal, individual-level administrative social care data related to out-of-home care had been routinely-collected in England, at the time of my study.

In terms of the aspects of care that could be characterised in my study, the scope of my study was restricted by the variables that are collected in the CLA dataset and included in the extract of CLA data provided to me by the Department for Education (DfE). For example, many aspects of out-of-home care experiences that are important to looked after children are not recorded in the CLA dataset (e.g., having someone to talk to, having good relationships with carers and feeling loved and respected (Dickson, Sutcliffe & Gough, 2010)). Furthermore, my request for variables related to placement location and unaccompanied asylum seeking child (UASC) status was declined by the DfE's Data Management Advisory Panel (DMAP) due to the sensitive nature of this information. Given the restricted scope of my PhD study in terms of the aspects of care that could be examined, in this thesis the term 'experience' also has a limited and specific meaning. When referring to experiences of care, I refer only to the range of quantifiable events, situations or states that a child encounters or undergoes while placed in out-of-home care that were available in my extract of CLA data. A full description of CLA data extract I analysed in this study and the variables it contained is given in Section 3.3.

## **1.6 Study ethics**

No specific ethical review was required for this PhD study as it involved secondary analysis of routinely-collected administrative data. However, as part of the application process for CLA data, the study was reviewed and approved by the DMAP at the DfE.

## 1.7 Structure and content of this thesis

This thesis is divided into ten chapters and three sections as per Figure 1-1.

<b>Background</b> 1) Introduction 2) Rationale for this study: an overview of relevant literature, official statistics and policy 3) The Children Looked After dataset
<b>Analysis</b> 4) The incidence of out-of-home care 5) Cumulative out-of-home care histories 6) Types of out-of-home care 7) Patterns of out-of-home care placements 8) Re-entries to out-of-home care 9) Changes over time in the use of out-of-home care
<b>Synthesis</b> 10) Discussion

**Figure 1-1 Overview of thesis structure**

The Background section of my thesis describes the rationale for my PhD study and provides details of the data that I analysed. In Chapter 2, I describe the context of my study by summarising the relevant literature, official statistics and policy that informed my choice of research questions. In Chapter 3, I provide an overview of the CLA dataset and the pre-analysis work I undertook to prepare my data extract.

The Analysis section of my thesis describes the quantitative analyses I carried out. Each chapter provides a summary of the rationale for the analysis, reports the methods and results and discusses the key findings.

The Discussion section of my thesis outlines the strengths and weaknesses of my PhD study overall, and draws together findings from across the six sets of analyses to discuss implications for policy, practice and data collection. This section also highlights the unique contribution of my PhD study and outlines some potential areas for future work.

## Chapter 2 Rationale for this study: an overview of relevant literature, official statistics and policy

### Statement of authorship

I carried out all of the work presented in this chapter. My systematic review of official statistics related to out-of-home care has previously been published as part of a blog piece on *The Conversation* website (Appendix H-2).

### 2.1 Content and structure of Chapter 2

Chapter 2 sets out the rationale for my PhD study by summarising the background information that informed my choice of research questions and study design. First, I provide a brief introduction to the use of out-of-home care in England (Section 2.2). In Section 2.3, I establish the need for a study that characterises the use of out-of-home care by outlining how placement in care can be considered an indicator and form of childhood adversity. I also describe the multiple adverse outcomes associated with out-of-home care (both in childhood and in later life) and the variation in these outcomes by characteristics of care. In Section 2.4 (What is already known about the use of out-of-home care in England?), I summarise the quantitative evidence base that informed my choice of research questions by describing a systematic review I conducted as part of my PhD study. In Section 2.5 (Why is *this* study needed?), I highlight the specific gap in the evidence base related to out-of-home care that my PhD study sought to address and summarise the main advantages of using administrative data to address this gap. Finally, I close the chapter with a summary of its key points.

## **2.2 What is out-of-home care?**

In this section, I will provide an overview of the essential information related to out-of-home care in England that is relevant to my study, including the legal basis for its use, the variety of settings it includes and some important policy developments that occurred during the study period (1992 to 2013). This section draws primarily on official government publications, particularly departmental guidance documents and in-house or commissioned research reports.

### **2.2.1 The Children Act 1989, out-of-home care and looked after children**

The Children Act 1989 is the legal foundation of the modern child welfare system in England (Bainham & Gilmore, 2013). This wide-ranging act sets out the duties and responsibilities local authorities have to protect, support and safeguard children, and to meet their needs and the needs of their families. One crucial need local authorities must meet is a child's need for suitable accommodation (Department for Education, 2015b).

Under the Children Act 1989, local authorities have a duty to provide suitable accommodation to children in their area whose parents are unable to do so, temporarily or otherwise, and for any reason (Department for Education, 2015b). Local authorities must also provide accommodation to children who have been placed in their care through police powers or as a result of their involvement in the youth justice system. This type of accommodation is commonly referred to as 'out-of-home care'.

Out-of-home care can be defined as the provision of alternative accommodation by state agencies (or other organisations contracted by the state) to a young person aged <18 years who is looked after by a local authority (Thoburn & Courtney, 2011). However, in practice, this provision of alternative accommodation will be just one aspect of a broader social care intervention. Depending on the purpose of the out-of-home care placement, children in out-of-home care and their families may be subject to assessments, home visits or legal proceedings, or they may receive therapeutic interventions, health treatments or other forms of support (Thoburn, 2010; Hart & La Valle, 2016). Thus, the term 'out-of-home care' encompasses a

range of interventions with the common feature of alternative accommodation being arranged by the state.

The Children Act 1989 also defines who is considered to be a 'looked after child' (i.e. one who is under the care of a local authority (Law & Martin, 2009)). Being placed in out-of-home care by a local authority is not tantamount with being designated a looked after child. For example, children who are accommodated in out-of-home care under section 17 of the Children Act 1989 are considered to be 'children in need', rather than looked after children (Department for Education, 2015b). Similarly, though most looked after children are accommodated in out-of-home care by a local authority, some remain at home with their parents and so not all looked after children are placed in out-of-home care. Ergo, not all children who are placed in out-of-home care are looked after children, and vice versa (Department for Children Schools and Families, 2010). As outlined in Section 1.5 (Scope of this study: population, period and aspects of out-of-home care), this study focuses on looked after children who are placed in out-of-home care, who are sometimes referred to as 'children in care' in this thesis.

### **2.2.2 The legal basis for out-of-home care**

Placement of a looked after child in out-of-home care can be voluntary or compulsory, depending on the legal basis for the provision of accommodation. Voluntary accommodation of looked after children in out-of-home care is legislated by section 20 of the Children Act 1989 (Department for Education, 2015b). Under section 20, local authorities must accommodate a child if no one has parental responsibility for them, they have been lost or abandoned or the person caring for them is unable to provide them with suitable accommodation or care. This type of placement in care is termed 'voluntary accommodation' as it can only be provided with the consent of a child's parent(s). Parents can, at any time and without notice, remove their child from voluntary accommodation. Section 20 can be used to provide a one-off voluntary placement or an agreed series of short-term breaks (known as respite care). Respite care can also be provided under section 17 of the Children Act 1989, but children accommodated in this way are not considered to be looked after by a local authority. The decision to provide respite care under section

17 or 20 of the Children Act 1989 (and thus the designation of being a child in need or looked after child) is made by the local authority, based on their assessment of the needs and circumstances of the child and their family (Department for Children Schools and Families, 2010).

Compulsory placement in out-of-home care (i.e. placement that does not need parental consent) requires the granting of a court order or invocation of police powers (Department for Education, 2014a). For example, a care order can be granted by the court under section 31 of the Children Act 1989 if a child is suffering (or is likely to suffer) significant harm that is attributable to parenting that does not meet expectations, including a lack of parental control. The Children Act 1989 additionally legislates for removal of a child without a court order under police child protection powers through section 46. Under section 46, a constable can place a child in out-of-home care if they have reasonable cause to believe that the child would otherwise be likely to suffer significant harm. A glossary of the legal orders and police powers related to out-of-home care and the associated legislation is given in Appendix A-1.

### **2.2.3 Out-of-home care settings in England**

Children in England can be accommodated in a variety of out-of-home care settings, which can be broadly grouped as foster care, residential care and independent living. The salient difference between these settings is who provides care and supervision to the children accommodated there.

#### **Foster care**

Foster care is where a child is placed with an approved carer who is employed by a local authority, directly or indirectly through a third-party agency (HM Government, 2010). If a foster carer is a child's relative or family friend this type of placement is referred to as kinship or kin foster care (Department for Education, 2010). Most looked after children are placed in foster care; for example, on the 31<sup>st</sup> March 2016, almost three-quarters of children (74%) were looked after in foster care (Department for Education, 2017g).

Foster care can be used as an emergency or short-term measure while plans are made for a child's future or as a long-term out-of-home care arrangement (Schofield & Simmonds, 2009). It can be used as a precursor to adoption when a child lives with prospective adopters (known as fostering for adoption) or as an alternative to adoption to provide long-term care to a looked after child until they can live independently (Bond, 2016). Some foster carers are specially trained to provide therapeutic care to children who have been remanded to care by the courts or who have mental health or behavioural issues. Some foster carers provide parent and child placements whereby a looked after child and their parent(s) live with them (British Association of Adoption and Fostering, 2014).

### **Residential care**

In residential settings, care and supervision are provided by staff of an institution rather than a foster carer (Department for Education, 2013b). Children's homes are the most common form of residential care used in England (though the number has decreased considerably since the 1970s (Narey, 2016)). According to the most recent figures available from the Department for Education (DfE), there were 1,974 children's homes in operation in England on the 31<sup>st</sup> March 2015 (Ofsted, 2016). Children's homes cater for looked after children of all ages but, in practice, they are mainly used for older children and adolescents. In a 2014 survey of 841 children's homes commissioned by the DfE, just 5% of homes reported caring for children aged <8 years (Thornton, Hingley & Mortimer, 2015). The number of children cared for in a children's home is generally small; for example, among the homes surveyed in 2014, the mean number of places was 4.4 and one in five homes had just one or two places in total (Thornton, Hingley & Mortimer, 2015). Single provision children's homes are typically used in situations where children cannot safely be placed with their peers (Hart, La Valle & Holmes, 2015).

Children who have a history of running away, or are likely to harm/injure themselves or others may be placed in a 'locked' children's home, which is also known as a secure unit (Hart & La Valle, 2016). Secure units can only be used as an out-of-home care placement for older children and adolescents: placement of a child aged <13 years in a secure unit requires approval from the Secretary of State

for Education (Department for Education, 2015a). The number of secure units and children placed in them is relatively small. On the 31<sup>st</sup> March 2017, there were just 96 looked after children accommodated in fourteen secure units in England (own calculation from the most recent annual 'Children Accommodated in Secure Children's Homes' statistics published by the DfE (Department for Education, 2017d)). However, on average, secure units tend to provide more places per unit than standard children's homes. Among the fourteen secure units currently in operation in England, the number of places varies from seven to 42 with a mean of seventeen (own calculation from the most recent annual 'Children Accommodated in Secure Children's Homes' statistics published by the DfE (Department for Education, 2017d)).

Children who are looked after and are involved in the criminal justice system can be remanded or sentenced to custody in residential settings such as a young offender institution (YOI), prison or secure unit. However, most children looked after in secure units are not involved in the youth justice system. Of the 96 looked after children accommodated in secure units in England on the 31<sup>st</sup> March 2017, the vast majority were accommodated on welfare grounds and just 6.3% ( $n=6$ ) were placed by a local authority in a youth justice context (own calculation from the most recent annual 'Children Accommodated in Secure Children's Homes' statistics published by the DfE (Department for Education, 2017d)). Less frequently, children are looked after in other residential settings such as boarding schools, residential colleges, training centres, care homes and hospitals (Department for Education, 2017f). Some residential care settings accommodate parents with their children. For example, in a family assessment centre, children are placed in a residential setting with their parent(s) who receive advice, guidance and counselling from staff. These types of placement are used to assess parental capacity to respond to their child's needs and safeguard their welfare (Munro *et al.*, 2014).

### **Independent living**

Adolescents who are looked after may be placed in out-of-home care that does not involve day-to-day care and supervision from staff of an institution or a foster carer (Schofield & Simmonds, 2009). Instead, they live alone or with others in a flat,



bedsit or hostel, with or without formal visiting support from local authorities (Department for Education, 2017e). This type of placement is known as independent living. Some adolescents may also live independently in residential accommodation that is provided as part of an apprenticeship or employment training programme (Department for Education, 2017f).

#### **2.2.4 Changes in policy related to out-of-home care**

In terms of policy related to out-of-home care, the period following the enactment of the Children Act 1989 to the beginning of the 'new Labour' government (1991 to 1997) was one of relative stability. However, since 1998 children's social care services have been an area of considerable interest and change in terms of policy. For example, a report by Action for Children estimated that between 1998 and 2008 alone there were approximately 300 "different initiatives, strategies, funding streams, legislative acts and structural changes to services affecting children and young people" (Action for Children, 2008, p4). These policy developments are likely to have affected the use of out-of-home care; for example, in terms of the number of children who enter care or the type of care that is provided. However, variation over time in the use of out-of-home care among children in England has not been well-explored.

During the period covered by my PhD study (1992 to 2013) two important areas of policy development related to out-of-home care were (1) achieving permanence for looked after children and (2) measuring the performance of out-of-home care services.

#### **Achieving permanence for looked after children**

Permanence is a broad concept that can be defined as a sense of legal, physical and emotional stability, security and continuity (Boddy, 2013). In the context of out-of-home care, one route to permanence that has been the subject of a major policy focus is adoption. For example, in a 2000 report entitled 'Adoption: A new approach' the government set a target of increasing the number of looked after children who were adopted by at least 40% in 5 years (from 2,700 adoptions

annually to more than 4,000), and outlined their intentions to legislate for increased speed of adoptions (Department of Health, 2000).

However, this report recognised that adoption was not an appropriate permanence option for all children: children who are older or unaccompanied asylum seekers may not want to be separated legally from their birth families, for example. In such cases, the government suggested that a new type of court order known as a special guardianship order (SGO) would be an appropriate route to permanence. This SGO would create a lifelong, legally-binding relationship between a child and their carer (special guardian) without severing legal links with birth relatives. The policies proposed by this report were subsequently legislated in the Adoption and Children Act 2002.

More recently, policy has focused on achieving permanence into early adulthood for specific groups of care leavers (HM Government, 2013). For example, the 2007 'Care Matters' report proposed the idea of providing financial and other support to looked after children who were still in out-of-home care at age 18 to allow them to remain in their care setting up to age 21. Initially, this proposal related to adolescents in both foster and residential care, but these 'Staying Put' entitlements were later revised to apply only to young people in foster care (HM Government, 2013).

### **Measuring the performance of out-of-home care services**

Indicators of performance for out-of-home care services were first introduced in 1999 as part of the 'Quality Protects' report (Department of Health, 1999). This report introduced indicators related to stability of placements, use of adoption and educational attainment of looked after children in the form of Public Service Agreements (PSAs) that local authorities were expected to achieve (Panchamia & Thomas, 2017). For example, English and mathematics attainment for looked after children was expected to be at least 60% as good as their non-looked after peers and 80% of children aged <16 years who have been looked after for 2.5 years or more were expected to have been living in the same placement for at least 2 years, or to be placed for adoption (Department for Education and Skills, 2006).

Local authorities' performance against PSAs related to out-of-home care was measured using routinely-collected administrative data. Consequently, the type of data collected by local authorities has changed over time in response to government priorities. PSAs were abandoned in 2010 by the coalition government who commissioned a series of expert reviews of the child protection system (Munro, 2010, 2011; Allen, 2011; Boddy, 2013), including how administrative data could be used to explore the response of children's social care services (Munro, Brown & Manful, 2011). Following these reviews, a set of minimum standards were devised to ensure that the care provided to children using social care services is fit for purpose and meets their needs (Department for Education, 2013d). However, there were no national measures, indicators or benchmarks for monitoring the performance of out-of-home care services introduced.

In 2012, the government introduced seventeen indicators related to adoption (Department for Education, 2017b) as a means of tracking progress towards their goal of increasing their use and speed (Department for Education, 2012). These indicators are used to publish 'adoption scorecards' that compare the use of adoption in different local authorities (Department for Education, 2017a), but there are no explicit targets set by the government. For example, in relation to indicator A3 (the percentage of children who wait less than 14 months between entering care and moving in with their adoptive family) good performance is defined simply as a "high" percentage (Department for Education, 2017b, p6).

## **2.3 Why is a study characterising out-of-home care needed?**

In this section, I will outline why a study that characterises the use of out-of-home care is needed. Through a review of relevant literature I will demonstrate that placement in out-of-home care is both an indicator and form of childhood adversity due to the reason(s) that precipitate a child entering care and/or their experiences whilst in care. In addition, I will demonstrate that children in care experience multiple adverse outcomes and that these outcomes are associated with characteristics of care placements.

### **2.3.1 Out-of-home care is an indicator of childhood adversity**

Adverse experiences during childhood have profound and long-lasting effects on our health, well-being and development (Black *et al.*, 2017; Britto *et al.*, 2017; Bruce *et al.*, 2009; Shonkoff *et al.*, 2012). One of the first large studies of childhood adversity was the National Comorbidity Survey conducted in the US between 1990 and 1992. This study by Kessler and colleagues described the prevalence of 26 childhood adversities and their association with the development of psychiatric disorders in adulthood (Kessler, Davis & Kendler, 1997). Another early study in the field of childhood adversity was the Adverse Childhood Experience (ACE) Study published in 1998. This large, retrospective, cross-sectional survey of adults in the US focused on eight types of childhood adversity and their relationship with negative health outcomes and behaviours (Felitti *et al.*, 1998). Both studies demonstrated that childhood adversity was extremely common and often clustered; for example, in the ACE study almost two-thirds of adults reported at least one childhood adversity, and half reported more than one (Felitti *et al.*, 1998). Furthermore, both studies identified strong associations between experiencing childhood adversity and having poor health outcomes and behaviours in later life, such as mood disorders, heart disease and smoking (Felitti *et al.*, 1998; Kessler, Davis & Kendler, 1997). In the intervening decades since these seminal studies, there has been increased interest in describing the prevalence and consequences of adverse experiences during childhood (Anda *et al.*, 2010; Burgermeister, 2007; Kalmakis & Chandler, 2015; Kessler *et al.*, 2010).

Childhood adversity is a construct with no consistent definition, despite the growing body of research in this field. Daniel and colleagues have proposed that childhood adversity is the experience of life events and circumstances which may combine to challenge or threaten healthy development (Daniel, Wassall & Gilligan, 1999). More recently, McLaughlin has suggested that childhood adversity should be defined as “experiences that are likely to require significant adaptation by an average child and that represent a deviation from the expectable environment” (McLaughlin, 2016, p6). These somewhat differing conceptualisations of childhood adversity highlight two core characteristics: childhood adversity is (1) *external stress* that (2) is *likely to have a detrimental effect* on a child’s development. Childhood experiences that are stressful, but which would (in expected circumstances) be unlikely to negatively affect normal development would thus not be considered to be a form of childhood adversity. For example, all children will find a school move or the death of an elderly grandparent stressful but, in normal circumstances and in the context of a loving and supportive family environment, we would not expect such stressors to have long-lasting, detrimental effects (McLaughlin, 2016). In the absence of a consistent definition, a broad range of external stressors have been conceptualised as indicators of childhood adversity, including placement in out-of-home care (Østergaard *et al.*, 2016; Dahl *et al.*, 2017).

In England, intervention in family life vis-à-vis the use of out-of-home care is legislated by the Children Act 1989 to prevent (actual or likely) significant harm to a child and/or to promote their welfare (Daniel, 2010). The adverse circumstances and situations that precipitate a child becoming looked after and entering out-of-home care are complex; however, in practice, they are operationalised as eight ‘categories of need’ (Department for Education, 2017e, 2005), as summarised in Table 2-1. Therefore, in an English context, placement in out-of-home care can undoubtedly be considered an indicator of childhood adversity because of the adverse nature of the categories of need that justify its use as a social care intervention for looked after children.

**Table 2-1 Categories of need that justify placement in out-of-home care for looked after children in England**

Category of need	Definition <sup>a</sup>	For example, children who: <sup>b</sup>
Abuse or neglect	Children in need as a result of, or at risk of, abuse or neglect.	<ul style="list-style-type: none"> <li>• Experience any form of maltreatment (abuse or neglect)</li> <li>• Are exposed to domestic violence</li> <li>• Abuse other children</li> </ul>
Child's disability	Children and their families whose main need for services arises out of the child's disability, illness or intrinsic condition	<ul style="list-style-type: none"> <li>• Have physical, sensory or learning disabilities</li> <li>• Have a medically diagnosed condition (including autism)</li> <li>• Are suffering from psychiatric or mental illness</li> </ul>
Parental illness or disability	Children whose main need for services arises because of the capacity of their parents to care for them is impaired by disability, illness, mental illness, or addictions.	<ul style="list-style-type: none"> <li>• Are cared for by parents who are alcoholics or take drugs</li> <li>• Are cared for by parents who are acutely ill or chronically disabled (including learning difficulties and mental illness)</li> </ul>
Family in acute stress	Children whose needs arise from living in a family going through temporary crisis such that parenting capacity is diminished and some of the children's needs are not being adequately met.	<ul style="list-style-type: none"> <li>• Are part of a family that have become homeless</li> <li>• Are part of a household with reduced income</li> <li>• Lose a parent or carer through death</li> </ul>
Family dysfunction	Children whose needs arise mainly out of their living with families where the parenting capacity is chronically inadequate.	<ul style="list-style-type: none"> <li>• Do not enjoy consistent emotional warmth</li> <li>• Are not given adequate guidance or boundaries</li> <li>• Have unstable or erratic relationships with carers</li> </ul>
Socially unacceptable behaviour	Children and families whose needs for services arise primarily out of their children's behaviour impacting detrimentally on the community.	<ul style="list-style-type: none"> <li>• Commit criminal offences</li> <li>• Truant</li> <li>• Are sexually active</li> </ul>
Low income	Children, either living in families or independently, whose need for services arise mainly from being dependent on an income below the standard state entitlements.	<ul style="list-style-type: none"> <li>• Are part of asylum seeking families</li> <li>• Have non-habitual resident status</li> <li>• Live independently</li> </ul>
Absent parenting	Children whose need for services arises mainly from having no parents available to provide for them, including parents who decide it is in the best interests of the child to be adopted.	<ul style="list-style-type: none"> <li>• Have no parents due to death or imprisonment</li> <li>• Are separated from their parents by civil disaster</li> <li>• Are unaccompanied asylum seekers</li> </ul>

<sup>a</sup>As per official SSDA903 guidance (Department for Education, 2017e) <sup>b</sup>As per official Children in Need guidance (Department for Education, 2005).

### **2.3.2 Out-of-home care is a form of childhood adversity**

Regardless of the underlying reason(s) for entering out-of-home care, placement in care can also be considered a form of childhood adversity in and of itself due to the nature of the intervention. By its definition, out-of-home care separates a child from their parents and exposes them to family breakdown, usually in stressful circumstances. Even though this separation may of course be necessary and entirely appropriate in order to protect a child from (actual or potential) harm and/or promote their well-being, family breakdown is still considered to be an adverse childhood experience (Allen & Donkin, 2015; Mathers *et al.*, 2016; Pelton, 2016). Even siblings who do not pose a threat to each other's well-being and are placed in out-of-home care at the same time can be separated from each other. Despite the legal requirement to (so far as reasonably practicable) place siblings together, a recent national survey found that only half of sibling groups (50.5%) were kept together whilst in out-of-home care (Ashley & Roth, 2014).

Local authorities can unintentionally expose children placed in out-of-home care to further adversity if they do not adequately fulfil their duties as corporate parents. Any reasonable parent would strive to ensure that they promote the health and well-being of their children and, in their capacity as a corporate parent, local authorities have the same statutory requirements to the children they look after (Department for Children Schools and Families & Department of Health, 2009). However, a study of 119 children in care in one local authority found that they were significantly less likely than their peers to be immunised, even after being in care for 6+ months (Barnes *et al.*, 2005). Similarly, a study of the mental health needs of looked after children aged ≤5 years found that less than 10% of those who had a diagnosable developmental or mental health disorder requiring an intervention was receiving one (Hillen *et al.*, 2006) and another study of 185 children in two local authorities found that there was clustering of foster placements in catchment areas for low-performing schools (O'Sullivan & Westerman, 2007).

Indeed, research suggests that local authorities do not always ensure that children in out-of-home care receive the support they need to promote their health, education and general well-being (Stanley, Riordan & Alaszewski, 2005; Selwyn, Wood & Newman, 2017; Shaw, 2017), even when there is clear guidance available (Mooney *et al.*, 2009). For example, an audit of statutory medical examinations for looked after children in one local authority found that they had been completed for just one in four children, and that they were not comprehensive in their content (Butler & Payne, 1997). Similarly, a case file review of children in out-of-home care for 6+ months in five Scottish local authorities revealed mixed practice in terms of educational planning with many children not receiving adequate support to ensure that they reached their potential (Maclean & Gunion, 2003). A recent review by Selwyn and colleagues noted that the range of outcomes local authorities focus on recording for the children they look after is very narrow (e.g., annual dental checks, substance misuse, Strengths and Difficulties Questionnaire (SDQ) scores) and that this information is rarely used at the individual level to improve a child's health and well-being (Selwyn, Wood & Newman, 2017).

Instability experienced whilst placed in out-of-home care can unintentionally expose looked after children to further adversity. Unstable care experiences can hinder the development of healthy attachment behaviours and have even been equated to a form of 'system abuse' by some (Beckett & McKeigue, 2010; Shaw, 2017). Frequent changes in social workers, carers and placements are certainly crucial concerns for looked after children and can leave them feeling even more vulnerable (Dex & Hollingworth, 2012). Empirically, a lack of stability in care placements has been associated with adverse outcomes in terms of health, well-being and educational achievement. For example, in a study of three cohorts of looked after children in two local authorities, only 40% of those who had 10+ placement moves whilst in care sat their GCSE exams and just 6% achieved at least one C grade (O'Sullivan & Westerman, 2007). Experiences of legal proceedings (such as those required to obtain a care order from the courts) have been described by social workers as traumatic, difficult and confusing and can expose children to further adversity whilst being looked after (Beckett & McKeigue, 2010).



There have also been suggestions that children in out-of-home care may be reprimanded by police and/or prosecuted for challenging behaviour that a parent would most likely deal with within the family; for example, taking food without permission, breaking curfew or damaging furniture (Prison Reform Trust, 2016; Berridge, Biehal & Henry, 2012). However, the extent to which this suggestion is true is debated (Shaw, 2014). For example, in his recent review of residential care in England, Sir Martin Narey describes “a number of examples of the most commendable behaviour by homes which tolerated criminal behaviour, both serious and persistent, without recourse to the criminal justice system” (Narey, 2016, p36). He concludes that staff in children’s homes do not inappropriately involve police in dealing with challenging behaviour and that police are more often called to deal with issues of child welfare and protection than to report crimes (Narey, 2016).

Regrettably, children can experience actual harm whilst being looked after in out-of-home care (Stanley, Riordan & Alaszewski, 2005); for example, qualitative studies of children’s homes have documented instances of bullying, intimidation and violence between residents (Sinclair & Gibbs, 1998; Berridge, Biehal & Henry, 2012). A recent UK-wide survey found that each year approximately 1% of foster placements have an allegation of abuse or neglect that is substantiated following investigation (Biehal, Cusworth & Wade, 2014). An earlier study that interviewed children who were looked after because they had experience and/or perpetrated sexual abuse ( $N=40$ ) documented the high levels of harm they experienced whilst placed in out-of-home care (Farmer & Pollock, 2003). For example, 15% of children ( $n=5$ ) appeared to be involved in prostitution with some collected by their clients/abusers “from the doors of their care residences” (Farmer & Pollock, 2003, p104). Of the 22 girls that were interviewed, one in five (18.2%,  $n=4$ ) had been raped or sexually abused whilst in care, some by caregivers or other looked after children.

In summary, placement in out-of-home care can be considered an indicator or form of childhood adversity, due to the reason(s) that precipitate a child entering care, their experiences whilst in care, or a combination of both. Given the association

between childhood adversity and negative outcomes in later life (Felitti *et al.*, 1998; Kessler, Davis & Kendler, 1997), it is unsurprising that placement in out-of-home care is associated with a range of unfavourable outcomes.

### **2.3.3 Out-of-home care is associated with multiple adverse outcomes**

There is a large body of international evidence demonstrating that placement in out-of-home care is associated with a range of long-lasting adverse outcomes across health, educational, social and economic domains. For example, children in out-of-home care have poorer mental and physical health than their peers (Tarren-Sweeney, 2008; Turney & Wildeman, 2016; Putnam-Hornstein & King, 2014) and are more likely to die prematurely (Vinnerljung & Sallnäs, 2008). Furthermore, they have comparatively lower educational attainment (Maclean, Taylor & O'Donnell, 2017) and are more likely to drop-out of school (Zetlin & Weinberg, 2004).

Poorer health, educational and social outcomes are similarly evident among young care leavers and adults with a history of out-of-home care placement (Jordanova *et al.*, 2007; Wade & Dixon, 2006). For example, a recent systematic review that included 32 quantitative studies from the US, Australia, Sweden and other countries found that children who grew up in foster care have worse outcomes than their peers in terms of education, employment, income, housing, health, substance abuse and criminal involvement (Gypen *et al.*, 2017). Other international studies have demonstrated that adults with a history of placement in care are more likely to be unemployed (Fallesen, 2013), homeless (Pecora *et al.*, 2006) or imprisoned (Doyle Jr., 2008). Associations between placement in out-of-home care and adverse outcomes have also been observed in the UK. Most recently, the Office of the Children's Commissioner for England published a rapid review of evidence related to outcomes for looked after children (Cordis Bright, 2017a) which illustrated the adverse educational, economic and social outcomes that they experience, as summarised in Table 2-2. Another recent review, which focused on health outcomes and behaviours, found that looked after children in the UK have high rates of physical ill-health and health-risk behaviours and poorer mental health than their non-looked after peers (Priestley & Kennedy, 2015).

**Table 2-2 Overview of outcomes for looked after children in England as reported in a recent rapid review by Cordis Bright**

Domain	Outcome	Finding	Information source
Educational	Exclusions from school	Compared to non-looked after children, looked after children are more likely to have a fixed period exclusion (0.13% vs 0.06%) or to be permanently excluded (10.25% vs 1.86%).	Department for Education annual report on outcomes for children looked after by local authorities (Department for Education, 2016c). Figures are based on analysis of national administrative data.
	Attainment	Compared to non-looked after children, looked after children have lower levels of attainment in key stage 1, 2 and 4 assessments.	
Economic	Living in deprived areas	Children living in deprived areas are more likely to be looked after: the looked after child rate was 108.0 per 10,000 children in the most deprived areas vs 9.2 in the most affluent areas.	Peer-reviewed journal article (Bywaters <i>et al.</i> , 2014b). Figures are based on analysis of sub-national administrative data.
	Employment and economic activity	Adults with a history of being looked after are more likely to be unemployed or to have low income at age 30.	Peer-reviewed journal articles (Viner & Taylor, 2005; Knapp <i>et al.</i> , 2011). Based on analysis of data from the 1970 British Birth Cohort Study.
	Homelessness or unstable accommodation	Up to a quarter of homeless adults report having been in care at some point in their lives.	Primary research reports from charitable organisations (Reeve, 2011; McDonagh, 2011).
	Offending and anti-social behaviour	Compared to all children, looked after children were more likely to have received a conviction or final warning (6% vs 1%).	Briefing paper prepared by the House of Commons Library (Zayed & Harker, 2015).
Social	Substance misuse	Overall, 3.5% of looked after children had a substance misuse problem (up to 10.8% in older children).	Department for Education annual report on outcomes for children looked after by local authorities (Department for Education, 2014d). Figures are based on analysis of national administrative data.

*Figures are reported as published in Cordis Bright (2017a). This review focused on quantitative literature that had been published since 2011 and emphasised studies based on longitudinal data and/or with large sample sizes (defined as 1,000+).*

However, most studies that describe the relative outcomes for looked after children in England draw comparisons with the general (non-looked after) population. Hence, a major limitation of the current evidence base is that some of the apparent elevated risk of adverse outcomes that is observed among children in care may be attributable to ‘confounding by indication’. In the context of out-of-home care, confounding by indication relates to background factors that are independently associated with poorer outcomes and are also associated with an increased likelihood of being placed in out-of-home care (Jackson & Cameron, 2012; Berridge, 2012).

A key factor that may contribute to confounding by indication is maltreatment as exposure to maltreatment is associated with both being placed in out-of-home care and with adverse outcomes. The most recent figures from the DfE show that on the 31<sup>st</sup> March 2016, 60% of children were looked after for reasons related to abuse or neglect (Department for Education, 2017f) and there is a large body of evidence demonstrating that maltreatment is associated with adverse outcomes. For instance, a review of both retrospective and prospective longitudinal studies found that (after adjusting for confounding variables) maltreatment was strongly associated with long-term adverse health and social outcomes, such as depression and criminal behaviour (Gilbert *et al.*, 2009).

Another important factor that may contribute to confounding by indication is deprivation. Children who are placed in out-of-home care tend to have more deprived family circumstances than children who are not placed in care. For example, a recent study involving analysis of administrative data from a representative sample of fourteen English local authorities found that children in the most deprived population quintile were ten times more likely to become looked after than children in the most affluent quintile with a rate of 108.0 vs 9.2 per 10,000 children, respectively (Bywaters *et al.*, 2014a). Deprivation has also been associated with poorer outcomes, both in childhood and throughout the life course (Marmot, 2010; Cooper & Stewart, 2013; The Department for Children Schools and Families, 2009; Kelly *et al.*, 2011).

It is apparent that comparisons between looked after children and the general population are not likely to be appropriate, given the differences between these groups in terms of their cumulative exposure to adversity and individual, family and environmental risk factors (Weyts, 2004; Berridge, 2012), which are likely to mediate the apparent associations with adverse outcomes (Jones *et al.*, 2011; Simkiss, Stallard & Thorogood, 2013). Some UK-based studies have attempted to account for confounding by indication by comparing outcomes for looked after children to other disadvantaged groups. For example, one study reported that men who had been looked after as children had lower rates of offending, violent crime and suicide in adulthood than a 'socially disadvantaged' comparator population, defined as men who had been permanently excluded from school (Pritchard & Williams, 2009). Recently, the DfE has begun comparing outcomes for children who are looked after at the time of key stage (KS) assessments with children who are in need, as well as non-looked after children. For instance, the most recent annual report found there was no difference in educational attainment at KS2 for looked after children and children in need (Department for Education, 2017i). However, another study compared mental health outcomes for children in care and a deprived population of children not in care (Ford *et al.*, 2007). They found that levels of psychiatric disorder were still five times higher among looked after children compared to deprived children; for example, 46.4% had at least one diagnosis of psychiatric illness compared to 14.6% of the disadvantaged comparator population. Although such comparisons are more nuanced than those with the general population, it is unlikely that they completely account for underlying differences in risk and/or confounding factors, which requires detailed individual-level data and appropriate statistical techniques.

Despite the well-established correlation between care and adverse outcomes, there is little evidence of a causal relationship, either positive or negative (Berger *et al.*, 2009). Indeed, a major limitation of the evidence base is that most UK studies have sought to describe the relative outcomes of looked after children, rather than explore the impact of out-of-home care on outcomes. A systematic review of studies conducted between 1991 and 2006 identified just twelve that examined the

impact of placement in out-of-home care on children's welfare (Forrester *et al.*, 2009). A more recent review of studies published between 1990 and 2012 that attempted to quantifiably estimate the effect of foster care on educational outcomes found just three relevant UK-based studies (O'Higgins, Sebba & Luke, 2015). One of the findings from this review was that, although there was undoubtedly a correlation between being in care and poor educational outcomes, there was little evidence that placement in out-of-home care *per se* had a negative effect on outcomes (O'Higgins, Sebba & Luke, 2015).

There are several international examples of studies that have attempted to explore the nature of the association between placement in out-of-home care and adverse outcomes. A recent systematic review of quantitative research that compared health or well-being outcomes for maltreated children placed in out-of-home care with those of maltreated children who remained at home identified 31 articles related to eleven cohorts (Maclean *et al.*, 2016). However, just three of these studies were found to have low risk of selection bias. Two of these prospective cohort studies found no evidence of significant differences in outcomes for maltreated children placed in out-of-home care in terms of cognition, behavioural issues, teenage pregnancy, truancy or involvement in the youth justice system (Berger *et al.*, 2009; Lee, 2009). The third study used an instrumental-variable approach to estimate the causal effects of placement in foster care on emergency healthcare use and becoming involved in the youth justice system (Doyle Jr., 2013). This sophisticated study design mimicked a randomised control trial (RCT) by exploiting the tendency of different social workers to place children in foster care (dichotomised as high or low tendency). Based on this analysis, Doyle Jr. concluded that "placing children in foster care increases their likelihood of becoming delinquent during adolescence and requiring emergency healthcare in the short term" (Doyle Jr., 2013, p1149). However, an important caveat to this finding is that it applies to a very specific sub-set of children who are on the margins of the care system (i.e. cases in which social workers may disagree whether or not placement in care is justified). Consequently, this cannot be considered evidence of a causal association between placement in care and adverse outcomes generally.

Based on the current evidence base, it is not possible to determine whether placement in out-of-home care *causes* adverse outcomes. However, what is clear is that children who are placed in out-of-home care in England have a disproportionate burden of adverse health, educational and social outcomes, both in childhood and in later life. Although a systematic review was beyond the scope of my PhD study, I conducted a series of literature reviews related to the health, educational and social outcomes of looked after children, care leavers and adults with a history of placement in care in England. This review focused particularly on large, quantitative studies and, where there was a paucity of evidence in an English context, I included literature related to the UK as a whole. My focus on literature from UK settings is not intended to be a display of intellectual chauvinism (Slater, Scourfield & Sloan, 2012), but rather a means of ensuring that the findings included in my review were relevant and applicable to the English context, given the differences in societal structure and health, educational and social services in comparison to other countries.

### **Health outcomes among children in care in the UK**

Children in out-of-home care in England have a high burden of mental ill-health (Rees, 2013; Hillen *et al.*, 2006; Anderson, Vostanis & Spencer, 2004), particularly in comparison to other children. For example, one study described a high prevalence of psychiatric disorders among looked after adolescents in a local authority in England ( $N=134$ ) when compared to a matched sample from the general population (McCann *et al.*, 1993). Based on standardised checklists, 67% of adolescents in care had scores indicative of psychiatric disorder compared to just 15% of the matched comparison group. Psychiatric disorder was almost ubiquitous among the adolescents looked after in residential settings in this study, with a reported prevalence of 96%. A similar case-control study conducted more recently in one Welsh local authority found that children in care aged 5-16 years had higher levels of anxiety and depression compared to a matched sample from the general population (Williams, 2001). Poorer mental health has similarly been described among younger looked after children (Hillen *et al.*, 2006). A study among children in care aged  $\leq 5$  years ( $N=43$ ) found that 69.8% had at least one mental health or

developmental disorder, such as emotional, behavioural or attachments disorders and language or global delays.

A large study of the comparative mental health of looked after children in Great Britain by Ford *et al.* (2007) confirmed the findings from these small, local studies. This study combined data from three previously-conducted national surveys of looked after children in England (Meltzer *et al.*, 2003), Scotland (Meltzer *et al.*, 2004a) and Wales (Meltzer *et al.*, 2004b) and a previously-conducted survey of children living at home in Great Britain (Meltzer *et al.*, 2000). Using these combined data, Ford *et al.* (2007) compared the prevalence of mental health disorders among children aged 5-15 years who were looked after ( $N=1,543$ ) and children living at home ( $N=10,438$ ). Overall, 46.4% of looked after children had at least one psychiatric disorder compared to 8.9% of children living at home and looked after children also had a much higher prevalence of autism-spectrum disorders (2.6% vs 0.3%). In this study, just 9% of looked after children had scores in the normal range for all six sub-scales of the SDQ compared to 52% of the comparison group (Ford *et al.*, 2007). This suggests that almost all looked after children were coping with some mild mental health issues, at the very least.

The prevalence of physical illness among children in care is less well-studied in the UK, but there is evidence that children in care have high levels of disability and ill-health (Hill & Watkins, 2003). For example, a longitudinal study of 242 children in long-term care in six local authorities between 1996 and 1998 found that more than half of children (52%) had at least one health condition requiring out-patient appointments and 15% had at least two conditions (Skuse, Macdonald & Ward, 2001). Almost one in ten children (9%) had a physical disability and 19% had a learning disability. Using data from a more recent cohort of children in care, the point prevalence of epilepsy, cystic fibrosis and cerebral palsy was found to be significantly higher among children in care compared to the general population, even when accounting for deprivation (Martin *et al.*, 2014). In 2001, the Office for National Statistics (ONS) undertook an interview and questionnaire-based survey of a large, national sample of 1,039 looked after children (Meltzer *et al.*, 2003). This study also reported a high prevalence of physical ill-health among looked after



children: two-thirds of looked after children had a physical health complaint (Meltzer *et al.*, 2003) compared to a prevalence of 54% among children in the general population (Meltzer *et al.*, 2000). This study additionally highlighted the interrelationship between poor physical and mental health. Children in care who had emotional disorders were also more likely than other children in care to have non-food allergies, stomach and digestive problems and asthma (Meltzer *et al.*, 2003).

The reported levels of physical ill-health are likely to be an under-estimation of the true burden among children in care. For example, some studies are based on reviews of children's case files which have been shown to be incomplete, despite the statutory requirement local authorities have to promote the health and well-being of all children they look after (Butler & Payne, 1997). Other studies rely on reports from foster carers who may not know a child's full medical history. This was certainly evident in Meltzer *et al.*'s interview-based study in which foster carers were more likely to report that they 'did not know' if a child had ever had a life threatening illness than the child's parents (38% and 3%, respectively). However, the likelihood of a foster carer responding that they 'did not know' about a child's medical history decreased the longer the child had been placed with them (Meltzer *et al.*, 2003).

In addition to poorer general health, children in care are more likely to engage in risky or health-harming behaviours than their peers (Williams, 2001). For example, they are more likely to smoke, drink alcohol or take drugs (Meltzer *et al.*, 2003), and the proportion engaging in all three risky behaviours is four times higher than the general adolescent population (8% vs 2%). A recent study of 11-16 year old secondary students in Wales during the academic year 2015/16 similarly found that children in foster care were more likely to smoke, take drugs and binge drink than other students, having accounted for clustering in schools, and adjusting for demographic factors including deprivation (Long *et al.*, 2017). High rates of self-harm have also been reported among children in care. For example, one in four children aged 11-17 years (27%,  $N=109$ ) reported self-harming in the last 6 months in a study of children in care in Lambeth (Beck, 2006) and in another study of

younger children in care aged 6-12 years ( $N=56$ ), 16% were assessed as displaying self-harming behaviour of at least mild severity (Anderson, Vostanis & Spencer, 2004).

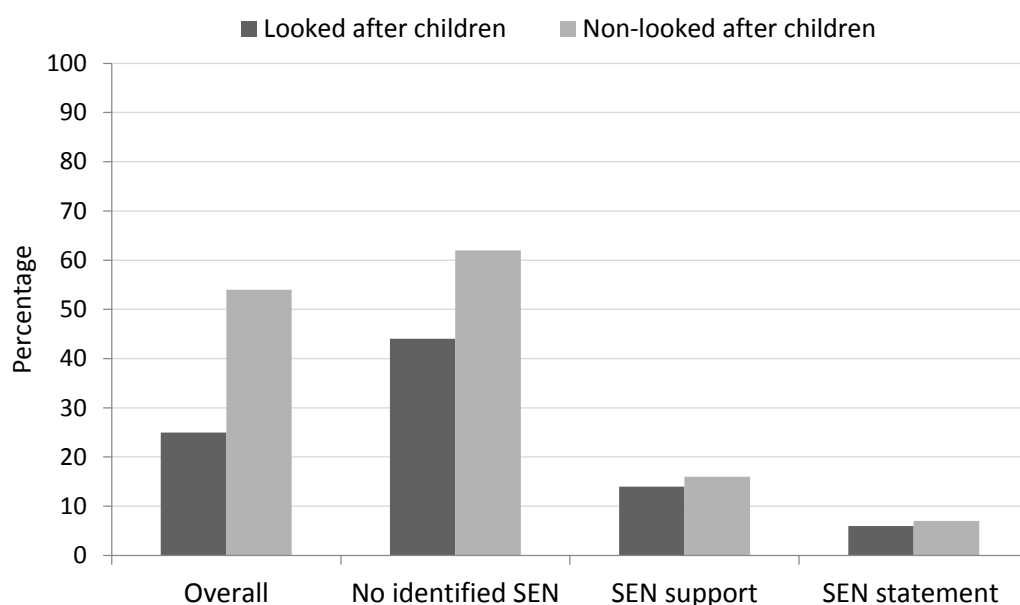
### **Educational outcomes among children in care in the UK**

Annual statistics published by the DfE show that looked after children have worse educational outcomes compared to other children in England, including poorer attainment, a greater likelihood of exclusion and lower participation in further education. Annual statistics related to educational outcomes at KS1, 2 and 4 are reported for children who were looked after for 12+ months continuously on the 31<sup>st</sup> March (i.e. at the end of the statistical year (Department for Education, 2017h)). Despite requirements for all young people to remain in full-time education until the age of 18, outcomes for looked after children post-KS4 are not routinely reported by the DfE; however, they do publish figures on participation in education for care leavers aged 17-21 years (i.e. young people who were formerly looked after (Department for Education, 2017g)).

The most recent DfE report describing educational outcomes for looked after children shows that they have poorer attainment at KS1, 2 and 4 compared to non-looked after children (Department for Education, 2017i). For example, at KS1 the proportion of looked after children who reached the expected standard was lower than for non-looked after children in all four core subjects: reading, writing, maths and science. Likewise, at KS4 less than one in five looked after children (17.5%) achieved an A\*-C grade in their English and maths GCSE compared to 58.8% of non-looked after children.

The poorer educational attainment observed for looked after children may in part be due to the higher prevalence of special educational needs (SEN) in this group, which will affect attainment. Using a composite measure of attainment at KS2 (namely, reaching the expected standard for reading, writing and maths), there was a disparity of 29 percentage points between looked after children and non-looked after children (25% vs 54% (Department for Education, 2017i)). However, more than half of looked after children (57%) had an identified SEN compared to one in five

non-looked after children (17%). Stratifying the measure by SEN status shows there are no significant differences in attainment at KS2 for looked after and non-looked after children with SEN, but the difference persists for children without SEN (Figure 2-1).



**Figure 2-1 Percentage of children in England reaching the expected standard at key stage 2 in the academic year 2015/16, by special educational need.**

*SEN = special educational needs. Figure 2-1 shows the percentage of children who reached the expected standard at key stage 2 in reading, writing and maths, by their looked after and SEN status at the time of assessment. This figure was created using information published in the Department for Education’s ‘Outcomes for children looked after by local authorities in England, 31 March 2016’ report (Department for Education, 2017i).*

It is likely that annual DfE figures over-estimate the attainment of looked after children due to the way in which the groups are defined in their analyses. Firstly, figures for looked after children include only those who are looked after continuously for 12+ months; this group is not likely to be representative of the overall population of children who are looked after. Secondly, the comparison population used in these calculations are ‘non-looked after children’ which includes (1) children who were looked after, but no longer are, (2) children who are looked after, but not continuously for 12+ months and (3) children who have never been looked after (Department for Education, 2017i). The inclusion of former and current

looked after children in the comparator population could attenuate the true relative differences between the groups.

Published research provides further evidence of the poorer educational attainment of children in care in the UK. For example, a study involving children aged 7-15 years who were looked after in one local authority in Wales in 2006 ( $N=193$ ) identified lower levels of cognitive ability and literacy, as assessed using standardised tools. Compared to other children in the area, children in care had lower mean scores on all British Ability Score scales (Rees, 2013). Low levels of attainment were also found in a study involving children in care for a year or more in six local authorities ( $N=242$ ) between 1996 and 1998 (Skuse, Macdonald & Ward, 2001). This longitudinal analysis of data from case file management systems showed that half of children in care were performing below the expected levels in English and maths, subjects that are crucial for future participation in education and employment. Other studies have shown that children are less likely to sit secondary school exams if they are in care (O'Sullivan & Westerman, 2007), and less likely to pass if they do sit them (McClung & Gayle, 2010; Teyhan, Boyd & Macleod, 2017).

The poorer educational attainment of children in care highlighted by official statistics and academic research paints a bleak picture of the effects of the out-of-home care system; however, it cannot be assumed that the association between being in care and poorer educational outcomes is causal. In his review of UK research related to the attainment gap of children in care, Berridge asserts "that it is not solely the care experience that is responsible for poor results" and suggests that it is important to account for prior attainment, parental factors, school characteristics and pupil attitudes and behaviour when exploring outcomes for children in care (Berridge, 2012, p1172). Indeed, comparisons of educational outcomes between children in care and the general child population have limited utility if they do not account for differences between the groups in terms of background, experiences and attitudes.

A small number of studies have attempted to explore the effects of out-of-home care on educational outcomes by comparing between different groups of children

who are involved in the child welfare system, rather than with the general child population. For example, one study comparing outcomes among looked after children in Scotland remaining at home with parents or placed in out-of-home care showed that placement in care had a positive effect on school attendance. For example in the academic year 2009/10, children living in foster or residential care were less likely to have been absent from school than those looked after at home with their parents (7% and 15%, respectively (Connelly & Furnivall, 2013)). A recent study by the Rees Centre compared the educational progress of four groups of children involved in the child welfare system: children in (1) long-term foster care who entered care in primary school, (2) long-term foster care who entered in secondary school, (3) short-term foster care and (4) not in out-of-home care, but designated as children in need (Sebba *et al.*, 2015). This large study of 642,805 children analysed longitudinal administrative data to describe GCSE attainment, accounting for previous attainment and a range of demographic and care factors. Although all four groups of children involved with the child welfare system had lower educational GCSE attainment than the general school population, children in the long-term foster care groups (1 and 2) had better educational attainment than children in (3) short-term foster care or (4) who were in need, but not in out-of-home care. Based on these findings, the authors concluded that foster care had a protective effect on children's educational progress (Sebba *et al.*, 2015). However, although this analysis controlled for numerous confounding factors, it is likely that there remains an element of selection bias in terms of which children are included in each of these groups.

Other longitudinal studies comparing educational outcomes between groups of children involved in child welfare system have not found the same positive effect of long-term foster care. One early study compared educational progress of children in foster care and children receiving social services, but not in care in the same school ( $N=49$  and  $58$ , respectively). Among this small sample of 8-14 year olds, the absolute level of attainment (in terms of reading, vocabulary and maths scores) was not significantly different between these groups at baseline, although attainment of both groups was lower than the general population. Over the 3-year follow-up

period, there was no difference in progress between the children in long-term foster care and those remaining at home (Heath, Colton & Aldgate, 1994).

### **Social outcomes among children in care in the UK**

Children in care are more likely to be cautioned by the police, involved in the youth justice system and convicted of an offence than their peers (Darker, Ward & Caulfield, 2008). In Meltzer *et al.*'s survey of 1,039 children in care on the 31<sup>st</sup> March 2001, one in seven (14%) had been in trouble with the police in the last 12 months. This was higher among older children (25%) and those placed in independent living (38%, (Meltzer *et al.*, 2003)). One of the outcomes reported by the DfE is the proportion of children in care who have been convicted of an offence. In 2016, 5% of looked after children aged 10-17 years had been convicted of an offence or were subject to a final warning or reprimand from police (Department for Education, 2016c). In contrast, the most recent published figure for the general child population was 1% in 2013 (Zayed & Harker, 2015). Furthermore, a survey of young people aged 15-18 years entering a YOI to serve a custodial sentence found that one in four (27%) had history of being placed in out-of-home care (HM Inspectorate of Prisons, 2011). This proportion was even higher among girls entering the YOI, with almost half (45%) self-reporting that they had ever been in care (HM Inspectorate of Prisons, 2011). A study of looked after children who were placed in children's homes found that 40% of children who had no criminal record when entering the placement gained one within 6 months (Sinclair & Gibbs, 1998); however, as with educational outcomes, the associations between being in care and offending are complex and cannot be assumed to be causal. Often residential care is used as last resort for challenging adolescents who may have committed offences before being placed in that setting.

High levels of social exclusion, isolation and victimisation have been described among children in care (Axford, 2008; Simkiss, 2012). In a survey of secondary school children in Wales, those in foster care were more likely to have been bullied or to have experienced dating violence than their peers and were less likely to feel that they could count on their friends for support (Long *et al.*, 2017). Additionally, in Meltzer *et al.*'s survey (2003), one in six children in care (16%) said they did not feel

they could confide in their friends, compared to 6% of the general population (Meltzer *et al.*, 2000). Young people with a care history who were on remand or serving a custodial sentence in a YOI were more likely than their peers to report that they felt unsafe, were victimised by other prisoners and were segregated from the general population (HM Inspectorate of Prisons, 2011). Young people with a care history also felt less positive about their prospects when leaving custody compared to other young people, including feeling less likely that they would be able to avoid bad relationships, get a job or receive the healthcare they needed (HM Inspectorate of Prisons, 2011).

### **Outcomes for care leavers and care-experienced adults in the UK**

The adverse outcomes experienced by children in care do not stop when they cease to be looked after, or when they cease to be children. Poorer health, educational and social outcomes are evident among young care leavers and 'care-experienced' adults (i.e. those with a history of placement in out-of-home care (Jordanova *et al.*, 2007; Wade & Dixon, 2006; National Audit Office, 2015)).

Recent care leavers have worse post-KS4 educational outcomes than other young people. The most recent DfE figures show that more than a third of care leavers aged 17 or 18 years (35%) were not in education, employment or training (NEET) on the 31<sup>st</sup> March 2016 (Department for Education, 2017f). By age 19, 38% of care leavers were NEET and just 6% were in further education (i.e. studying beyond KS5 level). These levels of non-participation in education are much higher than those reported for the general population. The most recent comparable figures for the general population of young people completing KS5 education in 2014/15 show that less than one in ten (9%) were NEET and almost two-thirds (65%) were participating in further education 12 months later (Department for Education, 2017i). Another study estimates that just 1% of care leavers progress to university compared to 43% of the general population (Jackson, Ajayi & Quigley, 2005). Those who do progress to university face further difficulties such as finding accommodation during holidays as they may not have a parental home to return to (Jackson & Martin, 1998).

The transition from out-of-home care to living independently has increasingly been recognised as a time of particular difficulty for young people who are/were looked after, and a time in which already poor outcomes can worsen further (Dixon, 2008). In one longitudinal study 106 young people leaving out-of-home care in seven local authorities were interviewed at baseline and followed-up after 9 months (Dixon *et al.*, 2006). These young people had to cope with serious difficulties whilst transitioning to independent living: 42% had an emotional or behavioural difficulty, 10% had a mental health problem and 2% had a physical disability. One in ten had achieved five A\*-C grades in their GCSE exams and just 2% had an AS- or A-level qualification. At follow-up (approximately 12-15 months after they had begun living independently), almost half (44%) were unemployed and many were suffering from health problems (44%), including asthma, flu and weight loss. Since leaving care, many young people had experienced deterioration in their health, well-being and life circumstances. One-third had housing situations that had deteriorated and two-thirds were now homeless or living in an unstable situation. One-third had drug or alcohol problems on follow-up (compared to 18% at baseline) and the prevalence of mental health problems doubled from 12% to 24%. Since leaving care, 4% had attempted suicide (Dixon *et al.*, 2006).

The disadvantage experienced by looked after children in the UK is long-lasting and persists beyond their time in care and the transition to independent living: adults with a history of care placement have been shown to have worse health, education and social outcomes and generally poorer life satisfaction (Buchanan, 1999). A study of children who were in care in 1980 in England and Wales found that more than a quarter (26.6%) had been convicted of an offence by 2010 (Bullock & Gaehl, 2012). This analysis also suggested there was premature death among adults with a history of placement in public care. The mortality rate among the sample was 1.5 times higher than expected, based on ONS mortality data for the cohort (7.4% vs 4.9%); however, the small sample size meant the statistical significance of this difference could not be tested.

Larger studies have found that adults with a history of care are significantly more likely to be murdered, sexually assaulted or a victim of violent crime, compared to



the general population (Pritchard & Butler, 2000; Pritchard & Williams, 2009). Analysis of data from the National Child Development Study (NCDS) found that in a cohort of adults born in 1958 those with a history of placement in public care were more likely to have no educational qualifications and less likely to be employed by age 33 (Cheung & Heath, 1994). Women with a history of out-of-home care who participated in the Millennium Cohort Study (MCS) were more likely to have low income, level of education and social class (Botchway, Quigley & Gray, 2014). They were also more likely to be a single parent and to have a low birth weight baby. Adjusting for other factors, they were twice as likely to be depressed and three times more likely to smoke during pregnancy (Botchway, Quigley & Gray, 2014). Analysis of British Cohort Study (BCS70) data found that among a cohort of children born in 1970 those with a history of placement in care were more likely to be depressed or dissatisfied with life and to have low self-efficacy at age 30 (Dregan, Brown & Armstrong, 2011). A separate analysis of BCS70 data showed that adults with a history of care were less likely to have obtained A-level or higher educational qualifications, and more likely to have been excluded from school (Viner & Taylor, 2005). They were also more likely than their peers to be unemployed, low earners or homeless (Viner & Taylor, 2005). Surveys of disadvantaged groups have also highlighted the association between out-of-home care and adverse outcomes in later life. For instance, a survey of 261 homeless people found that one in four (25%) had a history of being in care as a child (Reeve, 2011). Similarly, a 1997 Social Services Inspectorate report also found that 38% of young people in mainstream prisons had been in care (reported in Bullock & Gaehl (2012)).

### **Adverse outcomes are associated with characteristics of care**

Children's care histories are diverse (Welbourne & Leeson, 2012; Wilkinson & Bowyer, 2017) and the association between adverse outcomes and placement in out-of-home care is known to vary by care characteristics, such as placement setting. Several UK-based studies have highlighted that young people looked after in foster care are more likely to attend school and have better educational attainment than children in residential care settings (Davey & Pithouse, 2008; Weyts, 2004; McClung & Gayle, 2010). A higher prevalence of physical and mental health issues

have been recorded among children in residential care. In Meltzer *et al.*'s survey (2003), two-thirds of children in residential care had a mental disorder compared to 40% of children in foster care. Prevalence of depression was twice as high among children in residential care compared to those in foster care (16% vs 8%, respectively (Meltzer *et al.*, 2003)). As adults, children who spent time in residential care are more likely to be depressed (Dregan & Gulliford, 2012). There is also an association between residential care and offending. A study including 100 looked after children in six local authorities found that children who committed offences were more likely to be placed in residential care than children who did not offend (Schofield *et al.*, 2015). Children who offended were also more likely to have entered care aged 11+ years and moved placement 4+ times (Schofield *et al.*, 2015).

The duration of care placements has been associated with outcomes; however, evidence of the direction of this association is mixed and this relationship appears to be complex and closely related to age at first entry. For example, analysis of NCDS data showed that children who had been in 'lifelong care' (i.e. who had entered care before age 11 and left as adolescents after a mean stay of 9.1 years) were less likely than other looked after children to gain an educational qualification or be employed by age 33 (Cheung & Heath, 1994). More recently, Sebba *et al.* (2015) similarly found that children who first entered care aged <5 years and were still in care by age 16 had worse educational progress than other children in care. However, in the same study, they reported that children who entered care before age 10 and were still in care as adolescents made better educational progress than other children in care (Sebba *et al.*, 2015). In Meltzer *et al.*'s survey (2003), children who had a long duration of care had better health and social outcomes. Children who had been in care for 5+ years were less likely to have been in trouble with the police, had fewer accident and emergency department (A&E) attendances and their prevalence of conduct disorders was lower. In contrast, a smaller study of children in care in two local authorities (N=56) found that those who had been recently admitted to care were five times more likely to have mental health problems than those who had been in care for longer (Anderson, Vostanis & Spencer, 2004).

Placement stability is a particularly important aspect of out-of-home care in terms of both its association with outcomes and its importance to children in care (Richardson & Lelliott, 2003; Dickson, Sutcliffe & Gough, 2010), social service providers and the government (Department for Communities and Local Government, 2009). Placement moves have been associated with poorer health outcomes; for example, in one study of looked after children with high mental health needs half had experienced 3+ moves in a 2-year period (Stanley, Riordan & Alaszewski, 2005). Another study compared the mental health needs of looked after children who moved placement frequently with those who did not (Beck, 2006). In this study, Beck found that children who had moved placement 3+ times in a year were three times more likely to have a psychiatric diagnosis or to report deliberate self-harm in the preceding 6 months than children who had moved placement less frequently. Children with less stable placement histories were also less likely to access mental health services, despite their increased mental health needs (Beck, 2006). Stability of placement experiences has been associated with educational outcomes (Sebba *et al.*, 2015). For example, among a sample of looked after children in care in one local authority whilst sitting GCSEs, just 6% who had moved care placement 10+ times achieved a single A\*-C grade and none achieved five A\*-C grades (O'Sullivan & Westerman, 2007). Furthermore, placement stability has been identified as a protective factor for participation in third-level education by care leavers (Jackson & Ajayi, 2007). Placement stability has also been found to have an important mediating effect on associations between outcomes and other characteristics. For example, a systematic review of factors associated with outcomes for looked after children and young people concluded, based on synthesis of 92 studies from the US and UK, that placement stability is a prime mediator of associations between outcomes and other care characteristics (Jones, 1998).

Very few studies have investigated the nature of the association between characteristics of care and children's outcomes, and, thus, the apparent associations between particular characteristics of care and outcomes cannot be assumed to be causal due to issues related to confounding by indication. The type of out-of-home care setting a child is placed in may be influenced by other factors

that are independently associated with adverse outcomes. For example, children with behavioural and emotional problems are more likely to be placed in residential care rather than foster care (Sempik, Ward & Darker, 2008). Through case file review, Sempik and colleagues collated baseline information about mental or behavioural disorders (including self-harming, anxiety, depression and conduct problems) at the point of entry to care for 453 children. They found that children with identified conduct disorders were significantly less likely to be placed in foster care than other children (60.7% vs 72.4%) as were children with emotional disorders (62.2% vs 75.2% (Sempik, Ward & Darker, 2008)). A smaller study based on a sample of 80 looked after children in two local authorities similarly found that children with high mental needs, defined based on case file review, were more likely to be placed in a residential setting than with a foster carer (Stanley, Riordan & Alaszewski, 2005). Therefore, some of the observed variation in outcomes by care setting is attributable to children placed in residential care having more complex or challenging needs than those placed in foster care.

One notable case in which there is evidence of a causal relationship between characteristics of care and adverse outcomes relates to the placement of infants and young children in residential care settings and outcomes such as atypical brain development, lower cognitive functioning, stunted growth and attachment disorders (Berens & Nelson, 2015). For instance, as part of the Bucharest Early Intervention Project, 134 children aged <2 years who were being cared for in a large residential institution were randomised to either remain in residential care or be placed in foster care (Nelson *et al.* 2014). Findings from this longitudinal RCT found that children who remained in residential care had higher rates of developmental issues and delays compared to children who were cared for in a family setting after the age of 2 years (Nelson *et al.* 2014). Although, there is a consensus that out-of-home care in large, residential institutions during early childhood causes poorer outcomes in later life, this relationship is attributed to the quality of the care received in such institutions (e.g., lack of stimulation) rather than the residential care setting *per se* (Berens & Nelson, 2015).

## **2.4 What is already known about the use of out-of-home care in England?**

In Section 2.3 (Why is a study characterising out-of-home care needed?), I established the need to understand how out-of-home care is used in England by highlighting the lifelong adversity children in care face and the documented association between characteristics of care and unfavourable outcomes. In this section, I will describe how I began to develop the research questions addressed in my PhD study by exploring the existing knowledge base related to the use of out-of-home care in England by presenting findings from a systematic review that I conducted.

### **2.4.1 Aim and scope of this systematic review**

The aim of this systematic review was to describe the existing knowledge base related to the epidemiology of out-of-home care in England, in terms of the frequency, distribution and characteristics of its use. To achieve this aim, I reviewed official statistics and academic literature related to two questions:

1. How many children in England are placed in out-of-home care?
2. What are the characteristics of out-of-home care placements?

I chose to include official statistics in my systematic review as these routinely-collected figures are considered to be the most reliable and accurate measure of the number of children who are placed in out-of-home care. For example, the annual statistics related to looked after children that are compiled and published by the DfE are designated 'national statistics', meaning they are produced and reported according to the Code of Practice for Official Statistics and are considered to be the 'gold-standard' source of information about looked after children in England (UK Statistics Authority, 2009). These statistics are thought to be extremely accurate due to rigorous validation checks of the data from which they are derived (Department for Education, 2016e, 2016d). Moreover, a recent independent review by the UK Statistics Authority described the DfE's statistics related to looked after children as "readily accessible, produced according to sound methods and managed impartially and objectively in the public interest" (UK Statistics Authority, 2013, p3).

I most recently updated this systematic review on the 31<sup>st</sup> May 2017 which means that material published after this date is not included.

## 2.4.2 Methods

I conducted separate searches for both of my review questions, as follows:

### **How many children in England are placed in out-of-home care?**

#### *Search strategy*

Firstly, I identified official statistics that related to the use of out-of-home care in England from 1977 to 2016. Even though statistics related to children in care have been collected routinely since 1949, I chose this time period as only statistics from 1977 are available in digital format. From 1977 to 1991, the main source of statistics related to children in out-of-home care in England was the annual 'Children in Care Statistical Report' (The National Archive, 2014). Since 1992, the main source of statistics has been the 'Children Looked After in England Statistical First Release'. I conducted online searches of The National Archives and the DfE websites and retrieved copies of all Children in Care (CiC) and Children Looked After (CLA) reports and, where available, any associated data tables or primary data files.

Secondly, I identified research literature that described cumulative measures of being placed in out-of-home care in England. To this end, I systematically searched four databases (Embase, Ovid MEDLINE, PsycINFO and Social Policy & Practice) using the search terms in Appendix B-1 and the following inclusion criteria:

- peer-reviewed publications
- published in the English language
- reporting a cumulative measure of being placed in out-of-home care (e.g., cumulative incidence, proportion)
- in an English or British population

I removed any duplicates from the initial search result and retained all articles that met the inclusion criteria based on their title. Next, I reviewed the abstracts of these articles, again retaining those that met the inclusion criteria. I then retrieved and read the full-text version of the remaining articles excluding any that did not meet the inclusion criteria on closer examination. I used this initial set of 'included publications' as a starting point for an iterative snowball search to maximise the

likelihood of identifying all relevant literature (Wohlin, 2014). This snowball approach involved two phases: a backward search of all publications referenced in the starting set, and a forward search of all publications that had cited the starting set by the 31<sup>st</sup> May 2017 (as identified through Google Scholar). Finally, I assessed the quality of the included studies using a critical appraisal checklist for studies reporting prevalence and incidence data (Munn *et al.*, 2014) and summarised the studies' findings.

I chose to focus on literature reporting cumulative measures of placement in out-of-home care as counts and prevalence-based measures treat it as a discrete event: only children in care at the time of measurement are included in the calculation. However, children can enter out-of-home care multiple times throughout childhood and remain in care for varying amounts of time. Depending on the timing and duration of their care placements, children may not be included in counts or prevalence-based measures, or may be included at multiple time points.

#### *Extracting information from official statistics*

For the years 1977 to 1987, I calculated the number of children in care on the 31<sup>st</sup> March from primary CiC data files as the National Archives' catalogue for this dataset recommends that these data files are more accurate than the contemporaneous published reports (The National Archive, 2014). These primary data files included children in care in both England and Wales, but did not include a variable to distinguish between them (i.e. that recorded the local authority, region or country). As I was aiming to describe the number of children in care in England only, I retrieved historical figures for the number of children in care in Wales during this period of time from the Stats Wales website (StatsWales, 2017). To calculate the number of children for England only, I subtracted the figures for Wales from the total calculated from my analysis of the primary CiC data.

For the years 1988 to 2016, I extracted the number of children who were looked after on the 31<sup>st</sup> March from CLA reports or additional data tables. According to the DfE, figures in the CLA reports are subject to change due to amendments or corrections made by local authorities after the publication of statistical reports and



tables and thus they advise that the most recent values are most accurate (Department for Education, 2017g). Therefore, I used the most recently reported value where conflicting figures for the same statistical year were reported in different CLA reports. To further describe the population of children in care and explore how it changed over time I calculated the point prevalence of placement in out-of-home care (i.e. the proportion of the total child population who were in care on the 31<sup>st</sup> March). In these calculations I used mid-year population estimates for children aged 0-17 years from ONS as the denominator (Office for National Statistics, 2017a).

### **What are the characteristics of out-of-home care placements?**

#### *Search strategy*

Firstly, I identified CLA reports that described the characteristics of out-of-home care in England from 1992 to 2016 through an online search of the DfE and National Archives' websites. Secondly, I identified research literature that described longitudinal or cumulative experiences of out-of-home care in England by systematically searching four databases (Embase, Ovid MEDLINE, PsycINFO and Social Policy & Practice) using the search terms in Appendix B-2 and the following inclusion criteria:

- peer-reviewed publications
- published in the English language
- reporting quantitative, cumulative or longitudinal characteristics of out-of-home care placements (e.g., number of placements, type of setting or time spent in care)
- in an English or British population

I removed any duplicates from the initial search result and retained all articles that met the inclusion criteria based on their title. I then reviewed the abstracts and full-text versions as appropriate, excluding any that did not meet the inclusion criteria on closer examination. Finally, I used the identified publications as a starting set for an iterative snowball literature search to maximise the likelihood of identifying all relevant literature (Wohlin, 2014).

I chose to focus on cumulative or longitudinal descriptions of care in the research literature as cross-sectional information was well-described by official statistics.

*Extracting information from official statistics*

For the years 1998 to 2016 I extracted information related to characteristics of out-of-home care placements directly from CLA reports. I could not locate the original reports for the years 1992 to 1997 on the DfE and National Archives' websites. Instead, I extracted information from the 2002 report which included historical information for the preceding 10 years. The legal and placement category for the population of children looked after in England on the 31<sup>st</sup> March was available from 1992 to 2016. From 2002 onwards, category of need and the percentage of children who had 3+ placements in the preceding 12 months were also reported.

### 2.4.3 Results

#### Sources of official statistics included in my review

I was able to identify reports, additional data tables and/or primary data files for 34 of the 40 years included in this review of official statistics. Table 2-3 summarises the sources of information I obtained for each statistical year.

**Table 2-3 Sources of statistical information related to looked after children in England from 1977 to 2016 that were identified in this review**

Year range	Report?	Additional data tables?	Primary data files?	Website obtained from:
1977-1991	Yes	No	Yes	The National Archives
1992-1997	No	No	No	n/a
1998-2003	Yes	Yes	No	The National Archives
2004-2009	Yes	Yes	No	The National Archives
2010-2016	Yes	Yes	No	Department for Education

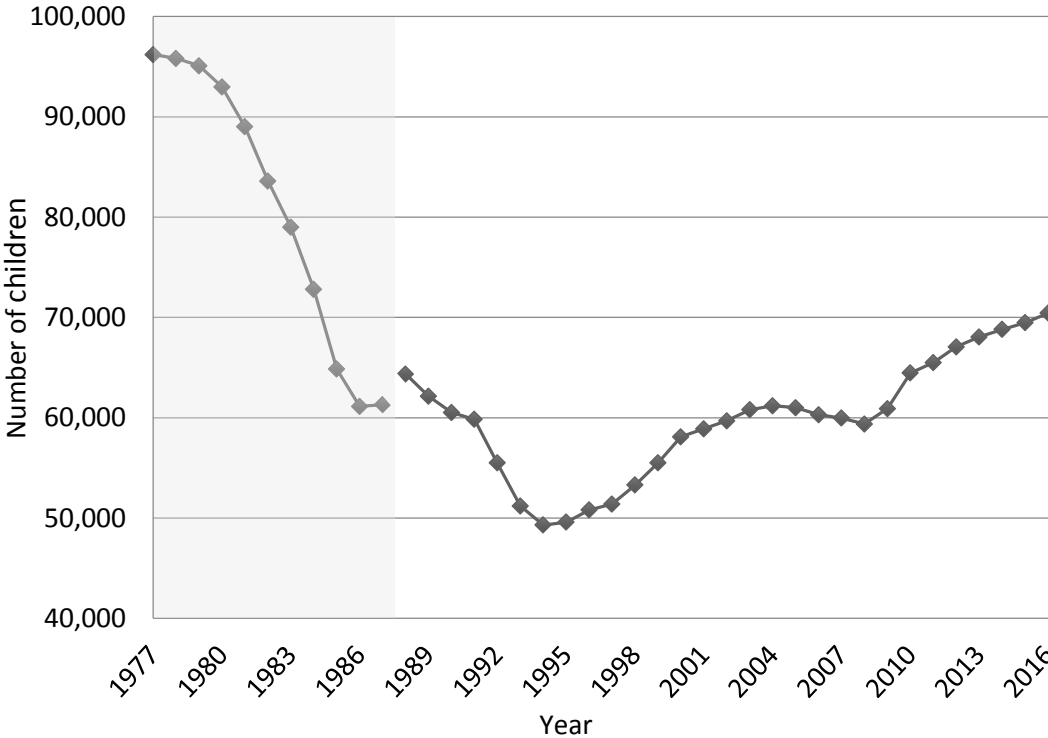
*Although I could not locate any official reports, data tables or primary data files for the years 1992 to 1997, information related to this time period was published in later Children Looked After (CLA) reports in the form of historical trends. As a result, data were available for the entire period of the review.*

#### The epidemiology of out-of-home care according to official statistics

##### *The number of children placed in out-of-home care*

One measure of the frequency of use of out-of-home care that is routinely reported in official statistics is the number of children looked after on the 31<sup>st</sup> March. It must be noted that the information captured in this ‘stock’ measure is not consistent over the study period. From 1977 to 1987, the number of children *in care* on the 31<sup>st</sup> March was reported based on the historic CiC data collection, but the available documentation does not define whether ‘in care’ includes children who were placed at home with parents or in respite care. From 1988, the number of children who were *looked after* on the 31<sup>st</sup> March was reported, which excluded children in respite care but included those placed with their parents. Nonetheless, despite the variation over time in how this ‘stock’ measure was defined, the CiC and CLA statistics represent the best available measure of the number of children in out-of-home care in England.

Official statistics indicate that there has been considerable fluctuation in the number of children placed in care over time (Figure 2-2). Between 1977 and 2016, the number of children in care on the 31<sup>st</sup> March ranged from 96,206 in 1977 to 49,300 in 1994.



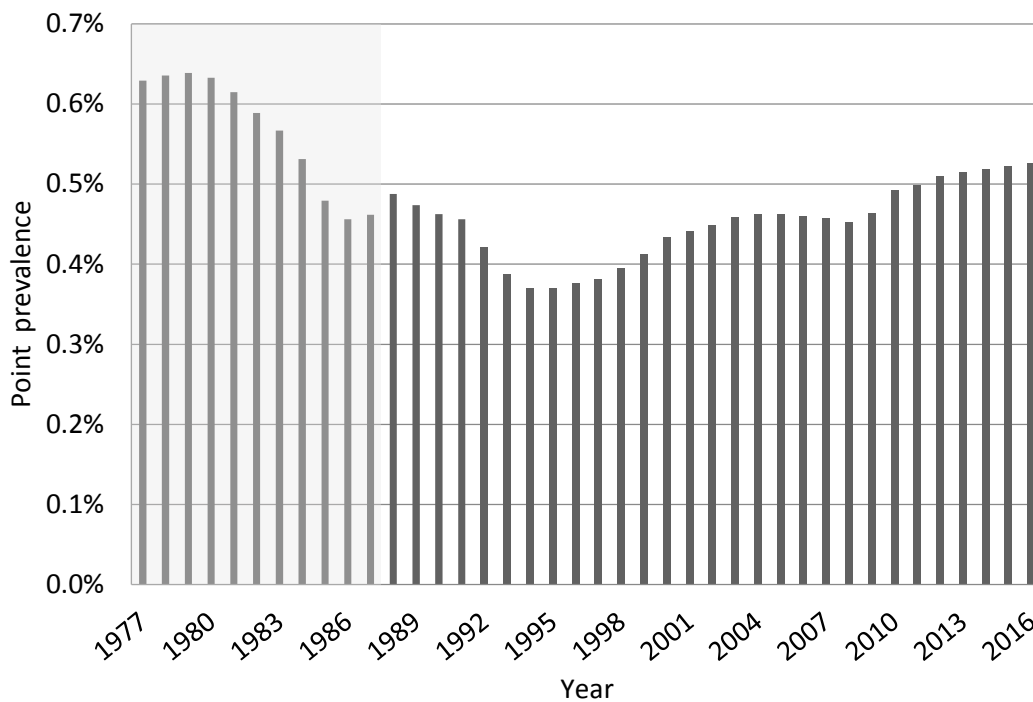
**Figure 2-2 Children in care in England on the 31<sup>st</sup> March 1977 to 2016**  
 Figure 2-2 shows the number of children in care/looked after in England on the 31<sup>st</sup> March 1977 to 2016. Shading indicates figures were calculated from historic Children in Care (CiC) data retrieved from the National Archives (The National Archive, 2014), which may include children in respite care and exclude children looked after but placed at home with their parents. Figures from 1988 to 2016 were extracted from Children Looked After (CLA) reports and include all children who were looked after for non-respite reasons. In 1988, the number of looked after children appears to increase; however, it is likely that this is simply an artefact of the aforementioned differences between the CiC and CLA data collections, rather than a true short-term increase.

Based on these figures two general trends over time can be identified: a decrease between 1977 and 1994, and an increase between 1995 and 2016. Between 1977 and 1994, the number of children in care halved from 96,210 to 49,300 (a 48.8% decrease). This decrease is likely to be due in part to the shift away from using care orders and placement in residential care settings as a means of dealing with young offenders. which was ended entirely by the Children Act 1989 (Berridge, Biehal &

Henry, 2012; Bullock & Parker, 2014). Between 1995 and 2016, there was a reversal in trend and the number of looked after children increased by 42.9% ( $n=21,140$ ). This increase occurred in two roughly equal phases separated by a phase of stagnation. From 1995 to 2004, the number of children in care increased by 11,900, but between 2005 and 2008 there was very little change in the number of children in care. From 2009, there was a return to the increasing trend with the annual biggest increase of the 40-year period observed between 2009 and 2010 (5.9%), which coincides with the publication of Lord Laming's second independent report on the progress of child protection services in response to the death of Peter Connelly due to abuse and neglect in 2007 (Laming, 2009).

#### *The prevalence of out-of-home care*

Though there has been considerable fluctuation over time in the absolute number of children looked after on the 31<sup>st</sup> March, the point prevalence has been comparably more consistent (Figure 2-3). For example, on the 31<sup>st</sup> March 1977 there were 96,206 children in care in England, representing a prevalence of approximately 0.6% of the total child population. Since then, the number of children in care has decreased by more than 26,000 to 70,440 on the 31<sup>st</sup> March 2016. However, as the size of the child population in England has concurrently decreased during this time period, the point prevalence of looked after children is fairly similar at 0.5%.



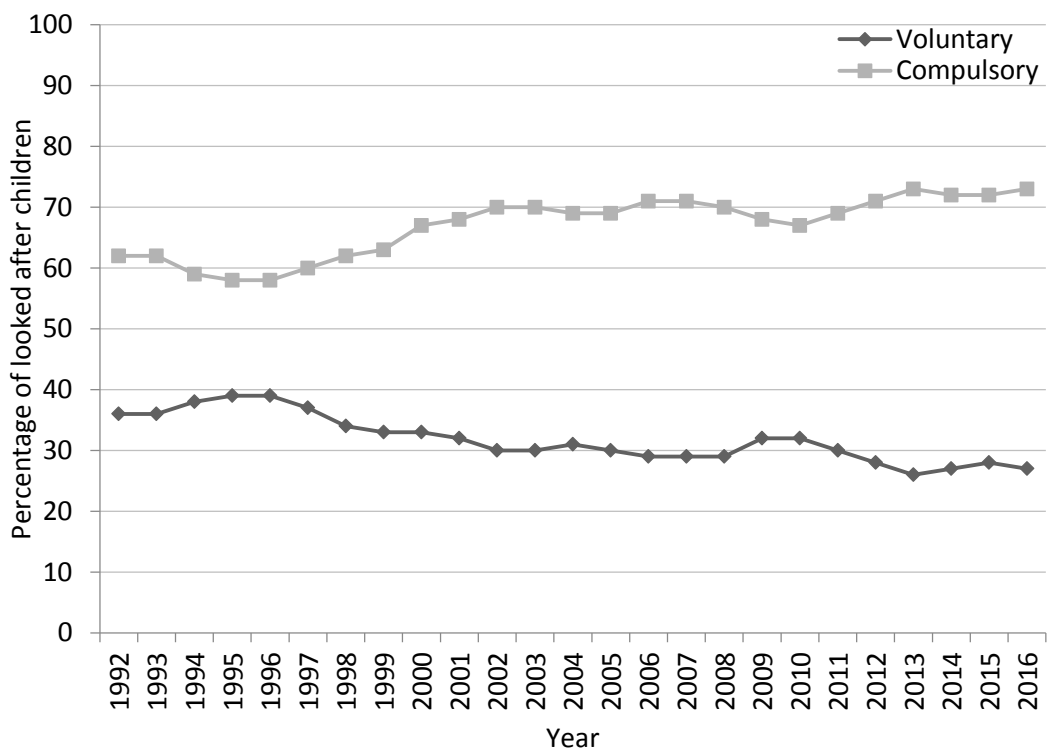
**Figure 2-3 Prevalence of being in care in England on the 31<sup>st</sup> March 1977 to 2016**  
 Figure 2-3 shows the point prevalence of being in care/looked after in England on the 31<sup>st</sup> March 1977 to 2016. Shading indicates figures were calculated from historic Children in Care (CiC) data retrieved from the National Archives (The National Archive, 2014), which may include children in respite care and exclude children who are looked after, but placed at home with their parents. Figures from 1988 to 2016 were extracted from Children Looked After (CLA) reports and include all children who were looked after for non-respite reasons. For all years, the denominator is the Office for National Statistics mid-year estimate of the number of children in England aged 0-17 years (Office for National Statistics, 2017a, 2017c).

The DfE routinely publish the rate per 10,000 children by local authority, which is equivalent to the point prevalence. For example, on the 31<sup>st</sup> March 2016 the highest point prevalence of placement in care was 1.64% in Blackpool, and the lowest was 0.22% in Wokingham.

### *The context of care*

According to official CLA statistics, the majority of children in England are recorded as being looked after due to reasons related to abuse or neglect. Abuse or neglect has been the most commonly recorded category of need since these codes were first introduced in 2002, ranging from 63% of children looked after on the 31<sup>st</sup> March in 2002 to 60% in 2016.

Most children in England are looked after in compulsory care under court orders or through the invocation of police powers (Figure 2-4). For example, on the 31<sup>st</sup> March 2016, three-quarters of children (73%) were looked after in compulsory care, primarily under care orders (65%). The proportion of children looked after voluntarily has decreased by a quarter over time, from 36% in 1992 to 27% in 2016.



**Figure 2-4 Percentage of children looked after in England on the 31<sup>st</sup> March 1992 to 2016, by legal category**

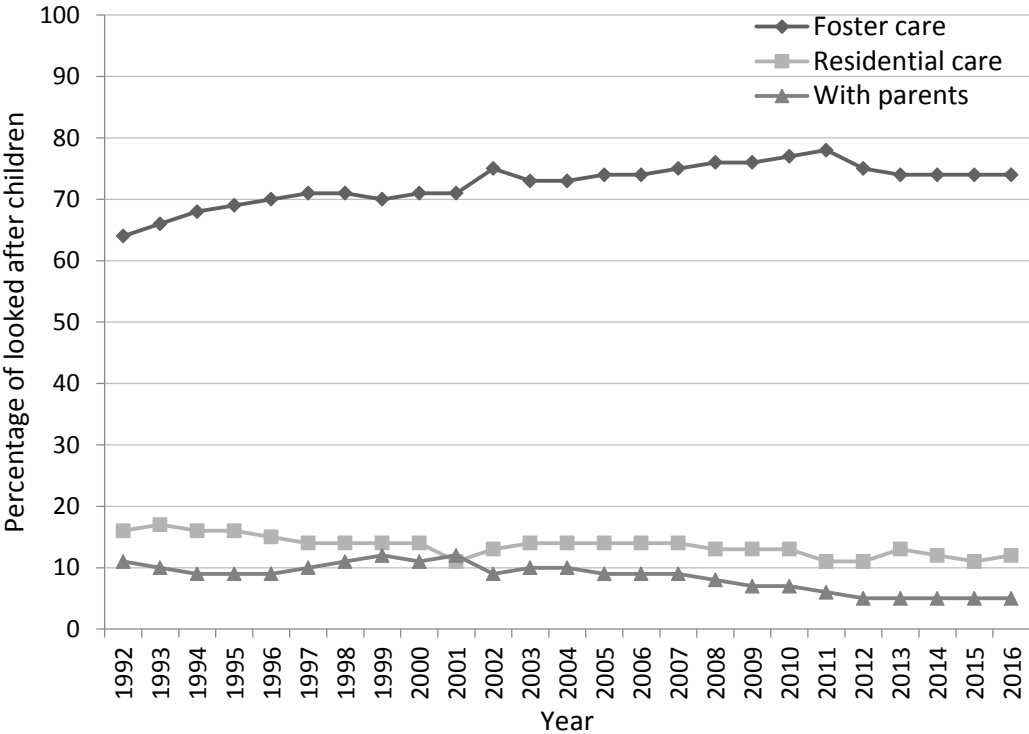
*Voluntary care is provided under section 20 of the Children Act 1989 with parental consent. Compulsory care is mandated through a court order or invocation of police powers.*

Unlike category of need which is constant for a period of out-of-home care, a child's legal status can change whilst they are looked after. Thus, it is important to note

that the cross-sectional statistics reported by the DfE describe the legal status of children at a single point in time (i.e. on the 31<sup>st</sup> March), but this may not necessarily reflect their legal statuses throughout their period of out-of-home care, or across childhood.

*The setting and stability of care*

Most looked after children are placed in foster care (Figure 2-5); for example, on the 31<sup>st</sup> March 2016, almost three-quarters of children were looked after by foster carers (74%) and just one in twenty (5%) were looked after at home by their parents. Since 1992, children have increasingly been looked after in foster care settings. The proportion of children placed at home with parents has halved (from 11% to 5%) and the proportion placed in residential care has decreased by a quarter (from 16% to 12%).

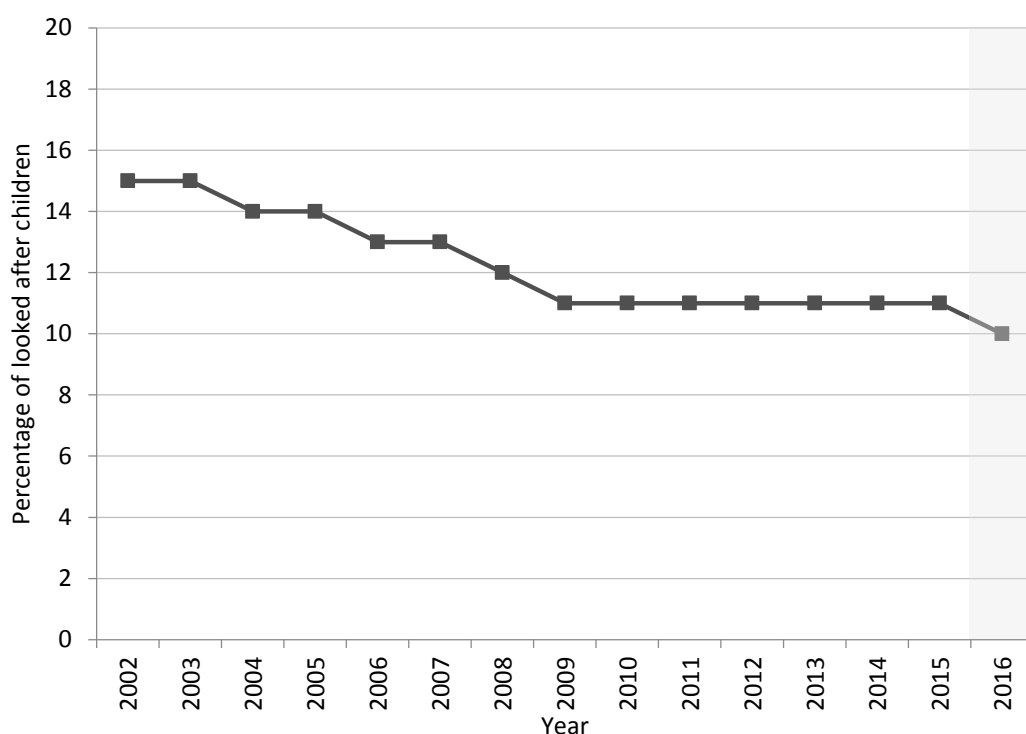


**Figure 2-5 Percentage of children looked after in England on the 31<sup>st</sup> March 1992 to 2016, by placement category**

*The proportion of children looked after in independent living or other placements are not shown due to the low proportions, for the sake of visual clarity.*



Of the 70,440 children looked after on the 31<sup>st</sup> March 2016, 10% had 3+ placements with different carers in the preceding year. As information on changes in carer was not recorded before 2016, it is not possible to compare this figure with previous years. However, it does appear that the stability of care is improving for looked after children in England: between 2002 and 2015, the proportion of children with 3+ placements in the preceding year decreased by almost one third, from 15% to 11% (Figure 2-6).

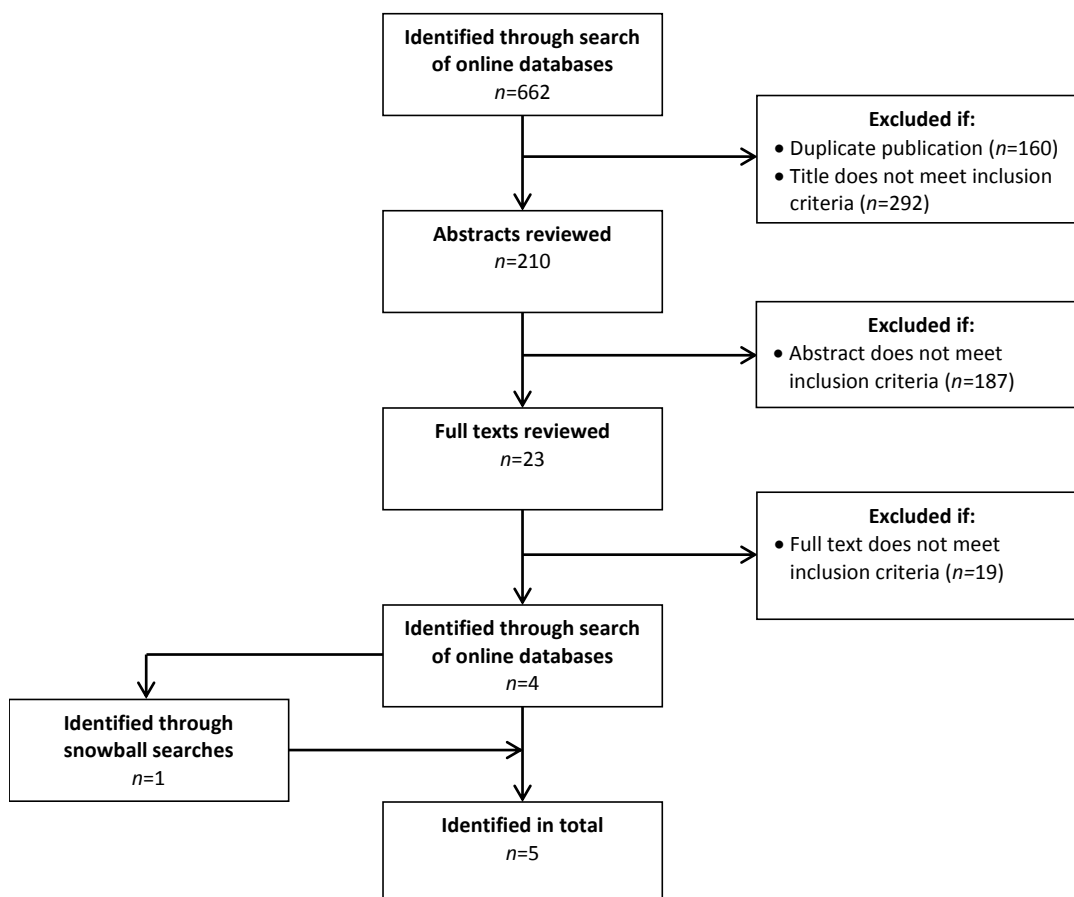


**Figure 2-6 Percentage of children looked after in England on the 31<sup>st</sup> March 2002 to 2016 who had 3+ placements in the preceding 12 months**

*Shading indicates that only placements that included a change of carer were counted as a new placement (Department for Education, 2017f). Changes in which a child is placed for adoption with their existing foster carers are not considered a change in placement in all years.*

## Research literature included in my review

My first systematic literature search identified five studies that reported the cumulative incidence of placement in out-of-home care in England, as per the flow diagram in Figure 2-7. My initial search of four databases identified 502 unique potential articles. After title and abstract screening, 479 were excluded as they did not meet my eligibility criteria. After retrieving and reviewing the full-text versions of the remaining 23 articles, four were found to be eligible. Using these four articles as my starting set, I identified one additional article that had cited an article in the starting set, but not been identified in my initial search. I repeated my backward (referenced in) and forward (cited by) snowball search for this newly-identified article, but no further eligible publications were identified.



**Figure 2-7** Flow diagram of articles identified in a systematic search for literature reporting cumulative measures of being placed in out-of-home care in the UK

The online databases included in this search were: Embase, Ovid MEDLINE, PsycINFO and Social Policy & Practice. Inclusion criteria were: (1) peer-reviewed publication (2) published in English (3) reporting a cumulative measure of being placed in out-of-home care (4) in an English or British population. The search terms used are given in Appendix B-1.

Four of the included articles estimated the cumulative incidence of placement in out-of-home care by age 17 using data from two cohort studies previously referenced in Section 2.3.3: the BCS70 study (a cohort of British people born in 1970) and the MCS study (a cohort of British women who gave birth in 2000/01). The fifth article used a longitudinal, sub-national sample of CLA data to calculate the cumulative incidence of placement in out-of-home care by age 16. The number of individuals in the study samples ranged from 2,311 to 18,492 (Table 2-4).

In terms of study quality (Table 2-5), in all studies the sample sizes were adequate and the study subjects and settings were described in detail. Moreover, the data analysis described by all studies was appropriate and included adequate coverage of the sample. However, for the four studies based on cohort data it was unclear (based on the details given in the articles) whether the samples had been recruited in an appropriate way and were representative of the general population. Furthermore, there were issues in all studies in the way that care history was defined and measured.

**Table 2-4 Overview of included articles that described the cumulative incidence of placement in out-of-home care**

<b>First author (published)</b>	<b>Data source (type)</b>	<b>Population (sample size)</b>	<b>Assessment of out-of-home care history (exclusions)</b>	<b>Reported cumulative incidence</b>
Viner (2005)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=9,577)	Response to survey/interview question(s) from parents at age 5, 10 and 16, and from participants at age 30. (No exclusions reported)	4.8% by age 17
Dregan (2011)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=10,961)	As Viner (2005) and supplemented by information related to caregiver status. (Excludes episodes of care <4 weeks in length)	3.9% by age 17
Dregan (2012)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=10,895)	Response to survey/interview question(s) from parents at age 5, 10 and 16, and from participants at age 30. (Excludes episodes of care <4 weeks in length)	4.0% by age 17
Botchway (2014)	Millennium Cohort Study (cohort)	Mothers of babies born in the UK during 2000-01 (N=18,492)	Response to survey/interview question(s) from mothers when their child was aged 9 months. (Excludes placements with relatives and in schools or youth justice settings)	1.6% by age 17
Ubbesen (2015)	Children Looked After dataset (administrative data)	Children in care in eight local authorities born 1992-2008 (N=2,311)	Assessment of legal status recorded in administrative data. (Excludes voluntary episodes of out-of-home care)	1.6% by age 16

*Both the 1970 British Birth Cohort Study and Millennium Cohort Study are based on UK populations. The use of out-of-home care is known to vary between the four UK countries (Bywaters et al., 2017); however, it was not possible to extract results for England only from the published articles.*

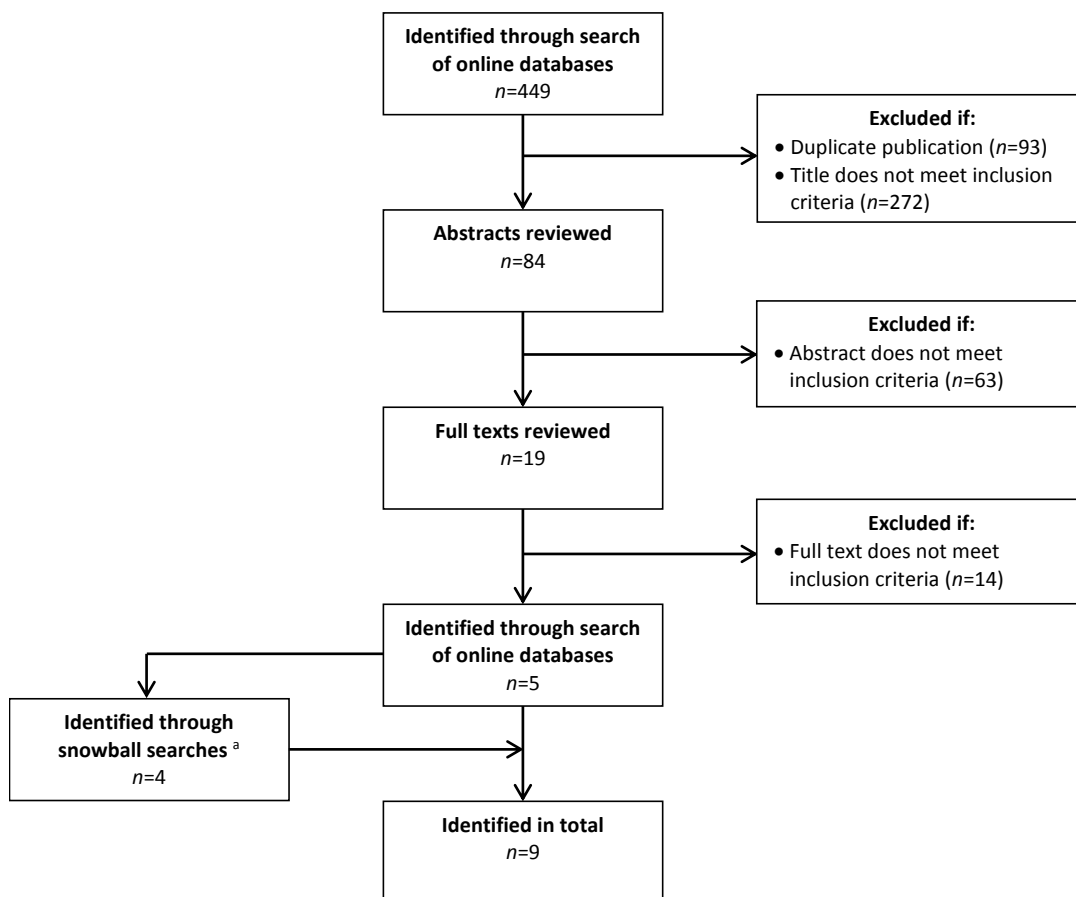
**Table 2-5 Critical appraisal of included articles that described the cumulative incidence of placement in out-of-home care**

	<b>Viner (2005)</b>	<b>Dregan (2011)</b>	<b>Dregan (2012)</b>	<b>Botchway (2014)</b>	<b>Ubbesen (2015)</b>
Was the sample representative of the target population?	Unclear	Unclear	Unclear	Unclear	Yes
Were study participants recruited in an appropriate way?	Unclear	Unclear	Unclear	Unclear	n/a
Was the sample size adequate?	Yes	Yes	Yes	Yes	Yes
Were the study subjects and the setting described in detail?	Yes	Yes	Yes	Yes	Yes
Was the data analysis conducted with sufficient coverage of the identified sample?	Yes	Yes	Yes	Yes	Yes
Were objective, standard criteria used for the measurement of the 'care history'? <sup>a</sup>	No	No	No	No	No
Was 'care history' measured reliably?	Unclear (Self-report)	Unclear (Self-report)	Unclear (Self-report)	Unclear (Self-report)	Yes
Was there appropriate statistical analysis?	Yes	Yes	Yes	Yes	Yes
Are all important confounding factors/sub-groups/differences identified and accounted for?	n/a	n/a	n/a	n/a	n/a
Were sub-populations identified using objective data?	Unclear (Self-report)	n/a	Unclear (Self-report)	n/a	Yes

Questions adapted from the Joanna Briggs Institute's Critical Appraisal Checklist for Studies Reporting Incidence and Prevalence Data (Munn et al., 2014) by replacing 'condition' with 'care history'. Unclear = not evident from published article; n/a = not applicable. <sup>a</sup>Details of the definition of 'care history' and any exclusions for each study are given in Table 2-4.

My second systematic literature search identified nine studies that reported cumulative or longitudinal characteristics out-of-home care placements, as per the flow diagram in Figure 2-8. My initial search of four databases identified 356 unique potential articles. After title and abstract screening, 335 were excluded as they did not meet my eligibility criteria. After retrieving and reviewing the full-text versions of the remaining 19 articles, four were found to be eligible. Using these articles as my starting set, I identified twelve additional non-peer reviewed sources that had cited or been cited by an article in the starting set. However, full-text versions of only four of these books or reports were available through University College London's library and thus were included in my review. Full details of the eight publications that I did not include in my review are given in Appendix B--3.

Of the nine publications I identified in this review, five were peer-reviewed journal articles (Table 2-6). Two articles described cumulative care experiences using data from a cohort study (the BCS70 cohort); two used data collected from case file review and one used a combination of administrative and survey data. I also retrieved three reports and one book as part of this literature search. All of these non-peer reviewed publications described characteristics of care using administrative data, and some two also included survey and/or interview data. Overall, the number of individuals in the study samples of all included publications ranged from 42 to 10,895.



**Figure 2-8 Flow diagram of articles identified in a systematic search for literature reporting cumulative experiences of out-of-home care in the UK**

The online databases included in this search were: Embase, Ovid MEDLINE, PsycINFO and Social Policy & Practice. Inclusion criteria were: (1) peer-reviewed publication (2) published in English (3) reporting quantitative, cumulative or longitudinal characteristics of out-of-home care placements (4) in an English or British population. The search terms used are given in Appendix B-2. <sup>a</sup>Eight books or reports identified in this snowball search were not included in this review as full texts were not available through University College London's library. Full details of these unretrieved publications are given in Appendix B-3.

**Table 2-6 Overview of the peer-reviewed articles that described the cumulative experiences of out-of-home care in the UK**

<b>First author (year)</b>	<b>Data source</b>	<b>Population</b>	<b>Sample type (size)</b>	<b>Placement characteristics described</b>	<b>Type of description and time frame</b>
Viner (2005)	1970 British Birth Cohort Study	Adults in the UK born April 5-11 <sup>th</sup> 1970	Cohort (N=9,577)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Setting</li> </ul>	Cumulative throughout entire childhood
Stanley (2005)	Case file review in two local authorities	Children aged 5-18 years with high mental health needs	Purposive sample (N=80)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Reason looked after</li> <li>• Duration</li> <li>• Stability</li> </ul>	Cumulative throughout entire childhood
Schofield (2007)	Administrative data and survey data	Children in long-term care	Purposive sample (N=1,002)	<ul style="list-style-type: none"> <li>• Setting</li> <li>• Duration</li> <li>• Stability</li> </ul>	Longitudinal for current episode only
Dregan (2012)	1970 British Birth Cohort Study	Adults in the UK born April 5-11 <sup>th</sup> 1970	Cohort (N=10,895)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Setting</li> <li>• Duration</li> <li>• Stability</li> <li>• Reason looked after</li> </ul>	Cumulative throughout entire childhood
Murphy (2015)	Case file review in one local authority	Children in care due to abuse or neglect who returned home	Purposive sample (N=42)	<ul style="list-style-type: none"> <li>• Duration</li> <li>• Stability</li> </ul>	Longitudinal for current episode only

*The 1970 British Birth Cohort Study was based on a UK population. The use of out-of-home care is known to vary between the four UK countries (Bywaters et al., 2017); however, it was not possible to extract results for England only from the published articles.*



**Table 2-7 Overview of other non-peer-reviewed publications that described the cumulative experiences of out-of-home care in the UK**

First author (year)	Data source	Population	Sample type (size)	Placement characteristics described	Type of description and time frame
Skuse (2001)	Administrative data from six local authorities	Children in long-term care	Purposive (N=242)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Reason looked after</li> <li>• Legal status</li> <li>• Setting</li> <li>• Stability</li> </ul>	Longitudinal for current episode only
Sinclair (2007)	Administrative data, survey and interviews in thirteen local authorities	Looked after children	Sub-national (N=7,399)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Reason looked after</li> <li>• Legal status</li> <li>• Setting</li> <li>• Stability</li> </ul>	Cumulative throughout entire childhood
Ward (2009b)	Administrative data from six local authorities	Children in long-term care	Purposive (N=242)	<ul style="list-style-type: none"> <li>• Age at first entry</li> <li>• Reason looked after</li> <li>• Duration</li> <li>• Stability</li> </ul>	Longitudinal for current episode only
Wade (2014)	National administrative data and survey in seven local authorities	Children exiting care through special guardianship order	Purposive (N=5,936)	<ul style="list-style-type: none"> <li>• Reason looked after</li> <li>• Legal status</li> <li>• Setting</li> <li>• Stability</li> </ul>	Cumulative throughout entire childhood

*Eight additional books or reports were identified, but were not included in this review as full-text versions were not available through University College London's library. Full details of these unretrieved publications are given in Appendix B-3.*

## **The epidemiology of out-of-home care according to research literature**

### *The cumulative incidence of placement in out-of-home care*

The method of defining a history of placement in out-of-home care varied between the included studies (as outlined in Table 2-4). The BCS70 study included questions on whether a child had been placed in (voluntary or statutory) care in parent questionnaires collected at age 5, 10 and 16 years and in the participant questionnaire collected at age 30. Viner and Taylor (2005) defined care history based on parental report, using self-report at age 30 only when there was inconsistencies over time in parental reports. In contrast, Dregan, Brown and Armstrong (2011) and Dregan and Gulliford (2012) included both parental and participant data to identify care history. Dregan and Gulliford (2012) similarly used information about the individual completing the parental questionnaire to identify care histories (i.e. parental questionnaire completed by a foster-parent was used to infer care history). Viner and Taylor (2005) included all episodes of care in their calculation; however, Dregan, Brown and Armstrong (2011) and Dregan and Gulliford (2012) excluded short episodes of care, which they defined as being less than 4 consecutive weeks in duration. The MCS study did not directly ask women if they had been placed in out-of-home care as children. Instead it asked: "Before the age of 17, did you spend any time living away from both of your parents?" Based on follow-up questions about where they had spent time, Botchway, Quigley and Gray (2014) inferred a history of placement in out-of-home care, excluding children who had spent time away from parents living with relatives or in boarding schools, prisons or YOIs. Ubbesen, Gilbert and Thoburn (2015) only included compulsory placements in out-of-home care in their analysis (i.e. only episodes of care mandated through a court order or invocation of police powers). They determined the legal status of care episodes based on codes recorded in the CLA dataset, in accordance with official DfE guidance (Department for Education, 2017e).

Based on analysis of data from the BCS70 study, the cumulative incidence of placement in out-of-home care by age 17 for children born in 1970 ranged from 3.9% to 4.8%. This equates to almost one in twenty people. The differences in the estimates of cumulative incidence are likely due to the differences in the way in

which placement in out-of-home care was defined. Given that Viner and Taylor (2005) included any placement in out-of-home care, regardless of its length, this is likely to be the most accurate estimate. However, it must be noted that this estimate may include voluntary respite placements, which are not included in official statistics (Department for Education, 2017g).

The cumulative incidence of placement in out-of-home care among mothers in the MCS study was 1.6%, a much lower figure than that reported for women in the BCS70 cohort (4.0% according to Dregan, Brown and Armstrong (2011) and 4.6% according to Viner and Taylor (2005)). Some of the discrepancy between these estimates of cumulative incidence may be due to differences in the BCS70 and MCS cohorts. For example, membership of the BCS70 cohort was defined by participants' date of birth in 1970 but the MCS cohort includes women born in a range of years; for example, MCS mothers ranged from 14 to 45+ years at the time of the baseline interview in 2000-02. Given that there are trends over time in the use of out-of-home care, some variation in cumulative incidence between different birth cohorts is to be expected. Regardless of the cohort differences, the estimate reported by Botchway, Quigley and Gray (2014) is likely to be an under-ascertainment of the true cumulative incidence due to the way in which placement in out-of-home care was measured. Children in care can be accommodated in foster placements with relatives or in a boarding school, prison or YOI, but periods living away from home in these settings were not included in this study's calculation of cumulative incidence. Additionally, mothers whose children had been placed in out-of-home care by age 9 months (at the time of the first interview) were excluded from this study. However, placement in out-of-home care is known to have inter-generational aspects (Dworsky, 2015). In one UK-based study involving case file review for 270 children in out-of-home care almost one in five children (18%) had parents with a childhood history of care (Farmer, 2009). As a result, it is likely that the exclusion of mothers whose children were placed in care early in life introduced selection bias to the MCS sample of mothers.

The most recent estimate of the cumulative incidence of placement in out-of-home care was 1.6% by age 16 for children born 1992-94, as reported by Ubbesen, Gilbert

and Thoburn (2015). This estimate is likely to be accurate as it is based on analysis of the DfE's 'gold-standard' administrative data. However, this figure is undoubtedly an under-estimation of the total cumulative incidence of out-of-home care as it does not include placements in care after age 16, and, more importantly, it excludes voluntary care placements. Such voluntary placements are frequently used in England; for example, according to the most recent DfE statistics, a quarter of children in care on 31<sup>st</sup> March 2016 were in care voluntarily under section 20 of the Children Act 1989 (Department for Education, 2017g).

In addition to describing the overall cumulative incidence of placement in out-of-home care, three of the included studies described variation by demographic factors or over time. Both Dregan, Brown and Armstrong (2011) and Viner and Taylor (2005) highlighted significant variation by ethnicity. Dregan, Brown and Armstrong (2011) reported that 11.4% of Black children in the BCS70 cohort entered out-of-home care by age 17 compared to 3.9% of White children. Likewise, Viner and Taylor (2005) reported that non-White children were three times more likely to have been placed in out-of-home care compared to White children (OR<sub>adj</sub>:3.0, 95%CI: 1.1-8.1). Neither study using BCS70 data reported any significant variation by sex. Ubbesen, Gilbert and Thoburn (2015) described the cumulative incidence of placement in compulsory out-of-home care for a range of birth cohorts, from 1992-94 to 2006-08. Their analysis suggested that there has been an increase over time in the cumulative incidence of placement in compulsory care; for example, the cumulative incidence at age 1 was 0.3% for children born 1992-94 and 0.6% for children born 2004-06.

#### *Characteristics of cumulative or longitudinal care placements*

Two peer-reviewed articles reported characteristics of cumulative care placements for all children placed in care using BCS70 data. The earlier article by Viner and Taylor (2005) provided some limited description of children's age at first entry to care and the placement setting they were cared for in. However, only the setting for episodes of out-of-home care before age 5 was described and this was simply dichotomised as foster care or residential care. Though it is possible that some children were placed in both foster and residential care, it is unclear how this was

categorised based on the details given in the paper. Among this cohort, two-thirds of children first entered out-of-home care aged <5 years (65%) and just 16% entered aged 11+ years. Overall, 46% of children in care before age 5 were looked after in residential care and 54% were looked after in foster care. The more recent analysis of BCS70 data reported similar results with regards age at first entry (Dregan & Gulliford, 2012). This study found that 59% of the cohort had entered care for the first time aged <5 years and 19% aged 11+ years. Overall, 39% of the cohort was placed in foster care only during childhood, 46% in residential care only and 15% were placed in both. Dregan and Gulliford (2012) additionally described the reason children became looked after and the duration and stability of their care experiences. A third of the cohort (35%) had spent at least 1 year in care throughout childhood and had more than one placement (59%). Just a third was looked after for reasons related to abuse or neglect (34%). However, these descriptions of cumulative care characteristics may not be entirely accurate as they are based on self-report. Furthermore, there may be bias related to participation and attrition. For example, cohort members with a history of residential care may have been more likely to be lost to follow-up given the association with adverse outcomes such as homelessness or imprisonment.

A further three papers reported longitudinal care experiences for purposive samples of the care population. A study by Murphy and Fairtlough (2015) described care characteristics for 42 children in one local authority who had been in care due to abuse or neglect, returned home between 2009 and 2011 and were still at home in February 2012. This sample was further restricted to children who returned home to a household where at least one caregiver had not changed during their time in care. Among this purposive sample, 86% of children had not previously been in care, the mean length of stay for their current care placement was 3.5 months and three-quarters had no placement changes whilst in care. Stanley, Riordan and Alaszewski (2005) also described patterns of care experiences for a purposive sample of 80 children aged 5-18 years with high levels of mental health needs. Among these children who were looked after by two local authorities in December 2000, 83% were in care due to abuse or neglect. A third of children had entered

care before age 2 and many had been looked after for long periods of time. The total time looked after ranged up to 16 years and 41% had been looked after for 5+ years. There was some evidence of unstable patterns of care among this sample. Almost half (48%) had experienced more than three placements whilst being looked after and 10% had experienced more than four placements in the last year. The third paper by Schofield *et al.* (2007) described longitudinal care experiences for a sample of children in long-term care, defined in the study as being in care for 4+ years on the 31<sup>st</sup> March 2000. Among these 1,002 children from 24 local authorities, the mean age at entry (to their current episodes) was 5.4 years. Some children had been in care for up to 13 years and less than half (43%) had achieved stability, defined by the authors as having been in their current placement for at least 2 years. In their most recent placement, most children were in foster care, but 13% were in residential care, 7% were living independently and 17% were placed with parents.

In addition to peer-reviewed journal articles, I also identified three reports that contained longitudinal descriptions of care placements for purposive samples of children in care. Two related to children in long-term care and presented findings from the 'Looking After Children: Transforming Data into Management Information' study (Skuse, Macdonald & Ward, 2001; Ward, 2009). The third and most recent report related to children who left out-of-home care via an SGO between the 1<sup>st</sup> January 2006 and the 31<sup>st</sup> March 2011 (Wade *et al.*, 2014).

The 'Looking After Children: Transforming Data into Management Information' study included 242 children aged <17 years who were in long-term care in six local authorities. Long-term care was defined by the authors as having been in care for 1-2 years on the 1<sup>st</sup> April 1998. The first report for this project by Skuse, Macdonald and Ward (2001) described longitudinal care experiences for the current episode of care at the beginning of the study period. Among this sample, 41% had entered care before age 5, half were in care due to reasons related to abuse or neglect and almost two-thirds (65%) had entered care voluntarily. In the first 12 months of the current episode of care, almost a third of children had experienced 3+ placements (31%), but 39% of children had had no placement changes. In the second 12 months

of the current episode of care, 14% of children had experienced 3+ placements, and 60% had had no changes. In the first year of the current care episode, 76% of children were placed in foster care. This decreased to 70% in the second year, but the proportion in foster care with prospective adopters increased (from 1% to 6%). Among the 208 children who had been looked after for 2 full years on the 1<sup>st</sup> April 1998 there were 411 placement moves recorded in total, representing a mean of 1.98 moves per child.

The second report from the 'Looking After Children: Transforming Data into Management Information' study followed the sample of long-stay children for 2.5 years, from the 1<sup>st</sup> April 1998 to the 30<sup>th</sup> September 2000 (Ward, 2009). One in five children (19%) stayed in the same placement for the full follow-up period. However, the number of placements over this 2.5 year period ranged up to 29 and one in five children (22%) had 5+ placements. During the follow-up period there were 965 placements in total, representing a mean of 3.98 placements per child. Less than a third of placements (29%) lasted a year or longer and the overall median placement length was 126 days. This median placement length varied by setting: placements in non-kin foster care and residential care had a median length of 3 and 3.5 months respectively, which equates to a placement change every school term. Overall, just 54% of placement changes were planned and only a minority of these (26%) were considered to be purposive moves to progress care plans (e.g., a move from foster care to fostering for adoption). One in five placements (21%) disrupted at the request of a carer and a further one in ten (11%) disrupted at the request of the child or through their absconsion. Placements with relatives (45%) or with parents (40%) were more likely to disrupt than those with non-kin foster carers (24%) or in residential units (28%).

The most recent report that I identified in my review described cumulative care experiences for 5,936 children who were made the subject of an SGO between the 1<sup>st</sup> January 2006 and the 31<sup>st</sup> March 2011 (Wade *et al.*, 2014). An SGO is a court order that confers parental responsibility for a child to a special guardian without absolute legal severance of their birth parents rights (Department for Education and Skills, 2005). SGOs were introduced in 2006 as a means of providing children with a

sense of permanence just “short of adoption” (Department for Education and Skills, 2005, p3). When an SGO is made a child ceases to be looked after by a local authority, though their special guardian is entitled to some ongoing financial assistance and access to services. The mean age at first entry to care for this sample of children leaving care via an SGO was 3.2 years and 26% were aged 5+ years when entering care. More than two-thirds of children (69%) were looked after for reasons related to abuse or neglect. Initially, 39% had entered care voluntarily, but only 15% were voluntarily looked after by time the SGO was made. At first entry to care, 85% of children were placed with foster carers and this had increased to 99% at the time the SGO was applied. Overall, the average cumulative time spent in care was 2 years and 4 months at the time the SGO was applied, but the total time in care ranged up to 15 years. While in care, the number of placements ranged from 1 to 21 and a third of children (31%) had 3+ placements, though it is difficult to interpret the stability of care placements, given that the total time spent in care varied between children. The vast majority of children (90%) were leaving the care system for the first time; however, 2% had exited and re-entered care more than once and, among this minority, the absolute number of re-entries to care ranged from 2 to 42. Overall, approximately 4% of the sample had re-entered care within 3 years of exiting via an SGO.

Finally, as part of my review I retrieved one book that aimed to describe longitudinal experiences of out-of-home care for a nationally representative sample of children in thirteen local authorities who were looked after at any point in 2003 or 2004 (Sinclair *et al.*, 2007). This study combined surveys and interviews of looked after children, social workers and carers with analysis of longitudinal administrative data for a sample of 7,399 children. Among this sample, one in five children (21%) first entered the care system before age 1. Some children had been in contact with the out-of-home care system for significant lengths of time: 6% of children had entered care for the first time aged <5 years and were still in care aged 16+ years. Almost a quarter of children in this sample (23%) had entered care more than once during childhood. The total cumulative time spent in care across all placements was



not reported in this study, but one in five children (22%) had been in their current placement for 5+ years.

#### **2.4.4 Discussion**

This systematic review included reports of official cross-sectional statistics over a 40-year period, as well as fourteen research publications related to the epidemiology of out-of-home care in England. Analysis of these complementary information sources highlights the importance of perspective when characterising the use of out-of-home care. From a service provider perspective, cross-sectional statistics are a useful measure of the demands placed on the out-of-home care system as they provide accurate measures of the stock and flow of looked after children. However, they cannot adequately describe the scale of the population of children who are ever placed in care as they do not account for the (changing) size of the child population in England, nor can they capture the longitudinal characteristics of care placements. This review highlights important gaps in the knowledge base related to how out-of-home care is used in England, specifically the dearth of descriptions of cumulative incidence and care histories throughout childhood.

The main limitation of the literature element of this review is that it was restricted to four online databases and did not include a specific search for non-peer reviewed sources of information (e.g., books or grey literature), which are important sources of empirical research that may not be published as peer-reviewed articles (Thoburn & Courtney, 2011). Although I did identify some relevant books and reports through my snowball search, it is likely that some relevant sources of information were not identified. In particular, in relation to my second review question, only studies that explicitly aimed to describe longitudinal or cumulative care experiences could be identified based on my chosen search strategy. Descriptions of care experiences that were presented incidentally as a source of background information could not be identified. For example, one study that I subsequently identified aimed to explore the educational outcomes and employment of adults placed in care as children, but also included some description of their childhood care histories as a source of background information about the sample (Cheung & Heath, 1994).

Similarly, another study comparing levels of psychiatric disorder between looked after children and non-looked after children provided some longitudinal details of the duration and stability of the looked after children's current care placement, but did not describe their cumulative care experiences (Ford *et al.*, 2007). Neither of these studies was identified in my systematic review as their titles and abstracts did not include the search terms I specified, as outlined in Appendices B-1 and B-2. However, these articles contained limited information about care experiences compared to other publications that were identified in my review. Therefore, it is unlikely that detailed descriptions of cumulative or longitudinal care experiences have been missed by my review. A further limitation of this systematic review was the absence of an additional reviewer which would have enhanced the robustness of the literature search, but was unfortunately not feasible in the context of my PhD study.

A key strength of my review is that it included official statistics in addition to traditional research literature. Furthermore, this review covered a significant period of time: 40 years' worth of statistics were obtained and research literature published since the enactment of the Children Act 1989 was eligible for inclusion. As a result, while I am aware that not all relevant studies have been identified in this review, I am confident that it represents a thorough overview of two important and complementary sources of information related to the epidemiology of out-of-home care in England.

My systematic review of official statistics suggests that being placed in out-of-home care in England is a relatively uncommon experience. Between 1977 and 2016, the point prevalence of being placed in out-of-home care on the 31<sup>st</sup> March ranged from 0.4% to 0.6% of the total child population, which equates to just one in every 200-250 children. However, these prevalence measures are based on cross-sectional data and they do not account for the longitudinal nature of out-of-home care placements. Estimates of the cumulative incidence of out-of-home care reported in the five studies that I identified in my review suggest that it is a much more common experience than official statistics indicate. For example, up to one in twenty children born in 1970 had spent time in out-of-home care by age 17 (4.8%

reported by Viner and Taylor (2005)). This disparity highlights the value of taking a longitudinal perspective when measuring the scale of placement in out-of-home care among a population.

Two of the cumulative incidence studies I identified provided some evidence of ethnic disproportionalities in the use of out-of-home care, which are similarly evident in official statistics (Department for Education, 2017g). Ethnic disproportionalities in the use of out-of-home care have been described in other high-income settings, such as the United States (Magruder & Shaw, 2008; Putnam-Hornstein *et al.*, 2013), Canada (Sinha *et al.*, 2013; Fallon *et al.*, 2013; Sullivan & Charles, 2010) and Australia (Tilbury, 2009) with indigenous aboriginal populations and ethnic minorities significantly over-represented to various extents. The fact that most ethnic minority groups in England are more likely to be placed in care than White children has been well-documented using cross-sectional data (Owen & Statham, 2009; Thoburn, Ashok & Proctor, 2005); however, the cumulative effects of these ethnic disproportionalities in terms of the prevalence of placement in out-of-home care by age 18 has not yet been fully described in England.

Official statistics indicate that there is considerable variation in the rate of placement in care between local authorities (Department for Education, 2017g). In England, local authorities manage budgets for children's social care and deliver (or commission third parties to deliver) services, including the provision of out-of-home care. Though there is regulation and guidance from central government, local authorities have high levels of autonomy and flexibility in how they choose to meet their statutory obligations to children in their local areas as laid out in the Children Act 1989. This autonomy and flexibility is increasing; for example, in response to the Munro review of children's social care services the government is introducing new legislation to provide local authorities with the power to test different ways of working to improve outcomes for children in care and care leavers (British Association of Social Workers, 2016). However, despite the potential for variation at local authority level, I did not identify any literature that explored the cumulative effects of differences in local policy and practice with regards to the use of out-of-home care.

One of the main findings of my review is that no study has accurately estimated the cumulative incidence of placement in out-of-home care by age 18 among children in England. The five relevant studies that I identified all have limitations related to the length of follow-up and methods of defining care histories. In particular, the four cohort studies are subject to biases related to participation, attrition and reporting which are likely to bias estimates of the cumulative incidence of out-of-home care (Doidge, 2016). For example, four studies that I identified relied on retrospective, self-report of placement in care which is subject to recall or reporting bias. Additionally, three of the studies used data from a birth cohort (the BCS70 cohort) and as a consequence did not account for placement in out-of-home care among immigrant children. Finally, there was also evidence of differential attrition among the BCS70 cohort. Viner and Taylor (2005) noted that by age 33, almost 47% of participants with a history of care had been lost to follow-up compared with 28% of those without ( $OR_{adj}$ : 2.30; 95% CI: 1.90–2.80). The single study that used administrative data was able to account for placement in out-of-home care among immigrant children and negated issues related to non-participation, non-reporting or loss to follow-up (given that it was based on the whole population, rather than a sample (Ubbesen, Gilbert & Thoburn, 2015)). However, this study did not include voluntary out-of-home care placements or cover all of childhood and so still does not represent an accurate or complete measure of the cumulative incidence of placement in out-of-home care.

The official statistics and research literature that I identified in my review do not provide a comprehensive picture of the cumulative histories or experiences of out-of-home care among children in England because of their restricted time frame. Official statistics related to the use of out-of-home care in England tend to take a particularly short-term view of care by focusing on experiences within a statistical year only (Department for Education, 2017g). While such descriptions are useful from a service provider point of view (for comparing trends over time, for example), they cannot capture the true complexity of children's experiences of out-of-home care throughout childhood.

Descriptions of care experiences with a time frame stretching beyond a statistical year were also limited in the research literature, which tended to focus on longitudinal rather than cumulative experiences of care. For example, Schofield *et al.* (2007) only described longitudinal experiences for the placement that was ongoing at the time of their study, rather than all cumulative experiences of care up to that point in childhood. The 'Looking After Children: Transforming Data into Management Information' study that described care experiences over 4 years also provided details of placement setting and stability in separate 12 month periods, rather than cumulatively over the full study period (Skuse, Macdonald & Ward, 2001). Two of the included peer-reviewed publications did describe complete care histories (i.e. from birth to age 18 years) for the BCS70 cohort (Viner & Taylor, 2005; Dregan & Gulliford, 2012). However, these descriptions of cumulative care histories lacked detail, were based on self-report and related to experiences of care from 1970 to 1988, before the enactment of the Children Act 1989.

A further limitation of the research literature describing characteristics of care was that most studies were ad hoc and therefore focused on small, purposive samples of children, rather than the overall population of children in care. For example, Murphy and Fairtlough (2015) focused on children who were in care due to sexual abuse while Stanley, Riordan and Alaszewski (2005) focused on children with high mental health needs. The selection of such purposive samples limits the generalisability of the findings.

It is clear from my review that the fundamental question of how many children in England are placed in out-of-home care during childhood is, as of yet, unanswered. Moreover, despite the well-documented associations between care characteristics and health, educational and social outcomes, our understanding of children's cumulative out-of-home care histories is also incomplete. Further research is needed to accurately estimate the cumulative incidence of out-of-home care and describe the cumulative characteristics of out-of-home care placements throughout childhood.

## **2.5 Why is *this* study needed?**

Hitherto, I have highlighted that a study characterising the use of out-of-home care is needed because there are fundamental gaps in our understanding of how this social care intervention is used in an English context. In this section, I will outline the rationale for my particular PhD study that used longitudinal administrative data to characterise the use of out-of-home care. I will summarise the major gap in the evidence base that my PhD study sought to address and the relative advantages and disadvantages of using administrative data for research purposes. I will then briefly outline the development of my research questions; full details of the rationale for each set of analyses are given in Chapters 4 to 9.

### **2.5.1 Gap in the evidence base**

In the research literature and official statistics related to the use of out-of-home care in England, there is a lack of evidence that describes cumulative care histories throughout childhood. In Section 2.4 (What is already known about the use of out-of-home care in England?) I highlighted that annual statistics published by the DfE are cross-sectional ‘snapshots’ of care experiences within a statistical year. However, this time frame does not provide an accurate representation of care from a child’s perspective as cross-sectional analyses cannot describe how trajectories unfold or experiences accumulate over time. Recently, the Office of the Children’s Commissioner for England conducted workshops with 50 care-experienced children as part of a project to develop a stability index for looked after children. In these workshops, children raised the point that looking at a single year does not fully capture their experiences of care (Longfield, 2017).

Longitudinal descriptions of care are a more accurate representation of experiences from the perspective of a looked after child. However, academic studies using longitudinal data in England are limited in number and tend to have small, sub-national samples and short time frames. Furthermore, many studies describe care characteristics during the current episode only and few describe cumulative experiences throughout childhood. Some cohort studies have described cumulative experiences of out-of-home care up to age 16/17 years; however, these studies are subject to recall bias and attrition and provide scant detail of care histories (Viner & Taylor, 2005; Dregan, Brown & Armstrong, 2011; Dregan & Gulliford, 2012; Botchway, Quigley & Gray, 2014).

In her review of the child protection system in the UK, Munro stated that “a good... system should be concerned with the child’s journey through (it)” (Munro, 2011b, p12). Thus, the lack of longitudinal, cumulative descriptions of care is a major gap in the current evidence base related to the use of out-of-home care. In my PhD study I sought to address this gap by characterising the use of out-of-home care among children in England using longitudinal, administrative data.

### **2.5.2 Definition of administrative data**

Administrative data can be defined as information that was not collected with research or statistical purposes in mind, but rather to organise, manage, monitor or deliver services (National Statistician's Office, 2014; Woollard, 2014). Data collected by government agencies for the purpose of registration, transactions and record-keeping are one example of administrative data (Connelly *et al.*, 2016). In England, most government departments keep records of the range of services they deliver, including services for looked after children. Data related to looked after children are collected at a local authority level and a subset of data are transferred to the DfE who collate a national administrative dataset, known as the CLA dataset (Department for Education, 2017e). This large administrative dataset (described in detail in Chapter 3) is a detailed source of longitudinal quantitative data related to out-of-home care. To date, most of the research exploring the characteristics of out-of-home care and outcomes for looked after children in the UK has relied on the collection of primary data (e.g., through surveys or interviews) or analysis of secondary data sources from large, longitudinal studies such as the BCS70 (Attar, Parker & Wade, 2007). However, there are a number of advantages to using administrative data sources, such as the CLA dataset, for research purposes.

### **2.5.3 Advantages of administrative data**

Bias due to non-participation or attrition in a sample is a considerable issue with longitudinal studies that rely on primary data collection. One of the main advantages of administrative datasets is that they have very high levels of coverage for a population of interest. Indeed, many administrative datasets include the whole population of interest, rather than a sample. In addition, groups who may be least likely to take part in cohort studies (for example, ethnic minorities or disadvantaged groups) will be routinely included in administrative datasets (Connelly *et al.*, 2016). Administrative data tend to have much higher rates of follow-up and lower rates of attrition than longitudinal studies. For example, an early study comparing follow-up between survey samples and administrative data showed that rates of follow-up in an elderly population in Manitoba, Canada were 50% higher when using administrative health insurance claims data (91% vs 63% using survey data (Roos,



Nicol & Cageorge, 1987)). Attrition can be detrimental to a study because it reduces the statistical power of the sample and may introduce bias through differential loss to follow-up. It is possible to account for attrition in a sample using appropriate statistical methods (Doidge, 2016); however, attrition is often simply acknowledged as an issue when interpreting study findings. For example, Viner and Taylor (2005) noted that in the BCS70 cohort attrition was higher among children with a history of placement in care: by age 33, almost 47% of participants with a history of care had been lost to follow-up compared with 28% of those without ( $OR_{adj}$ : 2.30; 95% CI: 1.90–2.80). However, they did not report making any adjustments to their analysis to account for the potential bias that was introduced by this differential loss to follow-up. Hence, in the context of studying out-of-home care, a key advantage of using administrative data is that they circumvent the important issues of participation bias and attrition.

Issues of recall or reporting bias are a problem for studies that rely on self-report by study participants. A further advantage of administrative data is that they do not rely on individuals to accurately remember or report information, which is particularly relevant to the study of out-of-home care. Although placement in out-of-home care is likely to be a memorable life event, study participants may not remember placements that were short, with relatives or in very early childhood. They are also unlikely to recall exact details of the timing, duration and legal context of out-of-home care placements. For example, Dregan and Gulliford's description of cumulative care experiences relied on survey data from the BCS70 cohort and all of the care characteristics included in their analysis had a significant proportion of missing information (Dregan & Gulliford, 2012). For example, almost half of individuals did not report the reason they were placed in care (43.9%) or the number of placements they experienced (45.5%). An additional advantage of administrative datasets is that they negate the issue of reporting bias which can be particularly important when studying sensitive issues that individuals may be reluctant to disclose (Connelly *et al.*, 2016), such as placement in out-of-home care. Four of the five studies estimating the cumulative incidence of placement in out-of-home care in England that I identified in my review were based on self-report

through surveys and interviews from cohort study participants. These studies may have under-estimated the cumulative incidence of placement in care as parents or caregivers may have chosen not to disclose their children's care histories due to stigma. In Viner and Taylor's analysis of data from the BCS70 cohort, placement in out-of-home care was ascertained through parents' or carers' reports at age 5, 10 and 16 years and there was some discrepancy over time in their reporting of children's care histories. For example, 94 children who were reported as having been in care at age 5 were reported to have never been in care at age 10. This equates to 14.6%, or one in six, of the total sample of children with a care history (Viner & Taylor, 2005).

Another advantage of administrative datasets is that they generally have larger sample sizes than studies involving primary data collection (Connelly *et al.*, 2016), which provides an opportunity to explore rare events and small sub-groups that may otherwise be difficult or unfeasible (Drake & Jonson-Reid, 1999). For example, large social science surveys must often rely on boosting or over-sampling to ensure sufficient statistical power to explore questions of interest in specific sub-groups of their sample (Connelly *et al.*, 2016).

Administrative data are a time- and cost-effective alternative to primary data collection for researchers (Connelly *et al.*, 2016). Conducting surveys is resource-intensive and it can be difficult to collect data longitudinally (Hardcastle *et al.*, 2015). In contrast, administrative data are collected routinely (often over long periods of time) thereby enabling longitudinal analyses, including analyses of historical trends and the exploration of cohort effects (Connelly *et al.*, 2016). Furthermore, although there may be costs involved in accessing administrative data, they are considered to be a relatively inexpensive data source (Drake & Jonson-Reid, 1999). Finally, the re-purposing of administrative data for research can reduce participant burden for individuals who would otherwise have been recruited to a study involving primary data collection.

#### **2.5.4 Disadvantages of administrative data**

Administrative data are not without limitations, the main one being that this type of information is not collected for research purposes (Connelly *et al.*, 2016). This means it can be difficult for researchers to understand how the dataset is collected, validated, structured, cleaned and prepared, particularly if these decisions are not well-documented. Moreover, researchers have no input into the content or structure of an administrative dataset and the measures it contains may change over time or conflict with important theoretical or contextual definitions in the field (Raymer, Yildiz & Smith, 2013). For example, the CLA dataset records aspects of stability that are important from a service provider perspective and are used as indicators of service quality (e.g., changes in placement setting, carer and legal status, (Munro, 2011a, 2011b; Vibert, 2016)), but does not capture the important concept of permanence, which can be defined as a sense of emotional, physical and legal security, stability and continuity (Munro & Hardy, 2006).

A degree of inaccuracy or uncertainty is to be expected in administrative datasets - even official statistics acknowledge that there will be some level of error in their outputs (Raymer, Yildiz & Smith, 2013). For example, in administrative data sources, there can be processing errors caused by mistakes in entering data or miscoding information, which can have further consequences in terms of introducing linkage error (Office for National Statistics, 2008). When using administrative data for research purposes, it is important to consider whether there is any bias in this error; for example, data that are used for cost-recovery purposes or service evaluation may be subject to gaming at the point of collection. The accuracy of information contained in administrative datasets will be affected by their legal framework and purpose; for example, administrative data related to births and deaths are likely to be very accurate as these events must be registered by law (Raymer, Yildiz & Smith, 2013). The accuracy of information is also likely to vary within an administrative dataset. It has been demonstrated that measures that are not considered to be crucial or important to the day-to-day operation of an administrative system are not collected as diligently (Goerge & Lee, 2001). For example, one study found that data related to children's disabilities were poorly recorded on a computerised

administrative system by social workers because the majority felt that this information had no impact on their actions or decisions (Goerge *et al.*, 1992).

It can be difficult to access administrative datasets due to the legal and ethical considerations surrounding their re-use for research purposes (Bell & Gowans, 2016). Indeed, the interpretation of legislation related to data processing can vary greatly between government departments and over time (Jones & Elias, 2006). Finally, an important limitation of administrative data is that they are observational data and, consequently, causal inferences cannot be drawn (Benchimol *et al.*, 2015). Like any other source of observational data, statistical models created using administrative data are at best sophisticated descriptions (Connelly *et al.*, 2016).

### **2.5.5 Rationale for using administrative data in my PhD study**

One of the limitations of the current quantitative research base related to out-of-home care in England is that many studies rely on time- and labour-intensive primary data collection, through survey data or case file review, for example. Consequently, they tend to rely on small, local (and often purposive) samples. Secondary analysis of existing longitudinal panel data has been highlighted as an opportunity to advance knowledge related to out-of-home care (Maxwell *et al.*, 2012; Elliott, 2015); however, these data sources are still subject to limitations in terms of recall bias and (possibly differential) attrition.

Accounting for its relative advantages and disadvantages, administrative data represent an under-utilised source of data for research related to certain aspects of out-of-home care in England. In particular, analysis of administrative data is well-suited to addressing questions related to quantifiable and/or longitudinal characteristics of out-of-home care; for example, calculating the proportion of children who ever enter care or describing the cumulative characteristics of out-of-home care placements throughout childhood. Though the findings that can be drawn from analysis of administrative data are limited by their observational nature, I propose that sophisticated descriptions from analysis of administrative social care data have the potential to refine our understanding of how out-of-home care is used in England.

### **2.5.6 Development of my research questions**

The overarching aim of my PhD study was to characterise the use of out-of-home care through a series of quantitative analyses. I began by familiarising myself with the content and structure of the CLA dataset during data cleaning and preparation and carried out some preliminary reading of key academic publications, government documentation and statistical reports related to out-of-home care. I then conducted my systematic review of official statistics and research literature to explore the existing evidence base related to the use of out-of-home care in England. Following on from this systematic review, I developed an initial set of research questions which I then refined by conducting more focused literature reviews and exploring the content, coverage and quality of relevant variables included in my CLA data extract. This iterative approach ensured that the final set of research questions I chose to include in my study were both relevant (i.e. addressed a gap in the existing knowledge base) and appropriate (i.e. could be adequately addressed through analysis of the CLA data extract that was available to me). Ultimately, I decided that my PhD study would consist of a series of six quantitative analyses that sought to:

1. Estimate the relative size, demographic composition and geographic distribution of the population of children who are ever placed in out-of-home care in England.
2. Explore the characteristics of cumulative out-of-home care.
3. Identify common types of out-of-home care.
4. Describe the stability of out-of-home care in terms of placement patterns.
5. Describe the stability of out-of-home care in terms of re-entries to care.
6. Describe changes over time in aspects of out-of-home care that have previously been explored in analyses 1 to 5, above.

## 2.6 Key points from Chapter 2

- Placement in out-of-home care can be considered an indicator of childhood adversity, due to the reason(s) that precipitate a child becoming looked after, their experiences whilst in care or a combination of both.
- There is a considerable body of empirical evidence demonstrating that placement in out-of-home is associated with a range of long-lasting adverse outcomes.
- ‘Out-of-home care’ encompasses a range of diverse experiences and outcomes have been shown to vary by characteristics of care experiences, such as placement duration, stability and setting.
- Despite the lifelong adversity children in out-of-home care face and the association between outcomes and characteristics of care experiences, there are fundamental gaps in our understanding of how this social care intervention is used in England.
- Official statistics primarily take a cross-sectional approach to describing the number of children in care and their experiences and do not account for the complex and longitudinal nature of out-of-home care.
- Research exploring cumulative experiences of out-of-home care is limited and is hindered by short time frames, small sample sizes and biases due to non-response and differential attrition.
- Secondary analysis of routinely-collected administrative data provides an opportunity to refine our understanding of how out-of-home care is used among looked after children in England.

## Chapter 3 The Children Looked After dataset

### Statement of authorship

I carried out all of the work presented in this chapter. My description of the Children Looked After dataset has been published as a peer-reviewed article in the *International Journal of Epidemiology* (reproduced in full in Appendix H-1).

### 3.1 Content and structure of Chapter 3

Chapter 3 provides the final piece of background to my PhD study by providing an overview of the administrative social care dataset I analysed and describing the pre-analysis work I undertook to prepare my data extract. This chapter is divided into two sections. In Section 3.2, I will describe the Children Looked After (CLA) dataset, including its scope, method of collection, structure and content. I will evaluate its key strengths and limitations as a data source for research purposes. I will then describe the CLA data extract that I analysed, including the variables that were available, the pre-analysis data cleaning and preparation that I undertook and the sample included in my PhD study.

## **3.2 Introduction to the CLA dataset**

### **3.2.1 Scope of the CLA dataset: who is (and is not) included?**

The CLA dataset is a national dataset that includes all looked after children in England, including those who remain at home with their parents and those placed in out-of-home care for respite care (Department for Children Schools and Families, 2010). It does not include information on looked after children or out-of-home care placements in Northern Ireland, Scotland or Wales, which have separate data collection arrangements. The CLA dataset also includes specific groups of care leavers (i.e. young people eligible for care leaver support). The cohort of care leavers for whom information has been collected in the CLA dataset has changed over time. The most recent Department for Education (DfE) guidance (Department for Education, 2017e) defines relevant care leavers as a young person who was looked after when they were aged 16 or 17 years, for at least 13 weeks after the age of 14. Care leavers were beyond the scope of my PhD study and therefore further information about data collection arrangements for this group is not included in my thesis.

The CLA dataset includes all looked after children who are placed in out-of-home care; however, not all children living in out-of-home care are looked after children. For instance, the CLA dataset does not include children who live away from home informally with a close relative (defined under the Children Act 1989 as a grandparent, sibling, uncle, aunt or step-parent) or are cared for by an adult who is not a close relative under private fostering arrangements (Bostock, 2004). Similarly, not all children in contact with social services are defined as looked after children. The CLA dataset does not include children who receive support from social care services (including accommodation in out-of-home care) under section 17 of the Children Act 1989, or are subject to a child protection plan, but not looked after. Information related to these children is collected in a separate data return, known as the Children In Need Census (Department for Education, 2016b); however, data collection related to private fostering arrangements has ceased (Department for Education, 2014c).



### **3.2.2 Data collection: how is the CLA dataset derived?**

The CLA dataset is derived from an annual, electronic census of all local authorities in England, known as the SSDA903 return. Each year (usually in April or May), local authorities must submit anonymised, disaggregated information to the DfE for every child who was looked after at any time during the year (Department for Education, 2017e). Each data return covers a single statistical year, which is concurrent with a financial year (i.e. the most recent 2017 SSDA903 return collected information for the period from the 1<sup>st</sup> April 2016 to the 31<sup>st</sup> March 2017).

Data submitted as part of the SSDA903 return undergo a number of automated validation checks (Department for Education, 2016e); for example, fields that are blank or contain an invalid value are flagged for correction. Unlikely/impossible sequences of dates or combinations of legal status and placement setting are also automatically flagged, as is information that contradicts that entered in previous years for the same child. During the validation checks local authorities may correct errors or update previous years' data (e.g., they may record an end date for an episode of care that had been ongoing at the time of the last census, update ethnicity data that were missing or correct a misrecorded date of birth). The validated local authority data are then collated by the DfE and used to derive the CLA dataset.

### **3.2.3 CLA dataset structure: episodes and periods**

The CLA dataset is a longitudinal, individual-level dataset. It contains a record of the out-of-home care a looked after child has received over time linked via a unique child identifier, known as a child ID. In the CLA dataset a child's care history is divided into episodes and periods. A period of care is defined as the total length of time that a child is continuously looked after by a local authority. A period of care ends when a child ceases to be looked after, or when they change from being looked after for respite reasons to non-respite reasons, or vice versa. A period of care can consist of one or more episodes. An episode is defined as a length of time that a child is looked after under the same legal status and in the same placement (Department for Education, 2017e). An episode ends when a child's legal status and/or placement changes. However, as an episode of care cannot be less than 24

hours in duration, if a child's placement and/or legal status changes multiple times in one day, only the final placement and legal status are recorded in the CLA dataset.

### **3.2.4 Content of the CLA dataset**

The specific information collected by the SSDA903 return (and thus contained in the CLA dataset) has changed over time, but can be broadly grouped under three headings: child characteristics, episode details and indicators and outcomes of care. The information collected by the most recent SSDA903 return and included in the CLA dataset is listed in Table 3-1 and briefly summarised here.

#### **Child characteristics**

Names are not collected by the SSDA903 return or included in the CLA dataset. The main identifier in the CLA dataset is a unique child ID which is assigned when a child becomes looked after by a local authority for the first time. This child ID allows care histories to be linked over time and enables longitudinal analyses. A pseudonymised unique pupil number (UPN) is recorded for looked after children who attend a maintained (or state funded) school or nursery in England (Department for Education, 2013e), which allows linkage of CLA data to other education and social care datasets held by the DfE (Department for Education, 2013a). The demographic information collected in the CLA dataset is limited to date of birth, sex, ethnicity, whether a child is an unaccompanied asylum seeker and for girls who are looked after, whether they are a mother.

#### **Episode details**

The start and end date of each episode of care is recorded in the CLA dataset. The legal status, which describes the legal basis underpinning a child becoming or continuing to be looked after by a local authority, is also recorded for each episode. The information related to out-of-home care placements that is recorded, includes the setting (where the child is living and being cared for), location (in or outside the local authority) and provider (local authority, voluntary or private). For each period of care, the reason a child initially became looked after is recorded as their category of need (or reason looked after before the 1<sup>st</sup> April 2000), as well as the reason they

ceased to be looked after (e.g., they returned home to their parents, were adopted or died).

### **Indicators and outcomes of care**

One of purposes of the CLA dataset is to monitor outcomes for looked after children while in care and on reaching adulthood (Department for Education, 2017e); however, outcomes are generally only recorded for children who have been in continuous care for 12+ months. The data recorded for these children in long-term care include whether they were convicted of a crime, identified as having a substance misuse problem, offered intervention to treat substance misuse and had up-to-date health checks, dental exams and immunisations. If they are aged 4-16 years, children should have an annual Strengths and Difficulties Questionnaire (SDQ) administered and this score is recorded in the CLA dataset. This SDQ score can be used as a standardised indicator of emotional or behavioural disorders (Goodman *et al.*, 2000; Ford *et al.*, 2007). In addition, indicators of care, such as time to adoption, participation in statutory case reviews and being missing from care, are collected in the CLA dataset for all looked after children, when relevant.

**Table 3-1 Information collected by the SSDA903 return for the statistical year ending the 31<sup>st</sup> March 2017**

<p><b>Child characteristics</b>  <i>For all children in care</i>  <u>Child ID</u>  <u>Sex</u>  <u>Date of birth</u>  <u>Ethnicity</u>  <u>Unique pupil number</u>  <u>Is the child an unaccompanied asylum seeker (UASC)?</u>  Date UASC status ended  Is a girl in care a mother?  Date of birth of the mother's child</p>	<p><b>Episode information</b>  <i>For all children in care</i>  <u>Local authority providing care</u>  <u>Start date of period of care</u>  <u>Start date of episode</u>  <u>Reason a new episode started</u>  Reason a placement changed  <u>Legal status</u>  <u>Category of need of child</u>  <u>Placement type</u>  Placement location  Placement provider  Unique reference number of placement provider  <u>End date of care episodes</u>  <u>Reason episode ceased</u>  Home postcode  Placement postcode</p>	<p><b>Indicators and outcomes of care</b>  <i>For all children in care</i>  Start and end dates of any period that the child was missing from care  Is the child re-entering care after the breakdown of a permanent placement?   <i>For children in continuous care for 20 days</i>  Date of statutory review  How did the child participate in the review?   <i>For children in continuous care for 12+ months</i>  Was the child convicted during the year?  Was the child identified as having a substance misuse problem?  Was the child offered an intervention for substance misuse problem?  Are health surveillance checks up to date?  Are annual health assessments up to date?  Are immunisations up to date?  Were the child's teeth checked by a dentist during the year?  Was the child eligible to take GCSE examinations?  What was the child doing when aged 16+ years (e.g., in school, employment)?  Strengths &amp; Difficulties Questionnaire score</p>	<p><i>For children re-entering care after the breakdown of a permanent exit from care</i>  Type of permanent arrangement  Date of exit via permanent arrangement  Local authority at time of exit   <i>For children who are placed for adoption</i>  Date of decision to be placed for adoption  Date child and adopters were matched  Number of prospective adopters  Sex of prospective adopters  Marital status of prospective adopters  Were prospective adopters former foster carers?  Date of adoption  Date of decision that a child should no longer be placed for adoption was made  Reason why a child should no longer be placed for adoption   <i>For care leavers</i>  Was the local authority in touch with the young person during the year?  What was the child doing (i.e. in education or employment)?  What type of accommodation was the child living in?  Was the accommodation suitable?</p>

*The underlined variables are routinely available for request according to Department for Education (DfE) guidance (Department for Education, 2014b); however, all requests are subject to approval by the DfE's Data Management Advisory Panel. This table is adapted from Mc Grath-Lone et al. (2016).*

### 3.2.5 Evolution of the CLA dataset: 1977-2017

Routine collection of disaggregated, individual-level data for children in care began in 1977 with the introduction of the SSSA903 return, an annual census of all local authorities in England and Wales. This data collection was paper-based with local authorities returning a single form for each child who had been looked after during the preceding statistical year (Figure 3-1). The information collected was similar to the current SSSA903 return; for example, it included placement setting, the reason a child was in care and the resolution of all episodes of out-of-home care.

SSDA 903
Department of Health
Identity no. of child \_\_\_\_\_

## Children in care of Local Authority

**Please complete in black ink**

**Explanatory notes**  
For items 2, 4, 5 & 10 enter non-significant zeros eg if the number 91 is to be entered at item 2 enter thus:  

0	0	9	1
---	---	---	---

if the date to be entered at item 4 is 3rd June 1975 enter thus:  

0	3	0	6	7	5
---	---	---	---	---	---

**Instructions**  
See 'Guidance notes' for full coding instructions.  
Only one figure to be entered in each box.  
A completed episode must have an entry in each box.  
A child continuing in care on 31 March must have an entry in all the boxes for items 5 to 9 inclusive.  
Boxes for items 10 and 11 must be left blank.

Return the completed form (or copy) to DH at the end of each year (1 April to 31 March) in which there were relevant episodes. Please blank out episodes which ceased before 1 April last year.

**Item 1 Local Authority**  

--	--	--	--

**Item 2 LA sheet No.**  

--	--	--	--	--	--

**Item 3 Sex** (enter 1 in box if boy, 2 if girl)  

--

**Item 4 Date of birth**  

day	month	year

**A separate line should be used for each care episode. Where a care episode has ceased, items 10 and 11 should be completed.**

	Item 5 Date episode commenced			Item 6 Local status	Item 7 Reason episode commenced	Item 8 Accommodation	Item 9 Resolution	Item 10 Date episode ceased			Item 11 Reason episode ceased
	day	month	year					day	month	year	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

**Remarks** [NA]

SSDA 903
MCR 069904/1/8310299 1 in 7/90 DTPM

**Figure 3-1 Example of the historic paper-based SSSA903 return form**  
In use circa 1988. Obtained from The National Archives.

The SSDA903 return was used to derive a national dataset known as the Children in Care (CiC) dataset which was used to produce national and local authority level reports about children in care (The National Archive, 2014). The SSDA903 return was originally collected by the Department for Health and Social Services and when these departments split in 1987 the Department of Health assumed responsibility for data collection (The National Archive, 2014).

In 1992, as part of the enactment of the Children Act 1989, responsibility for collating the SSDA903 return transferred to the DfE. During this transition, separate data collections for Wales and England were introduced and a number of amendments were made to the SSDA903 return, including changes to the type of information it collected and how this information was coded. The most significant change was that each looked after child was assigned a local authority child ID and this introduction of a unique, persistent child identifier allowed an individual's records of care to be linked over time. Previously, only the sheet number of a child's SSDA903 return form had been recorded and, as this changed for each data collection, information for an individual could only be linked within a statistical year in the CiC dataset (The National Archive, 2014).

Following the changes to the SSDA903 return in 1992, the CiC dataset was archived and a new, longitudinal dataset (the CLA dataset) was collated for the first time. Initially, the DfE mandated that information must be returned for all looked after children in England as part of the SSDA903 return: however, between 1998 and 2003 individual-level data were only collected for children whose day of birth was divisible by three (i.e. a random, one-third sample of the population) and aggregate data were collected for all other children (Department for Education, 2017e). In 2004, the SSDA903 return reverted to collecting individual-level data for all looked after children. In 2002, information about the activity and accommodation of recent care leavers at age 19 was introduced to the SSDA903 return, with further follow-up at other ages introduced in later years (Department for Education, 2017e). As well as changes in who is included in the SSDA903 return, there have also been changes over time in the type of information that is collected (Figure 3-2).

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Child characteristics <sup>a</sup>	Plain shading					Patterned shading						Plain shading														
Episode information	Plain shading					Patterned shading						Plain shading														
Outcome information <sup>b</sup>							Patterned shading										Plain shading									
Care leaver information <sup>c</sup>												Patterned shading		Plain shading												

**Figure 3-2 Coverage of information collected in the SSDA903 return, for the statistical years 1992 to 2017**

Plain shading=individual-level data for all children and relevant care leavers; patterned shading = individual-level information for children and relevant care leavers whose day of birth was divisible by three and aggregate data for all others. <sup>a</sup>Ethnicity was first collected in 2002. <sup>b</sup>Outcome data are only collected for certain groups or children (e.g., those who are looked after continuously for 12+ months). The type of outcome data currently collected as part of the SSDA903 return is listed in Table 3-1. <sup>c</sup>Information was initially collected for care leavers at age 19 only, but has been extended to those aged 20 or 21 years since 2014, and 17 or 18 years since 2016 (Department for Education, 2017e). This figure is adapted from Mc Grath-Lone et al. (2016).

Information about outcomes for looked after children was first collected in 1999, but was limited to the activity of children in care at age 16 (i.e. were they taking exams, in further education or working). In 2009, the information that was collected was expanded to include health-related outcomes, such as immunisations, health checks and SDQ scores for children in continuous care for 12+ months (Department for Education, 2017e).

### **3.2.6 How the Department for Education use CLA data**

According to the DfE, the purposes of the CLA dataset are to monitor the care and outcomes of looked after children, whilst they are being looked after and on reaching adulthood, and to enable evaluation of the potential effects of government funding strategies and policy initiatives (Department for Education, 2017e). Each year the DfE publish an annual statistical report that contains aggregate tables and summary statistics at national and local authority level and describes trends over time based on their analysis of CLA data. For example, recent DfE reports indicate that the rates of substance misuse and offending have decreased among children in care, but the proportion of care leavers not in education, employment or training (NEET) has increased (Department for Education, 2017h). However, as highlighted in Chapter 2, DfE analyses make limited use of the longitudinal nature of the CLA dataset and tend to focus on ‘snapshots’ of care experiences within a statistical year instead of cumulative experiences throughout childhood.

### **3.2.7 Strengths and limitations of the CLA dataset**

A key strength of the CLA dataset is that, although the data are collected as a cross-sectional census, it contains a child identifier (child ID) that facilitates longitudinal analyses. Indeed, the commitment to data collection since 1992 means the use of out-of-home care can now be explored over a long period of time. Indeed, for some cohorts of children CLA data are now available from birth to age 18. Furthermore, as the CLA dataset has national coverage it enables analyses that would not be possible using local authority-level data; for example, studies of rare exposures or outcomes (e.g., death) that would not have sufficient power within a local authority. The main strength of the CLA dataset is that, as it is an administrative



dataset, it does not rely on recruitment of looked after children, care leavers, caregivers or social care practitioners, or on self-report of experiences of being looked after. As a consequence, it negates issues of recall bias, selection bias and attrition. Another important strength is that the information collected by the SSDA903 return and included in the CLA dataset is revised regularly with reference to current policy and practice priorities. For example, as highlighted in Section 2.2.5 (Changes in policy related to out-of-home care), permanence is a central component of current social care policy in England and the SSDA903 return recently began collecting data for indicators of permanence within the social care system via long-term foster care and of breakdowns in adoption, special guardianship orders and residence orders (Department for Education, 2017e). Changes such as these signal that the DfE recognises the unique value of the CLA dataset for monitoring and evaluation, and are committed to improving the range of information it contains.

From a research perspective, the CLA dataset is subject to the limitations of any administrative dataset, as outlined in Section 2.5.4 (Disadvantages of administrative data). For example, it captures aspects of service response as prioritised, recorded and classified by service providers and was not designed with research in mind. As a result, it does not contain information that would be extremely relevant and useful for addressing important research questions, such as the baseline characteristics of children entering care and their families (e.g., level of deprivation (Bywaters *et al.* 2014a, 2014b), experiences of domestic violence or parental substance abuse (Simkiss *et al.*, 2012; Simkiss, Stallard & Thorogood, 2013; Stanley, Riordan & Alaszewski, 2005)) or details of the care and support looked after children receive (e.g., therapeutic interventions provided, parental contact (Boyle, 2015) or placement with siblings (Ashley & Roth, 2014)). Indeed, only limited aspects of out-of-home care are routinely recorded in this administrative dataset, which means it is not possible to explore detailed practice using this data source.

An additional limitation is that the outcome data that are collected is for specific groups of looked after children and care leavers only, and potentially useful linkage to other non-DfE datasets (for example, related to health, justice or income) is not

readily facilitated as name is not collected (Department for Education, 2017c). The historical restriction of data collection between 1998 and 2003 also limits the power of the CLA dataset for longitudinal analyses, particularly when exploring variation by local authority, or for relatively rare placements or outcomes.

Another major limitation of the CLA dataset is that child ID is a local authority-specific identifier (i.e. it is unique within a local authority). A child who is looked after in more than one local authority will be assigned multiple child IDs and, as a consequence, it is not possible to link children's care records across these administrative boundaries. Similarly, when a child is adopted they receive a new legal identity and so, if they subsequently become looked after again, they are assigned a new child ID. This means that a child's records of out-of-home care pre- and post-adoption cannot be linked (Department for Education, 2017e).

### **3.2.8 Accessing CLA data**

Access to CLA data is managed by the DfE. To request a CLA data extract, researchers must complete an information security questionnaire and application form that outlines the aims of their analyses and clearly justifies the need for each requested variable (Department for Education, 2014b). Most CLA data related to child characteristics and episodes of care are routinely available for request, from the 2006 statistical year onwards (as highlighted in Table 3-1). Other variables (such as SDQ score, postcode or UPN) or earlier years of data are not routinely available, but can be requested and have previously been supplied for research purposes (for example to Sebba *et al.* (2015) and Ubbesen, Gilbert and Thoburn (2015)). Though the CLA data extracts that are provided to researchers are pseudonymised, the information it contains is considered to be 'tier 1' (i.e. sensitive, personal information). Consequently, all requests for CLA data must be considered and approved by an advisory panel at the DfE, known as the Data Management Advisory Panel (DMAP). Anecdotally, the length of time between submitting an application and receiving CLA data can vary considerably, from a few weeks to several months.

### **3.3 Details of the CLA data extract analysed in my PhD study**

#### **3.3.1 Coverage**

The final extract of CLA data that I analysed contained all episodes of care from the 1<sup>st</sup> January 1992 to the 31<sup>st</sup> December 2013 for a one-third sample of children born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 2012. This one-third sample was selected by the DfE and was comprised of all children whose day of birth was divisible by three (i.e. for whom disaggregated, individual-level data were collected between 1998 and 2003 and, thus, for whom complete care histories were available). When requesting data from the DfE I chose to restrict my requests to children with complete care histories as one of the main objectives of my PhD study was to explore cumulative aspects of placement in out-of-home care (e.g., cumulative incidence, total number of placement moves and total time spent in out-of-home care).

When I commenced my PhD in October 2014 an extract of CLA data for children whose day of birth was divisible by three that covered the statistical years 1992 to 2012 was already available to me. Since then, I made two additional applications to the DfE for more recent years of CLA data for this one-third sample of children. The first application took 7 months to be processed (from submission in July 2015 to receipt of data in March 2016) and extended the coverage of my data extract to the statistical year 2014. My second application took 11 months to process (from submission in September 2016 to receipt of data in August 2017). The final data extract that I analysed in this study contained all episodes of care from the 1<sup>st</sup> January 1992 to the 31<sup>st</sup> December 2013 for 103,051 children born between 1992 and 2012 whose day of birth was divisible by three. This ensured I had at least 1 year of follow-up for all children (and up to 18 years, depending on a child's year of birth).

#### **3.3.2 Included variables**

My CLA data extract included most of the variables that are routinely available for request from the DfE, as underlined in Table 3-1. It did not include any variables related to indicators and outcomes of care. Briefly, my CLA data extract contained:

### *Child identifiers*

Two child identifiers were included in my CLA data extract: child ID (a local authority specific identifier) and pupil matching reference (PMR), a pseudonymised identifier based on and provided in lieu of UPN.

### *Demographic characteristics*

Demographic information was limited to date of birth, sex and ethnicity. My request for the 'unaccompanied asylum seeking status' variable was not approved by the DMAP who reviewed my application.

### *Details of episodes and periods of care*

My CLA data extract contained the dates and reasons that each episode of out-of-home care started and ended.

### *Details of placement setting*

The 'placement type' variable included in my CLA data extract described where a looked after child resided and was cared for, including placements with parents.

### *Information on the context of care placements*

My CLA data extract included the legal status of each episode of care which captures the legal basis underpinning a child becoming or continuing to be looked after. The reason a child became looked after was recorded in my CLA dataset as their category of need (or their reason looked after for episodes of care that began before the 1<sup>st</sup> April 2000). As previously outlined, there are eight possible values for the 'category of need' variable currently recorded in the CLA dataset, namely:

1. Abuse or neglect
2. Child's disability
3. Parental illness or disability
4. Family in acute stress
5. Family dysfunction
6. Socially unacceptable behaviour
7. Low income
8. Absent parenting

### 3.3.3 Data extract cleaning

The SSDA903 return is subject to a number of automated validation checks during data entry by local authorities, as outlined in Section 3.2.2 (Data collection: how is the CLA dataset derived?). To maximise the accuracy and quality of my CLA data extract I carried out the following additional cleaning steps:

#### *De-duplicating individuals who were looked after in multiple local authorities*

As child ID is a local authority specific-identifier, a child who is looked after in more than one local authority will have multiple child IDs recorded. To minimise the number of children recorded as separate individuals in different local authorities, I de-duplicated my extract of CLA data using PMR. PMR is a persistent identifier based on UPN that remains constant for a child throughout their educational career, unless they are adopted.

UPN has only been collected in the CLA dataset since the 1<sup>st</sup> April 2005, and as a result PMR could not be recorded for children who were only looked after before this date. Of the 70,605 children with an episode of care recorded on or after the 1<sup>st</sup> April 2005, more than half (51.4%) had a PMR recorded and a small proportion of these 36,291 children (1.8%,  $n=653$ ) shared their PMR with at least one other child ID. My decision as to whether child IDs with a common PMR represented the same individual receiving care in different local authorities was based on the similarity of their demographic characteristics using matching criteria I specified *a priori* (summarised in Figure 3-3).

Many of the children identified as being looked after in multiple local authorities when de-duplicating PMR were recorded as having a period of care end in one local authority because it transferred to another. The majority of these children became looked after in another local authority on the same day that their care ceased in their original local authority. Therefore, I next de-duplicated children whose care was recorded as transferring to another local authority. My decision as to whether child IDs represented the same individual whose care had transferred to a different local authority was based on the similarity of demographic and care characteristics

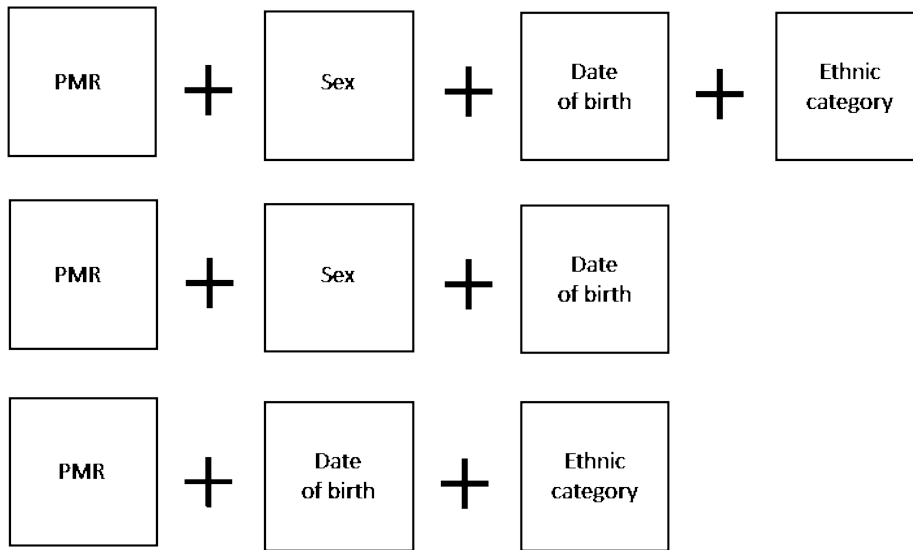
using matching criteria I specified *a priori* (summarised in Figure 3-3). Following these data cleaning step, 753 child IDs (0.7%) were found to be duplicates.

*De-duplicating individuals who become looked after following adoption*

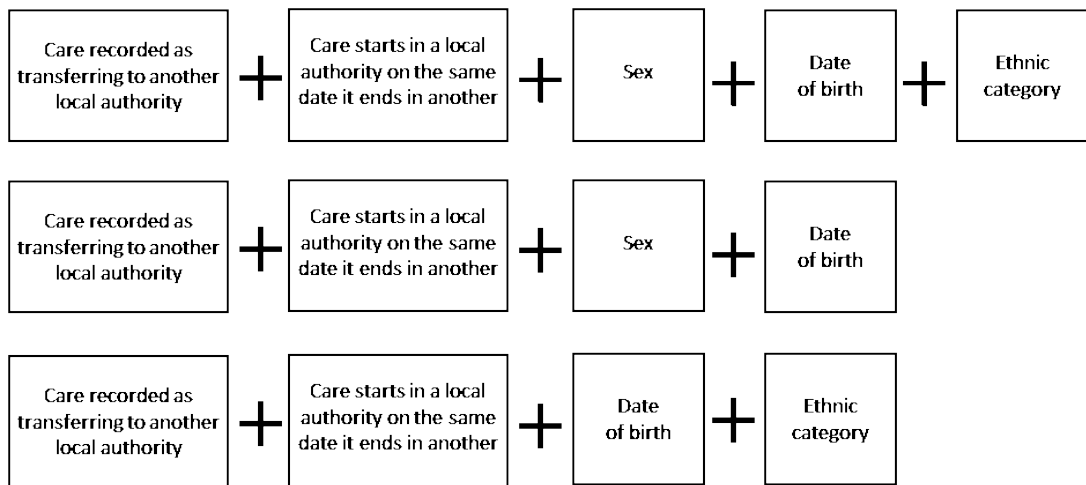
For children who experience an adoption breakdown it is not possible to link pre- and post-adoption records of out-of-home care in the CLA dataset as they are assigned a new child ID when re-entering care. However, before the 1<sup>st</sup> April 2000, breakdown of an adoptive family was one of the reasons for becoming looked after that could be recorded. In an attempt to de-duplicate children becoming looked after following adoption breakdown, I identified potential matches based on the similarity of demographic and care characteristics using matching criteria I specified *a priori* (summarised in Figure 3-4).

Between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> March 2000 there were 3,409 adoptions recorded in my CLA data extract, but there were just four recorded instances of a child becoming looked after due to the breakdown of their adoptive family. Two of these records appeared to be errors as the children were recorded as becoming looked after following breakdown of their adoptive families shortly after birth (1 week and 2 months respectively) and there were no records of individuals with the same sex and date of birth being adopted in the data extract before the date they “re-entered” care. The other two children had just one possible match in the data extract using the criteria I specified and were de-duplicated accordingly.

If pupil matching reference (PMR) is recorded, child IDs that uniquely match on the following criteria will be considered duplicate records for the same child:



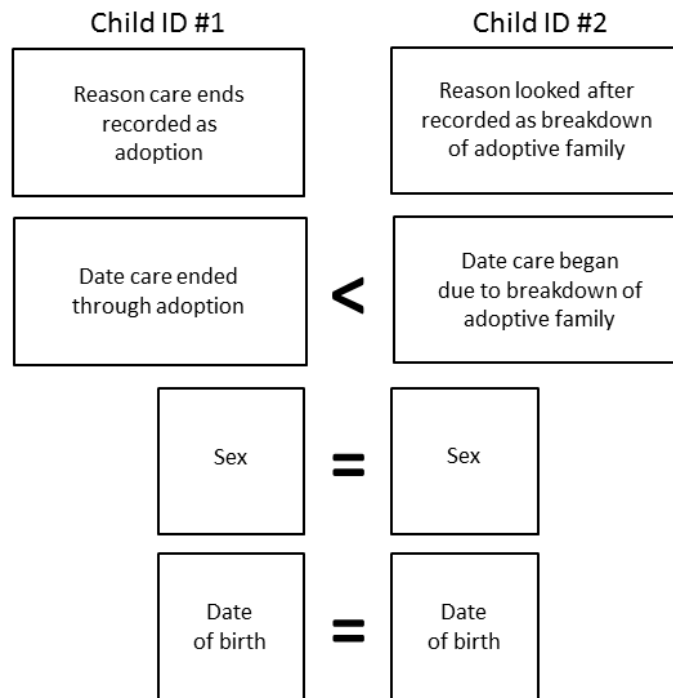
If PMR is not recorded, child IDs that uniquely match on the following criteria will be considered duplicate records for the same child:



**Figure 3-3 Criteria for de-duplicating child ID for children who are looked after in more than one local authority**

*ID=identifier; PMR=pupil matching reference. In this de-duplication process, I considered a unique match to be a single, exact match for all included variables. In total, 735 child IDs were de-duplicated using these matching criteria.*

Child IDs that meet the following criteria will be considered duplicate records for the same child:



**Figure 3-4 Criteria for de-duplicating child ID for children who are recorded as being looked after due to the breakdown of their adoptive family**  
*ID=identifier. In total, 2 child IDs were de-duplicated using these matching criteria.*

#### *Cleaning demographic data*

Ethnicity has only been collected in the CLA dataset since the 1<sup>st</sup> April 2000 and therefore could not be recorded for children who were only looked after before this date. Of the 84,312 children with an episode of care recorded on or after the 1<sup>st</sup> April 2000, 99.4% had ethnicity recorded. However, ethnicity varied across child ID for a small proportion of these children ( $n=462$ , 0.6%). For these children I calculated their modal ethnicity, or where a mode could not be calculated (i.e. where there were equal numbers of records for multiple ethnicities) I assumed the most recently recorded ethnicity was correct. For children who were only looked after before the 1<sup>st</sup> April 2000 ( $N=9,342$ ), I used multiple imputation to determine an individual's likely ethnicity. The methods and results of this multiple imputation are described in detail in Chapter 4. Sex and date of birth was recorded for all children, though this is likely to be because the SSDA903 does not allow these fields to be left incomplete or recorded as missing. If there was a contradiction in sex or



date of birth following de-duplication of child ID, I assumed that the most recently recorded information was correct.

#### *Cleaning data related to start and end dates of episodes*

An episode of care cannot last for less than 24 hours; however, a small number of episodes beginning and ending on the same day were recorded in my CLA data extract ( $n=208$ , 0.05%). Other errors included episodes that had missing end dates, ended before they began or began before the preceding episode in a period of care ended ( $n=79$ , 0.02%). I manually screened and corrected these errors to ensure that valuable information was not lost by simply deleting the erroneous records. This approach was consistent with DfE guidance that permits information to be changed to capture the essence of an episode (Department for Education, 2017e).

### **3.3.4 Data extract preparation**

#### *Harmonising longitudinal data*

The CLA dataset is an encoded dataset in which many variable values are recorded using defined alpha-numeric codes. However, the codes used to record variables have changed since the DfE began collating CLA data in 1992. In recent years, changes to these variable codes have been documented in annual guidance manuals for the SSDA903 return published by the DfE (Department for Education, 2017e). These guidance manuals were my main reference source when harmonising variables in my CLA data extract that spanned more than 20 years. One exception was for the variable 'reason looked after' which was replaced by the category of need variable on the 1<sup>st</sup> April 2000. As there is no official guidance about how these two variables relate to each other (Department of Health Statistics, 1999), I harmonised them based on information from personal correspondence with the DfE and from historic department circulars and documentation related to the CLA and CiC datasets that I accessed through the National Archives. Appendix C-1 describes how I mapped the historic reason looked after codes to current categories of need.

#### *Creating categories from detailed variables*

The CLA dataset contains detailed information related to ethnicity, legal status and placement. However, this level of detail is not always necessary, useful or ethical

when conducting analyses and presenting results; for example, narrow groups may limit the power of analyses or potentially be disclosive (UK Statistics Authority, 2009).

For my PhD study, I created broader categories of ethnicity, legal status and placement by grouping similar values together, guided by the standard categories used in DfE publications (Department for Education, 2017f). For ethnicity, I used the standard DfE categories (Table 3-2) as these are also the standard categories used by the Office for National Statistics, the primary source of denominator data in my analyses (Office for National Statistics, 2010).

**Table 3-2 Ethnic categories used in this study**

<b>Broad ethnic category</b>	<b>Minor ethnic categories included</b>
White	White British, White Irish, Traveller of Irish heritage, Gypsy/Roma, Other White
Mixed	White and Black Caribbean, White and Black African, White and Asian, Other Mixed
Asian or Asian British	Indian, Pakistani, Bangladeshi, Other Asian
Black or Black British,	Caribbean, African, Other Black
Other ethnicity	Chinese, any other ethnic group

*This grouping of minor ethnic categories into broad ethnic categories is based on that used by the Department for Education (Department for Education, 2017f).*

DfE statistics typically group legal status into six categories: care orders, freeing orders, placement orders, voluntary care, child protection and youth justice (Department for Education, 2017f). However, as placement orders replaced freeing orders from the 30<sup>th</sup> December 2005, I chose to combine these groups and create five categories of legal status for my PhD study. The codes included in each legal status category varied over time and are described in Appendix C-2.

DfE statistics typically group out-of-home care placements into seven categories: foster placement, placed for adoption, other community placement (i.e. independent living and residential employment), children’s home (including secure units), residential school, other residential setting and other setting. However, I

chose to include only four placement setting categories in my study as there were only small numbers of children placed in and slight differences between some of the original DfE categories. Table 3-3 summarises the relationship between the placement categories I created for my PhD study and the standard categories used in DfE reports. It also describes my rationale for assigning a placement setting to a different category than the one used by the DfE. The CLA codes included in each placement category varied over time and are described in Appendix C-3.

*Excluding children beyond the scope of my PhD study*

The final step in preparing my CLA data extract was to exclude children who were beyond the scope of my PhD study. In total, I excluded 3,051 children (3.0%) who were only ever looked after at home with their parents and 5,593 children (5.5%) who were only ever placed in respite care under an agreed series of short-term breaks.

**Table 3-3 Categories of out-of-home care placements used in my PhD study**

<b>Study placement category</b>	<b>Placement type</b>	<b>Department for Education placement category</b>	<b>Rationale if study placement category differs from Department for Education category</b>
Family care setting	Foster care with relative or family friend	Foster placement	I chose to group these placements together as the difference between them relates to care planning and (possibly) legal status, rather than the setting itself.
	Foster care with other carer	Foster placement	
	Placed for adoption	Placed for adoption	
Residential care setting	Children's home	Secure units, children's homes and semi-independent accommodation	I chose to group these placements together as they all involve placement in a residential setting where care and supervision is provided by staff. Furthermore, residential care settings other than children's homes are relatively uncommon placement settings. For example, <0.5% of children were recorded as being looked after for in a residential school on the 31 <sup>st</sup> March 2016 (Department for Education, 2017f).
	Secure unit	Secure units, children's homes and semi-independent accommodation	
	Residential care home	Other residential settings	
	Other medical or nursing care establishment	Other residential settings	
	Residential school	Residential school	
	Family centre or mother and baby unit	Other residential settings	
	Other supervised residential accommodation	Other residential settings	

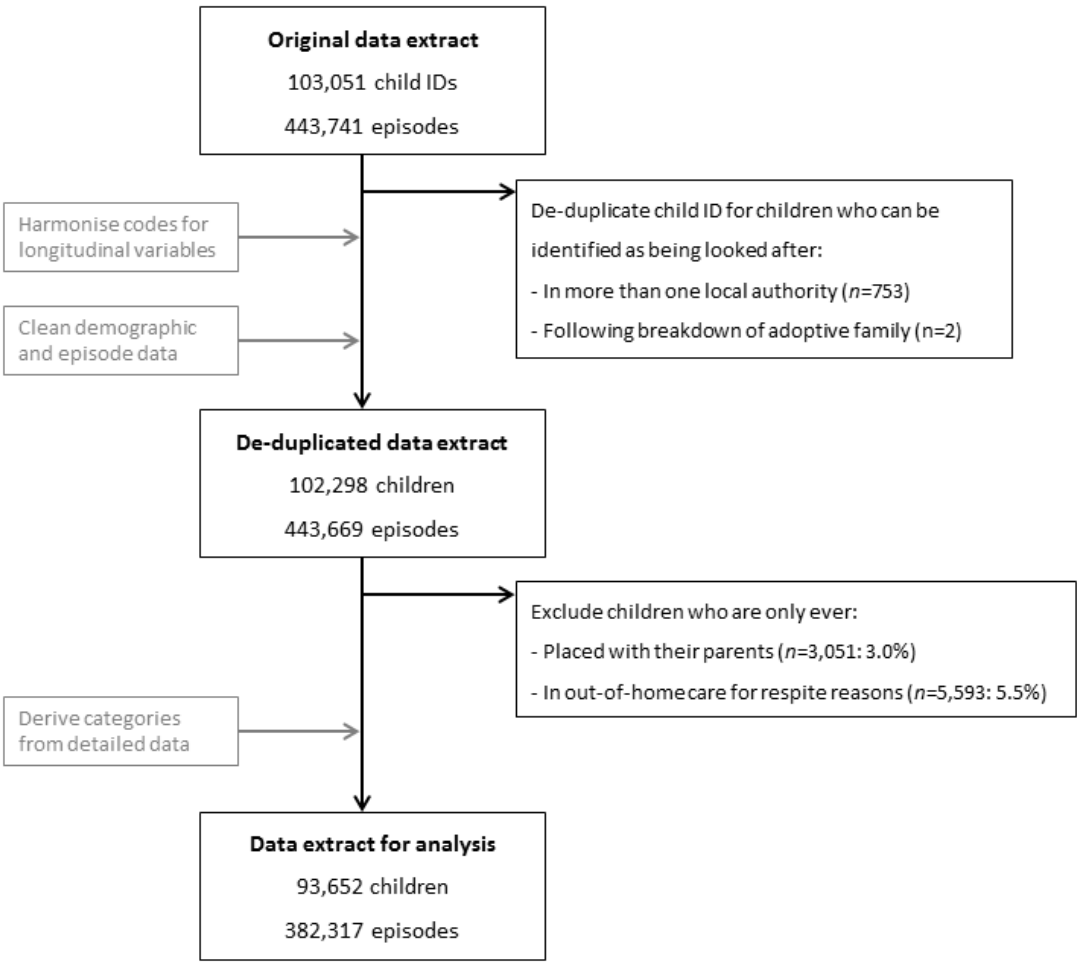
*(continued overleaf)*

<b>Study placement category</b>	<b>Placement type</b>	<b>Department for Education placement category</b>	<b>Rationale if study placement category differs from Department for Education category</b>
Independent living	Independent living	Other placements in the community	No change to the content, but I renamed this category as residential employment is a rare placement setting (i.e. <10 children were recorded in this setting on the 31 <sup>st</sup> March 2016 (Department for Education, 2017f)).
	Residential employment	Other placements in the community	
Other care setting	Young offender institution or prison	Other residential settings	I chose to combine young offender institutions and prisons with youth treatment centres due to the high levels of security and supervision in both settings. I also chose to include them in the 'other placements' category as they are not frequently recorded in the CLA dataset.
	Youth treatment centre	Other residential settings	
	Other placements	Other placements <sup>a</sup>	

*The categories of out-of-home care placement settings presented in Table 3-3 were reviewed in response to feedback from my PhD upgrade examiners. This table is adapted from Mc Grath-Lone et al. (2016). <sup>a</sup>Includes children missing from care.*

### 3.4 Summary of final data extract

Figure 3-5 summarises the pre-analysis data cleaning and preparation steps I undertook. The CLA data extract that I analysed in my PhD study included all episodes of care from the 1<sup>st</sup> January 1992 to the 31<sup>st</sup> December 2013 for a one-third sample of children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 2012 and entered out-of-home care for non-respite reasons. Overall, my CLA data extract contained 382,317 episodes of care for 93,652 children. For most of my analyses, I focused on a sub-sample of children for whom complete care histories from birth to age 18 were available i.e. children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 ( $N=19,848$ ).



**Figure 3-5 Preparation of Children Looked After data extract for my PhD study**  
ID=identifier.

### 3.5 Key points from Chapter 3

- The CLA dataset is a longitudinal, individual-level dataset that contains a record of out-of-home care placements for looked after children in England. The information contained in the CLA dataset can be broadly grouped as: child characteristics, episode details and indicators and outcomes of care.
- CLA data have been collected since 1992 which means cumulative experiences of out-of-home care can now be explored over a long period of time; indeed, complete care histories from birth to age 18 are available for some cohorts of children. However, DfE analyses tend to focus on cross-sectional 'snapshots' rather than longitudinal analyses.
- The CLA data extract that I analysed in my PhD study included all episodes of care from the 1<sup>st</sup> January 1992 to the 31<sup>st</sup> December 2013 for a one-third sample of children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 2012 and entered out-of-home care for non-respite reasons.

## Chapter 4 The incidence of out-of-home care

### Statement of authorship

I carried out all of the work presented in this chapter, which has been published as a peer-reviewed article in *Child Abuse and Neglect* (reproduced in Appendix H-1).

#### 4.1 Content and structure of Chapter 4

In Section 2.4 (What is already known about the use of out-of-home care in England?), I highlighted that the fundamental question of how many children are placed out-of-home care in England is yet to be fully addressed. In this chapter, I will describe how I quantified the incidence of being placed in out-of-home care among children in England, and described variation in the use of this social care intervention by demographic characteristics and geographic area. In this set of descriptive analyses, I applied simple epidemiological measures and methods which are often used to quantify and explore variation in populations of interest in a public health context to the study of placement in out-of-home care.

I will first introduce the rationale for this analysis, outline its aim and objectives and describe the methods that I used. I will then present my results and discuss the main findings in relation to relevant published literature and the strengths and limitations of this part of my PhD study. Finally, I will close this chapter with a summary of its key points.



## **4.2 Introduction**

### **4.2.1 Children placed in out-of-home care are a vulnerable population**

Despite its widespread use in practice and policy, ‘vulnerability’ is a poorly-defined concept (Cordis Bright, 2017b; Coram and Coram International, 2017; HM Government, 2006). In England, conceptualisations of vulnerability related to children, tend to focus on the risk of adverse outcomes and/or need for additional support to thrive (Coram and Coram International, 2017). Therefore, while all children are considered to be innately vulnerable (and, hence, are afforded special status and protection in law and society (UNICEF UK, 2004; Law & Martin, 2009)), some groups are considered to be more vulnerable than others (Daniel, 2010). Under a conceptualisation of vulnerability that is based on the likelihood of poorer outcomes, children placed in out-of-home care could certainly be considered a vulnerable group. For instance, as previously discussed in Section 2.3.3 (Out-of-home care is associated with multiple adverse outcomes), there is a large body of evidence that describes poorer outcomes across educational, economic, health, social and behavioural domains for children placed in out-of-home care in England (Cordis Bright, 2017a).

Vulnerability is not a value-neutral concept and critics argue that it is a stigmatising label used to control and oppress groups who do not conform to middle-class expectations and standards (Brown, 2011). On the other hand, the use of this label can also be viewed as a means of legitimising resources and funding and, ultimately, achieving social justice for so-called vulnerable groups (Brown, 2011). In this latter context, considering children in care as vulnerable creates a societal imperative to provide additional support and services to a group who experience disproportionate and lifelong adversity, in an effort to improve their outcomes and life chances.

A recent project conducted by the Office of the Children’s Commissioner for England identified 32 specific groups of children who were considered to be vulnerable and in need of additional support and monitoring (Cordis Bright, 2017b; Alma Economics, 2017). As part of this project, the Children’s Commissioner stated that “as a society [we] need to know who these children are, [and] how many there

are... if we are to have any hope of beginning to address their needs” (Children’s Commissioner for England, 2017, p1). Hence, to support and provide services to the vulnerable population of children placed in out-of-home care, a crucial prerequisite is to understand its size, composition and distribution (Bonita & Beaglehole, 2006). However, the question of how many children are placed in out-of-home care in England is not necessarily a straightforward one to answer.

#### **4.2.2 Limitations of cross-sectional statistics**

In England, data related to children in out-of-home care are routinely collected by the Department for Education (DfE) and collated to create the Children Looked After (CLA) dataset (Department for Education, 2017e). This administrative social care dataset is the ‘gold-standard’ source of information related to children in out-of-home care in England (UK Statistics Authority, 2013) and the basis of official statistical reports. The DfE mainly take a cross-sectional approach to describing out-of-home care using CLA data. One of the main measures they report is the number of children in care on a single day in a year, namely the 31<sup>st</sup> March. This ‘stock’ measure provides a partial answer to the question of how many children are placed in care, and is useful from a system point of view as it gives a sense of the demand for services. For example, each year approximately 100,000 children spend time in out-of-home care (Department for Education, 2017g). As previously described in Section 2.4 (What is already known about the use of out-of-home care in England?), official statistics also show that there is variation in the use of out-of-home care by demographic characteristics and geographic areas. For example, children from some ethnic minorities are over-represented in the care population, and rates of placement in out-of-home care (per 10,000 children) vary considerably between local authorities.

However, these DfE statistics are cross-sectional ‘snapshots’ of the population of children in out-of-home care on a given date in a year that do not account for the complex, longitudinal nature of care placements by distinguishing between new and old care episodes. Moreover, they do not provide a sense of the overall scale of the population of children placed in out-of-home care or the cumulative effects of

ethnic disproportionalities as they do not account for the size of the denominator population or the dynamic nature of being placed in care.

### **4.2.3 Advantages of incidence-based measures**

An alternative measure that is often used in public health and could enhance our understanding of the relative size of the population placed in out-of-home care is incidence. Incidence is a commonly-used measure in the study of events or outcomes of interest in the field of epidemiology. Though the exact definitions may vary, incidence is generally considered to be the rate of occurrence of new cases arising in a population in a given period (Bonita & Beaglehole, 2006). An advantage of incidence as a measure of a population of interest is that it provides a sense of scale by accounting for the size of the denominator population; as a result, it can provide insight into how common an experience or event is. In the context of out-of-home care, incidence-based measures may be useful as they account for previous care history and so are well-suited to measuring dynamic populations (Vandenbroucke & Pearce, 2012). Furthermore, incidence-based measures also enable variation between demographic groups, geographic areas or over time to be explored fairly, as they account for potential differences in the relative size or composition of the denominator populations (Vandenbroucke & Pearce, 2012).

Very few studies have used incidence-based measures to quantify the population of children placed in out-of-home care in England. In my systematic review of this topic (previously described in Section 2.4), I identified just five studies that calculated the incidence of placement in out-of-home care (Table 4-1). However, the definitions of placement in out-of-home care were based on retrospective self-report for the four cohort-based studies (Botchway, Quigley & Gray, 2014; Viner & Taylor, 2005; Dregan, Brown & Armstrong, 2011; Dregan & Gulliford, 2012) or only included compulsory placements in care for the study based on administrative data (Ubbesen, Gilbert & Thoburn, 2015). In addition, none of these studies estimated the incidence throughout childhood (i.e. from birth to age 18) or explored variation by sex, ethnicity or geographic area in any detail.

**Table 4-1 Overview of published articles that describe the cumulative incidence of placement in out-of-home care in the UK**

<b>First author (published)</b>	<b>Data source (type)</b>	<b>Population (sample size)</b>	<b>Assessment of out-of-home care history (exclusions)</b>	<b>Reported cumulative incidence</b>
Viner (2005)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=9,577)	Response to survey/interview question(s) from parents at age 5, 10 and 16, and from participants at age 30. (No exclusions reported)	4.8% by age 17
Dregan (2011)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=10,961)	As Viner (2005) and supplemented by information related to caregiver status. (Excludes episodes of care <4 weeks in length)	3.9% by age 17
Dregan (2012)	1970 British Birth Cohort Study (cohort)	Adults in the UK born April 5-11 <sup>th</sup> 1970 (N=10,895)	Response to survey/interview question(s) from parents at age 5, 10 and 16, and from participants at age 30. (Excludes episodes of care <4 weeks in length)	4.0% by age 17
Botchway (2014)	Millennium Cohort Study (cohort)	Mothers of babies born in the UK during 2000-01 (N=18,492)	Response to survey/interview question(s) from mothers when their child was aged 9 months. (Excludes placements with relatives and in schools or youth justice settings)	1.6% by age 17
Ubbesen (2015)	Children Looked After dataset (administrative data)	Children in care in eight local authorities born 1992-2008 (N=2,311)	Assessment of legal status recorded in administrative data. (Excludes voluntary episodes of out-of-home care)	1.6% by age 16

Table 4-1 is a reproduction of Table 2-4 previously presented in Chapter 2. Both the 1970 British Birth Cohort Study and Millennium Cohort Study are based on UK populations. The use of out-of-home care is known to vary between the four UK countries (Bywaters et al., 2017); however, it was not possible to extract results for England only from the published articles.

#### **4.2.4 Summary of rationale for this analysis**

Despite the well-documented associations between placement in out-of-home care and adverse outcomes (Cordis Bright, 2017a; Meltzer *et al.*, 2003), the size, composition and distribution of this vulnerable population have not yet been adequately described. Firstly, the proportion of children who are ever placed in out-of-home care during childhood in England is not known. Secondly, the cumulative effects of disproportionalities in the use of out-of-home care that are evident by sex, ethnicity and geography in cross-sectional statistics have not been fully described. Analysis of administrative data taking a longitudinal approach and using simple epidemiological methods and measures could refine our understanding of the scale and composition of the vulnerable population of children who are placed in out-of-home care in England.

#### **4.2.5 Research questions and hypotheses**

1. When are children in England most likely to enter out-of-home care for the first time?
2. What proportion of children were placed in out-of-home care during childhood?
3. Which groups of children are more likely to be placed in out-of-home care?
4. Are there local authorities in England where children are significantly more likely to be placed in out-of-home care?

I had no pre-existing hypotheses for Questions 1 or 2 as no previous studies had explored age at first entry to care or estimated the cumulative incidence of placement in out-of-home care in England by age 18. As cross-sectional statistics indicate there are disproportionalities in the use of out-of-home care by sex, ethnicity and geography, I hypothesised that the cumulative incidence of placement in out-of-home care by age 18 would be higher among boys and children of Black or Mixed ethnicity (Question 3) and vary significantly between local authorities (Question 4).

#### **4.2.6 Aim of this analysis**

To estimate the relative size, demographic composition and geographic distribution of the population of children who are ever placed in out-of-home care in England.

#### **4.2.7 Objectives of this analysis**

- a) To select a cohort of children in my CLA extract with complete care histories (from birth to age 18).
- b) To use the selected cohort and associated denominator data to:
  - i. Measure the age-specific incidence of first entries to out-of-home care, from birth to age 18.
  - ii. Calculate the cumulative incidence of children who are ever placed in out-of-home care during childhood.
  - iii. Describe demographic variation in these age-specific and cumulative incidences, by sex and ethnicity.
  - iv. Describe geographic variation in the cumulative incidence of placement in out-of-home care, by local authority.

## 4.3 Methods

### 4.3.1 Data sources

The main data source for this set of analyses was an extract of CLA data, a routinely-collected, administrative social care dataset described in detail in Chapter 3. Briefly, the CLA dataset contains detailed information related to episodes of out-of-home care among looked after children in England, and has been collated by the DfE since 1992 (Department for Education, 2017e). However, due to data collection restrictions between 1998 and 2003, complete care histories are only available for a nationally representative, one-third sample of children (i.e. those with a day of birth divisible by three for whom disaggregated data has been continuously collected).

As a source of denominator data for this analysis, I primarily used mid-year population estimates from the Office of National Statistics (ONS). These mid-year population estimates are published annually and are compiled from a combination of the best-available registration, survey and administrative data sources (Office for National Statistics, 2017b). I opted to use mid-year population estimates as they are considered to be the definitive and authoritative set of population figures for the UK and are used as denominator data by the government when calculating social and economic indicators (Office for National Statistics, 2010). Moreover, mid-year population estimates data are available for each calendar year by sex and single year of age, at national- and local authority-level (Office for National Statistics, 2017a).

A limitation of ONS mid-year population estimates is that they are not available by ethnic category. Therefore, when exploring ethnic variation I chose to use the ETHPOP database as an alternative source of denominator data (Wohland *et al.*, 2017). The ETHPOP database contains population estimates for each calendar year by ethnic category, sex and single year of age. These estimates are derived by applying an innovative model that includes assumptions about ethnic-specific rates of migration, mortality, births and marriages to a combination of official census, survey and administrative data (Wohland *et al.*, 2010). ETHPOP population estimates are only available from 2001 onwards and have recently been revised to

improve their accuracy by accounting for information from the 2011 census (Wohland *et al.*, 2017).

#### **4.3.2 Study population**

For this set of analyses, I included all children born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 who had ever entered out-of-home care for non-respite reasons ( $N=19,848$ ). I chose this cohort as their complete care histories, from birth to age 18, were recorded in the CLA data extract available to me at the time of analysis.

#### **4.3.3 Accounting for missing ethnicity data**

Collection of ethnicity data in the CLA dataset began on the 1<sup>st</sup> April 2000 (Department of Health Statistics, 1999). As a result, any children who were looked after before this date only could not have ethnicity recorded (26.9%,  $n=5,330$ ). Before I could explore whether the incidence of being placed in out-of-home care varied by ethnicity, I needed to account for this missing ethnicity data.

The first step in accounting for missing data is to explore the mechanism or probability distribution of having missing data (Sterne *et al.*, 2009; Wiggins & Sacker, 2012). If the probability of having missing data for a variable of interest does not depend on the value of the variable itself or on any other factor, the missing data can be considered to be Missing Completely At Random (MCAR). If the probability of having missing data for a variable of interest is associated with another observed variable, but is not dependent on the value of the variable of interest itself, the missing data can be considered to be Missing At Random (MAR). However, if the probability of a variable of interest being missing depends on its value, the missing data are considered to be Missing Not At Random (MNAR).

To explore whether ethnicity was MNAR, I tabulated ethnicity with the following variables that I hypothesised could influence the probability of having missing ethnicity data: local authority, sex, age and duration of placement in out-of-home care. I then tested whether there was an association between having missing ethnicity data and these continuous and categorical variables using a t-test or  $\chi^2$



test, respectively. There was no significant association between having missing ethnicity and these variables and therefore I was satisfied that ethnicity was (at the very least) MAR in my selected cohort.

There are three main strategies to account for data that are MCAR/MAR: deletion, single imputation and model-based methods (Wiggins & Sacker, 2012). Deletion methods are the simplest, computationally. One example is list-wise deletion (or complete-case analysis) whereby only individuals with complete data for all variables of interest are included in an analysis. Deletion methods are useful for comparative analyses as they use the same population; however, a disadvantage is that they reduce the statistical power of the analysis due to the restricted sample size. Instead of excluding missing data, single imputation methods replace missing data with a likely value, such as the mean or mode of the observed values in the sample or a predicted value from a regression equation. The advantage of single imputation methods is that they are based on information from observed data; however, they tend to reduce variability and weaken covariance estimates (Wiggins & Sacker, 2012). Multiple imputation is a model-based method of dealing with data that are MCAR/MAR. In multiple imputation, a regression model is used to replace missing data values and create a new dataset that is then analysed. This process is repeated multiple times before the analysis results from the multiple imputed datasets are pooled into a single estimate. The advantage of multiple imputation is that it accounts for variability due to sampling and due to imputation; however, it is computationally intensive and, like all model-based methods, there is potential for error when specifying the regression model (Sterne *et al.*, 2009).

I decided that deletion methods were not appropriate for this analysis, as excluding children with missing ethnicity data would have resulted in an incomplete sample and inaccurate estimate of the incidence of placement in out-of-home care. Given that one objective of this study was to describe variation between ethnic categories, I decided that single imputation methods were also not appropriate as they reduce the variability of the imputed variable. For example, if I had replaced missing values with the modal ethnicity of the sample, all children who were only looked after before the 1<sup>st</sup> April 2000 would have been recorded as being of White

ethnicity, which is not a feasible assumption. Therefore, I chose to use multiple imputation to account for missing ethnicity data. I used the multiple imputation program in Stata (StataCorp, 2013) with 20 iterations specified to assign a likely ethnic category to all children who were only in care before the 1<sup>st</sup> April 2000 ( $n=5,363$ ) based on the distribution of ethnicity in relation to sex and age at first entry for children who were in care after this date.

#### **4.3.4 Calculating the incidence of placement in out-of-home care**

In this analysis, I calculated the age-specific incidence and cumulative incidence of first placement in out-of-home care. I defined age-specific incidence as the proportion of children who entered out-of-home care for the first time at a single year of age and cumulative incidence as the proportion of children who had entered out-of-home care by a given age. To calculate these measures, I identified each child's first placement in out-of-home care. I defined first placement in out-of-home care as the child's first episode of out-of-home care for non-respite reasons and derived each child's age at first placement in out-of-home care based on their date of birth and the episode start date.

To calculate the age-specific incidence of out-of-home care, I counted the number of children placed in out-of-home care for the first time at each single year of age from infancy (defined in this study as <1 year) to age 17. The numerator for each incidence calculation was the number of first placements in care at that age multiplied by 3.07 (to adjust for the one-third sample). As previously outlined, I used ONS mid-year population estimates by single year of age to derive appropriate denominator data. For example, for children born between 1992 and 1994 the incidence of entering out-of-home care aged <1 year was the number who entered care for the first time aged <1 year multiplied by 3.07 and divided by the number of <1 year olds recorded in the 1992, 1993 and 1994 mid-year population estimates. For subsequent incidence calculations, I subtracted the cumulative number of children who had entered out-of-home care at younger ages from the denominator as incidence is the number of new cases in an eligible or susceptible population, and a child can only have one first placement in out-of-home care.

When calculating the cumulative incidence of placement in care, the numerator was the sum of first placements in care up to that age multiplied by 3.07 to adjust for the one-third sample. The denominator was the average number of children of that age in the relevant calendar year as derived from ONS or ETHPOP population estimates by single year of age. For example, to calculate the cumulative incidence of being placed in out-of-home care by age 3 for children born in 1992, the total number who had entered out-of-home care before their 3<sup>rd</sup> birthday was divided by the average of the number of infants in the 1992, 1 year olds in 1993 and 2 year olds in 1994 (as illustrated in Table 4-2). This life table or 'census denominator' approach accounted for entry and exit of children from the population over time due to immigration, emigration and death (Sabol, Coulton & Polousky, 2004).

**Table 4-2 Calendar year data used to derive year of birth denominator data for children born 1992 to 1994**

Year of birth	Calendar year																				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1992	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
1993		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1994			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1995				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1996					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1997						0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1998							0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1999								0	1	2	3	4	5	6	7	8	9	10	11	12	13
2000									0	1	2	3	4	5	6	7	8	9	10	11	12
2001										0	1	2	3	4	5	6	7	8	9	10	11
2002											0	1	2	3	4	5	6	7	8	9	10
2003												0	1	2	3	4	5	6	7	8	9
2004													0	1	2	3	4	5	6	7	8
2005														0	1	2	3	4	5	6	7
2006															0	1	2	3	4	5	6
2007																0	1	2	3	4	5
2008																	0	1	2	3	4
2009																		0	1	2	3
2010																			0	1	2
2011																				0	1
2012																					0

Table 4-2 illustrates the single year of age from population estimates by calendar year that I used to derive denominator data by year of birth. Shading indicates the ages for which denominator data by ethnic category was not available. Only children born between 1992 and 1994 were included in the analyses described in this chapter. Analyses including the other year of birth cohorts are described in Chapter 9 (Changes over time in the use of out-of-home care).

#### 4.3.5 Exploring demographic variation

To examine whether there were differences by sex in the incidence of being placed in out-of-home care, I repeated the calculations described in Section 4.3.4 stratified by sex. I used ONS mid-year population estimates as denominator data for these calculations as they were available by single year of age for males and females separately.

To examine whether there were differences by ethnicity in the incidence and prevalence of being placed in out-of-home care, I repeated the calculations described in Section 4.3.4 stratified by ethnic category. As previously mentioned, I could not use ONS mid-year population estimates as denominator data when examining ethnic differences as these estimates are not available by ethnic category and single year of birth. Instead, I chose to use ETHPOP data as an alternative source of denominator data. However, as ETHPOP data were only available from 2001, accurate denominator data were also only available for calculations from the age of 9 onwards for children born between 1992 and 1994 (as illustrated in Table 4-2). To calculate incidence and prevalence at earlier ages, I used the values recorded in the ETHPOP data for 2001 as the denominator (i.e. I assumed that the ethnic distribution of the population at age 9 was representative of the distribution at earlier ages). I tested the significance of observed differences in the cumulative incidence by sex and ethnicity using t-tests (see Appendices D-2 and D-3).

To further describe demographic variation, I also calculated the disproportionality index (DI) and ratio (DR) of placement in out-of-home care by age 18, by sex and ethnicity (Roelock, 2011). These simple, population-level measures account for the over- or under-distribution of a factor in a population of interest compared to the general population. For example, the DI for girls would be calculated as the percentage of the population of children placed in out-of-home care who are girls relative to the percentage of the total population who are girls. The DR for girls compared to boys would be the DI of girls divided by the DI of boys. These measures have previously been used to describe racial disproportionalities in placement in foster care among children in the US (Shaw *et al.*, 2008; Johnson-Motoyama *et al.*, 2017).

#### **4.3.6 Exploring geographic variation**

Finally, to explore geographic variation in the use of out-of-home care, I calculated the cumulative incidence by age 18 for each of the 150 local authorities in England using the methods described in Section 4.3.4. I used ONS mid-year population estimates as denominator data for these calculations as they are available at local authority-level. I then visualised these data using a funnel plot. Funnel plots are commonly used to visualise data that compare units, such as geographic areas, institutions, individuals or, in this analysis, local authorities (Spiegelhalter, 2005). A funnel plot is a (usually) horizontal plot of units' point estimates plotted against their sample size, overlaid on a horizontal line representing the overall average value and bounded with limits that denote the 95% and 99.8% control limits. The shape of these limits depends on the statistical distribution model specified, but typically the width of the limits decreases as the sample size increases, thereby creating the characteristic funnel shape. When comparing point estimates between units, some variation is expected; however, those that lie outside the funnel-shaped limits are typically interpreted as being significantly different and displaying variation beyond what would be expected, based on the specified statistical distribution model of the data.

## 4.4 Results

### 4.4.1 Sample characteristics: 1992-94 cohort

In total, 19,848 children born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 were placed in out-of-home care during childhood. As previously mentioned, ethnicity was not collected in the CLA dataset before the 1<sup>st</sup> April 2000 and was consequently missing for all children who were only in care before this date ( $n=5,330$ , 26.9%). Ethnicity was imputed for these children as per Section 4.3.3 (Accounting for missing ethnicity data). The demographic characteristics of the sample following multiple imputation are described in Table 4-3. The sample consisted of more boys than girls (54.3% vs 45.7%) and the majority of children were of White ethnicity (72.1%).

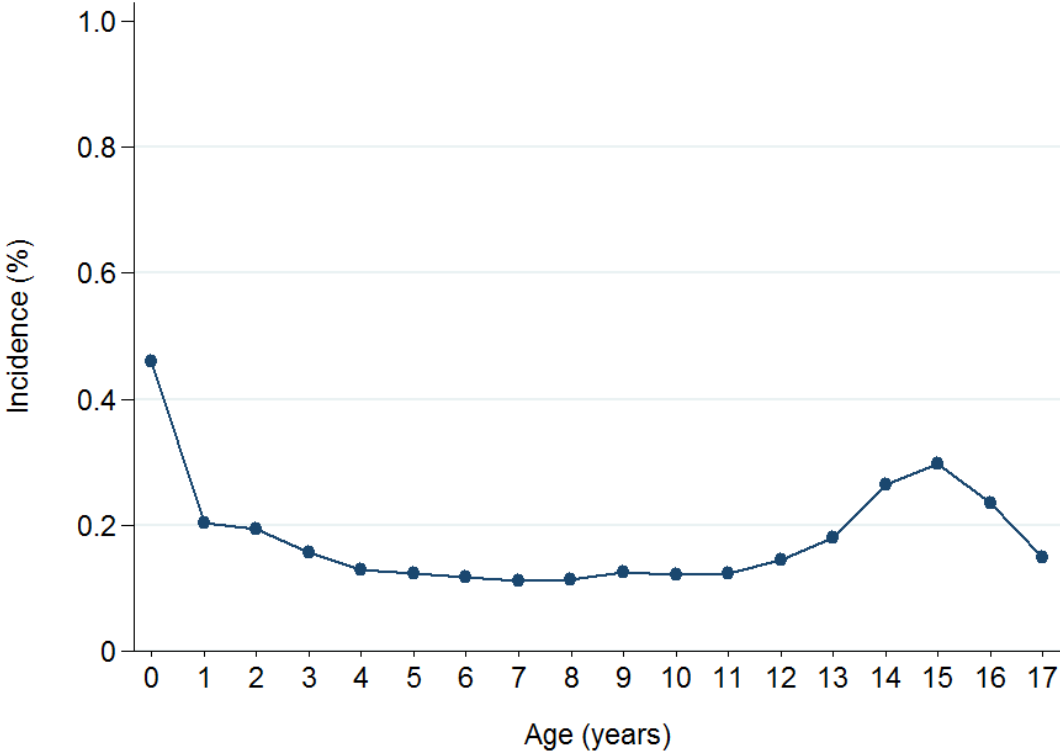
**Table 4-3 Demographic characteristics of children born between 1992 and 1994 who were ever placed in out-of-home care in England (N=19,848)**

		<i>n</i>	%
<i>Sex</i>	Male	10,783	54.3
	Female	9,065	45.7
<i>Ethnicity</i> <sup>a</sup>	White	14,315	72.1
	Mixed	1,320	6.7
	Asian	1,393	7.0
	Black	1,818	9.2
	Other <sup>b</sup>	920	4.6
	Unknown <sup>c</sup>	82	0.4

<sup>a</sup>The ethnicity presented here includes imputed values, as described in Section 4.3.3 (Accounting for missing ethnicity data). A comparison of the distribution of ethnicity in this cohort before and after multiple imputation is given in Appendix D-1. <sup>b</sup>Other ethnicity includes Chinese, as per the categorisation used by the Department for Education in annual statistics. <sup>c</sup>Unknown ethnicity refers to when a child or parent/carer refuses to provide ethnicity data or this information is not obtained by the local authority, as recorded by the relevant codes in the Children Looked After dataset (Department for Education, 2017e).

**4.4.2 When are children most likely to enter out-of-home care for the first time?**

Children were most likely to enter out-of-home care for the first time as infants or as adolescents (Figure 4-1). The incidence of entering care for the first time before age 1 was 0.5%. Incidence declined in pre-school years (1-4 years) and remained consistently low during primary school years (5-10 years). However, it then began to increase during early adolescence (11-15 years) reaching a second peak of 0.3% at age 15, before declining in late adolescence (16+ years).

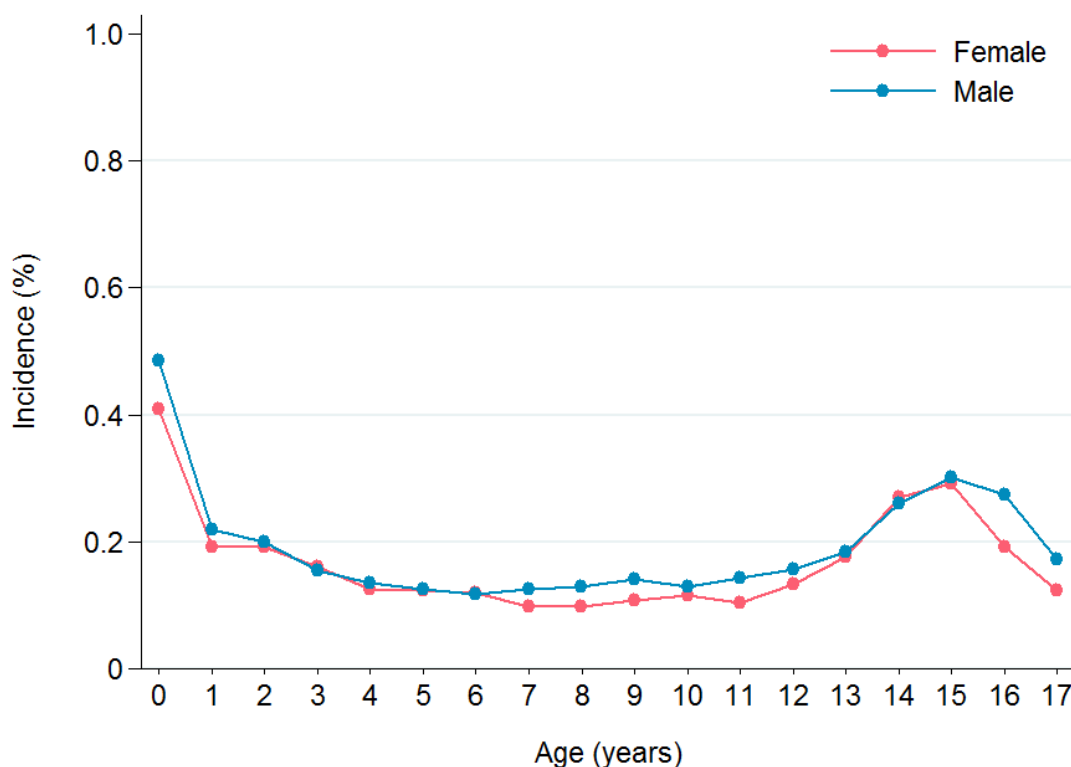


**Figure 4-1 Age-specific incidence of entering out-of-home care for the first time for children in England born 1992 to 1994**

The values from which Figure 4-1 is derived are given in Appendix D-2.



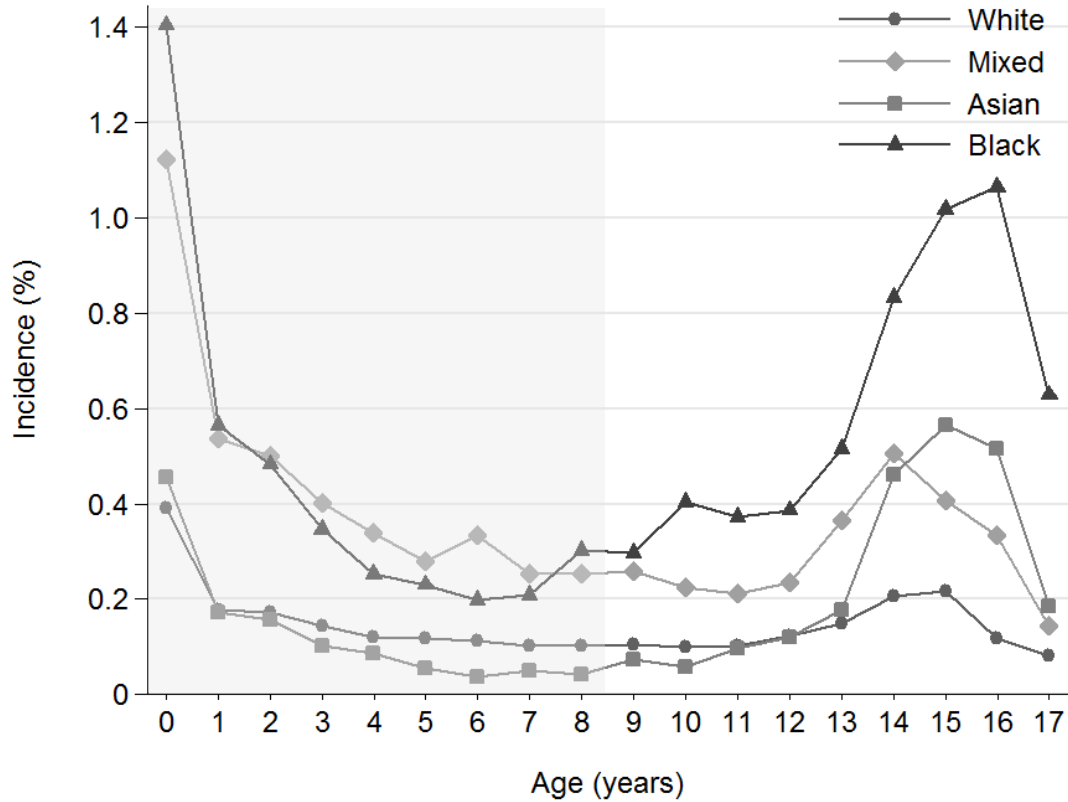
The absolute values and patterns of age-specific incidence were similar for boys and girls (Figure 4-2). However, boys were more likely than girls to enter out-of-home care as infants (0.5% vs 0.4%,  $p < 0.001$ ) and in late adolescence (0.3% vs 0.2% at age 16,  $p < 0.001$ ).



**Figure 4-2 Age-specific incidence of entering out-of-home care for the first time for children in England born 1992 to 1994, by sex**

*The values from which Figure 4-2 is derived are given in Appendix D-2.*

There was notably more variation in the age-specific incidence of first entries to care by ethnicity (Figure 4-3). Overall, children of Black and Mixed ethnicity had higher absolute levels of age-specific incidence than children of Asian and White ethnicity. There were also differences in the patterns of incidence: children of Mixed and White ethnicity had a smaller increase in first entries during adolescence than children of Asian and Black ethnicity. Notably, Asian children had a similar pattern of incidence to White children up to age 13; indeed incidence was statistically significantly lower for Asian children between the ages of 3 and 10 years ( $p < 0.05$ ). However, Asian children then had a higher incidence of first entries to care in late adolescence than White children (e.g., 0.5% vs 0.1% at age 16,  $p < 0.001$ ).

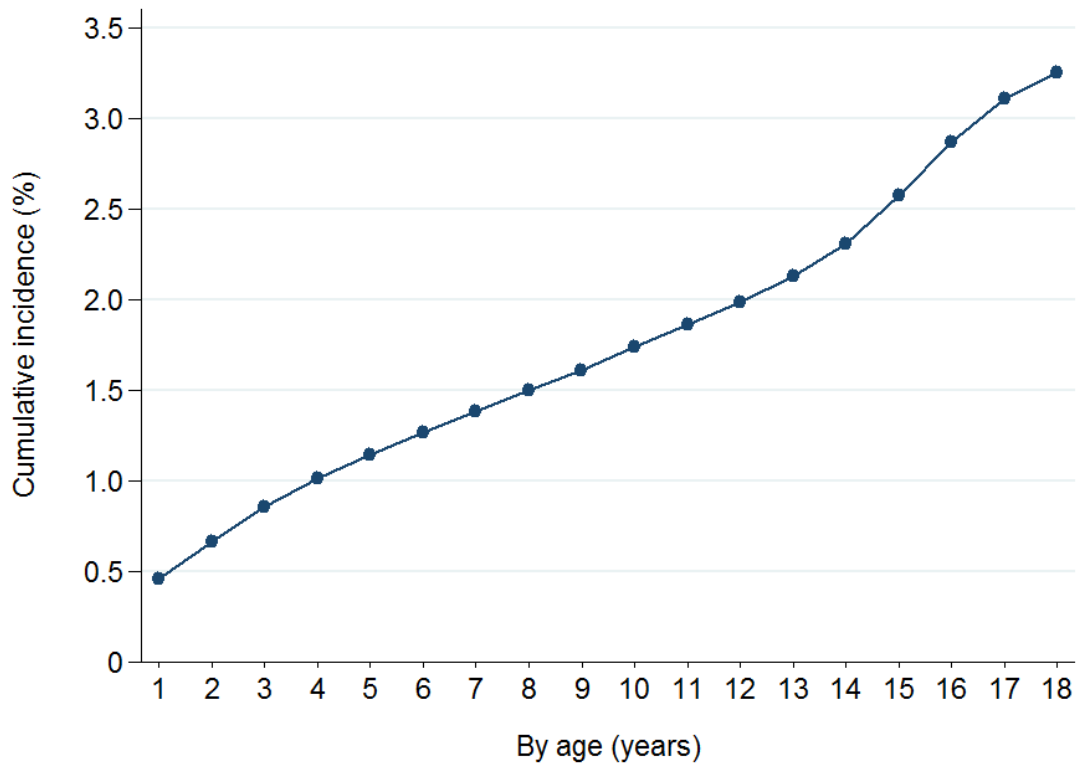


**Figure 4-3 Age-specific incidence of entering out-of-home care for the first time for children in England born 1992 to 1994, by ethnicity**

The values from which Figure 4-3 is derived are given in Appendix D-2. Incidence for Other ethnic category is not shown due to the small numbers in this group by single year of age, both in the sample of children who entered out-of-home care and in the general child population. Shading highlights the ages that denominator data were not available for this cohort of children. For these incidence calculations, the denominator was the population at age 9 (the first age for which data were available in the ETHPOP dataset (Wohland et al., 2010)).

#### 4.4.3 What proportion of children are ever placed in out-of-home care?

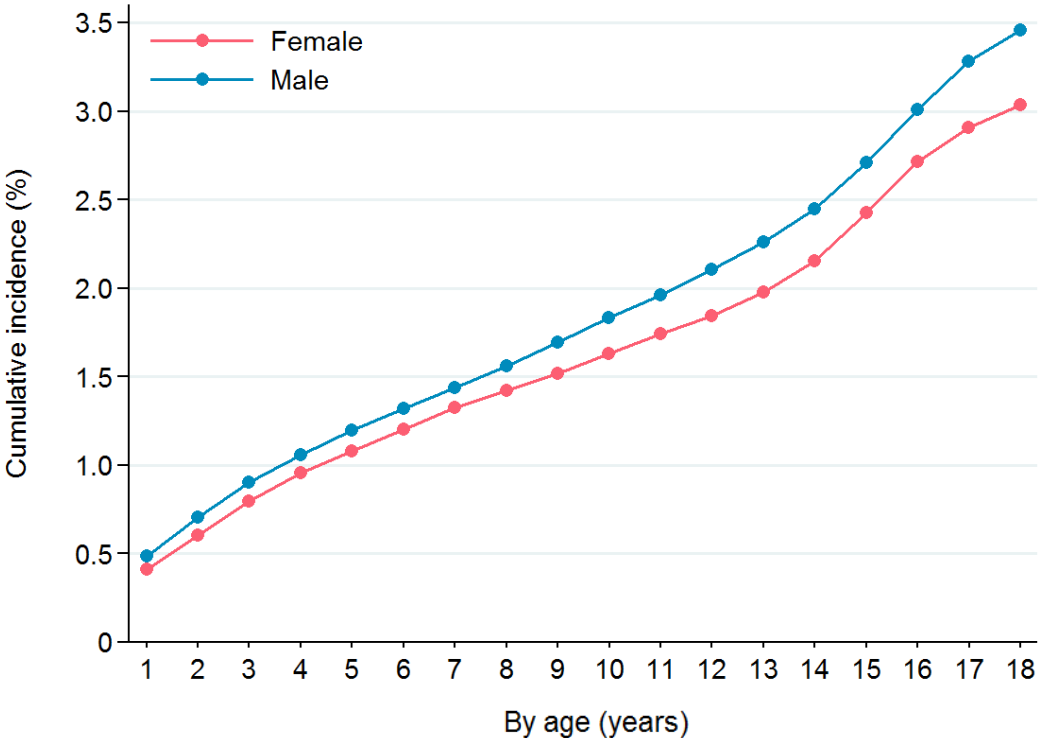
Overall, the cumulative incidence of placement in out-of-home care by age 18 was 3.3% for children born between 1992 and 1994 (Figure 4-4). This is approximately equal to one in thirty children spending time in out-of-home care at some point during childhood.



**Figure 4-4 Cumulative incidence of having been placed in out-of-home care for children in England born 1992 to 1994**

The values from which Figure 4-4 is derived are given in Appendix D-3.

Some variation by sex was evident with a greater cumulative incidence of being placed in out-of-home care observed for boys than girls (Figure 4-5). Although differences in the patterns of age-specific incidence by sex were relatively minor, the cumulative effect was that by age 18 boys were significantly more likely to have been placed in out-of-home care compared to girls, as hypothesised (3.5% vs 3.0%,  $p < 0.001$ ).

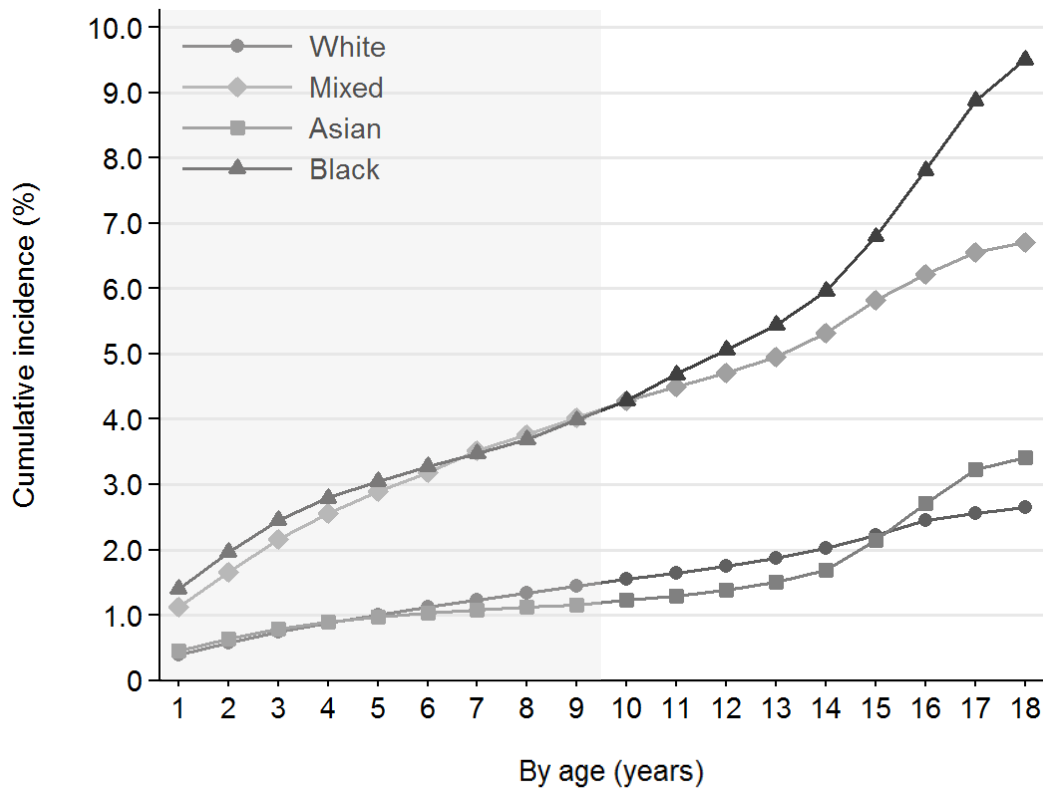


**Figure 4-5 Cumulative incidence of having been placed in out-of-home care for children in England born 1992 to 1994, by sex**

The values from which Figure 4-5 is derived are given in Appendix D-3.

The cumulative incidence of entering out-of-home care also varied by ethnicity (Figure 4-6). As hypothesised, the lowest cumulative incidence was among children of White ethnicity and cumulative incidence was higher among children of Mixed and Black ethnicity. By age 18, approximately one in fifteen children of Mixed ethnicity (6.7%) and one in ten children of Black ethnicity (9.5%) had been placed in out-of-home care compared to 2.7% of White children (both  $p < 0.001$ ). There was no significant variation in the cumulative incidence of placement in care between children of Asian and White ethnicity in early childhood (e.g., 1.0% vs 1.1% by age 6,

p=0.68). However, in contrast to my hypothesis, children of Asian ethnicity did have a higher cumulative incidence of placement in care than children of White ethnicity by age 18 (3.4% vs 2.7%, p<0.001).



**Figure 4-6 Cumulative incidence of having been placed in out-of-home care for children in England born 1992 to 1994, by ethnicity**

The values from which Figure 4-6 is derived are given in Appendix D-3. Cumulative incidence for Other ethnic category is not shown due to the small numbers in this group, both in the sample of children who entered out-of-home care and in the general child population. Shading highlights the ages that denominator data were not available for this cohort of children. For these cumulative incidence calculations, the denominator was the population at age 9 (the first age for which data were available in the ETHPOP dataset (Wohland et al., 2017)).

#### 4.4.4 Which groups are more likely to be placed in out-of-home care?

Overall, 54.3% of the population of children who were born between 1992 and 1994 and were ever placed in out-of-home care during childhood were male. However, given that approximately 48.9% of children born between 1992 and 1994 were male, this equates to a DI of 1.11 which indicates that boys were over-represented in the population of children placed in out-of-home care (Table 4-4). Conversely, girls were under-represented with a DI of 0.89. Combining these relative under- and over-representations by sex, I calculated a DR of 1.25 for boys being placed in out-of-home care. This can be interpreted as boys having a 25% higher likelihood of being placed in out-of-home care during childhood than girls. Table 4-4 also highlights disproportionalities by ethnicity, with all ethnic minority groups having a DI and DR greater than 1. This indicates that ethnic minorities are over-represented in the population of children who are placed in out-of-home care. Disproportionalities were particularly stark for children of Black or Other ethnicity who were almost four and five times more likely than White children to be placed in out-of-home care (DR of 3.54 and 4.98, respectively).

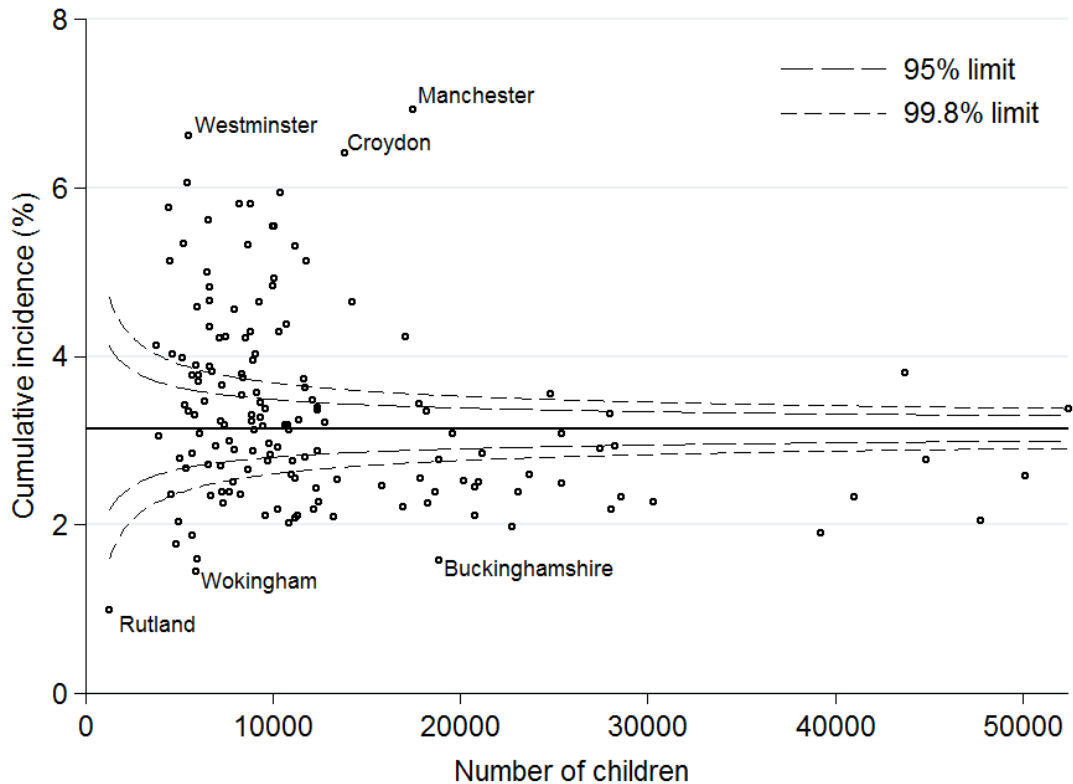
**Table 4-4 Disproportionality index and ratio of being placed in out-of-home care for children in England born 1992 to 1994, by sex and ethnicity**

	Population of children born 1992 to 1994 <sup>a</sup>	Population placed in out-of-home care <sup>b</sup>	DI	DR
<i>Sex</i>				
Male	48.9%	54.3%	1.11	1.25
Female	51.1%	45.7%	0.89	(ref)
<i>Ethnic category <sup>c</sup></i>				
White	86.1%	72.1%	0.84	(ref)
Mixed	3.2%	6.7%	2.09	2.48
Asian	6.5%	7.0%	1.05	1.25
Black	3.1%	9.2%	2.97	3.54
Other	1.1%	4.6%	4.18	4.98

*DI=disproportionality index (an absolute measure of disproportionality in a population for a group); DR=disproportionality ratio (a relative measure of disproportionality in a population across groups). <sup>a</sup>I used the average distribution of sex and ethnicity for children aged 17 years in 2010, 2011 and 2012 as the reference distribution. I used data from mid-year population estimates and ETHPOP data to calculate the DI and DR by sex and ethnicity, respectively. <sup>b</sup>These figures are reproduced from Table 4-3. <sup>c</sup>Ethnicity was unknown for 0.4% of children in my cohort (n=82).*

#### 4.4.5 How does the cumulative incidence of placement in out-of-home care vary geographically?

Overall, 3.3% of children born between 1992 and 1994 entered out-of-home care by age 18; however, as hypothesised, there was considerable variation between local authorities (Figure 4-7). The lowest cumulative incidence of placement in out-of-home care by age 18 was 1.0% in Rutland and the highest was 6.9% in Manchester.



**Figure 4-7 Cumulative incidence of placement in out-of-home care by age 18 for children in England born 1992 to 1994, by local authority**

The 95% and 99.8% control limits are predicted based on the distribution of the data and the size of the child population.

## **4.5 Discussion**

### **4.5.1 Summary of findings**

This analysis was the first to describe the cumulative incidence of placement in out-of-home care throughout childhood in England. By age 18, 3.3% of children had experienced at least one placement in out-of-home care, and significantly higher rates of entry to care were evident amongst children of all ethnic minorities. Children were most likely to enter out-of-home care for the first time as infants or during adolescence, but these age-specific patterns of entry to out-of-home care varied by ethnicity and, to a lesser extent, by sex. There was also considerable variation in the cumulative incidence of being placed in out-of-home care between local authorities, with between one in 100 and one in fifteen children being placed in care.

### **4.5.2 Strengths and limitations**

The main strength of this analysis is that it included all episodes of out-of-home care throughout childhood, regardless of their duration (Dregan & Gulliford, 2012; Dregan, Brown & Armstrong, 2011) or legal status (Ubbesen, Gilbert & Thoburn, 2015). As a result, it represents the most comprehensive measure of the cumulative incidence of placement in care throughout childhood for children in England. A further strength of this analysis is that it did not rely on self-report by carers or care leavers (Viner & Taylor, 2005; Dregan, Brown & Armstrong, 2011; Dregan & Gulliford, 2012) which means issues of recall or selection bias associated with survey-based studies of placement were negated. In addition, the use of a national administrative dataset that records exact dates of episodes of care allowed age-specific patterns of first entry to care to be explored in detail for the first time.

The measure of cumulative incidence reported in this study is the most complete and up-to-date estimate of the proportion of children who are placed in out-of-home care during childhood in England. However, the main limitation of this analysis is the cumulative incidence I calculated may be an over-estimation due to an idiosyncrasy of the CLA dataset. In the CLA dataset child ID is a local authority specific identifier, rather than national identifier. Thus, children who are looked



after in more than one local authority will have more than one child ID recorded. Children who re-enter care after being adopted are also assigned a new child ID, even if they re-enter care in the same local authority (Department for Education, 2017e). In the absence of information about children's care histories (e.g., the proportion who were ever adopted), it was not possible for me to quantify or adjust for the degree of over-estimation that may have been evident in the CLA data for this cohort of children. However, future work describing the cumulative care histories of children in England could help to inform our understanding of the potential over-estimation of children in the CLA dataset.

Another important limitation is that ethnicity was imputed for a quarter of the cohort (i.e. those who were only in care before the 1<sup>st</sup> April 2000) and population estimates by ethnic category and single year of birth were not available before 2001. Consequently, my findings related to ethnic disproportionalities must be interpreted cautiously given that there is likely to be error in both the numerator and denominator data. Currently, CLA data up to the 31<sup>st</sup> March 2016 are available for request from the DfE. This means that ethnic differences in the cumulative incidence of placement in out-of-home care for more recent birth cohorts of children could be explored up to age 15 using non-imputed ethnicity data from the CLA dataset and ETHPOP denominator data. Such analyses would be useful to test whether the findings from my analysis can be replicated. Finally, a minor limitation in this study was that, as the cohort was not a closed birth cohort, I could not measure or account for actual person-time at risk when calculating the cumulative incidence of entry to out-of-home care. However, the method I used to create my denominator accounted for entry and exit of children from the population over time due to migration and death. Furthermore, other studies that have compared the estimation of cumulative incidence using closed birth cohort methods and the census denominator approach that I used have found they yield similar results (Magruder & Shaw, 2008; Ubbesen, Gilbert & Thoburn, 2015; O'Donnell *et al.*, 2016).

### **4.5.3 Comparison of findings to other studies**

#### **UK-based studies reporting cumulative incidence**

As discussed in Chapter 2, few studies have estimated the cumulative incidence of placement in out-of-home care in England or the UK, and none have described the cumulative incidence by age 18. Most recently, Ubbesen and colleagues used the same administrative social care data analysed in this study (the CLA dataset) to explore the cumulative incidence of being placed in out-of-home care in England among the same cohort of children born between 1992 and 1994 (Ubbesen, Gilbert & Thoburn, 2015). They reported that 1.6% of children had spent time in out-of-home care by age 16; however, as this figure did not include children who were placed in care voluntarily, it is difficult to draw comparisons with the findings from my analysis.

One cohort-based study using MCS data estimated that 1.6% of women had a history of being placed in out-of-home care by age 17 (Botchway, Quigley & Gray, 2014). This was lower than the cumulative incidence of 2.9% by age 17 for girls born between 1992 and 1994 that I calculated in my analysis. Some difference between these estimates is to be expected, given that the populations were born in different eras and there are trends over time in the use of out-of-home care (Gilbert, Fluke, O'Donnell, *et al.*, 2012). However, the cumulative incidence calculated by Botchway and colleagues (2014) is likely to be an under-estimate due to the study's exclusion criteria and method of ascertaining a history of being placed in out-of-home care. Women were not directly asked if they had been placed in out-of-home care as children, but rather: "Before the age of 17, did you spend any time living away from both of your parents?" (Botchway, Quigley & Gray, 2014). Based on follow-up questions about where they had spent this time away from home, a history of placement in out-of-home care was inferred. However, even though children in care can be accommodated in foster placements with relatives or in a boarding school, prison or young offender institution, periods living away from home in these settings were not included in their definition of out-of-home care. Furthermore, women who did not answer the questions related to time spent in out-of-home care or responded that they did not know this information were excluded from the

study sample (Botchway, Quigley & Gray, 2014). This restriction could have excluded women who did not recall short stays in care in infancy or early childhood, or those who did want to disclose their care history due to potential stigma. Mothers whose children had been placed in out-of-home care by the age of 6 months (at the time of the first interview) were also excluded from the sample (Botchway, Quigley & Gray, 2014). As placement in out-of-home care is known to have inter-generational aspects (Dworsky, 2015; Farmer, 2009), it is likely that the exclusion of mothers whose children were placed in care early in life introduced selection bias to the MCS sample.

Three studies estimated the cumulative incidence of placement in care by age 17 for a cohort of adults born in 1970 using retrospective survey data from the British Birth Cohort Study (BCS70). As previously described in Chapter 2, the BCS70 cohort is not completely comparable to the cohort included in my study as it includes children from across the UK (rather than England alone) and the use of out-of-home care is known to vary between these four countries with lower rates in England and Northern Ireland compared to Wales and Scotland (e.g., in 2015 the rate of looked after children per 10,000 children was 52, 35, 62 and 82, respectively (Bywaters *et al.*, 2017)). Nonetheless, this is the best available comparison in the current evidence base.

Among the BCS70 cohort, the cumulative incidence of placement in care by age 17 ranged from 3.9% (Dregan, Brown & Armstrong, 2011) to 4.8% (Viner & Taylor, 2005), due to differences between the study definitions of care history. In my analyses, among the cohort of children born between 1992 and 1994 the cumulative incidence by age 17 was 3.1%. Therefore, it would appear that the use of out-of-home care has decreased over time. This decrease is likely to be due to changes in policy and practice over time, particularly following the implementation of the Children Act 1989. For example, during the childhood of the BCS70 cohort (1970-1988), compulsory accommodation in residential care under a care order was used as a strategy for dealing with young offenders (Berridge, Biehal & Henry, 2012). However, with the enactment of the Children Act 1989, this practice was ended. As previously described in Section 2.4, by the time the cohort in this study

were born between 1992 and 1994, the number of children in out-of-home care on the 31<sup>st</sup> March had already decreased substantially; for example, between 1977 and 1994 it decreased by 48.8%, from 96,210 to 49,300. Further work to explore how the use of out-of-home care has changed in more recent years is required.

### **International studies reporting cumulative incidence for similar cohorts**

Children born between 1992 and 1994 in England were less likely to be placed in out-of-home care by age 18 than children born in the same era in the US or Denmark. Using administrative data and a life table analysis approach, Fallesen, Emanuel and Wildeman (2014) reported that by age 18 the cumulative incidence of placement in foster care for children in Denmark was 5.5%. A similar analysis using national data in the US reported that by age 18 5.4% of children had been placed in foster care (Wildeman & Emanuel, 2014). Given that these estimates of cumulative incidence do not include other forms of out-of-home care (e.g., residential care) it would seem that the use of out-of-home care was much less common in England than in Denmark or the US, for this cohort of children.

The differences in the cumulative incidence of placement in care between England and the US appear to be due to differences in the absolute level of use, rather than patterns of use. In both countries, children were most likely to enter care as infants, rates of first entry then decreased in childhood, before increasing in early adolescence, and reaching a second peak in late adolescence. However, there were notable differences in the absolute proportion of children entering care for the first time at each age; for example, the age-specific incidence as an infant was 1.2% in the US compared to 0.9% in England. In contrast, differences in the cumulative incidence of placement in care between England and Denmark appear to be due to differences in the patterns of use of out-of-home care. Although there were peaks in age-specific incidence in infancy and adolescence in both countries, the second-peak in adolescence was far steeper in Denmark than in England.

Comparing the cumulative incidence of placement in out-of-home care I calculated for children in England with children in other countries is more difficult as the eras that cohorts were selected from do not entirely overlap. For example, one study in

Sweden reported that 0.9% of children born between 1992 and 1996 had been placed in out-of-home care by age 7 (Franzen, Vinnerljung & Hjern, 2008). A study in Western Australia found that 1.5% of children born between 1994 and 1997 had entered care by age 12 (O'Donnell *et al.*, 2016). The respective cumulative incidences that I calculated for children in England who were born between 1992 and 1994 were 1.4% and 2.0%, which would suggest that the use of out-of-home care is more common in England than in Sweden or Western Australia. However, given that the use of out-of-home care is known to vary over time, any cross-national comparisons between cohorts from different eras must be interpreted cautiously. Future work that describes the cumulative incidence of out-of-home care for more recent cohorts of children in England would enable further cross-national comparisons, which may be useful for highlighting differences that can inform policy and practice (Gilbert, Fluke, O'Donnell, *et al.*, 2012).

#### **4.5.4 Main implications of findings**

By taking a longitudinal approach to analysing administrative social care data I have demonstrated that placement in out-of-home care is a relatively common experience, and one that is certainly more common than official DfE statistics indicate. These official statistics based on cross-sectional analysis of CLA data report that each year approximately one in 150 children (0.7%) spend time in out-of-home care (Department for Education, 2017g). However, when this same data source is analysed taking a longitudinal approach, the cumulative incidence of placement in out-of-home care by age 18 is much higher at 3.3%, or one in thirty children.

In contrast to other studies that have highlighted the under-representation of Asian children in the looked after child population (Thoburn, Ashok & Proctor, 2005), in this analysis I found that children from all ethnic minority groups were more likely than White children to be placed in out-of-home care. The greatest ethnic disproportionalities were evident among children of Black or Other ethnicity who were between four and five times more likely to be placed in out-of-home care than White children. However, as well as relative measures of disproportionality, it is also important to note the absolute proportion of ethnic minority children in England who were ever placed in out-of-home care. Overall, one in ten Black

children (9.7%) and one in fifteen children of Mixed ethnicity (6.7%) in this cohort were ever placed in out-of-home care during childhood. The implications of the state assuming a caring role for such high proportions of ethnic minority groups needs to be considered, particularly given that there is growing ethnic diversity in the English population (Centre on the Dynamics of Ethnicity, 2012), a legislative requirement to consider a child's ethnicity when planning placements (Selwyn *et al.*, 2008) and a shortage of ethnic minority foster carers (Lawson & Cann, 2017; Kirton, 2016). The absolute levels of ethnic disproportionality that I identified in my analysis are similar to those observed in the US: for children born between 1992 and 1994 in the US, approximately 12% of Native American and 11% of Black children had entered out-of-home care by age 18 (Wildeman & Emanuel, 2014).

The greatest ethnic disproportionality I identified in my analysis was for children of Other ethnicity who were five times more likely than White children to be placed in care. In comparison, among children born between 1992 and 1994 in Denmark, the greatest disproportionality was for non-Western children who were twice as likely as Danish children to enter out-of-home care by age 18 (Fallesen, Emanuel & Wildeman, 2014). Among children born in the same era in the US, the greatest disproportionality was for Native American children who were approximately three times more likely to enter out-of-home care than White children (Wildeman & Emanuel, 2014). In Western Australia, among those born between 1994 and 1997, Aboriginal children were eight times more likely to be placed in out-of-home care than non-Aboriginal children (O'Donnell *et al.*, 2016). Therefore, overall, it could be summarised that England had relative disproportionalities that were greater than Denmark and the US, but less than Western Australia. Ethnic disproportionalities in the use of out-of-home care have also been documented in Canada (Sullivan & Charles, 2010; Fallon *et al.*, 2013; Sinha *et al.*, 2013) with indigenous aboriginal populations and ethnic minorities significantly over-represented. However, it is difficult to compare the relative scale of these disproportionalities to the findings from my analysis as they are reported as cross-sectional rather than cumulative measures.

All ethnic groups had the same general pattern of being most likely to enter care for the first time in infancy, with first entries then declining in childhood before increasing and reaching a second peak in adolescence. However, there were some notable differences in the patterns of first entries by ethnicity. Much greater increases during adolescence were observed for children of Asian, Black and Other ethnicity compared to children of White or Mixed ethnicity. In particular, the age-specific incidence of first entry to care increased six-fold for Asian children between age 10 and age 15 (0.1% and 0.6%, respectively). Indeed, until age 16 children of Asian ethnicity had a lower cumulative incidence of entry to care than White children, but the marked increase in first entries during adolescence meant that by age 18 a greater proportion had been placed in out-of-home care overall. Previous qualitative work by Selwyn *et al.* (2008) has highlighted the role of family honour (or 'izzat') in relation to Asian infants born outside marriage being placed in out-of-home care. This concept of family honour could also be a contributing factor for the marked increase in first entries to care during adolescence among Asian children that was observed in my analysis. Research from the UK has reported that, in a context of preserving family and community honour, teenagers of South Asian ethnicity (particularly girls) may be subject to restrictive parenting practices and encounter issues with parental rejection of boy/girlfriends and even threats of forced marriage in a minority of cases (Sharp-Jeffs, 2017). Future analysis exploring the sex distribution and categories of need of Asian children who first enter out-of-home care as adolescents may be useful for providing context on these late first entries. In addition, it would be useful to explore differences within ethnic groups, particularly between different groups of children of Mixed ethnicity as previous research has highlighted the diversity of their backgrounds and experiences in care (Selwyn *et al.*, 2008).

Ethnic disproportionalities in the use of out-of-home care may indicate bias in decision making, either at an individual or organisational level (Johnson-Motoyama *et al.*, 2017). However, it is also important to consider the intersection between deprivation and ethnicity as a potentially important explanatory factor for the disproportionalities that are evident in the use of out-of-home care (Putnam-

Hornstein *et al.*, 2013; Turney & Wildeman, 2016; O'Donnell *et al.*, 2016). For example, a recent study that analysed sub-national administrative social care data found that Black children in England did not have significantly higher rates of placement in out-of-home care compared to White children, once their higher levels of area deprivation had been accounted for (Bywaters *et al.*, 2014b). I was not able to account or adjust for deprivation when describing variation in the cumulative incidence of out-of-home care as this information is not collected by the CLA dataset (Department for Education, 2017e). Postcode is collected as part of the CLA dataset and could be used to determine the area-level deprivation by linking to the Index of Multiple Deprivation for the relevant local super output area (Department for Communities and Local Government, 2015). My request for postcode data was not approved by the DfE, but future work to calculate risk-adjusted measures of cumulative incidence would be useful for exploring ethnic disproportionalities in more detail.

In my analysis, large differences in the cumulative incidence of placement in care by age 18 were evident between local authorities. In Rutland, just one in 100 children were placed in care by age 18 compared to one in fifteen in Manchester (1.0% vs 6.9%, respectively). I chose to visualise my data using a funnel plot as they clearly indicate the sample size of a unit and have previously been used for comparing population-level indicators between geographic areas, such as the rate of teen pregnancy (Spiegelhalter, 2005). As I made no assumption about whether the cumulative incidence of placement in out-of-home care was a positive or negative population-level indicator, an additional advantage of a funnel plot was that it avoids any element of ranking between local authorities, unlike caterpillar plots for instance (Spiegelhalter, 2005). A funnel plot can be used to identify significant variation between units, as those plotted outside the 95% and 99.8% control limits are interpreted as having higher or lower than expected levels of an outcome of interest. However, it is expected that only a minority of 'divergent units' will fall outside the limits of a funnel plot. If the majority of units fall outside of the control limits, then this is an indication that the data are over-dispersed (i.e. that the observed inter-unit variability cannot be attributed to expected variation plus a



small number of divergent units (Spiegelhalter, 2005)). This was the case in my analysis where more than two-thirds of local authorities (70.7%,  $n=106$ ) were plotted outside the control limits. Consequently, it is not possible to determine the significance of the observed variation between local authorities in the cumulative incidence of out-of-home care due to issues of over-dispersion.

Over-dispersion of data in a funnel plot is typically due to insufficient risk adjustment between units (Spiegelhalter, 2005). In the context of being placed in out-of-home care, there are a number of known risk factors that were not adjusted for in my analysis (e.g., ethnicity, deprivation (Bywaters *et al.*, 2014b), parental history of placement in care (Farmer, 2009), and parental mental illness, age, and substance abuse (Simkiss, 2012)). Given that the distribution of these risk factors will vary between local authorities, it is unsurprising that over-dispersion was an issue when comparing cumulative incidence. There are several strategies that can be used to account for over-dispersion due to unadjusted risk factors, including risk stratification and clustering to compare similar units to each other (Spiegelhalter, 2005). Alternatively, to compare all units more fairly, a risk-adjusted measure could be compared rather than a crude measure (Dover & Schopflocher, 2011). Future work could focus on calculating a standardised measure of cumulative incidence to better compare between local authorities. Identifying significant variation in the cumulative incidence of placement in out-of-home care could be useful for selecting a sample of local authorities with different models of using out-of-home care as a social care intervention. These authorities could be used as 'deep-dive' case studies to explore potential differences in the role that out-of-home care plays in local authorities' approaches to child protection and welfare.

#### 4.6 Key points from Chapter 4

- I analysed longitudinal CLA data for a cohort of children born in England between 1992 and 1994 to estimate the age-specific and cumulative incidence of placement in out-of-home care and explore variation by sex, ethnicity and local authority.
- The state assumes the role of parent for a substantial proportion of children in England: overall, one in thirty children born between 1992 and 1994 spent time in out-of-home care by age 18. Notably, up to one in ten ethnic minority children had been placed in care during childhood. There is also substantial variation in the proportion of children who are ever placed in out-of-home care between different local authorities.
- Further work to develop methods for risk-standardising cumulative incidence of placement in care could help to uncover the extent to which observed variation between local authorities signifies differences in organisational practices.

## Chapter 5 Cumulative out-of-home care histories

### Statement of authorship

I carried out all of the work presented in this chapter.

### 5.1 Content and structure of Chapter 5

In Chapter 2, I established that there is limited research that describes the cumulative characteristics of out-of-home care placements among children in England, despite the complex and longitudinal nature of this social care intervention. In this chapter, I will describe how I utilised the longitudinal nature of the CLA dataset to describe and explore variation in cumulative histories of placement in out-of-home care throughout childhood. This set of descriptive analyses used data from the Children Looked After (CLA) dataset for the large, representative sample of children in England born between 1992 and 1994, previously introduced in Chapter 4.

I will begin by briefly introducing the rationale and outlining the aim and objectives of this analysis. I will then describe the methods that I used and my results. Next, I will discuss the main findings in relation to relevant published literature and the strengths and limitations of this part of my PhD study. Finally, I will close this chapter with a summary of its key points.

## **5.2 Introduction**

### **5.2.1 Descriptions of out-of-home care are incomplete**

In England, 'out-of-home care' is a broad term that encompasses a range of diverse experiences in terms of legal status, reason(s) for accommodation outside of the family home and placement setting, duration and stability (Department for Education, 2017g; Thoburn & Courtney, 2011). For example, children can enter out-of-home care at different ages, for different reasons and via different legal pathways. Once in care, there can be variation in where children are placed, who cares for them, how long they are accommodated for and how often they change placement. Some children will enter and exit out-of-home care just once, while others will re-enter multiple times throughout childhood.

Describing the range of care histories that children in England experience is a crucial prerequisite to understanding how out-of-home care is used as a social care intervention. However, official statistics primarily take a cross-sectional approach to describing out-of-home care placements, either at a given point in time or within a statistical year (Department for Education, 2017g). These 'snapshots' do not account for the complex and longitudinal nature of out-of-home care, whereby a child can enter and exit care multiple times and remain in care for varying lengths of time. As highlighted in Section 2.4, the research literature exploring cumulative or longitudinal characteristics of out-of-home care in England is extremely limited and tends to be based on small, purposive samples of children followed-up over short periods of time (Wade *et al.*, 2014; Ward, 2009; Skuse, Macdonald & Ward, 2001). Indeed, to the best of my knowledge, no study has described the cumulative childhood care histories of children in England.

### **5.2.2 Characteristics of out-of-home care are associated with outcomes**

As discussed in Section 2.3, the apparent associations between placement in out-of-home care and adverse health, educational and social outcomes are known to vary by characteristics of out-of-home care placements (Jones *et al.*, 2011). For example, placement in residential care is associated with poorer mental health compared to foster care (Tarren-Sweeney, 2008), unstable care placements characterised by

frequent and/or numerous placement changes are associated with poorer educational attainment (Sebba *et al.*, 2015) and longer care placements are associated with higher earnings and rates of employment in later life (Fallesen, 2013). However, many of these apparent associations are based on cross-sectional descriptions of placement characteristics, which do not account for previous experiences of care, and/or self-reported care histories, which are subject to bias.

A robust, detailed description of care histories could help to refine our understanding of the nature of associations between placement in out-of-home care and adverse outcomes by allowing the heterogeneity of cumulative experiences of care to be accurately accounted for. An under-utilised source of information related to out-of-home care histories for looked after children in England is the CLA dataset. This individual-level dataset has been collated since 1992 and so now contains complete care histories, from birth to age 18, for some cohorts of children.

### **5.2.3 Summary of the rationale for this analysis**

Despite the well-documented associations between outcomes and characteristics of out-of-home care placements (Jones *et al.*, 2011), cumulative care histories that account for episodes of out-of-home care from birth to age 18 have not been described. Analysis of administrative data taking a longitudinal approach could refine our understanding of children's experiences of out-of-home care and the associations between care characteristics and adverse outcomes.

### **5.2.4 Research questions and hypotheses**

1. What are the cumulative out-of-home care histories of children in England, accounting for all placements in care from birth to age 18?
2. Do characteristics of care such as total time spent in care and final exit from care vary by age at first entry?

I had no pre-existing hypothesis for Question 1 as no previous study has described cumulative out-of-home care histories among children in England. However, as certain aspects of care are likely to be associated with a child's age (e.g., those who

exit care before the age of 16 are unlikely to leave to live independently), for Question 2 I hypothesised that characteristics of cumulative care histories would vary by age group at first entry.

#### **5.2.5 Aim of this analysis**

To explore the characteristics of cumulative out-of-home care histories.

#### **5.2.6 Objectives of this analysis**

- a) To describe characteristics of out-of-home care placements, accounting for all episodes of care from birth to age 18 for a cohort of children born between 1992 and 1994.
- b) To explore how selected characteristics of cumulative care histories vary by age at first entry.

## 5.3 Methods

### 5.3.1 Data source and study population

As per Chapter 4, this set of analyses was based on the nationally representative, one-third cohort of children for whom complete care histories were available in my CLA data extract. This cohort included 19,848 children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 and had ever entered out-of-home care for non-respite reasons.

### 5.3.2 Characterising cumulative out-of-home care histories

I used the information in my CLA data extract to derive a range of variables that described characteristics of cumulative care histories (as per Table 5-1).

**Table 5-1 Characteristics of cumulative out-of-home care histories included in this analysis**

Domain of out-of-home care	Characteristics explored in this analysis
Context and setting	Age group at first entry <sup>a</sup>
	Legal status at first entry to out-of-home care <sup>a</sup>
	First placement setting <sup>a</sup>
	Overall placement mix during childhood <sup>a</sup>
	Ever in care due to a specified category of need? <sup>b</sup>
	Ever placed in compulsory care? <sup>b</sup>
	Ever in respite care? <sup>b</sup>
	Ever in group care? <sup>b</sup>
	Ever in foster care? <sup>b</sup>
	Ever in kin foster care? <sup>b</sup>
Ever placed for adoption? <sup>b</sup>	
Duration and stability	Total duration of out-of-home care <sup>a,c</sup>
	Total number of placement changes <sup>a,c</sup>
	Average placement length <sup>a</sup>
	Total number of re-entries to care <sup>a,c</sup>
	Ever recorded as being missing from a placement? <sup>b</sup>
	Ever experienced adoption disruption? <sup>b</sup>
Resolution	Age group at final exit <sup>a</sup>
	Final placement setting <sup>a</sup>
	Final exit from care <sup>a</sup>

*Variable type: a=categorical; b=binary; c=continuous.*

### **Variables related to the context and setting of out-of-home care histories**

To explore the legal context of children's placement in out-of-home care, I created three binary indicators for ever being placed in respite, voluntary, or compulsory care (i.e. as a result of a court order or invocation of police powers). These binary indicators were based on the legal status codes recorded in the CLA dataset, as described in Appendix C-2. I also identified a child's first episode of out-of-home care for non-respite reasons and categorised the legal context of their initial entry to out-of-home care and their age at first entry to out-of-home care.

To explore the reason(s) a child had been placed in out-of-home care throughout childhood, I created a series of binary indicators for each of the eight categories of needs that can be recorded in the CLA dataset:

1. Abuse or neglect
2. Child's disability
3. Parental illness or disability
4. Family in acute stress
5. Family dysfunction
6. Socially unacceptable behaviour
7. Low income
8. Absent parenting

It is important to note that these categories of need codes are mutually exclusive and hierarchical. Consequently, although it is likely that there will have been multiple reasons why a child was placed in out-of-home care, only one category of need code can be recorded for each period of care in the CLA dataset. Where more than one category of need applies to a child at the time of entering care, the highest ordered category is recorded.

To explore the range of settings children were looked after in, I categorised each placement as family, group, independent living or other based on the placement codes recorded in the CLA data extract, as per Appendix C-3. I then created a single, categorical variable that captured the mix of placement settings a child was placed



in throughout childhood. This variable described where a child spent the majority of their time in care (i.e. >50%), if they were placed in more than one type of setting. In addition, I created binary indicators for ever having been placed for adoption, in kin foster care or in a group care setting throughout childhood.

### **Variables related to the duration and stability of out-of-home care histories**

I calculated the total time spent in out-of-home care throughout childhood by summing the number of days spent in each placement from birth to age 18. I then created a categorical variable of duration choosing cut-offs that were comparable to those used in official statistics published by the DfE when describing the duration of placements ending in a year (Department for Education, 2017f). This variable did not include time spent in respite care as, when recording episodes of respite care, local authorities are not obliged to record each one individually and can simply record the start and end date of the total period of care (Department for Education, 2017e). As a result, it is not possible to determine the duration of respite care episodes accurately.

To explore the stability of care histories, I created categorical variables for the total number of placement changes and re-entries to out-of-home care. By combining information on total days in out-of-home care and total placement changes, I also created a categorical variable that described a child's average (mean) placement length while in out-of-home care. I created a binary indicator for ever having been missing from a placement, as recorded by the relevant placement type codes in the CLA dataset. Finally, I created a binary indicator for ever having experienced a disruption to a placement for adoption by identifying episodes of care that were recorded as fostering for adoption that did not result in adoption.

### **Variables related to the resolution of out-of-home care histories**

To describe the resolution of a child's care history, I identified the end of their final episode of care and categorised their age and placement setting at that time. I then used the reason placement ceased codes recorded in the CLA dataset to categorise their final exit from out-of-home care, as per Appendix C-4. As there is no specific

code in the CLA dataset to record when a child 'ages out' of care (i.e. they cease to be looked after because they reach the age of 18), I assumed that children who exited care within 1 month of their 18th birthday had aged out of the system if the reason their final episode of care ceased was coded as 'other'. My choice of this time frame was based on the distribution of age associated with the use of this 'other' reason episode ceased code which increased notably in the month before children reached the age of 18.

### **5.3.3 Describing characteristics of out-of-home care histories**

I then characterised the characteristics of cumulative out-of-home care histories by describing the distribution of these variables. For categorical and binary variables I tabulated the frequency and for continuous variables I calculated the mean, median, range and inter-quartile range.

I also described selected characteristics of cumulative care histories stratified by age group at first entry (namely, total time spent in care, placement settings, final exit from care, and age group at final exit from care). As previously outlined, my rationale for this sub-analysis was that certain aspects of cumulative care histories are restricted by a child's age. For example, children who enter out-of-home care for the first time aged 16+ years can spend only a maximum of 2 years being looked after. Similarly, children who exit out-of-home care before the age of 16 are unlikely to leave to live independently.

## 5.4 Results

### 5.4.1 Sample characteristics: 1992-94 cohort

Overall, my cohort included 19,848 children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 and had ever been placed in out-of-home care for non-respite reasons by age 18. Table 5-2 summarises their demographic characteristics.

**Table 5-2 Demographic characteristics of children born 1992 to 1994 who were placed in out-of-home care in England (N=19,848)**

		n	%
Sex	Male	10,783	54.3
	Female	9,065	45.7
Ethnicity <sup>a</sup>	White	14,315	72.1
	Mixed	1,320	6.7
	Asian	1,393	7.0
	Black	1,818	9.2
	Other <sup>b</sup>	920	4.6
	Unknown <sup>c</sup>	82	0.4

*This table has previously been presented as Table 4-3 in Chapter 4. <sup>a</sup>The ethnicity presented here includes imputed values, as described in Section 4.3.3 (Accounting for missing ethnicity data). <sup>b</sup>Other ethnicity includes Chinese, as per the categorisation used by the Department for Education in annual statistics. <sup>c</sup>Unknown ethnicity refers to when child or parent/carer refused to provide ethnicity data or this information was not obtained by the local authority, as recorded by the relevant codes in the Children Looked After dataset (Department for Education 2017a).*

## 5.4.2 Cumulative histories of out-of-home care among children in England

### Context and setting of care histories

The context and setting of care histories for the cohort of children born 1992 to 1994 are summarised in Table 5-3. Almost one in eight children (14.8%) entered care for the first time as infants; however, more than 40% first entered as adolescents (i.e. aged 11-17 years). The majority of children entered out-of-home care for the first time voluntarily (73.2%) and throughout childhood less than half (44.5%) were ever placed in compulsory care (i.e. via a legal order or police protective powers).

Abuse or neglect was the most common category of need recorded among this cohort with almost half of children (45.5%) ever placed in out-of-home care for this reason. The second most commonly recorded category of need was “family in acute stress” (17.0%) which is used to describe situations where the positive relationship between parents and children is not in question, but the family is experiencing events which have undermined parenting capacity, such as loss of employment, homelessness or breakdown of a relationship (Department for Education, 2005).

The majority of children were placed in a family placement setting when entering care for the first time (79.2%). Indeed, accounting for all episodes of care throughout childhood, more than half of children (59.5%) were only ever placed in foster care. Of the 16,846 children who were ever placed in foster care, a quarter (23.5%) were ever placed with a relative or family friend in a kin foster care arrangement and one in eight (13.8%) were ever placed in a fostering for adoption placement. In total, almost a third of children (29.6%) were ever placed in a group placement setting (such as a children’s home, secure unit or residential care home). Of these 5,883 children, more than half spent all or the majority of their time in care in group placement settings, which equates to one in six children overall (16.9%).

**Table 5-3 Context and setting of care histories (N=19,848)**

		<i>n</i>	%
<i>Age group at first entry to out-of-home care</i>	<1 year	2,941	14.8
	1 to 4 years	4,342	21.9
	5 to 10 years	4,374	22.0
	11 to 15 years	6,013	30.3
	16+ years	2,178	11.0
<i>Legal basis for first entry to care<sup>a</sup></i>	Voluntary	14,530	73.2
	Child protection	2,568	12.9
	Other compulsory	2,750	13.9
<i>First placement setting</i>	Family care	15,716	79.2
	Group care	3,069	15.5
	Independent living	790	4.0
	Other	273	1.4
<i>Placement setting throughout childhood<sup>b</sup></i>	Only foster care	11,808	59.5
	Majority foster care	3,281	16.6
	Only group care	1,516	7.6
	Majority group care	1,679	8.4
	Only other care	789	4.5
	Majority other care	622	3.4
<i>Ever in care due to:<sup>c</sup></i>	Abuse or neglect	9,034	45.5
	Child's health	811	4.1
	Parental health	2,082	10.5
	Family stress	3,380	17.0
	Family dysfunction	2,497	12.6
	Unacceptable behaviour	1,024	5.2
	Low income	81	0.4
	Absent parenting	3,138	15.8
<i>Ever in:</i>	Compulsory care	8,837	44.5
	Respite care <sup>d</sup>	1,559	7.9
	Group care	5,883	29.6
	Foster care	16,846	84.9
	Kin foster care <sup>e</sup>	3,957	23.5
	Adoption placement	2,326	13.8

<sup>a</sup>Child protection includes children entering care through police protective powers and child assessment and emergency protection orders. All other compulsory entries to care are recorded as 'other compulsory'. <sup>b</sup>'Other' setting includes independent living, as well as young offender institutions and youth treatment centres. <sup>c</sup>Only one category of need can be recorded in the Children Looked After (CLA) dataset for each period of care. If more than one applies, the highest ordered reason in the list is recorded. The column sum in Table 5-4 exceeds 100%, as children with multiple periods of care could have multiple reasons they were looked after recorded. <sup>d</sup>Includes episodes of respite care before and after first entry to out-of-home care for non-respite reasons. <sup>e</sup>N for this calculation is the number of children ever placed in foster care (i.e. 16,846).

### **Duration and stability of care histories**

The duration and stability of cumulative care histories are summarised in Table 5-4. Accounting for all episodes of care throughout childhood, the 19,848 children in this cohort spent a total of 19,905,920 days in out-of-home care, which is equivalent to more than 54,499 years of childhood. The average total time a child spent in out-of-home care was 2 years and 8 months and one-third of children (35.2%) spent 1 to 5 years in out-of-home care throughout childhood. However, there was considerable variation in the total time spent in care. One in five children (19.5%) spent <1 month in care in total, one in ten (10.8%) spent <1 week and 562 children (2.8%) spent just a single day in care. At the other end of the spectrum, one in five children (18.7%) spent 5+ years in care, one in fifteen (6.8%) spent 10+ years, and 10 children were recorded as being in out-of-home care from the day they were born until their 18<sup>th</sup> birthday.

The number of placements children experienced ranged from 1 to 184, with a mean of 3.6 and a median of 2. For a large proportion of children the time spent in care was stable with more than half (54.5%) experiencing just one or no placement changes whilst in out-of-home care. However, one in twenty children (5.6%) experienced 10+ placement changes throughout childhood.

Exits from out-of-home care were stable for the majority of children as two-thirds (67.2%) did not re-enter care during childhood. However, one in eight children (13.1%) experienced multiple cycles of exit and re-entry to the care system throughout childhood and the number of re-entries ranged up to 58. Overall, a small proportion of children (1.4%) experienced a disruption to a pre-adoption placement (i.e. they were placed in a fostering for adoption placement which did not result in adoption). As not all children were ever placed for adoption, this figure equates to one in ten fostering for adoption placements experiencing a disruption (11.6%).

**Table 5-4 Duration and stability of care histories (N=19,848)**

		<i>n</i>	%
<i>Total time spent in out-of-home care</i>	<1 month	3,861	19.5
	1 to 12 months	5,278	26.6
	1 to 5 years	6,996	35.2
	5+ years	3,713	18.7
	Mean	2 years, 8 months	
	Median	1 year, 3 months	
<i>Total placement changes</i>	0/1 changes	10,808	54.5
	2/3 changes	4,167	21.0
	4-6 changes	2,667	13.4
	7-9 changes	1,098	5.5
	10+ changes	1,108	5.6
	Mean	2.6 changes	
	Median	1 change	
<i>Average placement length</i>	<1 week	2,574	13.0
	1 to 4 weeks	2,066	10.4
	1 to 6 months	6,103	30.7
	6 to 12 months	3,978	20.0
	1 to 2 years	2,962	14.9
	2 to 5 years	1,760	8.9
	5+ years	405	2.0
<i>Total re-entries to out-of-home care</i>	No re-entries	13,335	67.2
	1 re-entry	3,910	19.7
	>1 re-entry	2,603	13.1
	Mean	0.63	
	Median	0	
<i>Ever:</i>	Missing from care	765	3.9
<i>Ever experienced:</i>	Adoption disruption <sup>a</sup>	270	1.4

<sup>a</sup>Adoption disruption refers to a fostering for adoption placement (N=2,326) that did not result in adoption.

## Resolution of care histories

The resolution of cumulative care histories is summarised in Table 5-5. At the time of their final exit from care, the majority of children were placed in a foster care setting (62.4%) and 6.2% were placed with their parents. Most children returned home to their families when leaving care for the final time (42.6%) and a further one in ten (11.5%,  $n=2,274$ ) left care to live in alternative family settings through adoption, special guardianship or residence orders. However, more than a third of children left the care system because they moved to independent living, transferred to adult social care services or simply aged out of children's social care services (36.3%,  $n=7,213$ ).

**Table 5-5 Resolution of care histories (N=19,848)**

		<i>n</i>	%
<i>Age group at final exit from out-of-home care</i>	<1 year	1,062	5.4
	1 to 4 years	3,284	16.5
	5 to 10 years	3,152	15.9
	11 to 15 years	3,222	16.2
	16+ years	9,128	46.0
<i>Final placement setting</i>	Family care	12,383	62.4
	Group care	3,182	16.0
	Independent living	2,613	13.2
	With parents	1,235	6.2
	Other setting <sup>a</sup>	435	2.2
<i>Final exit from out-of-home care</i>	Returned home	8,465	42.6
	Adopted	2,056	10.4
	Special guardianship order <sup>b</sup>	99	0.5
	Residence order <sup>b</sup>	119	0.6
	Independent living	3,484	17.6
	Sentenced to custody	252	1.3
	Died	51	0.3
	Moved to adult services	509	2.6
	Aged out <sup>c</sup>	3,220	16.2
	Other exit <sup>d</sup>	1,593	8.0

<sup>a</sup>'Other' setting includes young offender institutions and youth treatment centres. <sup>b</sup>Special guardianship and residence orders were introduced in 2006 when children in this cohort were aged 12-14 years. <sup>c</sup>I assumed that adolescents who exited out-of-home care within 1 month of their 18<sup>th</sup> birthday and had a reason episode ceased code of "other" recorded had aged out of the children's social care system. <sup>d</sup>'Other exit' includes 0.5% of children ( $n=103$ ) with a reason episode ceased of "care transferred to another local authority" for their final episode.



### **5.4.3 Variation in care characteristics by age at first entry**

As hypothesised, characteristics of children's cumulative care histories, such as the setting, duration and resolution of care, varied by their age at first entry (Table 5-6). For example, compared to children who entered out-of-home care for the first time aged <5 years, the proportion of children ever placed in foster care decreased with age, whereas the proportion ever placed in group care increased.

In terms of total time spent in care throughout childhood, children who first entered aged 5-10 years had the longest median duration (39 vs 15 months for the overall sample). Children who entered care for the first time aged 16+ years had the shortest median duration of 8 months, though given that they could only be looked after for up to 24 months at most (i.e. until their 18<sup>th</sup> birthday) this still represents a significant period of their remaining childhood.

The proportion of children who returned home after their final exit from care decreased with age. More than half of children who first entered care as infants returned home compared to one in six children who entered care aged 16+ years (54.3% vs 16.1%). Children who first entered out-of-home care when they were older were similarly more likely to age out of the system than children who first entered in early childhood. However, one in eight children who entered care aged <5 years was recorded as ageing out of the system (12.7%,  $n=925$ ).

**Table 5-6 Selected cumulative care characteristics, by age group at first entry to out-of-home care**

	Age group at first entry to out-of-home care (years)				
	<1	1 to 4	5 to 10	11 to 15	16+
Sample size (N)	2,941	4,342	4,374	6,013	2,178
<i>Total time spent in care</i>					
Mean (months)	28.8	41.1	79.4	23.4	9.1
Median (months)	12	14	39	19	8
<i>Ever in...</i>					
Compulsory care	52.2%	57.7%	62.4%	31.2%	8.5%
Foster care	97.3%	98.0%	93.8%	81.0%	34.7%
Kin foster care	24.9%	31.3%	26.8%	10.6%	2.7%
Group care	18.9%	14.6%	26.1%	43.0%	41.2%
Respite care <sup>a</sup>	7.8%	11.1%	11.6%	5.4%	0.6%
<i>Final exit from care</i>					
Returned home	54.3%	56.5%	40.1%	38.5%	16.1%
Adopted	35.3%	19.1%	4.3%	0.0%	0.0%
Independent living	3.1%	7.5%	17.6%	24.5%	37.8%
Moved to adult services	0.8%	1.6%	4.4%	2.6%	3.1%
Aged out <sup>b</sup>	3.6%	9.3%	21.6%	19.1%	28.4%
<i>Age group at final exit</i>					
<1 year	36.1%	-	-	-	-
1 to 4 years	43.1%	46.4%	-	-	-
5 to 10 years	9.6%	28.1%	37.7%	-	-
11 to 15 years	2.6%	4.8%	13.6%	38.9%	-
16+ years	8.6%	20.7%	48.7%	61.1%	100.0%

<sup>a</sup>Includes episodes of respite care before first entry to out-of-home care for non-respite reasons. <sup>b</sup>I assumed that adolescents who exited out-of-home care within 1 month of their 18<sup>th</sup> birthday with a reason episode ceased code of "other" recorded had aged out of the children's social care system.

## **5.5 Discussion**

### **5.5.1 Summary of findings**

This analysis was the first to describe histories of out-of-home care throughout childhood for children in England. Almost one in eight children (14.8%) entered out-of-home care for the first time as infants; however, more than 40% entered care for the first time as adolescents (i.e. aged 11-17 years). On average, children had 3.6 placements throughout childhood totalling 2 years and 8 months in care. Overall, most children were cared for in foster care, had a single period of care and returned home when leaving care. However, cumulative care histories were diverse and varied by age at first entry.

### **5.5.2 Strengths and limitations**

The main strength of this analysis is that my description of out-of-home care histories included all episodes of care throughout childhood and explored a wide range of aspects of care, from first entry to final exit. As a result, this analysis is more comprehensive and detailed than official statistics (Department for Education, 2017g) or previous research (Wade *et al.*, 2014; Ward, 2009; Skuse, Macdonald & Ward, 2001). By describing longitudinal care histories throughout childhood for a birth cohort of children, this description is also a better representation of out-of-home care experiences from a child perspective. Furthermore, the descriptions of care are likely to be extremely accurate as it was based on 'gold standard' national administrative data (UK Statistics Authority, 2013). These data did not rely on self-report of details of care placements by carers or care leavers, which meant issues of recall or selection bias associated with survey-based studies of placement were negated in my analysis.

A limitation of my descriptions of cumulative out-of-home care histories is that aspects of care that are known to be important to children could not be explored (e.g., having someone to talk to, having good relationships with carers, and feeling loved and respected (Dickson, Sutcliffe & Gough, 2010)). Indeed, in the context of this analysis, the term 'care history' referred only to the limited range of quantifiable events, situations or states that a child encounters or undergoes while

placed in out-of-home care that were recorded in my CLA data extract. Nonetheless, this analysis still provides a more detailed description of care histories for children in England than official statistics (Department for Education, 2017g) or previous research (Wade *et al.*, 2014; Ward, 2009; Skuse, Macdonald & Ward, 2001). A further limitation is that the descriptions in my analysis represent care histories for a cohort of children born between 1992 and 1994, who spent time in out-of-home care between 1992 and 2012. Given the numerous changes in policy and practice related to out-of-home care over this time period (Action for Children, 2008), these care histories may not be representative of those experienced by children who were born in more recent years. Further work to explore how cumulative characteristics of out-of-home care have changed over time would be useful.

### **5.5.3 Comparison of findings to other studies**

The main source of information related to out-of-home care experiences among children in England are the routinely-published statistics from the DfE (Department for Education, 2017f). However, as these are cross-sectional rather than cumulative it was not possible to draw meaningful comparisons with the findings from my analysis.

In my systematic review of the epidemiology of out-of-home care (described in Section 2.4), I identified several studies that described cumulative or longitudinal characteristics of out-of-home care in England. However, many of these studies related to purposive samples of children, such as those in long-term care (Skuse, Macdonald & Ward, 2001; Ward, 2009; Schofield *et al.*, 2007), in care due to maltreatment (Murphy & Fairtlough, 2015; Wade *et al.*, 2010), in foster care (Sebba *et al.*, 2015) or exiting care through a special guardianship order (Wade *et al.*, 2014). As care experiences are likely to vary by these sampling factors, I did not feel it was appropriate to draw comparisons with my findings for the overall population of children in care.

My systematic review did identify three studies that included all looked after children; however, two of these related to the 1970 British Birth Cohort Study

(Viner & Taylor, 2005; Dregan & Gulliford, 2012) and, as these care histories pre-date the enactment of the Children Act 1989, it is difficult to draw comparisons with the findings of my analysis. The most comparable study I identified analysed administrative data for 7,399 children in care in thirteen local authorities in England in 2003 and 2004 (Sinclair *et al.*, 2007). However, it was unfortunately not possible for me to draw comparisons for most of the characteristics that I described in my analysis, because they were not included in Sinclair *et al.*'s (2007) study or reported in incompatible ways. For example, Sinclair *et al.* (2007) described the *proportion of placements* that were fostering for adoption, kin foster care or group care, rather than the *proportion of children* who were ever placed in these care settings. Having considered the differences between my analysis and this study, I determined that only findings related to age at entry could reasonably be compared. In Sinclair *et al.*'s (2007) study, 33.4% of children who were in care in 2003 had first entered care aged 10-17 years. Considering that this figure does not include all episodes of care for all children, it is relatively comparable to my finding of 41.3% aged 11-17 years. However, there were stark differences between the studies in the proportion of children who were in contact with the out-of-home care system throughout childhood. Among the 1,630 children who were in care aged 16+ years in Sinclair *et al.*'s (2007) sample, just 6.2% ( $n=101$ ) had first entered care aged <5 years. However, among the 9,128 children who left care for the final time aged 16+ years in my sample, 12.6% ( $n=1,152$ ) had first entered care aged <5 years. This disparity may be due to differences in the length of follow-up in the two analyses, or may reflect changes over time, given that my analysis related to children born between 1992 and 1994 whereas Sinclair *et al.*'s (2007) sample related to children born between 1985 and 1988 (i.e. children who were aged 16 or 17 years in 2003 or 2004).

It was also difficult to draw cross-national comparisons between the cumulative care histories I described for children in England, due to a lack of comparable published literature from other countries. I identified one peer-reviewed journal article that described histories of care throughout childhood for 30,239 children born in Denmark between 1982 and 1987 (Fallesen, 2014). On average, children in

this Danish sample spent 3 years in care throughout childhood, compared to an average of 2 years and 8 months in my analysis. Children in Denmark appeared to have more stable care experiences with a mean of 1.8 placements and 0.4 re-entries (compared to 3.6 and 0.6, respectively, for children in my cohort). However, some of these differences may be because the Danish sample was restricted to children in foster care only and children placed in non-foster care settings may have more complex out-of-home care histories. Another study in the US described the proportion of children who exited out-of-home care through adoption by age 12 based on a purposive sample of children ( $N=330$ ) who were born between 1986 and 1991 and had entered out-of-home care before age 3.5 years for reasons related to maltreatment (Villodas *et al.*, 2016). Of these children, 32% had been adopted by age 12. Given that all adoptions in my sample occurred before age 11 (Table 5-6), it is possible to draw comparisons with this study. Of the 6,291 children in my sample who entered out-of-home care for reasons related to abuse or neglect aged <4 years, a similar proportion (29.7%,  $n=1,868$ ) had exited care through adoption by age 12.

In England, adoption is considered the ‘gold standard’ form of permanence for children who cannot return to their own families (Department for Education, 2012). However, the process of adoption is vulnerable to disruption at several stages. Firstly, the plan for adoption may change or it may not be possible to identify suitable adopters; secondly, children who are placed with potential adopters may not be adopted; thirdly, children who have been adopted may subsequently return to the out-of-home care system; and finally, adoptions may be legally terminated. The term ‘adoption disruption’ is often applied to all of these potential issues, but it has been suggested that terminology that more clearly differentiates between these levels of disruption would be useful for comparing between studies (Coakley & Berrick, 2008; Selwyn, Wijedasa & Meakings, 2014). For example, I will refer to adoption plan disruption, adoption placement disruption, adoption breakdown and adoption dissolution for each of the four respective levels, or pre-order adoption breakdown (i.e. disruptions to adoption plans and placements that occur before the

adoption is legally finalised) and post-order adoption disruption (i.e. breakdowns and dissolutions of adoption that have been legally finalised).

I could not calculate the level of post-order adoption disruption in my analysis because it is not possible to link pre- and post-adoption records of out-of-home care in the CLA dataset. However, one of the key findings from my analysis was the high proportion (11.6%) of children who experienced an adoption placement disruption (i.e. they were placed in a fostering for adoption placement that did not result in adoption). This is comparable to the findings of a recent review which reported an adoption placement disruption rate of up to 11% among children in the UK (Selwyn, Wijedasa & Meakings, 2014). One small study not included in the review provided a particularly granular description of the different levels of adoption disruption experienced by children in England, based on case file review and interviews for all children who were adopted in one local authority between 1991 and 1995 (Selwyn & Quinton, 2004). Overall, 26.2% (34/130) of children experienced an adoption plan disruption, 12.5% (12/96) experienced an adoption placement disruption and 5% (4/80) experienced an adoption breakdown or dissolution (over a follow-up period of 6-11 years). Looking at Selwyn and Quinton's figures in another way, the proportion of children who transfer through each stage of the adoption planning process without disruption can be estimated. For example, of the 130 children for whom there was an adoption plan made, 73.8% ( $n=96$ ) were placed for adoption. Given that the level of adoption placement disruption estimated by Selwyn and Quinton was very similar to the level that I identified in my analysis (12.5% and 11.6%, respectively) I assumed that the level of transfer from adoption plan to placement was also likely to be similar. If so, given that 2,326 children in my sample were placed for adoption, I would extrapolate that approximately 3,152 children ever had a plan for adoption (i.e.  $2,326/3,152=73.8\%$ ). If this extrapolation was true, then a total of 826 children or 4.2% of the overall cohort would have experienced an adoption plan disruption, in addition to the 1.4% for whom an adoption placement disruption was observed.

#### **5.5.4 Main implications of findings**

In Chapter 4, I highlighted that being placed in out-of-home care was not a rare event, in so far as, one in thirty (3.3%) children had spent time in out-of-home care by age 18. My findings from this analysis further highlight the important and substantial role that the state plays in raising children in England in the capacity of corporate parent. For example, this cohort of 19,848 children spent a total of 19,905,920 days in out-of-home care which is equivalent to more than 54,499 years of childhood. Moreover, almost one in six children (15.8%,  $n=1,150$ ) who entered out-of-home care for the first time aged <5 years were involved in the care system until the age of 16 or older.

Based on the most recent DfE statistics that describe characteristics of out-of-home care placements for children who were looked after on the 31<sup>st</sup> March 2016 (Department for Education, 2017f), it would appear that placement in group care settings is relatively uncommon (12%), most children are in compulsory care (73%) and most are looked after for reasons related to abuse or neglect (60%). In contrast, when accounting for all episode of care throughout childhood, I found that 29.6% of children had spent time in a group care setting and less than half (44.5%) had ever been placed in compulsory care. Similarly, less than half were ever looked after due to abuse or neglect (45.5%). Some of these differences may be attributable to changes over time in the use of out-of-home care. However, some children placed in out-of-home care are likely to be over-represented in cross-sectional statistics. For example, children who are in compulsory care or for reasons related to abuse or neglect may tend to stay in care for longer, and so the probability of these children being in care at a given point in time is greater. This has important implications for service planning and policy development as an over-reliance on cross-sectional statistics will provide an incomplete profile of the type of out-of-home care that is provided to children in England.

When exploring the incidence of placement in out-of-home care in Chapter 4, I identified that children were most likely to enter care as infants but that there was an increase in first entries to care during adolescence. In this analysis, I quantified that overall four in ten (41.3%) children entered care for the first time as



adolescents. This finding is important given that early intervention is a key aspect of policy related to out-of-home care and improving life chances in England (Allen, 2011). Within this sizeable proportion of adolescent first entrants, there may be some children who have been exposed to adversity for extended periods of time. This has implications for service provision as these children may be in need of intensive support or specialised placements.

My analysis also suggests that taking a public health approach to reducing factors associated with maltreatment could have a significant effect on the demand for out-of-home care placements. Although category of need does not capture all factors that precipitate a child's entry to out-of-home care (because it is a hierarchical variable), it is fair to assume that all cases in which abuse or neglect was a factor were identified among my sample of 19,848 children (because abuse or neglect is the highest ordered category of need). Overall, 44.5% of children had ever been placed in out-of-home care for reasons related to abuse or neglect. Therefore, it is possible that investment in universal strategies to prevent maltreatment could mitigate the need for out-of-home care for a significant number of children.

The majority of children in my cohort were placed in foster care at some point during childhood (84.9%). Of these 16,846 children, almost a quarter (23.5%) were ever fostered by a relative or family friend. One of the main advantages of kin foster care is that it can reduce stress for children because the carer is (usually, but not always) known and familiar to them. Furthermore, kin foster carers are more likely to accommodate large sibling groups and maintain contact with birth families (Berrick, Barth & Needell, 1994; Brown & Sen, 2014). Kin foster care placements can also enhance the stability of children's care histories as they tend to be longer and are less likely to result in an unplanned ending (Farmer, 2009; Brown & Sen, 2014). However, the quality of kin foster care placements is not always as good as stranger foster care placements (Brown & Sen, 2014). For example, compared to stranger foster carers, kin foster carers in England are more likely to have a chronic illness or disability, to live in overcrowded accommodation and to have a low income (Farmer, 2009; Nandy *et al.*, 2011; Brown & Sen, 2014). Kin foster carers are also less experienced and less likely to receive training and support from social workers

(e.g., respite care or monitoring visits (Berrick, Barth & Needell, 1994)). Given that almost a quarter of children who were fostered were cared for by kin and that the preference for kin foster care placements is enshrined in legislation as part of the Children Act 1989 (Nandy *et al.*, 2011; Department for Education, 2015b), it is important that all foster carers are assessed using the same standards and receive adequate support and training from local authorities.

Another important implication of my analysis relates to the recently introduced 'Staying Put' arrangements. This policy aims to strengthen and maintain a sense of permanence for care leavers by providing financial support to enable them to remain with their foster carer after the age of 18 (HM Government, 2013). However, among my cohort, 41.2% of children who left care for the final time aged 16+ years were placed in a group care setting. When first proposed in the 'Care Matters' report these 'Staying Put' arrangements were intended to be for children in both foster *and* group care (Department for Education, 2007) and it is clear that the revision of the eligibility criteria to apply only to children in foster care acts as a barrier to ongoing permanence for a sizeable proportion of care leavers.

One of the main implications of my analysis is that it raises questions about the value of the indicators of educational attainment for looked after children that the DfE routinely monitors. One of the main educational outcomes that are measured for looked after children is their attainment at key stage (KS) assessments. Focusing on GCSEs as an example, my analysis shows that of the 17,670 children who had entered out-of-home care before the age of 16, just 39.3% ( $n=6,950$ ) were currently in care at the time of sitting their GCSE exams (i.e. at age 16). Given that only children who have been in care continuously for 12+ months are included in DfE statistics, the overall proportion of care-experienced children who are included in this indicator will be even lower and is unlikely to be a representative sample. Future work to describe the representativeness of the groups of children included in DfE indicators of educational attainment is required.

It could be argued that children in care for 12+ months at the time of exams represent the population for whom the state is currently fulfilling the role of

corporate parent and for whom they have had sufficient time to improve their circumstances. However, I would counter that focusing on selected samples of children based on their 'in care' status at a given point in time results in a distorted picture of outcomes and hinders the evaluation of the effects of out-of-home care. By allowing children to leave out-of-home care, the state is tacitly implying that the level of care and support they will receive outside of the system is at least as good as that which they would receive if they stayed within the system. If it was not, then under the Children Act 1989 they would be obliged to ensure that the child remains in care in order to safeguard or promote their well-being (Children Act, 1989). This can be therefore be interpreted as the achievement of equipoise, whereby the state is of the opinion that there is no additional benefit to remaining in care versus leaving care. If so, it could be assumed that the outcomes for children discharged home are no better (or worse) than would have been achieved had they remained in the care system. Thus, I would argue that when describing educational outcomes for looked after children those who have left out-of-home care before completing KS assessments should also be included. Only then can we fully evaluate the effects of out-of-home care as an intervention.

A final implication of my analysis of cumulative care histories is that it highlights an important practical barrier to exploring educational outcomes for looked after children using linked National Pupil Dataset (NPD) and CLA data. This routine linkage is based on a shared identifier in the datasets, unique pupil number (UPN) which is typically assigned to children at first entry to the maintained school sector at around age 5 (Department for Education, 2013e). However, among the cohort of children born between 1992 and 1994, one in five (21.9%) left the out-of-home care system for the final time before age 5. Consequently, a sizeable proportion of children who are served by the out-of-home care system are unlikely to have a UPN recorded and therefore it is not be possible to explore their educational outcomes using linked CLA-NPD data. Consequently, the effects of out-of-home care in pre-school years cannot be adequately explored which is particularly concerning given the emphasis on early intervention in current policy and practice (Allen, 2011).

## 5.6 Key points from Chapter 5

- I analysed longitudinal CLA data for a cohort of children born in England between 1992 and 1994 to describe cumulative care histories accounting for all episode of out-of-home care throughout childhood.
- These findings further highlight the important and substantial role that the state plays in raising children in England. On average, looked after children spent 2 years and 8 months in care throughout childhood and one in six were involved in the out-of-home care system from early childhood (<5 years) to late adolescence (16+ years).
- In comparison to longitudinal analyses of out-of-home care histories, cross-sectional statistics provide an incomplete and somewhat distorted profile of the type of care that is provided to looked after children in England. An over-reliance on cross-sectional statistics should be avoided when planning services or designing policy related to looked after children.
- Histories of out-of-home care are extremely diverse among children in England. The current focus on selected populations of looked after children when describing outcomes hinders a thorough evaluation of the effects of this social care intervention.

## Chapter 6 Types of out-of-home care

### Statement of authorship

I carried out all of the work presented in this chapter.

### 6.1 Content and structure of Chapter 6

In Chapter 5, I described the diversity of cumulative histories of out-of-home care among children in England. In this chapter, I will describe how I explored whether (despite this diversity) there were common types of out-of-home care using latent class analysis. This set of analyses used data from the Children Looked After (CLA) dataset for the large, representative sample of children in England born between 1992 and 1994, previously analysed in Chapters 4 and 5.

I will begin by briefly introducing the rationale for this set of descriptive analyses, and outlining its aim and objectives. I will then describe the methods that I used and the results of my analyses. I will discuss the main findings in relation to relevant published literature and the strengths and limitations of this part of my PhD study. Finally, I will close this chapter with a summary of its key points.

## 6.2 Introduction

### 6.2.1 Accounting for diverse care histories when exploring outcomes

As previously described in Chapter 2, the association between placement in out-of-home care and adverse health, educational and social outcomes varies by the characteristics of children's care experiences, such as the setting, duration and stability of placements. However, much of the evidence that has described these associations utilises variable-centred analytic methods, such as regression models and factor analysis (Jones *et al.*, 2011). Such methods seek to isolate the effects of individual risk factors on an outcome of interest, while controlling or accounting for other inter-related factors. In the context of understanding the potential effects of out-of-home care as a social care intervention, such risk-adjusted estimates of association can be difficult to interpret and incorporate into practice as they do not account for the interplay between factors that contribute to the diversity of children's care histories. An alternative approach would be to develop a classification of different types of out-of-home care and explore how outcomes vary between them. A potential benefit of such an approach is that a classification of the different types of out-of-home care would account for the interplay between different characteristics of care and allow the effects of multiple risk factors that are co-observed in practice to be explored (Lippold, Kainz & Sabatine, 2017).

It is readily acknowledged that the out-of-home care system in England responds in diverse ways to the differing needs of looked after children and their families (Munro & Hardy, 2006; Thoburn & Courtney, 2011; Selwyn & Quinton, 2004; Courtney, Hook & Lee, 2012). Indeed, my analysis of childhood care histories (reported in Chapter 5) demonstrated that they are extremely heterogeneous. However, although out-of-home care is by no means a 'one size fits all' intervention, it may be possible to classify the different experiences of children placed in out-of-home care. Indeed, previous UK-based studies have attempted to classify diverse care histories based on common aspects of care placements. For example, based on the ages at which children were placed in foster care, Sebba and colleagues (2015) classified longitudinal care histories as short-term, long-term (early entry) and long-term (late entry).

### **6.2.2 Latent class analysis as a means of classifying care histories**

In a quantitative research context, classification is a strategy that allows similarities and differences within a population to be identified by reducing the complexity of a dataset (Bailey, 1994). Latent class analysis is one type of statistical model that can detect sub-groups in a population based on patterns of association between multiple quantitative characteristics (Hagenaars & McCutcheon, 2002). The basic principle of latent class analysis is that within a population there are a number of distinct sub-groups which cannot be directly observed; however, membership of these latent classes can be inferred from a set of other observable variables (Collins & Lanza, 2010).

Latent class analysis is a relatively under-utilised method in social work research, though its use has increased in recent years (Neely-Barnes, 2010). For example, in Canada, latent class analysis has been used to identify patterns of child maltreatment and psychiatric disorder among pregnant adolescents (Romano, Zoccolillo & Paquette, 2006) and to describe associations between childhood adversity and adult incarceration (Roos *et al.*, 2016). In the US, it has been used to identify sub-groups of economic insecurity that are associated with increased risk of physical harm to young children (Conrad-Hiebner & Paschall, 2017) and to describe associations between childhood sexual abuse and the likelihood of having a substance abuse problem in adolescence (Shin, Hong & Hazen, 2010). In the context of out-of-home care specifically, latent class analysis has been used to characterise service needs among parents of children placed in foster care (Jarpe-Ratner *et al.*, 2015), to describe different reasons children need to be accommodated in the out-of-home care system (Yampolskaya *et al.*, 2014), and to identify groups at high-risk of maltreatment while in foster care (Katz, Courtney & Novotny, 2016). Latent class analysis has also been used to classify out-of-home care histories. For example, a longitudinal study of 330 children in the US who entered out-of-home care in early childhood found that by age 12 there were six sub-groups of care experience evident among the sample, and that 17% of children had experienced so-called 'unstable' trajectories (Villodas *et al.*, 2016).

### **6.2.3 Summary of the rationale for this analysis**

Although it is by no means a 'one size fits all' intervention, it is likely that there are common types of out-of-home care used in England. To date, there have been few attempts to empirically classify the varied experiences of looked after children; however, analysis of administrative data taking a longitudinal approach and using methods such as latent class analysis could refine our understanding of how this social care intervention is used, and ultimately inform the development of more effective care provision.

### **6.2.4 Research questions and hypotheses**

1. Are there distinct types (or latent classes) of cumulative out-of-home care history among children in England?
2. Is age at first entry or gender associated with type of cumulative care history?

In relation to Question 1, I hypothesised that the observed heterogeneity of overall cumulative care histories (described in Chapter 5) could be attributed to the mixture of different latent class of out-of-home care histories among the sample of children included in my CLA data extract. Given that this was an exploratory latent class analysis, I had no pre-existing hypothesis for Question 2.

### **6.2.5 Aim of this analysis**

To identify common types of out-of-home care.

### **6.2.6 Objectives of this analysis**

- a) To explore whether distinct types of cumulative out-of-home care histories can be identified using latent class analysis.
- b) To quantify the relative frequency of the identified latent classes of out-of-home care, by sex and age.
- c) To describe variation in the characteristics of the identified latent classes of out-of-home care using narrative case studies.



## **6.3 Methods**

### **6.3.1 Data source and study population**

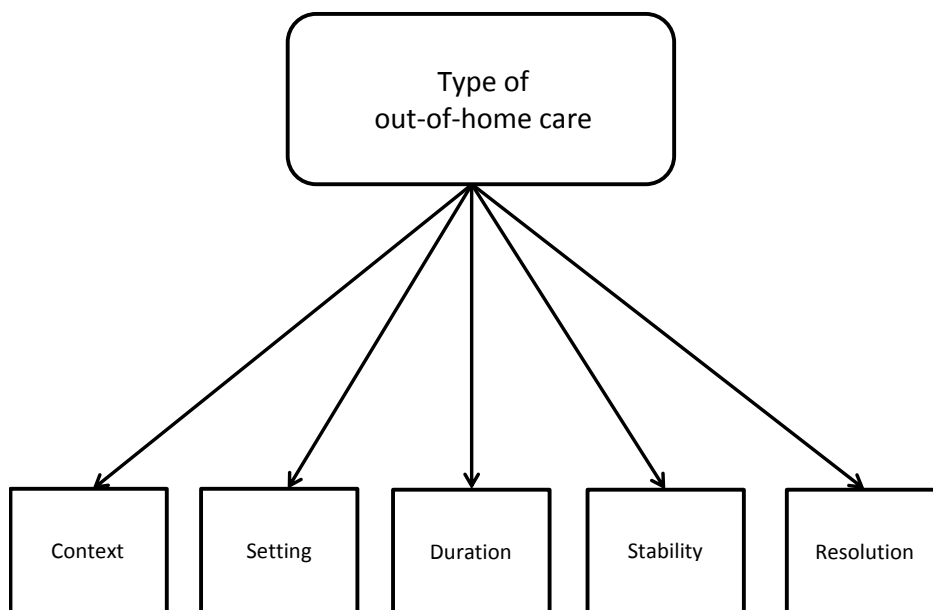
The data source for this set of analyses was an extract of (CLA) data, a routinely-collected, administrative social care dataset which has been previously described in detail in Chapter 3. As per Chapters 4 and 5, this set of analyses was based on a nationally representative, one-third cohort of children for whom complete care histories (from birth to age 18) were available. This cohort included all children in my CLA data extract who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 and had ever entered out-of-home care for non-respite reasons ( $N=19,848$ ).

### **6.3.2 Brief overview of latent class analysis**

Latent class analysis is a type of finite mixture model (Hagenaars & McCutcheon, 2002). Finite mixture models assume that an observed empirical dataset is a mixture of data from a finite number of mutually exclusive and distinct groups (Morgan, 2014). Essentially, the underlying assumption of latent class analysis is that within a population there are distinct, homogenous and hidden sub-groups, and it is the mixture of these sub-groups within a population that accounts for the overall observed heterogeneity (Collins & Lanza, 2010). In latent class analysis, membership of these hidden sub-groups (known as latent classes) is conceptualised as a categorical variable that cannot be directly observed, but can be inferred by other observable, categorical variables (known as indicators).

A latent class model estimates two main parameters or measures (Collins & Lanza, 2010): latent class prevalence (a measure of the relative distribution of the hidden sub-groups in a population) and item-response or indicator probabilities (measures that describe the relationships between observable indicator variables and latent sub-groups). These parameters are estimated using an iterative search algorithm, most often the expectation-maximisation (EM) algorithm. This algorithm estimates parameter values multiple times and searches for the maximum likelihood (ML) solution. For a given latent class model, the ML solution represents the parameter values (i.e. distribution and characteristics of latent classes) for which the empirical

data in a dataset are most likely to be observed (Hagenaars & McCutcheon, 2002). To identify the ML solution, criteria for stopping the iterative EM algorithm which estimates the parameter values must be specified. These stopping criteria are typically the maximum number of iterations of the EM algorithm that can be run and, more importantly, the convergence criteria that indicates the ML solution has been identified. The convergence criteria is a measure of the difference between parameter estimates from two successive iterations of the EM algorithm that indicates they are similar enough to assume that the ML solution has been identified (Collins & Lanza, 2010). In this analysis, my hypothesis is that the heterogeneity of cumulative care histories that I described in Chapter 5 is attributable to the fact that my sample is a mixture of children who experienced different types of out-of-home care. These hypothesised types of out-of-home care cannot be identified or measured directly, but will be associated with observable characteristics of care (Figure 6-1).



**Figure 6-1 Conceptualisation of a latent variable of type of out-of-home care**  
Figure 6-1 illustrates a latent variable of ‘type of out-of-home care’ with five observed variables as indicators. The direction of the arrows illustrates the relationship between the latent class and indicator variables. Notably, indicator variables do not determine the latent variable’s value, but rather the latent variable determines the indicator variables’ values. Furthermore, the lack of arrows between the indicator variables illustrates the assumption of local independence i.e. any correlations between the indicator variables are accounted for by the latent variable.

I conducted my latent class analysis using the LCA Stata plugin developed by The Methodology Center at Penn State University (Lanza *et al.*, 2015a). This plugin uses an iterative EM algorithm to estimate parameter values (i.e. latent class prevalence and item-response or indicator probabilities) until a specified convergence criterion is reached (Lanza *et al.*, 2015b). In my latent class analysis, I set the convergence criterion at 0.000001, which meant that the ML solution was considered to have been identified when two successive iterations of the EM algorithm estimated solutions in which the difference in any parameter estimate was <0.000001.

### **6.3.3 Identifying a latent class model**

The first stage in latent class analysis is to identify a model that represents the hypothesised latent variable in a dataset, including the number of latent classes (sub-groups). Identifying a latent class model involves three main steps. First, the indicators (i.e. observed variables) to be included in the latent class model must be selected. Then, the number of latent classes must be chosen by assessing the relative fit of nested models with different numbers of classes. Finally, the validity of the selected latent class model should be assessed to ensure that it is replicable and adequately represents the data. Statistical measures and tests can be used in each step of this (often iterative) model identification process. However, these 'fit indices' are unlikely to identify a single best model and, instead, should be viewed as a means of informing the process of identifying an appropriate model (Hagenaars & McCutcheon, 2002; Lippold, Kainz & Sabatine, 2017).

### **Choosing variables to be included in the latent class models**

As previously mentioned, the underlying hypothesis of latent class analysis is that a population contains hidden sub-groups whose membership is not directly measurable, but is associated with other measurable indicators (i.e. variables in a dataset). These indicators should be correlated with one another as their clustered distribution is a product of the distinct, hidden sub-groups they are associated with (Neely-Barnes, 2010). A minimum of two indicators is required to specify a latent class model and, generally, the estimation of the ML solution is better and more replicable when more indicators are included in a model (Wurpts & Geiser, 2014).

However, for a latent class model to be meaningful and interpretable, the included indicators must be relevant to the hypothesised latent variable (Neely-Barnes, 2010; Lippold, Kainz & Sabatine, 2017).

One method for systematically selecting which variables should be included as indicators in a latent class analysis has been proposed by Dean and Raftery (2010). In this statistical framework, all potential variables are ranked by their observed variance in the empirical dataset. An initial latent class model is then specified so that it includes at least two latent classes, and the minimum number of the highest ranked variables necessary to specify a model with positive degrees of freedom. The next highest ranked variable is then added to the model and its effect on the Bayesian Information Criteria (BIC) determines whether it is retained or excluded as an indicator. This process continues until all potential variables have been tested and a parsimonious set of theoretically-relevant indicators has been identified (Dean & Raftery, 2010).

In this analysis, I hypothesised that there were a mixture of different types of out-of-home care among the sample of children included in my CLA data extract, resulting in the observed heterogeneity of their cumulative care histories. This meant that it was theoretically possible that each of the 26 variables that I had previously derived to describe cumulative histories of out-of-home care in Chapter 5 could be a potential indicator of my hypothesised latent variable of type of out-of-home care. Using cross-tabulation and  $\chi^2$  tests (Howell, 2000), I first confirmed that these 26 potential indicators were correlated with one another and then identified the most parsimonious set of indicators for my latent class model using the previously-outlined framework and considering the interpretability of the model (Neely-Barnes, 2010; Lippold, Kainz & Sabatine, 2017).

### **Choosing the optimum number of latent classes**

The next step in identifying a latent class model is to choose the most appropriate number of latent classes. A number of fit indices can be used to assess the relative fit of nested latent class models with different numbers of classes. The most

frequently-used indices are the goodness-of-fit ( $G^2$ ) score, BIC and Akaike information criterion (AIC). For each of these indices, smaller values indicate better relative fit of a latent class model (Hagenaars & McCutcheon, 2002). The entropy ( $R^2$ ) of a model (which ranges from 0 to 1) can also be used to inform the choice of class number by indicating how distinct the latent classes are (Celeux & Soromenho, 1996). Higher  $R^2$  values indicate better distinction between classes and values over 0.80 are typically considered to indicate good separation of classes (Muthén, 2003). The relative fit of two models with  $n$  and  $n+1$  classes can be assessed using a Lo-Mendell-Rubin (LMR) likelihood ratio test (LRT). In an LMR LRT a significant p-value (i.e.  $<0.05$ ) signifies that a model with  $n+1$  classes is superior to that with  $n$  classes, in terms of fit for the empirical data (Nylund, Asparouhov & Muthén, 2007). As previously mentioned, latent class models are complex and these different fit indices may not point to any single 'best' model. Comparisons of these fit indices suggest that sample size adjusted BIC and LMR LRT are the most reliable indicators of statistical fit (Morgan, 2014; Maydeu-Olivares & Cai, 2006; Nylund, Asparouhov & Muthén, 2007). However, it is important that the interpretability of the classes is considered when comparing the relative fit of models and that fit indices inform, rather than dictate, the final number of classes that is chosen (Lippold, Kainz & Sabatine, 2017)

In this analysis, I evaluated the relative fit of my specified latent class model with one to ten classes. My decision on the final number of classes was informed by the values of  $R^2$ ,  $G^2$ , BIC, AIC and LMR LRT p-values. The interpretability of the potential classes in terms of the distribution of indicator variables also informed my choice of the final number of classes.

### **Assessing the validity of the latent class model**

One method of assessing the validity of a latent class model is to examine whether it has identified the ML solution (i.e. the parameter values for which the empirical data are most likely to be observed). This can be done by running the model ten times with random starting values and recording the resultant log-likelihood value for each iteration. If all ten iterations of the model return the same log-likelihood

value, it can be assumed that the ML result has been identified (Collins & Lanza, 2010). If the log-likelihood value is not consistent across ten iterations, the model should be run 100 times with random starting values and the distribution of the resultant log-likelihood values should be examined. This distribution indicates whether the ML solution has been identified; however, there are no agreed rules, cut-offs or standards for the distribution (Collins & Lanza, 2010).

The absolute fit of a latent class model can also be assessed in terms of how adequately it represents the given empirical data. The most common method is to explore whether there is independence between the indicator variables in the contingency table underlying the latent class model. If there is independence between the indicator variables (i.e. they are no longer correlated to one another), this suggests that the model adequately represents the empirical data as the observed heterogeneity is now accounted for by the specified latent variable. If the indicator variables are not independent (i.e. they are still correlated), this suggests that the latent variable specified by the model does not fully account for the observed heterogeneity in the empirical data (Collins & Lanza, 2010).

A common test for independence is to obtain a p-value for the  $G^2$  score of the contingency table specified by the latent class model (Cressie & Read, 1989). The  $G^2$  score is an indication of how well the observed pattern of distribution of indicator variables in a contingency table matches what would be expected given the parameters of the specified latent class model. The  $G^2$  score for a model is computed by the LCA Stata plugin (Lanza *et al.*, 2015a) and a p-value can be obtained by comparing it to the  $\chi^2$  distribution with the same degrees of freedom. If the p-value is  $>0.05$ , this can be interpreted as evidence that the latent class model adequately fits the data, statistically speaking (i.e. the observed contingency table of indicator variables is not significantly different from that which would be expected under the specified latent class model). However, this method of assessing absolute model fit is only appropriate if sparseness is not an issue in the expected contingency table (i.e. the average expected cell count is not too small (Agresti & Yang, 1987)). This method should not be used if  $W/N$  is  $<5$ , where  $W$  is

the size of the contingency table and  $N$  is the sample size, as the  $\chi^2$  distribution is not a good approximation of the  $G^2$  score (Agresti & Yang, 1987).

Given that latent class analysis is an iterative process for identifying distinct sub-groups, it is important to validate that the classes that are identified differ in meaningful ways, beyond the distribution of the indicator variables included in the latent class model. This can be achieved by exploring variation in outcomes between different latent classes (Roos *et al.*, 2016; Shin, Hong & Hazen, 2010; Elklit *et al.*, 2013; Collins & Lanza, 2010). In the absence of relevant outcome data, an alternative strategy is to describe differences in other covariates in the dataset that were not included in the latent class model (Keller, Cusick & Courtney, 2007).

In this analysis to explore whether the ML solution had been identified for the final model that I selected, I ran 100 iterations with random starting values and examined the distribution of the resultant log-likelihood scores. To assess the absolute fit of my model I compared the  $G^2$  score to the reference  $\chi^2$  distribution with the same degrees of freedom. Finally, as my CLA data extract did not contain outcome data, to validate that the identified latent classes were distinct I tabulated selected cumulative care characteristics that had not been included as indicators in the latent class model to explore how these varied between the sub-types of out-of-home care.

#### **6.3.4 Quantifying the frequency of latent classes of out-of-home care histories**

For each individual in a dataset, the LCA Stata plugin estimates the posterior probability of being a member of each of the latent classes specified by the latent class model and based on the pattern of indicator variables (Collins & Lanza, 2010). Each individual is then assigned to the most likely latent class based on the distribution of these posterior probabilities (Lanza *et al.*, 2015a). In the context of this analysis, the distribution of posterior probabilities determined which latent class of 'type of out-of-home care' each child was most likely to belong to, given their pattern of cumulative care histories. Like other probabilities, posterior probabilities range from 0 to 1. As a check of this automated classification process, I

calculated the mean and median probability of the individuals assigned to each latent class and visualised the distribution using a box plot.

Next, I described the distribution of the identified latent classes of out-of-home care in the overall population. I also explored how the distribution of these latent classes varied by sex and age at first entry, using cross-tabulation and  $\chi^2$  tests (Cressie & Read, 1989). I chose not to explore variation in the distribution of the latent classes by ethnic category because (as previously described in Chapter 4) this variable was imputed for more than a quarter of individuals in the cohort. Although I was confident that the distribution of ethnicity was an adequate approximation of the population-level distribution by age at first entry, I could not be confident that the ethnicity assigned to each individual was an accurate representation of their true ethnicity. As a result, I could not be confident that the distribution of latent classes by ethnicity would be a reliable and accurate description of actual ethnic variation in types of out-of-home care in the sample or the population.

### **6.3.5 Describing variation between the latent classes of out-of-home care histories**

As previously outlined, to describe variation between the latent classes of out-of-home care histories I explored differences in the distribution of indicator variables and other co-variables in the dataset. However, to further illustrate the differences between these types of out-of-home care I also decided to attempt to assemble a narrative description of a typical care history in each of the latent classes. This person-centred methodology was recently used by Sharland and colleagues (2017) to reconstruct individuals' life narratives from longitudinal, quantitative data collected as part of the British Household Panel Survey. By combining information from more than 300 variables, they were able to reconstruct family histories of contact with social services over a period of 7 years, and gain new insight into the complexity and diversity of these experiences that were not previously evident from standard quantitative analyses of the same data (Sharland *et al.*, 2017).

The aspects and details of children's care histories that are recorded within an administrative dataset such as the CLA dataset are far more limited than the British



Household Panel Survey. Nonetheless, I decided to explore whether there may still be value in using these longitudinal, quantitative data to construct narrative descriptions of out-of-home care histories. At the very least, I speculated that these descriptions would provide further context to my latent class analysis. In order to ensure that the single care history I described was a good representation of the overall latent class, I restricted my selection to individuals whose posterior probability of membership to a given latent class was in the top 1% of the distribution. From these 'well-classified' individuals, I selected one child ID at random, examined all of their records in my CLA data extract and narratively described their out-of-home care history.

## 6.4 Results

### 6.4.1 Sample characteristics

Overall, there were 19,848 children in my CLA data extract who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994 who had ever been placed in out-of-home care for non-respite reasons during childhood. Table 5-2 summarises their demographic characteristics (which have previously been presented in Chapters 4 and 5). The cumulative care histories of this cohort have previously been described in detail in Chapter 5.

**Table 6-1 Demographic characteristics of children born 1992 to 1994 who were placed in out-of-home care in England (N=19,848)**

		n	%
Sex	Male	10,783	54.3
	Female	9,065	45.7
Ethnicity <sup>a</sup>	White	14,315	72.1
	Mixed	1,320	6.7
	Asian	1,393	7.0
	Black	1,818	9.2
	Other <sup>b</sup>	920	4.6
	Unknown <sup>c</sup>	82	0.4

*This table has previously been included in Chapter 4 and 5. <sup>a</sup>The ethnicity presented here includes imputed values, as described in Section 4.3.3 (Accounting for missing ethnicity data). <sup>b</sup>Other ethnicity includes Chinese, as per the categorisation used by the Department for Education in annual statistics. <sup>c</sup>Unknown ethnicity refers to when child or parent/carer refused to provide ethnicity data or this information was not obtained by the local authority, as recorded by the relevant codes in the Children Looked After dataset (Department for Education 2017a).*

#### 6.4.2 Overview of the chosen latent class model

Having assessed all 26 variables that I had derived to describe cumulative characteristics of out-of-home care in Chapter 5, I chose to include nine as indicators in my latent class model (as summarised in Table 6-2). I chose to include these variables as indicators as they were inter-correlated, theoretically relevant to the hypothesised latent variable of type of out-of-home care and were the most parsimonious set identified by the previously-described statistical framework (Dean & Raftery, 2010).

**Table 6-2 Frequency of the included latent class indicators (N=19,848)**

Binary variables that described if a child:	Yes	No
First entered care voluntarily?	73.2%	26.8%
Ever in court mandated care?	44.5%	55.5%
Spent <1 year in care in total? <sup>a,b</sup>	46.1%	53.9%
Ever in care due to abuse/neglect?	45.5%	54.5%
<4 placement changes in total? <sup>a,c</sup>	75.5%	24.5%
Ever exited and re-entered care? <sup>a,d</sup>	32.8%	67.2%
Ever in kin foster care?	23.5%	76.5%
Ever in respite care?	7.9%	92.1%

<sup>a</sup>I dichotomised these variables as the LCA Stata plugin cannot distinguish between nominal and ordinal categorical variables (Lanza et al., 2015a). I selected the cut-offs for these binary variables based on the distribution observed in the sample and on their interpretability, as follows. <sup>b</sup>In this cohort, the median time spent in care was approximately 1 year. This period of time is also frequently used in Department for Education publications. <sup>c</sup>The 75<sup>th</sup> percentile for number of placement changes was 4. I chose this cut-off so that the latent class indicator could capture the most unstable care histories. <sup>d</sup>Two-thirds of children did not experience a re-entry to care so I combined the categories 1 and >1 re-entries.

Statistical fit indices did not point to a definitive number of latent classes as the best representation of the empirical data. Even though it had the lowest values of fit indices values, I disregarded the ten-class model as the entropy ( $R^2$ ) was notably lower and the results of the LMR LRT test indicated that it did not fit the data significantly better than the nine-class model ( $p=0.05$ , Table 6-3). Decreases in the values of the BIC, AIC and  $G^2$  fit indices appeared to level off after the five-class model (Figure 6-2) and so I considered models with six to nine classes in greater detail. Specifically, I explored the interpretability, internal homogeneity and external heterogeneity of the proposed classes in these models.

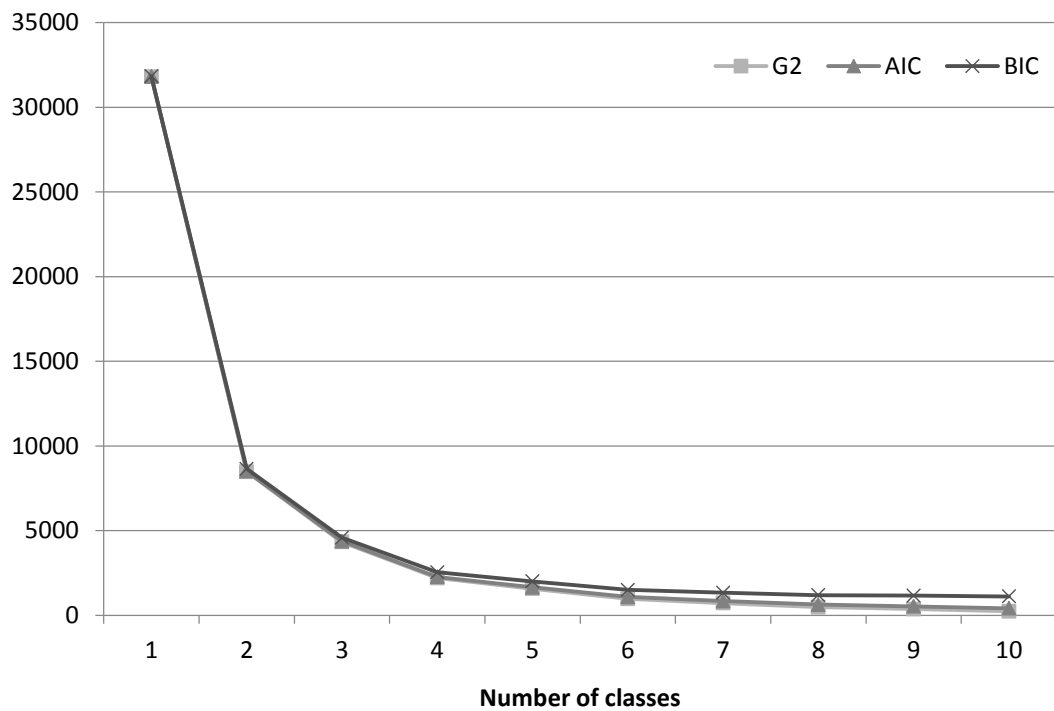
Ultimately, I decided that a latent class model with seven classes was the most appropriate model for my data extract. The entropy of this seven-class model was comparatively high (0.83, indicating that classes were distinct from each other), the pattern of indicator probabilities indicated good intra-class homogeneity and inter-class heterogeneity (Table 6-4) and, most importantly, the proposed classes were interpretable. Furthermore, the distribution of the log-likelihood values for this seven-class model indicated that the ML solution was estimated consistently (Figure 6-3).

Sparseness was not an issue for the seven-class model that I selected: the average expected cell count in the underlying contingency table was 68, as calculated by the sample size divided by the number of parameters to be estimated (19,848/291). Comparing the  $G^2$  score for the seven-class model to the  $\chi^2$  distribution with the same degrees of freedom suggested that, in terms of absolute fit, the seven-class model did not account entirely for the variation in observed values (i.e. the p-value was  $<0.05$ ). However, this was true for all models that I explored and studies have suggested that when the degrees of freedom are large (as they were in this analysis), the distribution of the  $\chi^2$  score is not a good approximation of the  $G^2$  score distribution (Cressie & Read, 1989; Maydeu-Olivares & Cai, 2006; Collins & Lanza, 2010).

**Table 6-3 Fit indices for latent class models of types of out-of-home care with one to ten classes**

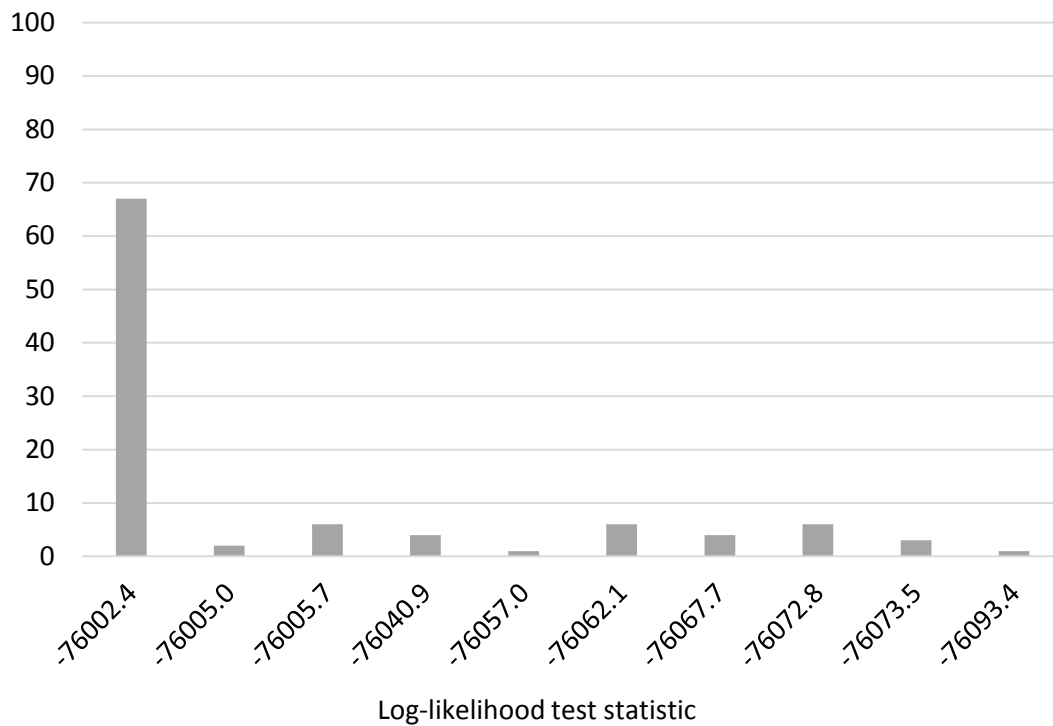
Number of classes	df	G <sup>2</sup>	AIC	BIC	R <sup>2</sup>	LMR LRT
1	247	31,804.3	31,820.4	31,833.4	1.00	n/a
2	238	8,480.0	8,514.0	8,648.2	1.00	<0.001
3	229	4,331.1	4,383.1	4,588.4	0.86	<0.001
4	220	2,202.8	2,272.8	2,549.2	0.83	<0.001
5	211	1,568.3	1,656.3	2,003.7	0.91	<0.001
6	202	981.1	1,087.1	1,505.6	0.85	<0.001
<b>7</b>	<b>193</b>	<b>721.5</b>	<b>845.5</b>	<b>1,335.1</b>	<b>0.83</b>	<b>&lt;0.001</b>
8	184	489.5	631.5	1,192.1	0.83	<0.001
9	175	371.4	531.4	1,163.1	0.84	<0.001
10	166	237.5	415.5	1,118.2	0.77	0.05

df=degrees of freedom; G<sup>2</sup>=goodness-of-fit; AIC=Akaike information criterion; BIC=sample size adjusted Bayesian information criterion; LMR LRT=Lo-Mendell-Rubin likelihood ratio test. Bold highlighting indicates the seven-class model that I selected.



**Figure 6-2 Selected fit indices for latent class models of types of out-of-home care with one to ten classes**

G<sup>2</sup>=goodness-of-fit; AIC=Akaike information criterion; BIC=sample size adjusted Bayesian information criterion.



**Figure 6-3 Distribution of log-likelihood values for the selected seven-class model based on 100 random sets of starting values**

*In total, 67% of estimation procedures with random starting values of the seven-class model converged to the same solution of a log-likelihood test statistic of -76,002.4. Although, there are no definitive rules, this level of consistency has been considered to be an acceptable indication that the maximum-likelihood solution has been identified in other published studies (Collins & Lanza, 2010).*

**Table 6-4 Parameters estimated by the seven-class model of types of out-of-home care**

	Class1	Class2	Class3	Class4	Class5	Class6	Class7
Latent class prevalence	0.43	0.08	0.08	0.12	0.12	0.04	0.13
<i>Indicator probabilities</i>							
Voluntary first entry to care	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	0.05	0.22	<b>1.00</b>	<b>0.85</b>
Ever in court mandated care	0.00	0.16	0.24	<b>1.00</b>	<b>1.00</b>	<b>0.91</b>	<b>1.00</b>
Spent <1 year in care in total	0.68	0.72	<b>0.00</b>	<b>0.82</b>	<b>0.00</b>	0.09	0.10
Ever in care due to abuse/neglect	0.21	0.33	0.30	0.67	0.85	0.65	0.79
<4 placement changes in total	0.99	0.76	0.18	0.99	0.63	<b>0.88</b>	<b>0.20</b>
Ever exited & re-entered care	<b>0.06</b>	<b>1.00</b>	0.59	0.30	0.05	0.20	0.96
Ever in kin foster care	0.09	0.12	0.17	0.21	0.37	0.26	0.43
Ever in respite care	0.06	0.22	0.13	0.02	0.00	0.25	0.09

*The indicator probabilities that were strongly correlated with each latent class (i.e.  $\leq 0.20$  or  $\geq 0.80$ ) are highlighted in bold. I based the names of the classes on these variables.*

### 6.4.3 Latent classes of type of out-of-home care

As hypothesised, this analysis indicated that there were distinct types (or latent classes) of cumulative out-of-home care history among children in England. The model I selected identified seven latent classes of type of out-of-home care. Based on the estimated indicator probabilities (as highlighted in Table 6-4), I labelled these sub-groups:

- Single, short voluntary stays
- Repeated, short voluntary stays
- Long voluntary stays
- Compulsory entries with short stays
- Compulsory entries with long stays
- Legal transitions with stable stays
- Legal transitions with unstable stays

Table 6-5 describes the actual prevalence of these latent classes in my CLA data extract (i.e. the number of children assigned to each latent class based on their posterior probability of membership) and the actual distribution of the indicator variables across these classes. The grouping of children into latent classes was based on the calculated posterior probability of membership. Children were assigned to the latent class for which they had the highest probability of membership. Overall, the mean probability of membership for the classes children were assigned to was 0.87; however, this varied between the classes (Table 6-6 and Figure 6-4). For example, the mean probability of membership of the 'repeated, short voluntary stays' class was 0.65 compared to 0.99 for the 'single, short voluntary stay' class.

To validate that the differences between the identified latent classes were meaningful, I compared the distribution of other selected characteristics of cumulative care histories that were not included as indicators in the model (as summarised in Table 6-7). I also described narrative care histories for one child in each latent class to further illustrate the differences between the different types of care experience, as per Tables 6-8, 6-9 and 6-10.



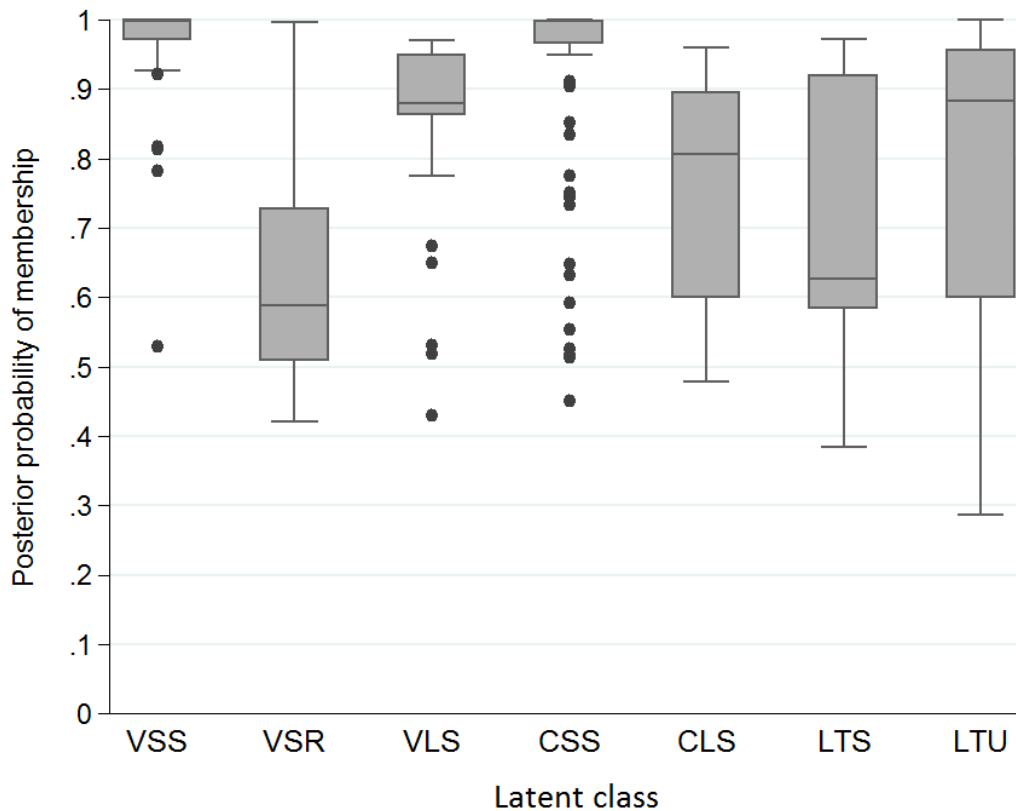
**Table 6-5 Frequency and distribution of indicators, by latent classes of type of out-of-home care (N=19,848)**

	Voluntary care			Compulsory entries		Legal transitions	
	Single, short stay	Repeated, short stays	Long stays	Short stays	Long stays	Stable stays	Unstable stays
Sample size (N)	8,086	2,076	1,269	1,985	2,893	453	3,086
Prevalence	40.7%	10.5%	6.4%	10.0%	14.6%	2.3%	15.5%
Voluntary first entry to care?	100.0%	100.0%	100.0%	4.1%	27.0%	100.0%	57.8%
Ever in compulsory care?	0.0%	12.2%	13.2%	100.0%	100.0%	100.0%	100.0%
<i>Total duration of care</i>							
<1 year	67.2%	72.6%	0.0%	97.2%	0.0%	6.2%	7.8%
1+ year	32.8%	27.4%	100.0%	2.8%	100.0%	93.8%	92.2%
Median (months)	5	6	41	2	58	49	52
<i>Total placement changes</i>							
<4 changes	99.6%	87.3%	0.0%	99.4%	66.9%	93.8%	25.0%
4+ changes	0.4%	12.7%	100.0%	0.6%	33.1%	6.2%	75.0%
Median placement changes	0	2	6	0	2	1	5
Re-entered care	0.0%	100.0%	55.6%	30.3%	0.0%	11.0%	99.8%
Ever in care due to abuse/neglect	21.0%	31.8%	25.7%	64.8%	87.6%	34.2%	77.0%
Ever placed in foster care	73.0%	89.7%	90.9%	83.6%	97.4%	96.2%	97.8%
Ever placed in kin foster care	8.9%	17.2%	11.3%	33.7%	21.8%	24.1%	41.0%

**Table 6-6 Distribution of posterior probability of latent class membership**

	Range	Mean	Median
Overall	0.29 to 0.99	0.87	0.96
<i>Latent class</i>			
Single, short voluntary stays	0.53 to 0.99	0.98	0.99
Repeated, short voluntary stays	0.42 to 0.99	0.65	0.59
Long voluntary stays	0.43 to 0.97	0.86	0.88
Compulsory entries with short stays	0.45 to 0.99	0.96	0.99
Compulsory entries with long stays	0.48 to 0.96	0.77	0.81
Legal transitions with stable stays	0.39 to 0.97	0.70	0.63
Legal transitions with unstable stays	0.29 to 0.99	0.80	0.88

*N=19,848. Posterior probability ranges from 0 to 1.*



**Figure 6-4 Boxplot of the distribution of posterior probability of latent class membership**

*VSS=single, short voluntary stay; VSR=repeated, short voluntary stays; VLS=long voluntary stays; CSS=compulsory entries with short stays; CLS=compulsory entries with long stays; LTS=legal transitions with stable stays; LTU=legal transitions with unstable stays.*

**Table 6-7 Selected characteristics of out-of-home care compared for validation purposes, by latent class (N=19,848)**

	Voluntary care			Compulsory entries		Legal transitions	
	Single, short stay	Repeated, short stays	Long stays	Short stays	Long stays	Stable stays	Unstable stays
<i>Ever in care due to:</i> <sup>a</sup>							
Abuse or neglect <sup>b</sup>	21.0%	31.8%	25.7%	64.8%	87.6%	34.2%	77.0%
Child health	5.9%	6.6%	4.7%	0.8%	0.9%	10.2%	1.6%
Parental health	11.4%	23.7%	10.0%	4.0%	3.1%	16.6%	9.5%
Family stress	18.5%	34.0%	28.4%	7.0%	4.2%	22.1%	15.0%
Family dysfunction	12.3%	18.8%	30.4%	8.7%	4.1%	13.7%	12.1%
Unacceptable behaviour	3.6%	7.7%	11.0%	11.0%	1.4%	3.5%	5.1%
Low income	0.6%	0.6%	0.5%	0.2%	0.0%	0.2%	0.3%
Absent parenting	25.9%	9.0%	12.5%	7.3%	9.4%	19.2%	6.4%
<i>Ever in:</i>							
Foster care <sup>b</sup>	73.0%	89.7%	90.9%	83.6%	97.4%	96.2%	97.8%
Non-foster care	37.9%	34.3%	76.8%	27.2%	35.4%	23.6%	52.4%
Respite care	6.6%	16.7%	15.4%	1.9%	0.0%	48.3%	7.4%
<i>Final exit from care</i>							
Returned home	53.6%	64.8%	16.2%	73.8%	11.3%	14.1%	23.5%
Adopted	3.6%	1.1%	5.1%	2.4%	34.7%	35.5%	14.9%
Independent living	16.9%	12.5%	38.3%	2.7%	18.9%	18.5%	22.2%
Age out	13.1%	7.9%	25.2%	1.3%	26.3%	18.8%	26.2%
Median age (years)	15	13	18	9	16	13	17

N for each latent class is as per Table 6-5. <sup>a</sup>Column may sum to >100% as an individual's category of need can vary for multiple periods of care. <sup>b</sup>These variables were included in the latent class model as indicators in Table 6-5. They are included in Table 6-7 for the sake of completeness.

### *Types of voluntary care*

Among children who entered and predominantly remained in care voluntarily, three types of out-of-home care were evident. Overall, 40.7% of children had out-of-home care histories that could be categorised as a single, short voluntary stay with a median total time spent in care of 5 months. A further 6.4% of children could be categorised as repeated, short voluntary stays. These children had a similar median total time spent in out-of-home care (6 months), but they exited and re-entered care at least once. One in ten children (10.5%) had long voluntary stays and spent at least 1 year in out-of-home care throughout childhood with a median total duration of 41 months (Table 6-5).

The voluntary care sub-groups also varied in terms of stability of their out-of-home care histories. Though the total time spent in care was not significantly different, the 'repeated, short stays' group had more placement changes compared to the 'single, short stay' group (mean placement changes: 2.31 vs 0.54). In the long stay group, all children had at least 4 placement changes in total (Table 6-7) and one in seven (15.3%,  $n=194$ ) had 10+ placement changes in total. The setting of out-of-home care placements varied between the sub-groups of voluntary stays in care. In particular, children with long stays were significantly more likely to be placed in a non-foster care setting at some point during childhood, even adjusting for age at entry and exit from out-of-home care and duration of time spent in out-of-home care ( $OR_{adj}$ : 4.01; 95% CI: 3.40-4.73;  $p<0.001$ ).

The reasons children were placed in out-of-home care were varied in the voluntary care groups and the proportion in care due to abuse or neglect was low compared to other groups. Notably, more than half of children in the long voluntary stay group were ever in out-of-home care due to acute family stress or dysfunction. In terms of the final resolution of care histories (Table 6-7), most children in short voluntary stays returned home when leaving out-of-home care for the final time. In contrast, most children in long voluntary stays moved to independent living and one in four (25.2%) aged out of the children's social care system.

**Table 6-8 Narrative case histories illustrating the three types of voluntary care**

**Single, short, voluntary stay**

Jack entered out-of-home care for the first time at the age of 12. This voluntary stay in care was due to his family being in acute need of support and was arranged with the consent of his parents under section 20 of the Children Act 1989. Jack was placed in a children's home in his local authority and remained there for 1 week. He then returned home to his parents and did not re-enter care again.

**Repeated, short voluntary stays**

At the age of 10, Sophie was placed in care for the first time, also under section 20 of the Children Act 1989 and with the consent of her parents. However, unlike Jack, Sophie's voluntary placement was due to reasons related to abuse or neglect. After being placed with a stranger foster carer for 1 night, Sophie returned home to her family.

Ten weeks later, Sophie was placed in care for the second time, again with the consent of her parents. This time she was accommodated due to family dysfunction, rather than due to abuse or neglect. She stayed with a stranger foster carer for 1 week before returning home.

A week later Sophie re-entered care, again due to family dysfunction. This time she was initially placed in a children's home outside her local authority for 1 day, before moving to a foster care placement closer to home for a further 2 days of care. She then returned to her parents, but, after just 1 day at home, she was again placed in care. Sophie was placed in a children's home and remained there for more than 3 months before moving to stay with a stranger foster carer. After 8 weeks with this foster carer, and 5 months of being away from home, Sophie returned to her parents. Three days after leaving care for the fourth time, a new arrangement was agreed with Sophie's parents to provide a series of short-term breaks as a form of respite care. This agreement was in place for 4 months, and after this Sophie had no further episodes of out-of-home care.

During the year over which this care journey unfolded Sophie spent 38 weeks in care and experienced two changes in placement whilst in care. However, during this year, she also exited and re-entered the system three times.

**Long voluntary stays**

Chloe entered out-of-home care for the first time at the age of 10 due to absent parenting. She was placed in foster care with a relative and remained there for more than 3 years. However, she then experienced a series of three, shorter placements with stranger foster carers lasting 2 days, 4 months and 6 weeks, respectively. At age 14 she started her fifth placement with another stranger foster carer. She remained in this placement until just before her 18th birthday. After more than 7 years in continuous out-of-home care, Chloe exited the system to live independently.

*Pseudonyms were chosen in order from the list of the most popular baby names in England and Wales in 1996 - the earliest year for which data were available through the Office of National Statistics (Office for National Statistics, 2016).*

### *Types of care following a compulsory entry*

Among children who were most likely to enter out-of-home care for the first time through a court order or police protective powers, two types of care with differing total durations were evident (Table 6-5). Overall, one in ten children (10.0%) had out-of-home care histories that could be categorised as compulsory entries with a short stay (median total time spent in care: 2 months) and a further 14.6% as compulsory entries with a long stay (median total time in care: 58 months).

The reasons children were placed in out-of-home care differed between the long and short stay groups: 87.6% of children in the long stay group were ever in care for reasons related to abuse or neglect compared to 64.8% in the short stay group (Table 6-7). Children in the short stay group were significantly more likely to have ever been in out-of-home care for reasons related to acute family stress, family dysfunction or socially unacceptable behaviour. The setting of out-of-home care placements varied between the types of care following a compulsory entry. Placement in kin foster care was lower among long stay children (21.8% vs 33.7%) and placement in non-foster care settings was higher (35.4% vs 27.2%). Children with short stays were most likely return home when leaving care for the final time whereas children with long stays were most likely to be adopted.

**Table 6-9 Narrative case histories illustrating the two types of care following compulsory entry**

**Compulsory entries with short stays**

Daniel entered care for the first time at the age of 16 due to issues relating to socially unacceptable behaviour. He was immediately placed in a secure unit. He remained there on remand for 3 months before being sentenced to custody in a young offender institution, at which point he ceased to be looked after. He did not become looked after again before his 18<sup>th</sup> birthday.

**Compulsory entries with long stays**

Jessica entered out-of-home care for the first time when she was 2 months old for reasons related to abuse or neglect. Initially, she entered care under an emergency protection order and was placed in a residential care setting. Two weeks later, she moved to a second residential setting when an interim care order was granted. A further 2 weeks later, she moved to a third residential setting.

After 4 months, a full care order was granted and Jessica moved to a foster care placement.

A further 4 months later, a freeing order was granted and she moved to a second foster carer with a view to being adopted. After 2 years in this fostering for adoption placement, her adoption was legally finalised and she ceased to be looked after.

At the end of her time in out-of-home care, Jessica was almost 3 years old. By this young age, she had spent 981 days in care and had experienced at least six changes in carer, including her initial entry to out-of-home care.

*Pseudonyms were chosen in order from the list of the most popular baby names in England and Wales in 1996 - the earliest year for which data were available through the Office of National Statistics (Office for National Statistics, 2016).*

### *Types of care involving legal transitions*

I categorised the remaining latent classes of types of out-of-home care as legal transitions because most children in these groups initially entered care voluntarily, but were subsequently looked after in compulsory out-of-home care. The total time spent in out-of-home care was not significantly different between the two sub-groups (median: 49 and 52 months). Instead, these groups differing in terms of the stability of their care histories and hence I named them (comparatively) stable and unstable.

Overall, 2.3% of children were categorised as legal transitions with stable stays and one in seven (15.5%) as unstable stays (Table 6-5). Children in the stable group had significantly fewer placement changes and were less likely to re-enter out-of-home care than children in the unstable group. The reasons the child was looked after also varied between the groups. Children in the stable groups were less likely to have been placed in out-of-home care for reasons related to abuse or neglect (34.2% vs 77.0%) and more likely to be in care due to absent parenting (19.2% vs 6.4%). Children with unstable stays were more likely to have been cared for in kin foster care and a non-foster care setting (Table 6-7). Almost half of children in the stable stay group were ever in out-of-home care for respite reasons, the highest of all latent classes. When leaving out-of-home care for the final time, a third of the stable stay group were adopted. Modes of exit from care were diverse among the unstable group, but almost half left to independent living or aged out of the system (48.4%).



**Table 6-10 Narrative case histories illustrating the two types of care involving legal transitions**

**Legal transitions with stable stays**

At the age of 1, Thomas entered out-of-home care for the first time due to absent parenting because one of his parents was remanded to prison. He was initially accommodated in foster care to provide respite care through a series of short-term breaks. However, after a month of this voluntary arrangement, an interim care order was made and Thomas's period of respite care ended. Instead, he became looked after for reasons related to abuse or neglect. He remained with the same foster carer for a further year during which time a full care order was granted. Thomas then moved to a new foster carer and, after 8 months, a freeing order was granted. After a further 10 months in a fostering for adoption arrangement, he ceased to be looked after when he was adopted by his foster carer.

At the end of his time in out-of-home care, Thomas was 4 years old and had spent 731 days in care with two different carers.

**Legal transitions with unstable stays**

Emily entered care for the first time at the age of 6. This first episode of care was a single voluntary accommodation under section 20 of the Children Act 1989 due to her illness or disability. She was placed with a stranger foster carer for 6 days before returning home to her parents.

Six years later, Emily was again accommodated voluntarily, but this time for reasons related to abuse or neglect. She was placed in a children's home for almost a month before returning to her parents.

Approximately 4 months later, Emily became subject to an interim care order; however, she continued to live at home with her parents for a further 2 months. After this time, she was compulsorily accommodated in a kin foster care placement. After 3 weeks, she returned home to her parents though she continued to be subject to an interim care order.

After 2 weeks at home, Emily re-entered out-of-home care and this time was placed in stranger foster care. Three weeks later, she was moved to a children's home for one night, before moving again to a different children's home. Emily remained in this second children's home for almost 2 years.

After 2 years, Emily again returned home to her parents, this time under a full care order. After 3 weeks at home, and now aged 17 years, she moved to an independent living placement.

Emily remained in independent living for 4 months. However, she then returned home to her parents where she continued to be subject to a full care order. A month later, Emily ceased to be looked after on her 18<sup>th</sup> birthday. Since first becoming involved with the out-of-home care system 12 years earlier, she had spent more than 1,000 days in care, in thirteen different placements and had exited the system more than half a dozen times.

*Pseudonyms were chosen in order from the list of the most popular baby names in England and Wales in 1996 - the earliest year for which data were available through the Office of National Statistics (Office for National Statistics, 2016).*

#### **6.4.4 Demographic variation in the frequency of latent classes**

There was little significant variation by sex in the types of out-of-home care children experienced (Table 6-11). Boys were more likely than girls to have a 'single, short, voluntary stay' (42.8% vs 38.3%,  $p < 0.001$ ) and less likely to experience a 'compulsory entry followed by a long stay' (13.4% vs 16.0%,  $p < 0.001$ ).

The prevalence of the different types of care also appeared to vary by age group at first entry (Table 6-11); however, this variation is likely to be an artefact of duration being included as an indicator variable in the latent class analysis. For example, children who first entered out-of-home care aged 16+ years were least likely to have care histories characterised by long stays. This is most likely due to the shorter time for which they can be looked after compared to children who enter earlier in childhood.

**Table 6-11 Prevalence of latent classes, by demographic characteristics**

	Sample size (N)	Voluntary care			Compulsory entries		Legal transitions	
		Single, short stays	Repeated, short stays	Long stays	Short stays	Long stays	Stable stays	Unstable stays
Overall	19,848	40.7%	10.5%	6.4%	10.0%	14.6%	2.3%	15.5%
Sex								
Male	10,783	<b>42.8%</b>	10.2%	6.4%	9.6%	<b>13.4%</b>	2.1%	15.5%
Female	9,065	<b>38.3%</b>	10.8%	6.3%	10.5%	<b>16.0%</b>	2.5%	15.6%
Age at first entry								
<1 year	2,941	<b>38.5%</b>	<b>9.0%</b>	<b>2.2%</b>	<b>9.5%</b>	<b>18.6%</b>	<b>3.4%</b>	<b>18.8%</b>
1 to 4 years	4,342	<b>28.3%</b>	<b>13.2%</b>	<b>3.4%</b>	<b>9.9%</b>	<b>18.0%</b>	<b>3.4%</b>	<b>23.6%</b>
5 to 10 years	4,374	<b>25.3%</b>	<b>9.4%</b>	<b>6.0%</b>	<b>10.8%</b>	<b>23.7%</b>	<b>3.1%</b>	<b>21.6%</b>
11 to 15 years	6,013	<b>46.5%</b>	<b>11.7%</b>	<b>12.3%</b>	<b>11.1%</b>	<b>8.2%</b>	<b>1.0%</b>	<b>9.2%</b>
16+ years	2,178	<b>83.5%</b>	<b>5.6%</b>	<b>2.5%</b>	<b>6.3%</b>	<b>1.4%</b>	<b>0.5%</b>	<b>0.4%</b>

*Bold highlighting indicates a significant  $\chi^2$  score for the cross-tabulation by sex or ethnicity at  $p < 0.05$ .*

## **6.5 Discussion**

### **6.5.1 Summary of findings**

Using latent class analysis, I identified seven distinct types of out-of-home care that accounted for the observed heterogeneity in cumulative care histories. The most common type of care children experienced could be classified as a 'single, short voluntary stay' (40.7%). Not all children had care histories that could be classified into one of these latent classes with a high degree of statistical certainty, but overall the median posterior probability of assignment to a latent class was 0.96 (range 0 to 1). Using 'well-classified' individuals as a sampling frame, narrative case studies for each latent class indicated that the types of care that were identified in this analysis were conceptually different.

### **6.5.2 Strengths and limitations**

A key strength of this analysis is that I used statistical procedures to identify types of out-of-home care based on empirical data and (although there is an element of subjectivity in developing a latent class model) this is a more objective approach than imposing a typology onto a dataset (Keller, Cusick & Courtney, 2007). Moreover, latent class modelling is a holistic, person-orientated method of classification. Variable-centred analytic methods (e.g., regression models and factor analysis) seek to isolate the effects of individual risk factors controlling or accounting for other inter-related factors. However, latent class analysis allows the effects of multiple risk factors to be explored (Lippold, Kainz & Sabatine, 2017). It is this holistic approach that makes latent class analysis particularly suited to research related to out-of-home care, as it is consistent with the central philosophy of social work that emphasises the importance of interactions between multiple systemic factors better (Keller, Cusick & Courtney, 2007). Another important strength of this analysis is that it was based on a sample that was large ( $N=19,848$ ) and randomly selected (i.e. with a day of birth divisible by three), and thus it is likely that all types of naturally-occurring types of out-of-home care have been included (Bailey, 1994). A final strength is that I validated that the statistically different types of out-of-

home care that I identified in my latent class model were conceptually different by describing the care histories for representative individuals.

The main limitation of latent class analysis is that the types of out-of-home that I identified are probabilistic. This means that, even when classification is good (i.e. the posterior probability of membership is close to 1), there is still considerable variation of experiences among children within a latent class and aspects of experience that characterise a particular class relative to others do not apply universally to all children assigned to it. Furthermore, in this analysis there were differing levels of uncertainty in classification, based on the distribution of posterior probabilities of the children assigned to each latent class. For example, children whose out-of-home care experience could be classified as a 'single, short voluntary stay' or 'compulsory entry with a short stay' were well-classified with a median posterior probability of 0.99; however, there was greater uncertainty in other identified classes (as summarised in Figure 6-4). Additionally, it was difficult to assess the absolute fit of the final chosen model due to the large degrees of freedom. Nonetheless, despite these limitations, this latent class analysis has highlighted some salient differences in lifetime histories of out-of-home care by empirically describing which aspects of care are likely to co-occur. This is a valuable first step in documenting the diversity of out-of-home care as a social care intervention in an English context.

An additional limitation of this analysis is that my description of the variation by sex and age at first entry is rudimentary as it relies on cross-tabulation and a  $\chi^2$  test. Future work could explore the invariance of latent classes by demographic characteristics using more formal latent class methods (Collins & Lanza, 2010). Finally, a major limitation of this latent class analysis is that it does not account for the timing of events (Barban & Billari, 2012; Livingston *et al.*, 2008). In the context of out-of-home care, timing is likely to be an important aspect of out-of-home care experiences, both in terms of the timing between events and the age at which events occur. For example, 3 placement changes in 1 week will be a different experience to 3 changes in 1 year; and 3 placement changes in 1 year as an infant will be a different experience to 3 changes in a year when school exams are being

taken. A useful next step would be to explore longitudinal histories of out-of-home care using methods that can account for the timing of events, such as latent trajectory analysis (Zinn & Havlicek, 2014) or sequence analysis (Fallesen, 2013).

### **6.5.3 Comparison of findings to other studies**

When reviewing research related to placement stability in the out-of-home care system in England, Munro and Hardy suggested that “the system is increasingly focused upon providing short-term placements for those expected to be rehabilitated home quickly” (Munro & Hardy, 2006, p9). Findings from my analysis of empirical data would certainly seem to support this view. Overall, more than half of children (50.7%) had an out-of-home care history that was classified as a ‘single, short voluntary stay’ or ‘compulsory entry followed by a short stay’. The median length of stay in these two groups was 5 and 2 months respectively and the vast majority of children who experienced these types of care returned home, left to live independently or aged out of the system (96.4% and 97.6% in total, respectively).

In England, some studies related to out-of-home care have attempted to create classifications; however, these more often describe types of *children* in out-of-home care (Sinclair *et al.*, 2007; Stein, 2005) rather than types of *care*. As a result, it is difficult to draw comparisons with my analysis. Although it is likely that the types of out-of-home care that I identified are to some extent related to the type of need a child presents with, in the absence of detailed information about the children in my sample and their families this cannot be verified. Notwithstanding, it is likely that children with similar needs would experience different types of out-of-home care as the way children’s social care services respond to cases is known to vary by individual, organisational and area-level factors, including social worker attitudes (Benbenishty *et al.*, 2015; Doyle Jr., 2007; Gorin & Jobe, 2013), institutional thresholds for the use of out-of-home care (Schofield *et al.*, 2007) and deprivation in a community (Bywaters *et al.*, 2014b).

Classifications of the type of out-of-home care used in England are limited, in so far as they are often rudimentary and/or do not describe how the classification was created. For example, in their report related to children in long-term care, Skuse,

Macdonald and Ward (2001) present a four-group classification of long-term placement stability, ranging from most stable defined as <3 placement moves in 2 consecutive years (66%) to least stable defined as 3+ placement moves in 2 consecutive years (5%). However, the way in which this classification was created is not described. Similarly, Schofield *et al.* (2007) also classified experiences for children in long-term out-of-home care ( $N=1,002$ ) based on survey data. They chose a three-group classification referred to as (1) away from home (for up to 2 years) during care proceedings—then returned home; (2) looked after away from home for a long period (between 2 and 9 years), but never placed with a permanent foster family or adoptive family—then returned home; and (3) away from home for a long period (between 5 and 11 years), placed with an adoptive or foster family with the aim of achieving permanence, but returned home when those placements ended. Again, the way in which this classification was selected is not clear, other than through “detailed analysis of the survey forms” (Schofield *et al.*, 2007, p633).

There is limited international research that is directly comparable to my analysis (i.e. that classifies cumulative care histories of all children in out-of-home care using latent class analysis). I did identify one study in the US that explored longitudinal histories of out-of-home care for a sample of children who were born during a similar era, namely between 1986 and 1991 (Villodas *et al.*, 2016). However, there were some differences in the samples: the US study only included children who had entered out-of-home care before age 3.5 years and for reasons related to maltreatment whereas my analysis included all children regardless of age at first entry or category of need. Based on their purposive sample of 330 children, Villodas *et al.* (2016) used latent class analysis to describe care trajectories based on the type of placement and changes over 7-12 years of follow-up. In total, they identified six types of out-of-home care which they described as adopted (32%), kinship care (15%), stable reunified (27%), stable foster care (9%), disrupted reunified (12%) and unstable foster care (5%). Although this study is the most similar that I could identify in the extant literature, it is difficult to draw comparisons with the latent classes of type of care I identified in my analysis, due to the inclusion of adoption as a placement type, rather than an outcome.

#### **6.5.4 Main implications of findings**

It is often said that the out-of-home care system responds in diverse ways to the differing needs of looked after children and their families; however, these diverse responses are rarely explicitly described or explored using objective, empirical methods (Munro & Hardy, 2006; Thoburn & Courtney, 2011; Selwyn & Quinton, 2004; Courtney, Hook & Lee, 2012). My analysis provides a more nuanced description of how out-of-home care is commonly used in England and helps to highlight the diverse pathways children take through the care system. However, by no means do I suggest that the seven types of out-of-home care that I identified using latent class analysis are an exhaustive, definitive or complete description of the complexity of children's care histories. If different indicators had been included, then it is likely that different types of care would have been identified (Collins & Lanza, 2010). Indeed, I acknowledge that, even using the same indicators that I included in my analysis, others may have determined that a model with a different number of classes was a more appropriate representation of the different types of out-of-home care (Keller, Cusick & Courtney, 2007). However, notwithstanding the fact that the latent classes I identified are not a definitive classification of out-of-home care, my analysis is the first to empirically identify types of out-of-home care in England that are both conceptually and statistically different.

Overall, half of the children who entered out-of-home care in this sample had care histories that could be characterised as short stays (40.7% following a voluntary entry and 10.0% following a compulsory entry). Short-term placements in out-of-home care are undoubtedly necessary and can have a profound impact on children's well-being when they are used to remove a child from a harmful situation or to respond to an acute crisis. However, given the disruption to permanence that placement in out-of-home care represents for children, this finding also raises the question of whether there is scope for greater use of supportive in-home interventions, rather than short-term, out-of-home care placements within the English care system.

As well as describing the diverse types of care that are included under the umbrella of 'out-of-home care', this analysis quantified their relative size which could be



useful for service planning or resource allocation. For example, of the 14,530 children who first entered out-of-home care voluntarily, 55.7% ( $n=8,086$ ) had care histories that could be characterised as a 'single, short voluntary stay' with a median placement duration of 5 months. However, 8.7% ( $n=1,269$ ) had 'long voluntary stays' with a median placement duration of 41 months and a further 3.1% ( $n=453$ ) were subsequently placed in compulsory care and had a long, stable stay in care with a median duration of 49 months. Knowing that approximately one in ten children (11.8%) who enter care voluntarily are likely to remain in the system for several years could be valuable for service planners and providers to consider. Future work to estimate the average costs associated with each type of care that I identified could also be beneficial in terms of planning (Holmes, 2014).

As previously discussed in Chapter 2, there is a large body of research that describes associations between characteristics of out-of-home care and adverse outcomes (Jones *et al.*, 2011). However, a limitation of this evidence base is that it tends to isolate the effects of individual risk factors; for example, placement in residential care has been associated with poorer mental health than placement in foster care (Tarren-Sweeney, 2008) and longer care experiences with higher earnings and rates of employment in adulthood (Fallesen, 2013). In reality, characteristics of care are highly-correlated and so exploring the effects of a single factor by statistically controlling for other associated factors makes it difficult to interpret the 'real-world risks' of adverse outcomes. As an alternative approach, it may be useful to explore how outcomes vary between different types of out-of-home care (such as those that I identified in this latent class analysis). This could provide a more refined and nuanced understanding of the relationship between adverse outcomes and out-of-home care histories and characteristics, which in turn could help to inform the development of more effective care provision (Forrester *et al.*, 2009; Gorin & Jobe, 2013). Of course, it is likely that the types of care are a proxy for differential service response based on the differing needs of children who require placement in out-of-home care. Therefore, future comparisons of outcomes between latent classes would also need to account for child-level differences between the groups.

## 6.6 Key points from Chapter 6

- I analysed longitudinal CLA data for a cohort of children born in England between 1992 and 1994 to identify different types of out-of-home care.
- My findings further highlight the diversity of out-of-home care histories among children in England by identifying seven distinct latent classes of types of out-of-home care. Overall, most children in this cohort had care histories that could be classified as a 'single, short, voluntary stay'.
- Exploring how outcomes vary between naturally-occurring types of out-of-home (rather than quantifying adjusted associations with individual characteristics of care) may contribute to a more nuanced and refined assessment of the effects of this social care intervention.

## Chapter 7 Patterns of out-of-home care placements

### Statement of authorship

I carried out all of the work presented in this chapter.

### 7.1 Content and structure of Chapter 7

In Chapter 6, I identified that there are distinct types of out-of-home care in use in England; however, a limitation of this classification was that it did not account for the timing of care placements. In this chapter, I will describe how I explored the stability of out-of-home care histories among children in England, in terms of the timing, duration and number of placement changes throughout childhood. This analysis used an extract of Children Looked After (CLA) data for a large, representative sample of children in England who were born between 1992 and 1994 (a subset of that previously used in Chapters 4, 5 and 6).

I will begin by introducing the rationale for this set of descriptive analyses and outlining its aim and objectives. I will then describe the methods that I used and present my findings. Next, I will discuss the strengths and limitations of this part of my PhD study, how my findings compare to existing research and their main implications. Finally, to close this chapter, I will summarise its key points.

## **7.2 Rationale for this analysis**

### **7.2.1 The importance of permanence in relation to out-of-home care**

Permanence can be defined as an emotional, physical, and legal sense of security, stability and continuity (Thomas, 2013). Achieving a sense of permanence during childhood is important as it can help to develop and maintain a sense of attachment, identity and belonging that persists into adulthood and is associated with positive life outcomes (Ranson & Urichuk, 2008; Thomas, 2013). Placement in out-of-home care represents an obvious disruption to permanence for children, as the nature of the intervention results in a change in their home, caregiver(s) and (perhaps) legal status. A sense of permanence is an important aspect of out-of-home care experiences for children and care leavers (Selwyn, 2017; Longfield, 2017; Dickson, Sutcliffe & Gough, 2010) and achieving permanence is a central goal of the children's social care system in England (Department for Education, 2015b).

### **7.2.2 What constitutes an unstable out-of-home care experience?**

There is no definition of an 'unstable' out-of-home care experience. However, placement changes are one aspect of a child's care experience that can disrupt permanence (Department for Education, 2013c) and, as previously discussed in Chapter 2, the stability of out-of-home care placements has been associated with health, educational and social outcomes. For example, unstable out-of-home care placements have been associated with an increased likelihood of having mental health issues (Akister, Owens & Goodyer, 2010; Richardson & Lelliott, 2003), self-harm (Beck, 2006) and poor educational attainment (O'Sullivan & Westerman, 2007).

Previously, the government used the number of placement changes looked after children experienced in a year as a Public Service Agreement (PSA) indicator of local authority performance in terms of the stability of out-of-home care. Since PSAs were abolished (Panchamia & Thomas, 2017), this performance indicator is no longer used; however, the Department for Education (DfE) does still routinely report on the proportion of children who have 3+ placements in a year (as previously summarised in Figure 2-6). However, this cross-sectional approach and

short time frame has been criticised by children in care and care leavers because it does not fully capture the stability of their experiences (Longfield, 2017).

In Chapter 5, I explored placement stability over a longer period of time, by describing the cumulative number of placement changes children experienced throughout childhood. Taking a longitudinal approach to describing placement instability showed that almost half of children (45.5%) ever had 3+ placement changes and one in twenty (5.6%) had 10+ placements throughout childhood. In Chapter 6, I also highlighted how different latent classes of types of out-of-home care varied in terms of stability. For example, two types of care that involved legal transitions had a similar median total time spent in care (49 and 52 months), but a differing median number of placement changes during this time (1 and 5, respectively). Hence, I named these groups (comparatively) stable and unstable. However, as previously discussed, these descriptions of cumulative placement stability do not fully capture the stability of children's care experiences as they do not account for the timing of changes or duration of placements. In terms of stability, experiencing multiple placement changes during infancy may be different to experiencing multiple placement changes when sitting GCSE exams at age 16. Therefore, it is important that we consider the pattern of placements throughout childhood when describing the stability of out-of-home care experiences.

### **7.2.3 Using sequence analysis to explore patterns of placement stability**

When analysing data related to the pattern of events, two methods that are often used in social science research are latent trajectory analysis (LTA) and sequence analysis. In both methods, groups of homogenous trajectories or sequences of events are identified from empirical data. The main difference between the methods is the way in which these groups are identified. LTA is a variation of latent class analysis (previously used and described in Chapter 6) that identifies latent groups of trajectories based on an underlying finite mixture model (Collins & Lanza, 2010). In comparison, sequence analysis is a non-parametric, algorithm-based method that compares the similarity of different sequences of events (Abbot & Tsay, 2000). In practice, when applied to empirical data these methods tend to identify similar groups of trajectories/sequences (Barban & Billari, 2012). In this

analysis, I chose to use sequence analysis to explore patterns of placement stability as this method does not make any assumptions about the distribution of the empirical data, given that there is no underlying statistical model.

#### **7.2.4 Summary of the rationale for this analysis**

Achieving permanence through stable care experiences is important to looked after children and policy makers (Department for Education, 2015b; Longfield, 2017; Dickson, Sutcliffe & Gough, 2010; Selwyn, Wood & Newman, 2017). However, our understanding of the stability of care histories in England is incomplete as there are no longitudinal descriptions that account for the number, timing and duration of placements. Sequence analysis of longitudinal administrative data could refine our understanding of the placement patterns and stability of children's out-of-care histories, and ultimately highlight groups in need of additional support and monitoring.

#### **7.2.5 Research questions and hypotheses**

1. Are there distinct patterns of placement stability throughout childhood among children in England?

I hypothesised that there would be clusters of distinct placement patterns among the sample of children included in my CLA data extract. However, as this was an exploratory sequence analysis, I had no pre-existing hypotheses about the number or characteristics of these placement patterns.

#### **7.2.6 Aim of this analysis**

To describe the stability of out-of-home care in terms of placement patterns.

#### **7.2.7 Objectives of this analysis**

- a) To identify differing patterns of out-of-home care placements, accounting for their number, timing and duration throughout childhood.
- b) To describe the frequency of these different placement patterns and selected cumulative care characteristics associated with them.

## **7.3 Methods**

### **7.3.1 Data source and study population**

The data source for this set of analyses was an extract of CLA data, a routinely-collected, administrative social care dataset which has been described in detail in Chapter 3. This analysis included a random and representative sub-sample of 16,000 children who were born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 1994, who had ever entered out-of-home care for non-respite reasons. This restriction from the full cohort of 19,848 children previously analysed in Chapters 4, 5, and 6 was due to a technical limitation of the statistical software that was available to me for this analysis (Stata/MP, version 14). Specifically, the dissimilarity matrix that was produced in a sequence analysis for all 19,848 children in the full cohort exceeded the maximum values that can be included in an estimation command using Stata/MP v.14 and could not be processed (StataCorp, 2015). After an iterative process, I established that the maximum number of individuals that could be included in this analysis was 16,000. Having randomly selected the sub-sample, I confirmed that it was representative of the overall cohort by ascertaining that there were no significant differences in the distribution of child and care characteristics.

### **7.3.2 Creating sequences of care stability**

The fundamental principle of sequence analysis is that it identifies similar patterns between two sequences (Abbot & Tsay, 2000). Therefore, before I could conduct a sequence analysis, I needed to create a sequence that represented each child's out-of-home care placement history, and, to create such a sequence, I needed to derive a set of variables that captured the 'state' of interest over time. In this analysis I was interested in the stability of out-of-home care placements and thus I wanted to create a sequence that captured the timing and number of placements children experienced throughout childhood. I chose months as my unit of time which meant that for each child I created a sequence that contained 216 states - one for each month of their 18 years of childhood. For each month, I defined a child's state as either 'not in out-of-home care', or, if they were in care, the number of the placement they were in (i.e. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and so on). If a child had more than 1 placement in a month, I recorded their state as the number of their last out-of-

home care placement in that month. As previously described in Chapter 5, among my sample the number of total placements throughout childhood ranged from 1 to 184. However, to speed up the process of comparing 16,000 sequences, I chose to reduce their complexity by limiting the maximum number of placements to 14. I chose this number based on the distribution of the total number of placements throughout childhood among the cohort (where the 98<sup>th</sup> percentile was 14). Consequently, for a small proportion of children (2.3%,  $n=368$ ), I recoded their 15<sup>th</sup> and subsequent placements as their 14<sup>th</sup> placement. Given the small proportion of individuals affected, I did not feel that it would introduce significant error into my analysis. Examples of sequences for 1 year of childhood are shown in Figure 7-1.



Month	1	2	3	4	5	6	7	8	9	10	11	12
Example 1	1 <sup>st</sup> pl	1 <sup>st</sup> pl	Home	Home	Home	Home	Home	Home	Home	Home	Home	Home
Example 2	1 <sup>st</sup> pl	1 <sup>st</sup> pl	Home	Home	Home	Home	Home	Home	Home	Home	Home	2 <sup>nd</sup> pl
Example 3	1 <sup>st</sup> pl	1 <sup>st</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	Home	Home	Home	Home	Home	Home
Example 4	1 <sup>st</sup> pl	1 <sup>st</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	Home
Example 5	Home	Home	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl
Example 6	Home	Home	Home	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	4 <sup>th</sup> pl	5 <sup>th</sup> pl	5 <sup>th</sup> pl	5 <sup>th</sup> pl	5 <sup>th</sup> pl
Example 7	Home	Home	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl	2 <sup>nd</sup> pl
Example 8	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	1 <sup>st</sup> pl	Home	Home	Home
Example 9	Home	Home	Home	Home	Home	Home	Home	Home	Home	Home	Home	Home
Example 10	1 <sup>st</sup> pl	1 <sup>st</sup> pl	Home	Home	Home	Home	Home	Home	Home	Home	Home	Home

**Figure 7-1 Examples of placement sequences for 1 year of childhood**

Home=not in out-of-home care, pl=placement. Figure 7-1 illustrates the sequence of placements over 1 year of childhood comprised of 12 ‘state’ variables for each month. Examples 5 and 6 illustrate the limitation of using month as a unit of time. In Example 5, this child first entered care in month 3 and, during this month, they moved from their 1<sup>st</sup> to their 2<sup>nd</sup> placement. However, the exact timing and duration of these placements are not captured by this sequence. Similarly, in Example 6, this child first entered care in month 4 and, during this month, they moved from their 1<sup>st</sup> to their 2<sup>nd</sup> placement. In month 8, they moved from their 2<sup>nd</sup> to 3<sup>rd</sup> placement and from their 3<sup>rd</sup> to 4<sup>th</sup> placement. However, the exact timing and duration of these placements are not captured by this sequence.

### 7.3.3 Identifying similar out-of-home care placement sequences

Having created a dataset of placement sequences, I then used dynamic hamming matching (DHM) to compare their similarity. I chose this method because, unlike other matching methods, DHM does not require the user to specify the relative weight of differences between states in a pair of sequences at a given point in time (Halpin, 2012; Abbot & Tsay, 2000). Instead, the relative importance of differences in states is determined by the empirical data. The frequency of various differences in state at a given point in time determines how significant these differences are. A state difference that is commonly observed between sequences at a given point in time is weighted as less important than a state difference that is rarely observed. For this reason DHM is considered to be a less arbitrary method of matching than those that require users to specify the costs (or relative weights) of differences in sequences and is well-suited to exploratory analyses (Lesnard, 2010).

The output of DHM is a matrix of dissimilarity (or distance) scores that represent the comparability of any two sequences in a dataset (Lesnard, 2010). I used these dissimilarity scores to identify sub-groups of similar sequences in the dataset using Ward's clustering algorithm. This agglomerative algorithm starts with a single cluster for each observation in a dataset – 16,000 clusters of  $n=1$ , in the case of this analysis. The algorithm then searches the dissimilarity matrix to identify the most similar pairs of clusters and merges (or agglomerates) them together. The dissimilarity matrix is updated and the procedure is repeated in a step-wise manner until just one cluster that contains all observations remains. The resulting output from a Ward's clustering algorithm is a hierarchical, tree-like structure called a dendrogram that shows which clusters were joined together at each stage of the merging process and the similarity measure (or criterion) for each pair of clusters that were merged (Milligan & Cooper, 1985).

Clearly, a single cluster containing all observations is of little value in determining whether there are similar sub-groups of sequences in a dataset; thus, a stopping rule is used to prematurely terminate the clustering process when the number of clusters that best represents the empirical data has been identified (Halpin, 2016). In this analysis I used the Caliński-Harabasz criterion as a stopping rule as this has

been evaluated to be one of the best rules for identifying the optimum number of clusters in empirical data (Milligan & Cooper, 1985) and been adapted for use with dissimilarity matrices derived from sequence analyses (Halpin, 2016). Furthermore, a Caliński-Harabasz pseudo f-score can be calculated and compared for solutions with different numbers of clusters, with a higher score indicating more distinct clusters.

To guide my choice of the number of clusters in this sequence analysis, I examined the shape of the dendrograms produced by Ward's clustering algorithm and compared the Caliński-Harabasz pseudo f-score for solutions with between two and twenty clusters. In addition, I plotted a chronogram for each cluster to visualise the timing and number of placement changes.

#### **7.3.4 Describing variation between different patterns of care stability**

After choosing the optimal number of clusters that I believed best represented the empirical data, I visualised the pattern of out-of-home care placements throughout childhood by creating a sequence-index plot for each cluster. I also tabulated and compared the child and care characteristics of each cluster, including mode of final exit from care. I then assessed whether the patterns of care included in the cluster could be considered broadly stable or unstable based on the (1) pattern of placements, (2) proportion of children re-entering care, and (3) mode of final exit from care. I evaluated the mode of final exit from care with respect to DfE guidance on achieving permanence, which states that, in accordance with the Children Act 1989, wherever possible children should be brought up and cared for within their own families (Department for Education, 2015b). However, for children in out-of-home care who cannot return home, the DfE recognises three types of permanence arrangements: adoption, special guardianship and long-term foster care (Department for Education, 2013c). Thus, when evaluating the mode of final exit from care, I considered the proportion of children who exited to return home or via adoption, residence or special guardianship orders.

## **7.4 Results**

### **7.4.1 Sample characteristics**

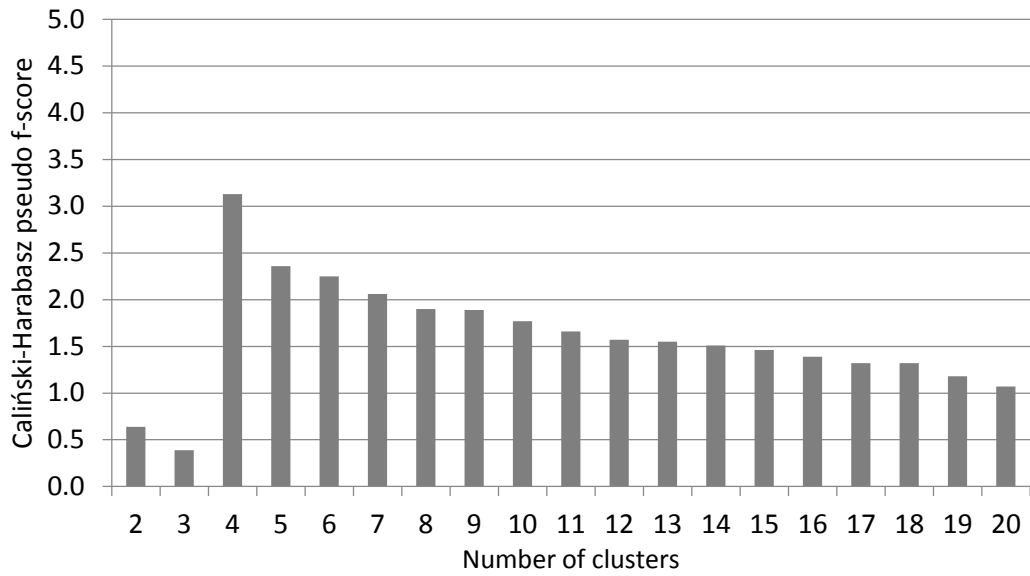
As previously mentioned, the data extract for my sequence analysis of out-of-home care placements was restricted to a random, representative sample of 16,000 children who were born between 1992 and 1994 and entered out-of-home care for non-respite reasons at some point in childhood. Comparison of the demographic and care characteristics of this sub-sample to the full cohort of children in my CLA data extract ( $N=19,848$ ) indicated that it was representative (see Appendix E-1 for details).

### **7.4.2 Sequence analysis and clustering**

Among this sample of 16,000 children there were 11,111 unique sequences of out-of-home care placements throughout childhood. As hypothesised, it was possible to cluster these sequences into similar sub-groups of placement patterns using Ward's algorithm and based on measures of dissimilarity calculated through DHM. Having examined the shape of the dendrograms, the distribution of the Caliński-Harabasz pseudo f-score, and the size and interpretability of the clusters, I decided that a six-cluster solution best represented the empirical data. The six-cluster solution had a relatively high Caliński-Harabasz pseudo f-score (Figure 7-2) and the distances partitioning the clusters in the resultant dendrogram were relatively large for most clusters (Figure 7-3) indicating the clusters were distinct. Furthermore, the chronograms for each cluster were interpretable as distinct patterns of stability (Figure 7-4). Based on these chronograms I initially labelled each cluster as simple, complex or short-term.

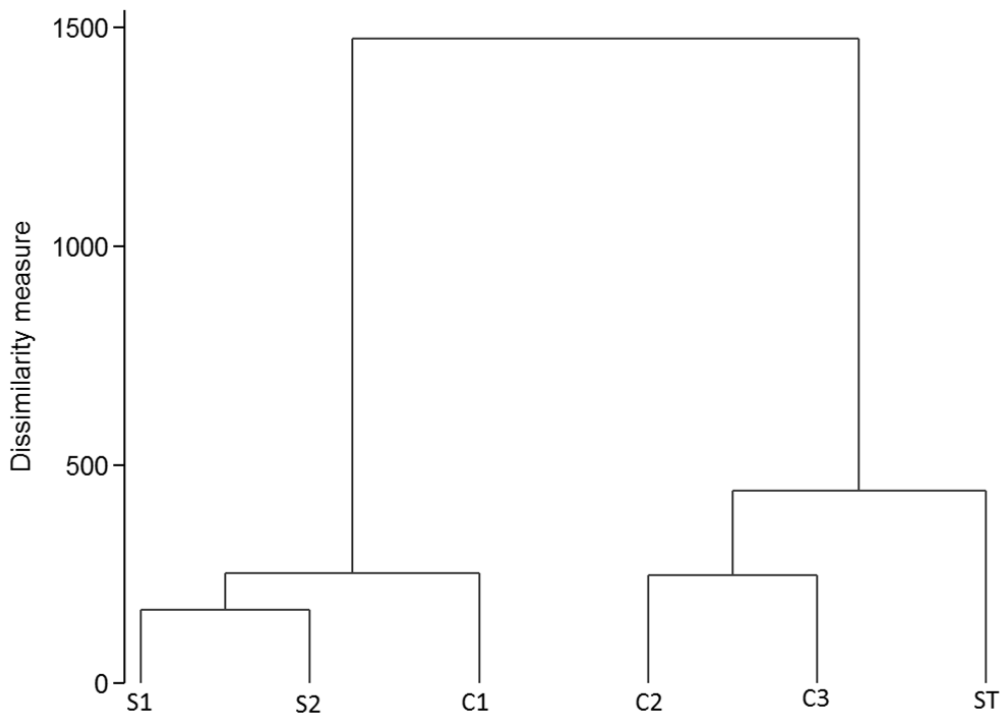
### **7.4.3 Patterns of out-of-home care placements**

The frequency and characteristics of the six placement sequences are summarised in Table 7-1. Based on these characteristics, I assigned a more descriptive name to each cluster and assessed whether they were comparatively more stable or unstable. Overall, most children in this sample (69.3%,  $n=11,086$ ) had placement sequences that could be described as relatively stable. However, almost a third (30.7%,  $n=4,914$ ) had histories of care that were relatively unstable.



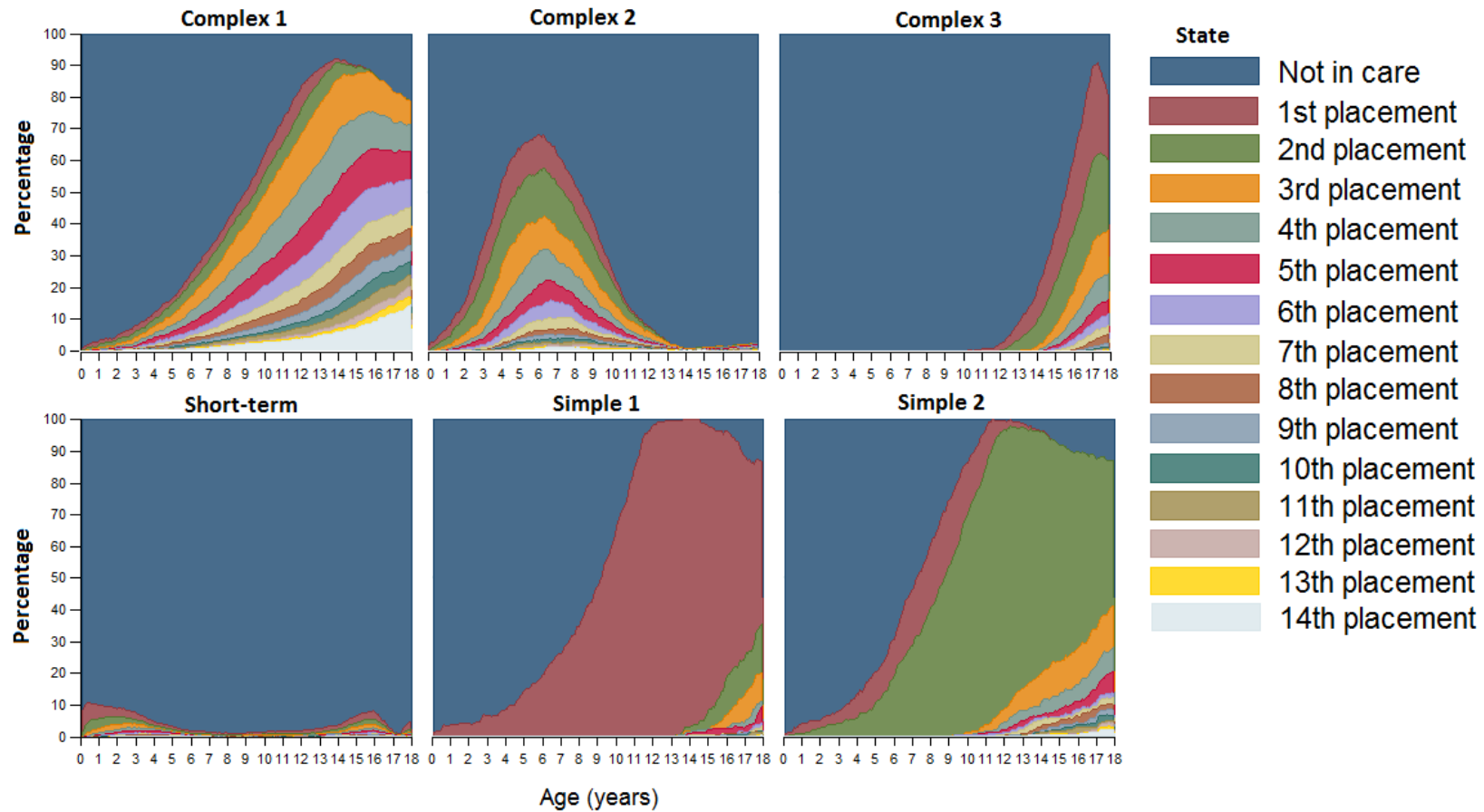
**Figure 7-2 Distribution of the Caliński-Harabasz pseudo f-score for solutions with two to twenty clusters using Ward's algorithm**

Although the four-cluster solution had the highest pseudo f-score (indicating more distinct clusters), I chose the six-cluster solution as it was more interpretable.



**Figure 7-3 Dendrogram for six-cluster solution using Ward's algorithm**

S=simple; C=complex; ST=short-term. The measure of dissimilarity was calculated through dynamic hamming matching and used to identify clusters using Ward's algorithm.



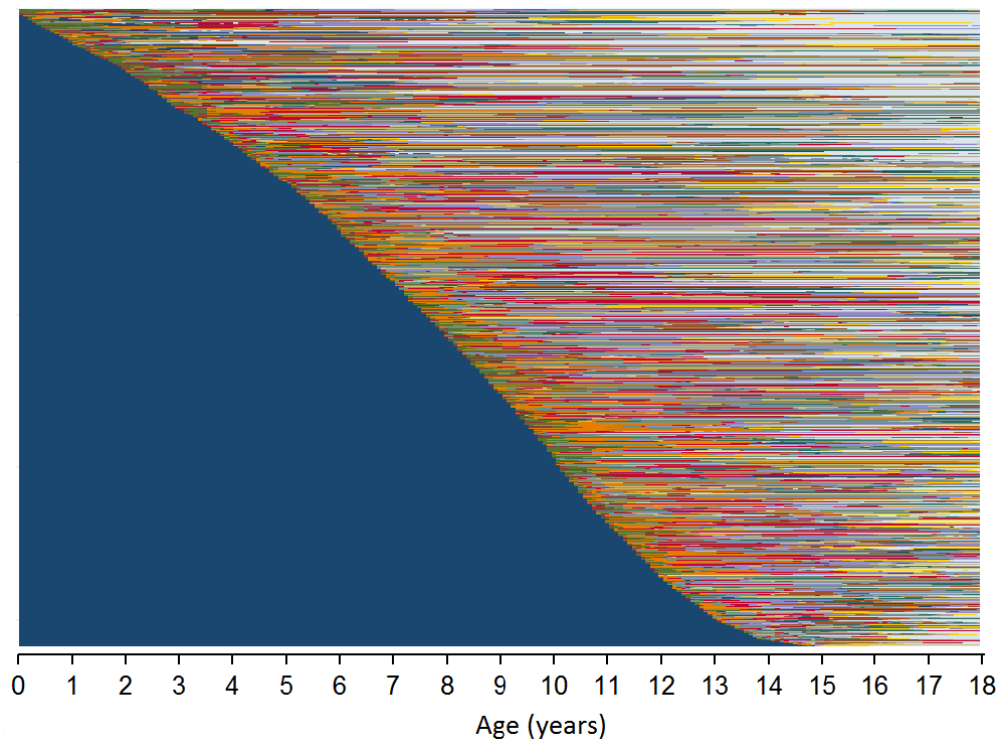
**Figure 7-4 Chronograms of the placement sequences, by cluster (N=16,000)**

Figure 7-4 illustrates the percentage of children in a particular state throughout childhood. *N* for each cluster is given in Table 7-1. As previously described, 15<sup>th</sup> and subsequent placements were coded as 14<sup>th</sup> placement to reduce the complexity of the sequences for 2.3% of children (*n*=368).

**Table 7-1 Frequency and characteristics of placement sequences**

	<b>Complex 1</b>	<b>Complex 2</b>	<b>Complex 3</b>	<b>Short term</b>	<b>Simple 1</b>	<b>Simple 2</b>
Name	Long-term instability	Early intervention	Adolescent entry	Short-term care	Stable 1 <sup>st</sup> placement	Stable 2 <sup>nd</sup> placement
N	2,093	1,105	2,821	9,345	254	382
% of sample <sup>a</sup>	13.1%	6.9%	17.6%	58.4%	1.6%	2.4%
<i>Age at first entry to care (years)</i>						
Range	0 to 15	0 to 8	0 to 17	0 to 17	0 to 12	0 to 11
Mean	6.58	3.12	14.05	7.23	7.4	6.08
Median	7	3	15	6	8	6
<i>Legal status of first entry <sup>b</sup></i>						
Voluntary	61.1%	57.5%	86.8%	74.8%	67.3%	51.0%
Child protection	18.1%	18.2%	4.5%	13.9%	6.3%	19.4%
Other compulsory	20.8%	24.3%	8.6%	11.3%	26.4%	29.6%
<i>Total time in care (months) <sup>c</sup></i>						
Mean	103.9	52.9	29.8	8.9	105.9	123.2
Median	101	49	27	4	102	120
<i>Ever re-enter care? <sup>c</sup></i>						
Yes	58.3%	43.7%	23.6%	29.8%	9.8%	25.1%
No	41.7%	56.3%	76.4%	70.2%	90.2%	74.9%
<i>Total number of placements <sup>c</sup></i>						
Range	1 to 184	1 to 59	1 to 21	1 to 119	1 to 15	2 to 26
Mean	9.0	5.0	3.1	2.5	2.0	3.9
Median	7	4	2	2	1	3
<i>Ever in...</i>						
Foster care	97.6%	99.1%	65.2%	85.8%	81.9%	97.6%
Kin foster care <sup>d</sup>	37.6%	42.6%	15.5%	18.9%	31.7%	36.7%
Respite care <sup>e</sup>	10.8%	10.6%	8.2%	6.4%	18.9%	9.7%
<i>Age at final exit from care (years)</i>						
Range	11 to 18	4 to 18	15 to 18	0 to 18	14 to 18	12 to 18
Mean	17.5	8.8	17.7	8.7	17.8	17.7
Median	18	8	18	8	18	18

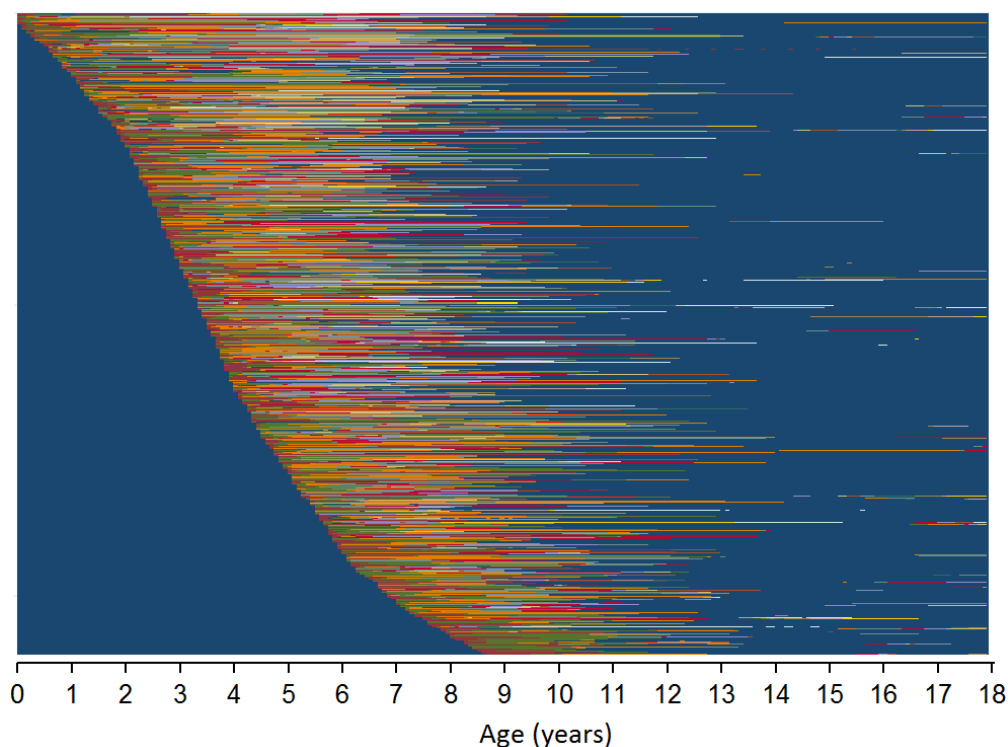
<sup>a</sup>N=16,000 for total sample. <sup>b</sup>Child protection includes children entering care through police protective powers and child assessment and emergency protection orders. All other compulsory entries to care are recorded as 'other compulsory'. <sup>c</sup>Used in conjunction with final exit from care to assess the comparative stability of each cluster. <sup>d</sup>N for this calculation is the number of children ever placed in foster care in each cluster (from left to right: 2,042; 1,095; 1,838; 8,020; 208; 373). <sup>e</sup>Includes episodes of respite care before first entry to out-of-home care for non-respite reasons.



**Figure 7-5 Sequence index plot for Complex 1 cluster ('long-term instability')**  
*N=2,093. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

Overall, 13.1% of children had a placement sequence that I described as 'long-term instability' (Figure 7-5). Children in this cluster entered care aged <15 years and the median age at first entry to care was 7 years (Table 7-1). On average, children spent 8 years and 10 months in care in total (median=9 years) and 80.8% left care aged 18 years. When leaving care for the final time, just 0.3% ( $n=61$ ) of children were adopted or placed with a special guardian. A further 8.5% ( $n=177$ ) returned home. However, most children aged out of the care system (43.0%) or moved to independent living (36.9%). In terms of placement changes and re-entries to care, the patterns of care observed in this cluster are not likely to be considered conducive to achieving permanence. More than half of children in this cluster (58.3%) re-entered care at some point during childhood. Compared to other clusters, these children had the greatest number of placements overall, ranging from 1 to 184. On average, children had 8.97 placements throughout childhood (median=7), and more than a quarter (28.1%) had 10+ placements in total. Thus, I assessed that this placement sequence could be considered comparatively more unstable, than stable.

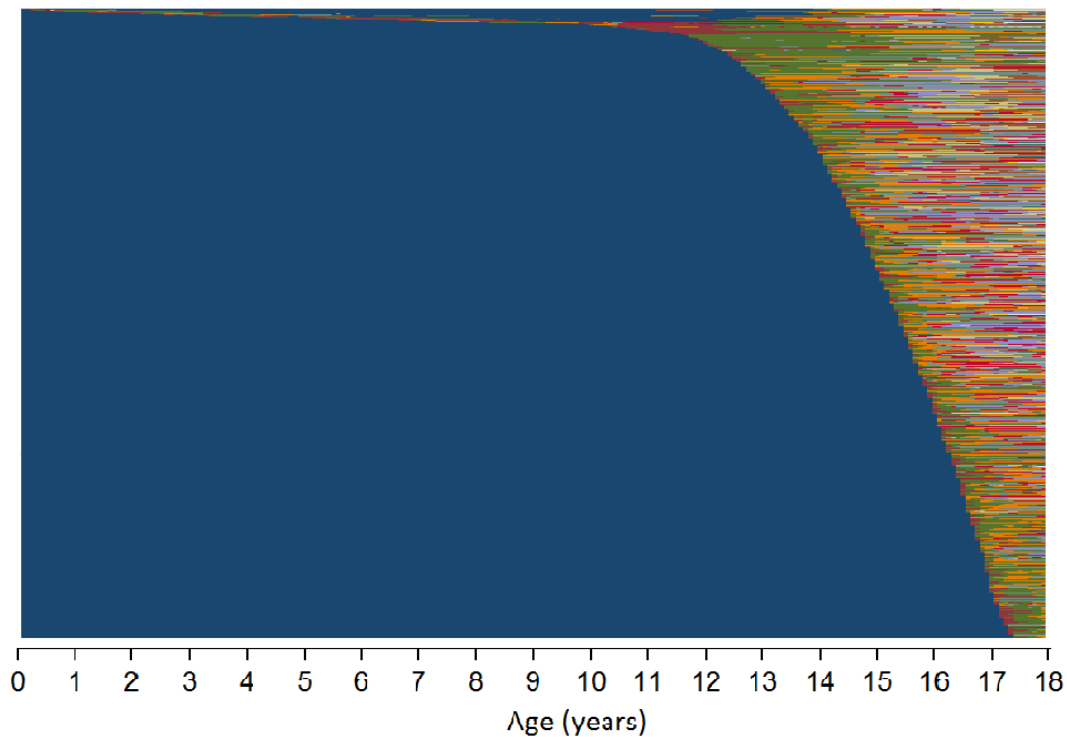




**Figure 7-6 Sequence index plot for Complex 2 cluster ('early intervention')**  
*N=1,105. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

In total, 6.9% of children had a placement sequence that I described as 'early intervention' (Figure 7-6). All children in this cluster first entered care before age 8 and the median age at first entry was 3 years (Table 7-1). On average, children spent 4 years and 6 months in care in total (median=4 years) and 78.9% left care before adolescence (i.e. before age 11). When leaving care for the final time, 61.9% ( $n=685$ ) of children were adopted or placed with a guardian. A further 22.4% ( $n=247$ ) returned home.

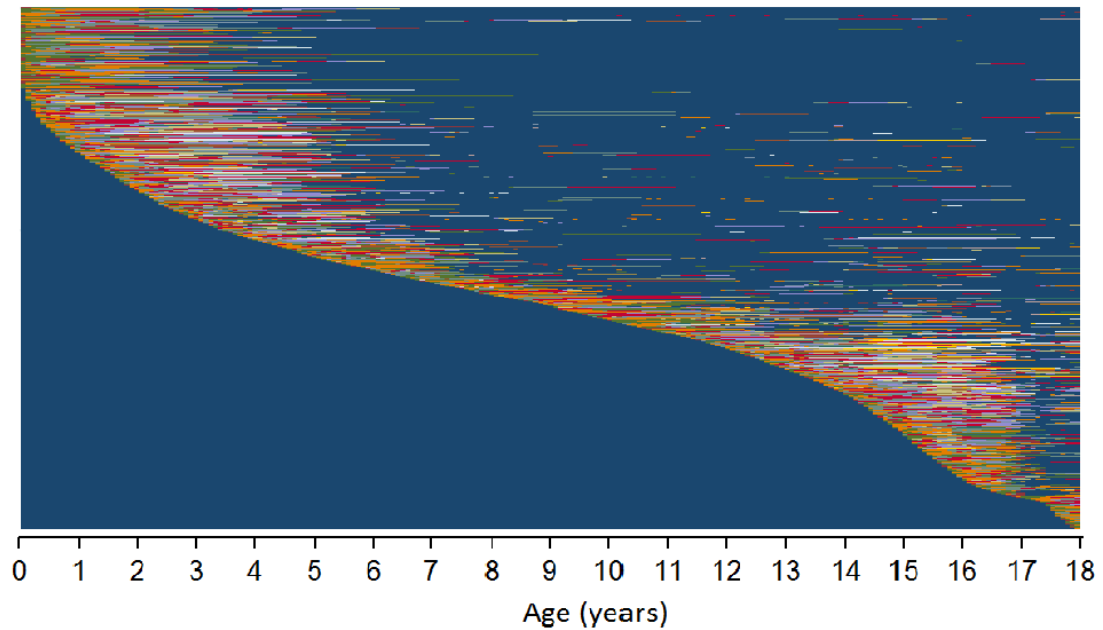
Less than half of children in this cluster (43.7%) re-entered care at some point during childhood and the average number of total placements was 4.95 (median=4). Just 0.8% ( $n=92$ ) had 10+ placements in total. Accounting for the comparatively lower number of placement changes and the high proportion of children who left care through adoption, special guardianship or residence orders, I decided that this pattern of care could be considered comparatively more stable, than unstable (even though almost half of children did exit and re-enter care at some point).



**Figure 7-7 Sequence index plot for Complex 3 cluster ('adolescent entry')**

*N=2,821. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

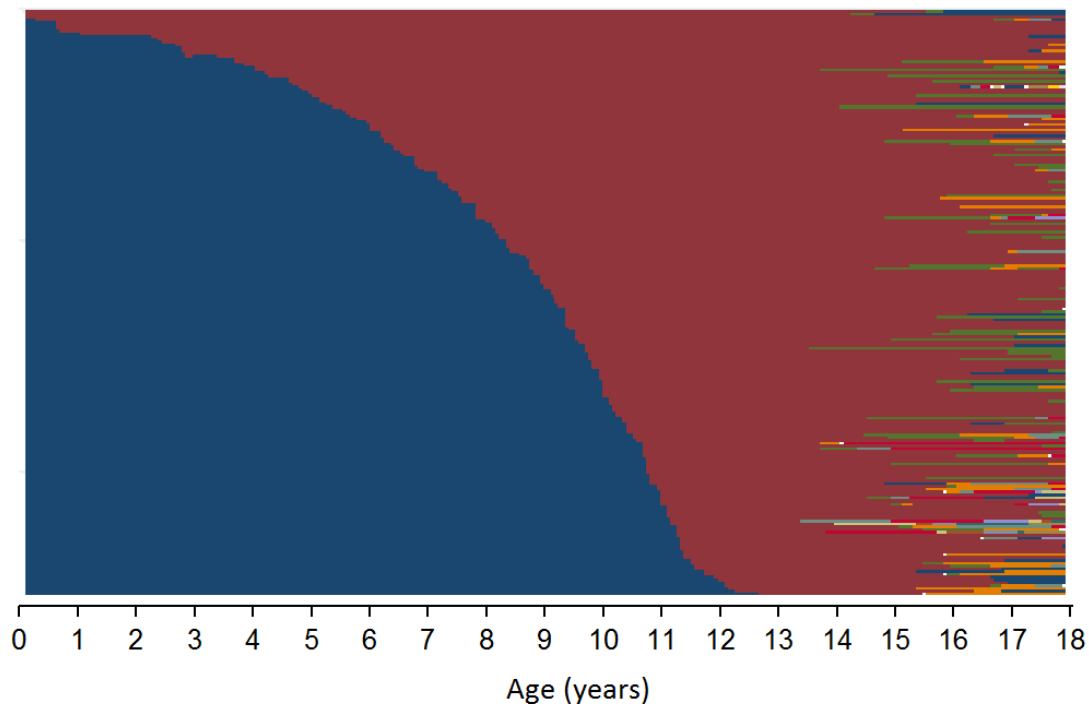
Overall, 17.6% of children had a placement sequence that I described as 'adolescent entry' (Figure 7-7). The median age at first entry to care was 15 years and 92.2% of children first entered care during adolescence. On average, children spent 2 years and 6 months in care in total (median=2 years) and 76.6% left care aged 18 years. When leaving care for the final time, no children were adopted, just 5 (0.2%) exited via a special guardianship or residence order and 6.9% ( $n=195$ ) returned home. Instead, most children moved to independent living (41.3%) or aged out of the care system (39.6%). A quarter of children in this cluster (23.6%) re-entered care at some point during childhood and the average number of total placements was 3.13 (median=2). In terms of achieving permanence, because most children entered care for the first time as adolescents and left care to live independently, I decided that this pattern of care could be considered comparatively more unstable, than stable (despite the low proportion of re-entries and comparatively small number of placement changes).



**Figure 7-8 Sequence index plot for Short-term cluster ('short-term care')**  
*N=9,345. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

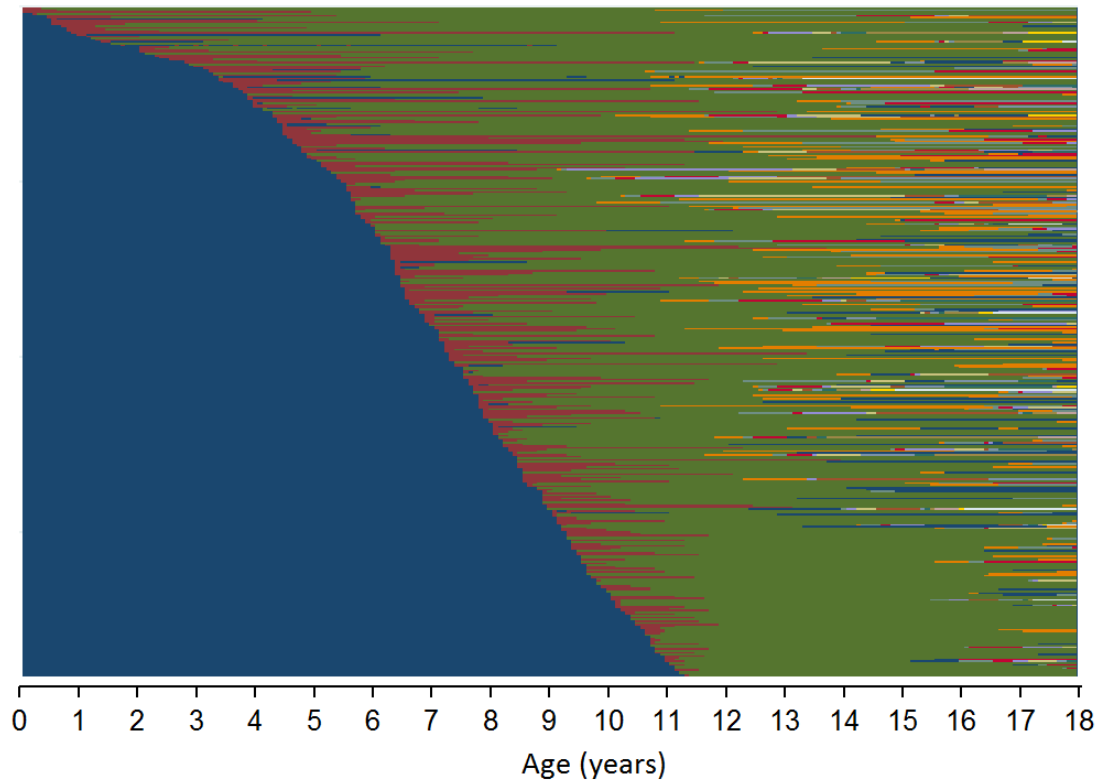
The vast majority of children in this sample (58.4%) had a placement sequence that I described as 'short-term care' (Figure 7-8). These children entered care for the first time throughout childhood, from infancy to age 17 years (Table 7-1). When leaving care for the final time, 11.6% ( $n=1,079$ ) of children were adopted or placed with a guardian, but the majority (65.9%) returned home. Just 2.8% aged out of care and a further 7.2% moved to independent living.

Almost a third of children in this cluster (29.8%) re-entered care at some point during childhood. However, the average number of total placements was 2.48 (median=2). On average, children spent 276 days in care in total (median=116 days). Overall, a third (33.0%) were placed in care for less than 1 month in total throughout childhood, and just a quarter spent more than 1 year in care (26.1%). Just 0.8% ( $n=92$ ) had 10+ placements in total. Accounting for the comparatively lower number of placement changes, short time spent in care and the high proportion of children who returned home, I decided that this pattern of care could be considered comparatively more stable, than unstable.



**Figure 7-9 Sequence index plot for Simple 1 cluster ('stable 1<sup>st</sup> placement')**  
*N=254. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

Overall, 1.6% of children had a placement sequence that I described as 'stable 1<sup>st</sup> placement' (Figure 7-9). All children in this cluster entered care aged <13 years and, on average, children spent 9 years in care in total (median=9 years). The majority of children (86.2%) left care for the final time at the age of 18 years (Table 7-1). When leaving care for the final time, just 1 child was adopted, 7 (2.8%) exited via a special guardianship or residence order and 18 (7.1%) returned home. About a third of children moved to independent living (32.7%) or aged out of the care system (36.6%). A further one in six (15.8%) transferred from children's to adult social services. Less than one in ten children in this cluster (9.8%) re-entered care at some point during childhood and the average number of total placements was 1.98 (median=1), the lowest of all clusters. Indeed, more than half of children (59.1%) had just one placement in total. Based on these characteristics, I decided that this pattern of care could be considered comparatively more stable, than unstable.



**Figure 7-10 Sequence index plot for Simple 2 cluster ('stable 2<sup>nd</sup> placement')**  
*N=382. Each horizontal line represents an individual's sequence of placements throughout childhood. Placements are colour coded as per the legend in Figure 7-4.*

In total, 2.4% of children had a placement sequence that I classified as 'stable 2<sup>nd</sup> placement' (Figure 7-10). All children entered care before age 12 (Table 7-1). Children in this cluster spent the longest time in out-of-home care, with an average of 10 years and 6 months in total (median=10 years). Overall, 88.2% of children left care for the final time at the age of 18 years. When leaving care for the final time, 1.3% ( $n=5$ ) were adopted, 2.6% ( $n=10$ ) exited via a special guardianship or residence order, and 3.9% ( $n=15$ ) returned home. About a third moved to independent living (33.8%) and half aged out of the care system (49.5%). A quarter of children in this cluster (25.1%) re-entered care at some point during childhood and the average number of total placements was 3.89 (median=3). Based on these characteristics, I decided that this pattern of care could be considered comparatively more stable, than unstable.

## **7.5 Discussion**

### **7.5.1 Summary of findings**

Among a large, representative sample of children in England who were born between 1992 and 1994, I identified six patterns of out-of-home care that varied in terms of the timing, duration and number of placements. Based on these placement sequences, it appears that most children who enter out-of-home care achieve some form of permanence, either outside the system (through short-term care that ends with family reunification, adoption or a special guardian being appointed) or within the system (through stable, long-term care). However, most children's care histories are complex with placement changes and/or exits and re-entries to care encountered on their journey to permanence.

### **7.5.2 Strengths and limitations of this analysis**

One strength of my sequence analysis is that it included all episodes of care throughout childhood and accounted for the timing, number and duration of placements. As a result, it is a comprehensive and more child-centred representation of experiences of stability than other cross-sectional measures. A further strength is that my analysis was based on a large, representative sample of children and included those in all types of care, not just foster care. Additionally, the choice of DHM as a method of assessing the similarity of sequences meant that no assumptions about the distribution of the empirical data or the relative importance of differences in states were made.

The main limitation of sequence analysis is that because there is no underlying statistical model, it is not possible to determine the optimum number of clusters empirically, or to test whether clusters are statistically distinct from each other. Therefore, my choice of six clusters is by no means definitive and others may feel that a solution with a different number of clusters would be a more accurate or appropriate classification. Future work could explore patterns of care that are evident in solutions with different number of clusters with input from social care practitioners. A further limitation of my sequence analysis is that my decision to use months as the unit of time and to restrict the total number of placements to 14

masked some information related to the stability of placements among this cohort. If a child was in more than one placement in a month, the timing and duration of placements within that month were not accurately recorded. I could have chosen a shorter time period of weeks or days to create more accurate sequences; however, comparing these sequences would have created larger dissimilarity matrices and, due to the technical limitation of Stata/MP v.14 that I previously mentioned, this would have meant I had to reduce my sample size further. Similarly, the duration of children's 14<sup>th</sup> placements was artificially extended and any subsequent placements were not recorded; however, this issue affected a small proportion of the sample overall (2.3%,  $n=368$ ). Another limitation is that the CLA dataset does not capture all placement changes. For example, if multiple placement changes occur in one day, only the details of the final placement are recorded in the CLA dataset. Likewise, if a child's care is shared regularly between two settings (e.g., they spend the week at a residential school and the weekend with a foster carer) only the placement where the most time is spent is recorded. Hence, children may spend time in more placement settings and have more placement changes than are recorded by their care records in the CLA dataset. However, administrative datasets are more accurate sources of data for exploring the number, duration and timing of placements than survey- or interview-based studies which may be subject to error or recall bias (Dregan & Gulliford, 2012). A final limitation is that my assessment of whether the placement patterns I identified were comparatively more stable or unstable is crude and subjective. In making this assessment, I based my decision on criteria that are relevant and important to stability according to DfE guidance; but, ultimately, there was an element of personal judgement. However, I would suggest that at the very least, this exploratory analysis represents progress from the narrow indicators of stability typically used in DfE statistics that do not account for the longitudinal nature of care experiences, exits and re-entries to care, the timing of placement changes or the mode of exit from care.

### **7.5.3 Comparison of findings to other studies**

To my knowledge, this study was the first to describe patterns of placement in out-of-home care throughout childhood for children in England, and so it is not possible

to draw comparisons between my findings and other UK-based studies. I did identify three international studies that used sequence analysis to identify differing patterns of placement stability using whole childhood records of placements in care. However, two of these studies were not reasonably comparable to my analysis as they were restricted to children who entered care before age 6 or after age 12 (Andersen, 2014) or to children who were ageing out of the care system at age 18 (Havlicek, 2010).

The most comparable study I identified was by Fallesen (2014) who used administrative data that included complete foster care histories for all children in Denmark who were born between 1982 and 1987 ( $N=30,234$ ). Using DHM and clustering, Fallesen identified nine divergent foster care careers, four of which were comparable to placement sequences that I identified in my analysis (though the relative sizes did differ). For example, whereas I identified just one group with 'stable 1<sup>st</sup> placements' that accounted for 1.6% of children in my sample, Fallesen identified three groups with differing ages at first entry that accounted for 13.7% ( $n=4,133$ ) of children in the Danish sample. Similarly, Fallesen identified two groups of 'stable 2<sup>nd</sup> placements' that included 3.8% of children ( $n=1,138$ ) whereas this group accounted for 2.4% of children in my analysis. Among the Danish sample there were also two complex foster care careers that were similar to the 'long-term instability' group that I identified in this analysis. However, the Danish group had a longer duration of care (124.0 vs 103.9 months in my analysis) and fewer placements (3.6 vs 9.0). In total, just 5.3% of children in Denmark had patterns of care that could be described as 'long-term instability' compared to 13.1% of children in my analysis. Among both samples 'short-term care' was by far the dominant placement sequence, accounting for 77.3% of children in Denmark and 58.4% of children in my analysis.

Two of the patterns of care that I identified were unique to children in England: the 'early intervention' and 'adolescent entry'. This may be due to differences in practice and policy related to out-of-home care between England and Denmark. For instance, the 'early intervention' group I identified was composed of children who entered and left care before adolescence. However, children in Denmark tend to



enter care for the first time at a later age than children in England (Ubbesen, Gilbert & Thoburn, 2015), perhaps because there is a greater emphasis on providing universal services that support parents in caring for children at home (Ploug, 2012).

#### **7.5.4 Main implications of findings**

Overall, when accounting for the number, timing and duration of placements, as well as exits and re-entries to care, most children appear to have relatively stable care histories. As similarly seen in my latent class analysis (described in Chapter 6), for most children in this cohort placement in out-of-home care was a short-term intervention (58.4%). However, this analysis showed that some groups of children encountered high levels of placement change whilst in out-of-home care: one in eight (13.1%) children had patterns of placement characterised by long-term instability with an average of 9.0 placements throughout childhood, and a further one in six (17.6%) did not enter care until adolescence and experienced 3.1 changes during this developmentally sensitive period. Indeed, only a small minority of children (4.0%) appeared to experience stable long-term care and even among these children there was evidence of placements changing in adolescence (Figures 7-9 and 7-10). These findings re-enforce the value of looking beyond the time frame of a statistical year when exploring the stability of children's care experiences. These findings also have implications for policy and practice as they highlight that some groups of looked after children experience high levels of placement change and so may be in need of greater support to develop and maintain a sense of permanence. Further work to explore the characteristics of the children who experience these placement sequences could provide insight into the potential reasons for these changes. It would also be useful to explore variation in the characteristics of families between these groups. Analyses using Danish linked administrative data found that more complex patterns of care were associated with large family size and parental characteristics such as being an immigrant, unemployed, involved in crime or a single parent, and having lower income or level of education (Andersen, 2014).

Placement stability (or instability) is an extremely difficult concept to operationalise, as placement changes are not inherently negative. For example, planned changes

that are needed to progress a care plan can be viewed as positive steps towards permanence. Additionally, even an unplanned placement change is positive if it improves a child's quality of life, removes them from harm or makes them happier (Skuse, Macdonald & Ward, 2001; Welbourne & Leeson, 2012). Conversely, a lack of placement change does not equate to a positive experience. In the era of PSA indicators, the government encouraged local authorities to have no more than 80% of children in continuous care for 2.5 years remain in the same placement for 2 years. Higher levels of stability were considered a cause for concern, in so far as it may indicate social work inactivity in situations where children should have moved to adoption, returned home or transferred to a more age-appropriate care placement (Schofield *et al.*, 2007).

It is also important to acknowledge that my analysis only considers one aspect of stability. Stability of care placements are important to children, but school moves and changes in social workers are also key concerns that can leave them feeling even more vulnerable (Dex & Hollingworth, 2012). Recently, the Office of the Children's Commissioner for England developed a 'stability index' to quantify the occurrence of changes in placements, social workers and schools over a 12-month period using administrative and survey data from a sub-sample of 22 local authorities (Longfield, 2017). Overall, they reported that 63% of children did not experience a placement change in 2016; however, among these children, half had changed social worker or moved school. Consequently, the relatively stable patterns of placement that I observed in my analysis may mask instability in other aspects of children's lives. Future work could explore the utility of using sequence analysis over a shorter time frame to explore the stability of care histories for more recent cohorts of children or the stability of other aspects of care experiences, such as legal status, social worker changes and school moves.

## **7.6 Key points from Chapter 7**

- I analysed placement sequences throughout childhood for a large, representative sample of children in England who were born between 1992 and 1994 and identified six patterns of out-of-home care that varied in terms of the timing, duration and number of placements.
- Most placement sequences were complex with changes and/or exits and re-entries to care observed throughout childhood. However, complexity was not synonymous with instability and most children appeared to achieve some form of permanence, either within the out-of-home care system or outside it by returning home, being adopted or having a special guardian appointed.
- This analysis re-enforces the value of looking beyond the time frame of a statistical year when exploring the stability of children's care histories. Sequence analysis could be a particularly useful tool for routinely exploring the stability of children's care experiences.

## Chapter 8 Re-entries to out-of-home care

### Statement of authorship

I carried out all of the work presented in this chapter, which has been published as a peer-reviewed journal article in *Child Abuse and Neglect* (reproduced in full in Appendix H-1) and as a blog piece on *The Conversation* website (Appendix H-2).

### 8.1 Content and structure of Chapter 8

In Chapter 7 I explored the stability of out-of-home care histories in terms of the timing, duration and number of placements. In this chapter, I will describe how I explored in further detail the stability of out-of-home care histories among children in England, in terms of re-entries to care. In this set of analyses, I used survival analysis methods to describe re-entry to care and identify demographic and care-related factors associated with an increased likelihood of re-entry.

I will begin by introducing the rationale for this analysis and outlining its aim and objectives. I will then describe the methods that I used and present my findings. Next, I will discuss the strengths and limitations of this part of my PhD study, how my findings compare to existing research, and their main implications. Finally, to close this chapter, I will summarise its key points.

## **8.2 Rationale for this analysis**

### **8.2.1 Permanence and out-of-home care**

A central goal of England's social care system is to ensure that children have permanence (Department for Education, 2015b). This permanence (i.e. emotional, physical and legal security, stability, and continuity (Department for Education, 2013)) helps children develop and maintain a sense of identity and belonging during childhood and beyond, and is associated with positive life outcomes (Ranson & Urichuk, 2008; Thomas, 2013).

In Chapter 7, I estimated that just 4.0% ( $n=636$ ) of children born between 1992 and 1994 had placement sequences that could be considered as long-term, stable out-of-home care. Therefore, although it is possible for children to achieve permanence within the out-of-home care system in England, it does not appear to be common. Indeed, there is emphasis on achieving permanence outside of the out-of-home care system by exiting care to live in a stable, permanent family setting. Ideally, this setting would be the child's own family - given that the Children Act 1989 sets out the principle that wherever possible children should be brought up and cared for within their own families (Department for Education, 2015b). However, there is also a strong policy focus on achieving permanence by exiting care through adoption, special guardianship and residence orders (Department for Education, 2012; Department of Health, 2000; Department for Education, 2016a). Each year approximately one-third of children in out-of-home care exit the system (Department for Education, 2017g). A subsequent re-entry to care is considered a disruption to permanence due to the change in carer and/or legal status that it entails (Department for Education, 2013c).

### **8.2.2 Re-entries to care in England**

A small number of studies have explored the proportion of children in England who re-enter care after exiting the system in specific ways. For example, case series studies among children who returned home to their birth parents have reported that almost half re-enter within 2 years (Farmer & Wijedasa, 2013) and two-thirds within 5 years (Farmer & Lutman, 2012). However, official analyses of

administrative social care data have estimated that the 5 year re-entry rate after a return home is 30% (Department for Education, 2013c). Since their introduction in 2006, two studies have explored special guardianship and residence order breakdowns using administrative data, with the 5 year re-entry rates estimated to be 6% and 15%, respectively (Selwyn, Wijedasa & Meakings, 2014; Wade *et al.*, 2014). Recently, a large survey-based study estimated that 1.5% of 37,335 adopted children re-entered out-of-home care (during a follow-up period of 1-12 years (Selwyn, Wijedasa & Meakings, 2014), but much higher rates of adoption breakdown (up to 60% in some age groups) have been reported in the media (Henderson, 2012).

### **8.2.3 Factors associated with re-entry to care**

Findings from international studies show that the likelihood of re-entering care varies by a range of demographic and care-related factors. For example, re-entry to care has been associated with a child's age (Orsi, 2015; White, 2016; Yampolskaya, Armstrong & Vargo, 2007) and ethnicity (Orsi, 2015; Shaw, 2006), and the duration, setting and stability of their care placement (Carnochan, Rizik-Baer & Austin, 2013; Wells & Guo, 1999; McDonald, Bryson & Poertner, 2006; Lee, Jonson-Reid & Drake, 2012).

Demographic and care-related factors have also been associated with re-entry to care in England (Munro & Hardy, 2006). However, research in this area is limited and tends to focus on groups of children who exit out-of-home care in particular ways, rather than the overall population. For example, a study of 180 children who were returned home to their parents found re-entries to out-of-home care were more likely if a previous return home had broken down (Farmer & Wijedasa, 2013). Another study of 5,936 children leaving care via a special guardianship order (SGO) found a significant association between re-entry to care and whether the special guardian was the child's former foster carer or relative (Wade *et al.*, 2014). Most recently, an association between more placement moves while in out-of-home care and an increased likelihood of an adoption, special guardianship or residence order breaking down was described based on analysis of administrative social care data (Selwyn, Wijedasa & Meakings, 2014).

#### **8.2.4 Integrating research into practice and planning through model-based tools**

In a healthcare context, research findings that identify factors associated with an outcome of interest are routinely incorporated into clinical practice and service planning through the development of predictive models that estimate the likelihood of outcomes of interest (Bouwmeester *et al.*, 2012); for instance, the likelihood of different patient groups being readmitted to hospital (Kansagara *et al.*, 2011) or surviving for a certain period of time after a terminal cancer diagnosis (Glare *et al.*, 2003). In the context of re-entries to out-of-home care, similar models based on empirical research findings have been used to highlight groups of adoptions (Orsi, 2015) and foster care placements (García-Martín *et al.*, 2014) that are likely to break down. Indeed, model-based tools are routinely used in the US to estimate the risk of recurrence of child maltreatment among children in care and to inform decision-making processes, including those that are related to the timing of returns home (Bouwmeester *et al.*, 2012). These models estimate the likelihood of an outcome at a group-level based on group characteristics and statistical associations identified in empirical studies.

In England, it has been suggested that better preparation and support for children exiting out-of-home care could potentially reduce the proportion who re-enter the system (Farmer & Wijedasa, 2013; Holmes, 2014; Department for Education, 2013c). Given that the government is committed to “identifying and supporting evidence based interventions which drive improved practice and a better quality of care” (Department for Education, 2013c, p7), research that describes factors associated with re-entry to out-of-home care could be useful to social care practitioners. However, currently, the majority of published research related to re-entry to out-of-home care presents results in the form of hazard ratios which can be difficult to interpret and incorporate into practice, as they are relative rather than absolute measures. One way to integrate research findings into practice may be to develop a model-based tool that estimates the absolute likelihood of a re-entry to care. This estimation model could be useful for practitioners and service planners in England, in terms of helping them to identify groups that are most likely to re-enter care and to allocate increasingly scarce resources more efficiently.

### **8.2.5 Summary of the rationale for this analysis**

Despite the importance of permanence to looked after children, care leavers and policy makers (Department for Education, 2015b; Longfield, 2017; Dickson, Sutcliffe & Gough, 2010; Selwyn, Wood & Newman, 2017), the overall proportion of children who re-enter care and the factors associated with re-entry are not well-described. Analysis of longitudinal administrative data could refine our understanding of the stability of out-of-care histories, and ultimately highlight groups in need of additional support and monitoring.

### **8.2.6 Research questions and hypotheses**

1. What proportion of children who exit out-of-home care aged <16 years re-enter within 5 years?
2. What child and cumulative care characteristics are associated with re-entry to care within 5 years?
3. Can the likelihood of re-entering care be estimated from child and cumulative care characteristics at exit?

As previous studies of re-entry to out-of-home care among children in England have focused on specific sub-groups (e.g., those returning home to parents (Farmer & Lutman, 2012)), I had no pre-existing hypothesis about the proportion of all children who would re-enter care within 5 years. However, based on existing literature, I hypothesised that rates of re-entry to care would vary by child and care characteristics. For example, I hypothesised that the rate of re-entry to care would be lowest among children who exited via a special guardianship order (Wade *et al.*, 2014). I also hypothesised that, if child and care characteristics were found to be associated with re-entry to out-of-home care using Cox proportional hazards modelling, it would be possible to estimate the likelihood of re-entering out-of-home care based on these characteristics.



### **8.2.7 Aim of this analysis**

To describe the stability of out-of-home care in terms of re-entries to care.

### **8.2.8 Objectives of this analysis**

- a) To select a cohort of children in my CLA data extract who exited out-of-home care between the 1<sup>st</sup> January and the 31<sup>st</sup> December 2008.
- b) To use the selected cohort to:
  - i. Measure the overall proportion of children who re-entered care within 5 years of exit.
  - ii. Identify child and care characteristics associated with re-entering care.
  - iii. Develop a model to calculate group-level likelihood of re-entry to care within 3 months of exit.

## **8.3 Methods**

### **8.3.1 Data source, study population and period of analysis**

The main data source for this set of analyses was an extract of CLA data, a routinely-collected, administrative social care dataset described in detail in Chapter 3. To explore re-entries to out-of-home care, I derived a data extract for a cohort of children who exited out-of-home care between the 1<sup>st</sup> January and the 31<sup>st</sup> December 2008 and were aged <16 years. I excluded children who were aged 16+ when leaving out-of-home care because it can be difficult to interpret exits and re-entries to care for older adolescents. For example, independent living can be used as either an out-of-home care placement or mode of exit from care, and the degrees to which it used for these purposes varies between local authorities (Department for Education, 2015b). Furthermore, once a child is aged 17, they cannot be made subject to a new care order and so any re-entries to care would have to be voluntary (Department for Education, 2015b; Children Act, 1989).

I chose 2008 as the beginning of my study period as this was after the introduction of SGOs as a means of exiting the out-of-home care system. An SGO is a legal order that aims to provide a child with a sense of permanence just short of adoption (Department for Education and Skills, 2005) by creating a lifelong, legally-binding relationship between them and their special guardian, without severing legal links with their birth relatives. When an SGO is made a child ceases to be looked after by a local authority. Legislation for SGOs was introduced in England in 2006; however during this year, there were just 189 SGOs recorded in my CLA data extract. My choice of 2008 as the beginning of the study period provided sufficient time for the use of SGOs as a means of exiting the out-of-home care system to become embedded in practice. Although 2008 was the beginning of the study period in terms of exploring re-entries to out-of-home care, the data extract I analysed included complete care histories for the cohort (i.e. it included all episodes of care from the 1<sup>st</sup> January 1992). The end of this study period was the 31<sup>st</sup> December 2013 - the most recent year for which data were available for my PhD study.

### **8.3.2 Identifying and categorising exits from care**

In this analysis, I defined an exit from out-of-home care as (1) an episode of care that ended because a child ceased to be looked after or (2) as a change in placement from any out-of-home care setting to being placed with parents for a child who continued to be looked after. Using this definition, I identified all exits from out-of-home care in 2008 using the 'placement setting' and 'reason for new episode' variables recorded in my CLA data extract, as per Appendix C-4. If a child exited care more than once in 2008, I selected their earliest exit in the year as their index exit for the re-entry analysis.

### **8.3.3 Quantifying re-entries to out-of-home care**

In this analysis, I defined a re-entry as any out-of-home care placement following an exit from care. I excluded children who exited care through a custodial sentence from this analysis because it is not possible for these children to re-enter care whilst in custody and there is no information collected in the CLA dataset about the length of their custodial sentences. Furthermore, I could not include children who had exited care through adoption because a child who has been adopted and re-enters care is assigned new identifiers in the CLA dataset (e.g., child ID and unique pupil number). Consequently, it is not possible to link their pre- and post-adoption care histories.

For the sample of children who had not exited care through adoption or custodial sentence, I identified all re-entries to care within 5 years of exit and visualised the cumulative absolute risk of re-entering care using a Kaplan-Meier (KM) plot. I then summarised the distribution of time to re-entry for the children who re-entered care within 5 years, overall and stratified by sex, age group at exit and ethnicity. Finally, I cross-tabulated the category of need recorded at exit and re-entry to care to explore whether children re-entered care for the same or different reasons.

### **8.3.4 Identifying factors associated with re-entry to out-of-home care using Cox proportional hazards modelling**

#### **Why use survival analysis methods to explore re-entry to care?**

Given that all individuals in this sample had the same length of follow-up and the outcome of interest was binary, I initially considered using logistic regression to describe the factors associated with re-entry to care within 5 years of exit. However, when applying logistic regression in a 'time-to-event' context such as this analysis, the assumption is that these times follow a Normal distribution (Hosmer, Lemeshow & Sturdivant, 2013). This was not the case in my sample as there was a notable positive skew in the distribution of time to re-entry (as can be seen in Figure 8-3 presented later in this chapter). Given that this assumption of logistic regression was not met, I instead chose to use Cox proportional hazards modelling, a form of survival analysis which makes no assumptions about the underlying distribution of time to re-entry (Guo, 2009).

#### **The 'hazard' and 'risk' of re-entering care in the context of survival analysis**

In everyday language, the terms hazard and risk have negative connotations and are commonly associated with dangerous and generally unfavourable events. Re-entry to care cannot be considered to be an inherently negative event – for example, a re-entry to care that protects a child and/or promotes their well-being is undoubtedly a positive event (National Society for the Prevention of Cruelty to Children, 2012; Fuller, 2005). Therefore, wherever possible throughout this chapter when referring to re-entries to care, I have opted to use terms that are more value-neutral than hazard and risk (e.g., chance, likelihood and probability). However, in the context of survival analysis, the terms risk, hazard rate and hazard ratio have specific statistical meanings and I do employ these terms when it is necessary for the sake of accuracy.

In survival analysis, risk is used to refer to the number of events of interest that have occurred (i.e. in the context of this analysis, the cumulative risk of re-entry to out-of-home care at 5 years is the number of re-entries that have occurred in this time). A hazard rate is the probability that an individual experiences an event in a certain time period, given that they have not experienced the event up to this point

in time. A Cox proportional hazard model estimates the ratio of these hazard rates at a given point in time for different levels of explanatory values (Guo, 2009). For example, a hazard ratio for the binary explanatory variable sex would describe the relative probability of an event occurring in a certain period of time for females compared to males, given that they have not experienced the event up until this point in time. An advantage of Cox proportional hazards modelling is that it can account for multiple explanatory variables when estimating hazard ratios (which are known as adjusted hazard ratios). This is particularly relevant in this analysis as my previous latent class analysis in Chapter 6 demonstrated that there are strong correlations between care characteristics among looked after children in England.

### **Assumptions of a Cox proportional hazards model**

A key assumption of a Cox proportional hazards model is that censoring is non-informative. Censoring occurs when there is incomplete follow-up in a study population, either because of loss to follow-up or the study ends before the event of interest occurs for all individuals (Guo, 2009). In this analysis, censoring occurred because at the end of the 5-year follow-up period some children were still at risk of re-entering care, in so far as, they were aged <18 years. This type of censoring is known as type 1 right censoring and is a feature of all survival analysis studies with a fixed follow-up period (Guo, 2009). A Cox proportional hazards model assumes that censoring is independent of the event of interest (i.e. that it does not provide any information about the likelihood of an event occurring). In the case of this analysis, I judged that censoring was non-informative because it was not associated with the likelihood of re-entering care: all children in the sample were followed-up for the full 5-year period, unless they had reached the age of 18 and were no longer at risk of re-entry.

The main assumptions of a Cox proportional hazards model is that the hazard rate or function of an explanatory variable is proportional (i.e. it is constant over time (Guo, 2009)). I assessed the proportionality of the hazard functions of the child and care characteristics included in my analysis by plotting the observed KM survival estimate curves against the curves predicted by the Cox model for all variables. If the observed KM values were not closely aligned with the predicted Cox values I

interpreted this as an indication of non-proportional hazard functions (Guo, 2009). Based on this assessment, I judged that several variables in my data extract did not meet the assumption of having proportional hazard functions because their hazard rates were not constant and changed over time.

### **Accounting for time-varying effects in a Cox proportional hazards model**

If a Cox proportional hazards model is used when there are time-varying hazards, it can lead to misleading results because the assumption of proportional hazards is violated (Bellera *et al.*, 2010). One strategy for accounting for variables with time-varying hazards is to identify intervals of time within the overall study period for which they are proportional. This approach is based on the premise that factors may have “constant but different effects in different time intervals” (Hosmer & Royston, 2002, p349).

To identify intervals of time for which there are proportional hazards, Hosmer and Royston (2002) suggest plotting the cumulative regression coefficients of the variables with time-varying effects against time using an Aalen linear hazards model - a survival analysis model in which the regression coefficients are allowed to vary over time (Aalen, 1989). Based on the slope of these plots, it may be possible to identify distinct intervals of the study period for which there are proportional hazards. If intervals of time can be identified where the hazard functions of variables are proportional, dummy variables can then be created and included in the Cox proportional hazards model (Hosmer & Royston, 2002). The hazard ratios for these variables with time-varying effects are interpreted as being interval-specific and conditional on having survived to that time interval (Buchholz, Sauerbrei & Royston, 2014).

I used this strategy to identify three intervals for which there were proportional hazard functions in my empirical dataset (0-3 months, 3-12 months and 1-5 years) and to derive dummy variables for these respective intervals. To confirm that the proportionality assumption had been addressed, I repeated the test for proportional hazards for these newly-created dummy variables by assessing the

degree of alignment between their observed KM survival estimate curves and Cox predicted curves.

### **Quantifying associations with re-entry**

I initially assessed which child and care characteristics were associated with re-entry to out-of-home care using univariable Cox proportional hazards models. I then used these results to select a multivariable model. I began by including all variables associated with re-entry to care at a univariable level where  $p < 0.10$  and then, in a step-wise fashion, removing the variable with the largest p-value until only factors with p-values  $< 0.05$  remained. I then tested for interactions between the included characteristics. Finally, to account for the multilevel structure of the dataset (whereby looked after children are clustered within local authorities) I included a shared frailty effect in the model. This shared frailty accounts for unobserved or unmeasured group-level effects on the event of interest. In this context of this analysis, I hypothesised that there may be local authority-level effects on the likelihood of a child re-entering care (e.g., due to local differences in policy, practice or availability of resources).

### **8.3.5 Developing a model to estimate the likelihood of re-entry to out-of-home care within 3 months of exit**

#### **Specifying the estimation model**

The final objective of this analysis was to create a model that could estimate the probability of a child re-entering care within 3 months, in terms of absolute rather than relative terms. The model I developed to convert a hazard ratio to an absolute proportion was based on a simple substitution equation. Essentially, the basis of a Cox proportional hazards model is that the likelihood of an event is the sum of the multiplicative effects of different factors on a baseline hazard function. In a multivariable Cox proportional hazard model, the hazard ratios that are estimated are the multiplicative effects of the individual factors on the baseline hazard function, controlling for other factors. The baseline hazard function is not estimated as part of the model but can be easily calculated as it is simply the hazard function for which all covariate (explanatory variable) values are zero (Royston & Altman,

2013). By combining the absolute estimated value of the baseline hazard function and the hazard ratios for the explanatory variables, it is possible to estimate an absolute measure of survival, rather than a relative measure.

I chose to focus on rapid re-entries to out-of-home care within 3 months of exit as re-entries during this short time frame accounted for more than one-third (37.6%) of all re-entries within the 5-year period. In addition, children who re-entered care within this period were more likely to re-enter for the same reasons (as presented in Table 8-4 later in this chapter). Thus, identifying groups who were likely to re-enter care rapidly could help to identify groups who may be in need of additional support or monitoring when leaving care. As I wanted findings from my estimation model to be relevant to social care practitioners, I chose to only include variables that they could reasonably be expected to know about a group. To this end, I replaced the 'average length of placement' variable with 'time in the current episode of care' as this information is more likely to be readily available (having ascertained that the 'time in the current episode of care' was significantly associated with re-entry to care at a univariable and multivariable level using the previously described method (see Appendix F-1).

Having chosen the variables to be included in my estimation model, I used bootstrapping with 1,000 repetitions to validate the accuracy of their effect sizes (i.e. hazard ratios). I then calculated the baseline hazard function of re-entry to care at 3 months for an individual with the reference category of all included variables. Finally, I combined these pieces of information to create a model that estimated the absolute likelihood of re-entering care based on demographic and care characteristics.

### **Calibrating and validating an estimation model**

When evaluating the utility of an estimation model there are two main stages: calibration and validation (Altman & Royston, 2000; Royston & Altman, 2013). The purpose of calibration is to assess the discrimination of the model (i.e. how accurately the estimated likelihood of an outcome matches the actual likelihood of an outcome observed in the empirical dataset from which it was derived). The



purpose of validation is to assess whether the model is applicable to data other than those from which it was derived (i.e. that the estimation can be replicated in an external dataset).

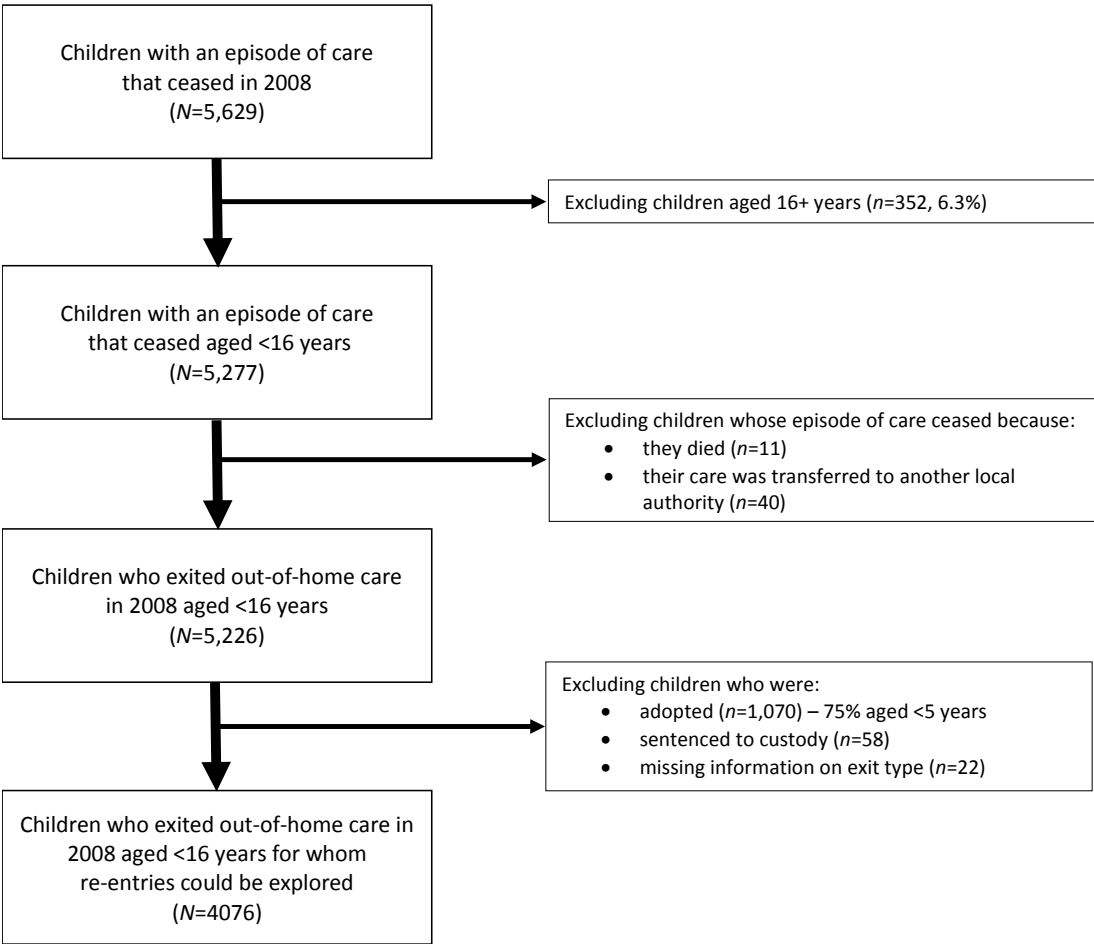
To calibrate my model, I calculated three measures of discrimination: the Harrell's *c*-index of concordance, Brier score and area under the curve (AUC) of the receiver operating characteristic curve. The Harrell's *c*-index ranges from 0.5 to 1, with 0.5 implying the model has no predictive power and 1 implying perfect prediction. The Brier score ranges from 0 to 1, with 0 implying perfect prediction and 1 implying no predictive power. The AUC also ranges from 0 to 1, but with 1 implying perfect prediction and 0 implying no predictive power. I then used this model to estimate the absolute likelihood of re-entering care for all possible combinations of variables included in it. Among these 1,920 possible groups, the estimated likelihood of re-entry ranged from <1% to 29.4% (interquartile range: 7.6% to 16.8%). Based on this distribution, I created three categories of likelihood of re-entry: low- (<5%, which included approximately the lowest quartile of estimated likelihood), medium- (5-15%) and high-likelihood (>15%, which included the highest quartile of estimated likelihood). I categorised each individual in my sample to one of these three estimated likelihood groups and then calculated the actual proportion group who had re-entered care within 3 months. I used a two-way plot of estimated versus observed likelihood of rapid re-entry to care by likelihood group to visualise the agreement between these values.

To validate my model, I repeated these calibration steps using CLA data for children who exited out-of-home care in 2012 ( $N=4,650$ ), which had not been used to create or calibrate my model (i.e. an external dataset). Again, I evaluated the predictive power of the model by examining the Harrell's *c*-index, Brier score and AUC and visualised the agreement between the observed and estimated likelihood of re-entering care with a two-way plot by likelihood group. Finally, I used my estimation model to make an interactive tool to estimate the likelihood of rapid re-entry to care, which I published online.

**8.4 Results**

**8.4.1 Exits from out-of-home care in 2008**

The data extract for my analysis of re-entry to care included 4,076 children aged <16 years who exited out-of-home care in 2008, not through adoption or custodial sentence. Figure 8-1 provides an overview of how this cohort was derived. The demographic characteristics of this cohort are summarised in Table 8-1. A summary of the characteristics of their exit episodes is given in Table 8-2.



**Figure 8-1 Flowchart of sample selection for re-entry to care analysis**

**Table 8-1 Demographic characteristics of children who exited out-of-home in 2008 aged <16 years (N=4,076)**

		n	%
Sex	Male	2,144	52.6
	Female	1,932	47.4
Ethnicity <sup>a</sup>	White	2,896	71.1
	Mixed	378	9.3
	Asian	230	5.6
	Black	465	11.4
	Other	88	2.2
Age group at exit	<1 year	436	10.7
	1 to 4 years	1,096	26.9
	5 to 10 years	923	22.6
	11 to 15 years	1,621	39.8

<sup>a</sup>Data related to ethnicity for this cohort are not imputed. All children were in care after the 1<sup>st</sup> April 2000 and should have had ethnicity data recorded. Ethnicity was recorded as 'refused to provide this information' for 0.5% of this cohort (n=19).

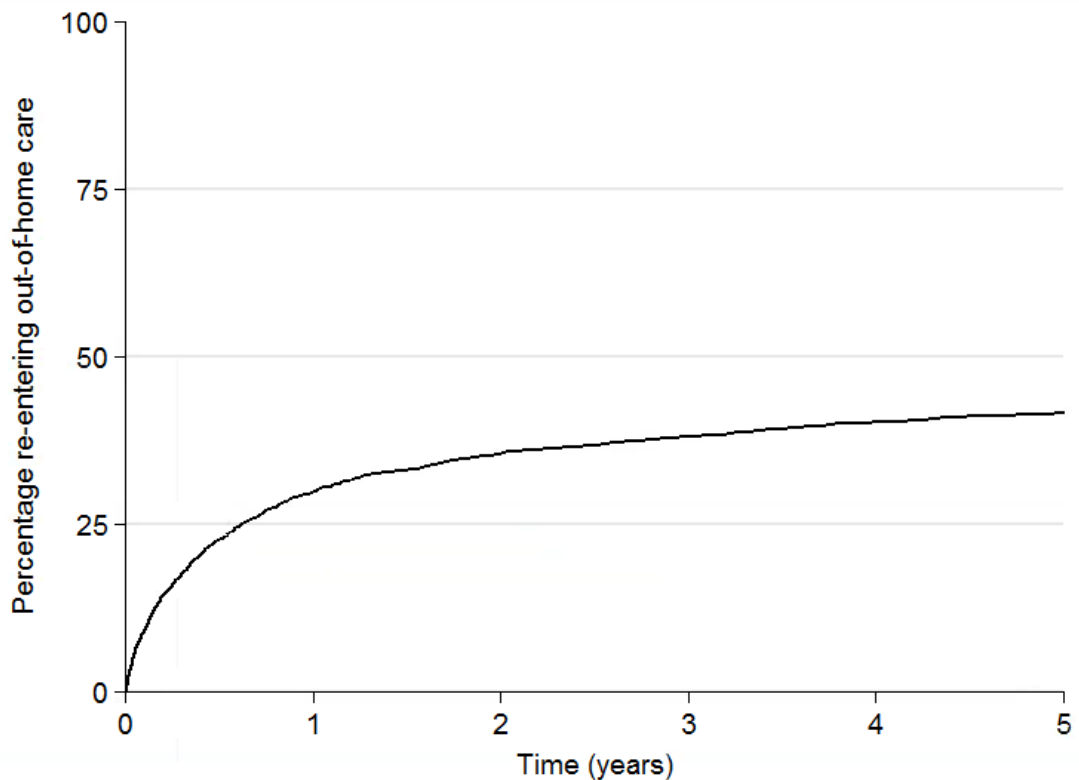
**Table 8-2 Episode characteristics for children who exited out-of-home care aged <16 years in 2008 (N=4,076)**

<b>At beginning of episode of care</b>					
<i>Category of need<sup>a</sup></i>	<i>n</i>	<i>%</i>	<i>Voluntary entry?</i>	<i>n</i>	<i>%</i>
Abuse or neglect	2,189	53.7	Yes	2,546	62.5
Child's disability	79	1.9	No	1,530	37.5
Parental disability	284	7.0	<i>Placement setting</i>		
Family in acute stress	506	12.4	Foster care	3,599	88.3
Family dysfunction	614	15.1	Group care	413	10.1
Unacceptable behaviour	184	4.5	Other	64	1.6
Low income	15	0.4	<i>Placed in kin foster care?</i>		
Absent parenting	205	5.0	Yes	295	7.2
<i>Previous history of care?</i>			No	3,781	92.8
Yes	678	16.6			
No	3,398	83.4			
<b>At index exit</b>					
<i>Placement changes</i>	<i>n</i>	<i>%</i>	<i>In care voluntarily?</i>	<i>n</i>	<i>%</i>
None	2,456	60.3	Yes	2,502	61.4
1 to 4 changes	1,518	37.2	No	1,574	38.6
5+ changes	102	2.5	<i>Type of placement</i>		
<i>Duration of episode</i>			Foster care	3,564	87.4
Mean	297 days		Group care	423	10.4
Median	93 days		Other	89	2.2
<12 months	2,103	51.6	<i>Placed in kin foster care?</i>		
12+ months	1,973	48.4	Yes	638	15.7
			No	3,438	84.3
<i>Average placement length</i>			<i>Type of exit<sup>c</sup></i>		
<3 months	2,136	52.4	Returned home	2,560	62.8
3-9 months	989	24.3	Placed with parents	598	14.7
9+ months	951	23.3	Special guardianship	337	8.3
<i>Early instability of care?<sup>b</sup></i>			Residence order	190	4.7
Yes	669	16.4	Other	391	9.6
No	3,407	83.6			

<sup>a</sup>Though there may be multiple reasons why a child enters out-of-home care, only one can be recorded in the Children Looked After (CLA) dataset. When more than one applies to a case the highest ordered reason in the list is chosen. <sup>b</sup>I defined early instability of care as 2+ placement changes in the first 100 days of care (as per (Akin, 2011)). <sup>c</sup>Children who exit out-of-home care by returning home are no longer under the supervision of social services, whereas children who exit out-of-home care by being placed with their parents continue to be supervised. Periods of being looked after that ceased for any other reason are recorded as "other" in the CLA dataset.

#### 8.4.2 Re-entries to out-of-home care

Overall, 35.3% of children ( $n=1,438$ ) re-entered out-of-home care within 5 years of exit (Figure 8-2). On average, re-entry occurred within 1 year of exit (mean time to re-entry: 326 days). However, the median time to re-entry was 154 days, a fifth of re-entries (19.7%) occurred within 1 month of exit and more than a third (37.6%) occurred within 3 months. There was no significant difference in the time to re-entry between boys and girls (as summarised in Table 8-3 and Figure 8-3). However, children aged 11-15 years when exiting care re-entered more quickly (mean time to re-entry: 272 days) and children of Black ethnicity re-entered more slowly (mean time to re-entry: 407 days).



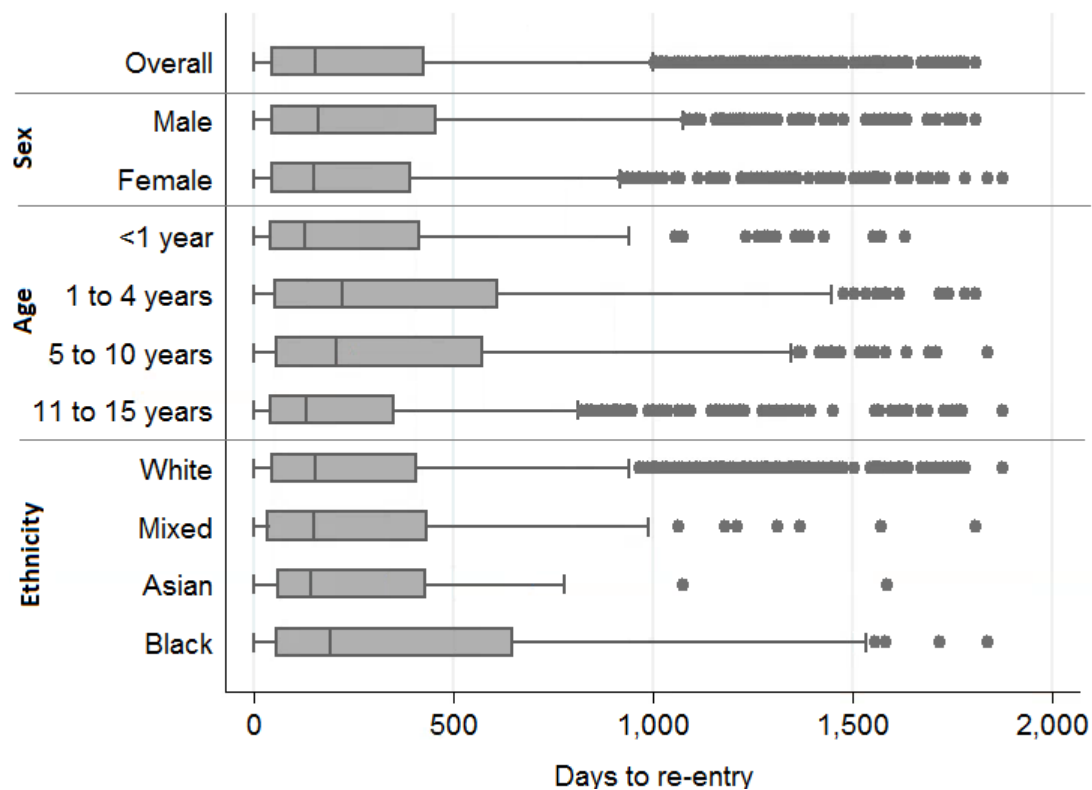
**Figure 8-2 Re-entry to out-of-home care among children aged <16 years who exited care in 2008 (N=4,076)**

Figure 8-2 shows the cumulative percentage of children aged <16 years when exiting out-of-home care who re-entered within 5 years. Children who exited out-of-home care because they were adopted or sentenced to custody were not included in this cohort.

**Table 8-3 Days to re-entry to out-of-home care within 5 years among children aged <16 years who exited care in 2008, by demographic characteristics (N=1,438)**

		Mean	Median	p-value
Sex	Male	343	161	(ref)
	Female	307	153	<b>&lt;0.001</b>
Ethnicity	White	321	154	(ref)
	Mixed	291	153	0.44
	Asian	289	145	0.61
	Black	407	191	<b>0.02</b>
	Other	412	107	0.45
Age group	<1 year	345	130	(ref)
	1 to 4 years	400	223	0.25
	5 to 10 years	397	207	0.27
	11 to 15 years	272	132	<b>0.04</b>

Bold denotes significance at level  $p < 0.05$  using a  $\chi^2$  test.



**Figure 8-3 Time to re-entry to out-of-home care within 5 years among children aged <16 years who exited care in 2008, by demographic characteristics (N=1,438)**

Figure 8-3 shows the distribution of time to re-entry to out-of-home care among the 1,438 children who exited in 2008 aged <16 years and re-entered care within 5 years.

The majority of children (82.4%) re-entered care for the same category of need as had been recorded in their previous episode of care. However, approximately one in ten children (11.3%,  $n=85$ ) who had previously been looked after for reasons that were not related to abuse or neglect, re-entered care under this category of need. Children who re-entered care within 3 months were more likely to re-enter care for the same reasons than children who re-entered care after longer periods of time (91.4% vs 71.6% of children re-entering care after 1 year, for example).

**Table 8-4 Cross-tabulation of category of need at exit and re-entry to care (N=1,438)**

		Category of need at re-entry to care							
		Abuse or neglect	Child's disability	Parental disability	Family in acute stress	Family dysfunction	Socially unacceptable behavior	Low income	Absent parenting
Category of need at exit from care	Abuse or neglect	<b>89.5%</b>	-	1.2%	1.8%	4.7%	1.6%	0.3%	1.0%
	Child's disability	2.9%	<b>79.4%</b>	2.9%	5.9%	-	5.9%	-	2.9%
	Parental disability	16.0%	-	<b>70.8%</b>	7.5%	4.7%	0.9%	-	-
	Family in acute stress	10.8%	-	2.2%	<b>75.3%</b>	6.5%	3.0%	-	2.2%
	Family dysfunction	13.5%	-	0.4%	4.0%	<b>78.2%</b>	3.6%	-	0.4%
	Unacceptable behaviour	5.4%	-	1.1%	3.2%	10.8%	<b>78.5%</b>	-	1.1%
	Low income	20.0%	-	-	-	40.0%	-	<b>40.0%</b>	-
	Absent parenting	5.9%	-	2.9%	5.9%	5.9%	2.9%	-	<b>76.5%</b>

*Bold highlights the percentage of children re-entering care under the same category of need. N for each category of need at exit from care is given in Table 8-2.*

### 8.4.3 Factors associated with re-entry to out-of-home care

As hypothesised, the proportion of children who re-entered care varied significantly by child characteristics, such as age group at exit and ethnic category (Table 8-5). For example, just 26.1% of children of Asian, Black or Other ethnicity re-entered out-of-home care within 5 years compared to 37.6% of children of White or Mixed ethnicity ( $p<0.001$ ).

**Table 8-5 Univariable association between child characteristics and re-entry to care within 5 years from Cox proportional hazards model**

		Re-enters care	HR	95% CI	p-value
Sex	Male	35.8%	(ref)		
	Female	34.7%	0.94	0.85-1.04	0.25
Age group at exit	<1 year	31.0%	(ref)		
	1 to 4 years	24.5%	0.74	0.60-0.91	<b>0.004</b>
	5 to 11 years	29.7%	0.89	0.73-1.10	0.28
	11 to 15 years	46.9%	1.71	1.41-2.06	<b>&lt;0.001</b>
Ethnic category <sup>a</sup>	Black, Asian or Other	26.1%	(ref)		
	White or Mixed	37.6%	1.63	1.40-1.89	<b>&lt;0.001</b>

HR=hazard ratio; CI=confidence interval. Bold denotes significance at level  $p<0.05$ . <sup>a</sup>The assumption of proportional hazards was only met when ethnicity was binarised as 'White or Mixed' versus 'Asian, Black or Other'. Ethnicity was not recorded for 0.5% of children ( $n=19$ ).

Similarly, as hypothesised, the proportion of children re-entering care within 5 years also varied by care characteristics (Tables 8-6 and 8-7). At the beginning of an episode of care, a previous care history, placement in a group care setting and entering care voluntarily were associated with increased hazards of re-entry in univariable Cox proportional hazards models (Table 8-6). In contrast, being placed in kin foster care was associated with a decreased hazard of re-entry. Longer placements and fewer placement changes were similarly associated with lower hazards of re-entering care (Table 8-7). Re-entry to out-of-home care within 5 years varied by the type of exit from care, from 40.5% of children who were returned home to 4.2% of those exiting via an SGO.



**Table 8-6 Univariable association between episode characteristics at entry to care and re-entry within 5 years from Cox proportional hazards model**

		Re-enters care	HR	95% CI	p-value
<i>Category of need<sup>a</sup></i>	Abuse or neglect	31.2%	(ref)		
	Child disability	41.8%	1.32	0.94-1.86	0.11
	Parental health	37.3%	1.13	0.92-1.39	0.25
	Family stress/dysfunction	43.0%	1.47	1.31-1.66	<b>&lt;0.001</b>
	Unacceptable behavior	50.5%	1.81	1.46-2.25	<b>&lt;0.001</b>
	Absent parenting	16.6%	0.43	0.31-0.61	<b>&lt;0.001</b>
<i>Previous care history?</i>	No	32.5%	(ref)		
	Yes	49.3%	1.85	1.64-2.09	<b>&lt;0.001</b>
<i>Voluntary entry?</i>	No	26.5%	(ref)		
	Yes	40.6%	1.54	1.37-1.73	<b>&lt;0.001</b>
<i>Placement setting</i>	Family or other	34.3%	(ref)		
	Group	43.8%	1.09	1.02-1.18	<b>0.04</b>
<i>Placed in kin foster care?</i>	No	36.4%	(ref)		
	Yes	20.4%	0.46	0.36-0.60	<b>&lt;0.001</b>

HR=hazard ratio; CI=confidence interval. Bold denotes significance at level  $p < 0.05$ . <sup>a</sup>Though there may be multiple reasons why a child enters out-of-home care, only one can be recorded in the Children Looked After (CLA) dataset. The highest ordered reason in the list is chosen when more than one applies to a case. As there was no significant difference between the survival curves of children in care due family dysfunction, acute stress or low income, I combined these categories of need.

**Table 8-7 Univariable association between episode characteristics at exit from care and re-entry within 5 years from Cox proportional hazards model**

		Re-enters care	HR	95% CI	p-value
<i>Placement changes</i>	None	32.8%	(ref)		
	1 to 4	35.6%	1.22	1.10-1.36	<b>&lt;0.001</b>
	5+	64.7%	2.90	2.09-3.62	<b>&lt;0.001</b>
<i>Duration of episode</i>	<12 months	38.7%	(ref)		
	12+ months	31.6%	0.87	0.78-0.96	<b>&lt;0.001</b>
<i>Average placement length</i>	<3 months	42.7%	(ref)		
	3-9 months	33.9%	0.84	0.74-0.95	<b>0.01</b>
	9+ months	20.1%	0.42	0.36-0.50	<b>&lt;0.001</b>
<i>Early instability of care?<sup>a</sup></i>	No	33.9%	(ref)		
	Yes	42.5%	1.77	1.55-2.02	<b>&lt;0.001</b>
<i>Placement category</i>	Family	33.2%	(ref)		
	Group	52.0%	2.07	1.79-2.39	<b>&lt;0.001</b>
	Other	38.2%	1.30	0.92-1.83	0.13
<i>In care voluntarily?</i>	No	24.7%	(ref)		
	Yes	42.0%	1.52	1.35-1.71	<b>&lt;0.001</b>
<i>Placed in kin foster care?</i>	No	38.6%	(ref)		
	Yes	17.2%	0.35	0.29-0.43	<b>&lt;0.001</b>
<i>Type of exit<sup>b</sup></i>	Returned home	40.5%	(ref)		
	Placed with parents	39.8%	1.09	0.77-1.38	0.89
	Special guardianship	4.2%	0.08	0.04-0.13	<b>&lt;0.001</b>
	Residence order	8.9%	0.17	0.10-0.27	<b>&lt;0.001</b>
	Other	34.0%	0.83	0.69-0.99	<b>0.04</b>

HR=hazard ratio; CI=confidence interval. Bold denotes significance at level  $p<0.05$ . <sup>b</sup>I defined early instability of care as 2+ placement changes in the first 100 days of care (as per (Akin, 2011)). <sup>c</sup>Children who exit out-of-home care by returning home are no longer under the supervision of social services, whereas children who exit out-of-home care by being placed with their parents continue to be supervised. Periods of being looked after that ceased for any other reason are recorded as "other" in the CLA dataset.

In the multivariable Cox proportional hazards model, adjusting for other factors, children aged 11-15 years when exiting care were more likely than younger children to re-enter within 5 years (Table 8-8, HR<sub>adj</sub>: 1.49; 95%CI: 1.27-1.76,  $p<0.001$ ). Similarly, children of White or Mixed ethnicity were more likely to re-enter out-of-home care compared to children of Asian, Black or Other ethnicity (HR<sub>adj</sub>: 1.50; 95%CI: 1.27-1.76,  $p<0.001$ ). A consistent association with a previous history of out-of-home care and number of placement changes was also evident. Children who had already exited and re-entered out-of-home care were 44% more likely to re-enter within 5 years than children exiting care for the first time. Those who had experienced 5+ placement changes while in out-of-home care were 56% more likely to re-enter compared to children who had not changed placement.

Other care characteristics were associated with re-entry to care, but had time-varying effects (Table 8-8). For example, being in voluntary care rather than compulsory care was associated with a higher hazard of re-entry to out-of-home care; however, the level of this increased hazard diminished over time from 83% in the 3 months following exit to 47% 1-5 years after exit. Similarly, longer placements were associated with lower likelihood of re-entry, but the strength of this association also decreased over time.

The association with category of need also varied over time: children who were in care due to disability were more likely to re-enter care in the long-term (i.e. 1-5 years following exit) but there were no significant associations with earlier re-entries (i.e. within 3 months or 3-12 months). Children in care due to family stress, dysfunction or low income were more likely to re-enter care in the short term (i.e. within 3 months) and those in care due to absent parenting were less likely to re-enter care throughout the 5-year follow-up period. Accounting for other factors, children who were placed with their parents had a higher likelihood of re-entering out-of-home care than those who were returned home throughout the 5-year follow-up period. Conversely, children who exited via special guardianship or residence orders were consistently less likely to re-enter care.

**Table 8-8 Multivariable associations between child and care characteristics and re-entry to care within 5 years from Cox proportional hazards model**

	Re-enter 0-3 months			Re-enter 3-12 months			Re-enter 1-5 years		
<b>Child characteristics</b>	<b>HR<sub>adj</sub></b>	<b>95% CI</b>	<b>p-value</b>	<b>HR<sub>adj</sub></b>	<b>95% CI</b>	<b>p-value</b>	<b>HR<sub>adj</sub></b>	<b>95% CI</b>	<b>p-value</b>
<i>Age group at exit</i>									
<1 year	(ref)			(ref)			(ref)		
1 to 4 years	0.95	0.77-1.18	0.64	0.95	0.77-1.18	0.64	0.95	0.77-1.18	0.64
5 to 11 years	1.12	0.91-1.39	0.30	1.12	0.91-1.39	0.30	1.12	0.91-1.39	0.30
11 to 15 years	1.49	1.27-1.76	<0.001	1.49	1.27-1.76	<0.001	1.49	1.27-1.76	<0.001
<i>Ethnic category</i>									
Black, Asian or Other	(ref)			(ref)			(ref)		
White or Mixed	1.50	1.27-1.76	<0.001	1.50	1.27-1.76	<0.001	1.50	1.27-1.76	<0.001
<b>Care characteristics at entry</b>									
<i>Category of need</i>									
Abuse or neglect	(ref)			(ref)			(ref)		
Child disability	1.30	0.75-2.27	0.35	0.88	0.45-1.72	0.70	1.45	1.03-1.78	0.04
Parental health	0.90	0.62-1.32	0.58	1.09	0.76-1.56	0.63	1.23	0.87-1.74	0.24
Family stress or dysfunction	1.48	1.22-1.80	<0.001	1.17	0.95-1.45	0.14	0.96	0.76-1.21	0.72
Socially unacceptable behavior	1.09	0.74-1.60	0.66	1.60	1.12-2.29	0.01	1.36	0.87-2.13	0.18
Absent parenting	0.54	0.31-0.94	0.03	0.44	0.25-0.80	0.01	0.35	0.17-0.71	0.004
<i>Previous care history?</i>									
No	(ref)			(ref)			(ref)		
Yes	1.44	1.26-1.64	<0.001	1.44	1.26-1.64	<0.001	1.44	1.26-1.64	<0.001

(continued overleaf)

	Re-enter 0-3 months			Re-enter 3-12 months			Re-enter 1-5 years		
Care characteristics at exit	HR <sub>adj</sub>	95% CI	p-value	HR <sub>adj</sub>	95% CI	p-value	HR <sub>adj</sub>	95% CI	p-value
<i>Average placement length</i>									
<3 months	(ref)			(ref)			(ref)		
3-9 months	0.46	0.36-0.59	<0.001	1.04	0.84-1.29	0.47	1.18	0.93-1.48	0.17
9+ months	0.34	0.25-0.47	<0.001	0.51	0.43-0.77	<0.001	0.61	0.46-0.83	0.001
<i>Placement changes</i>									
No changes	(ref)			(ref)			(ref)		
1 to 4 changes	1.03	0.87-1.28	0.63	1.03	0.87-1.28	0.63	1.03	0.87-1.28	0.63
5+ changes	1.56	1.50-1.64	<0.001	1.56	1.50-1.64	<0.001	1.56	1.50-1.64	<0.001
<i>In care voluntarily?</i>									
No	(ref)			(ref)			(ref)		
Yes	1.83	1.35-2.46	<0.001	2.03	1.50-2.76	<0.0001	1.47	1.09-1.91	0.01
<i>Type of exit</i>									
Returned home	(ref)			(ref)			(ref)		
Placed with parents	6.64	4.58-9.63	<0.001	9.72	6.69-14.1	<0.001	6.50	4.54-9.29	<0.001
Special guardianship order	0.01	0.01-0.03	<0.001	0.15	0.05-0.42	<0.001	0.26	0.13-0.51	<0.001
Residence order	0.15	0.04-0.63	0.01	0.40	0.20-0.83	<0.001	0.27	0.13-0.58	0.001
Other	1.21	0.93-1.58	0.16	0.79	0.57-1.11	0.17	0.57	0.38-0.78	0.01

HR<sub>adj</sub>=adjusted hazard ratio; CI=confidence interval. Bold denotes significance at level  $p < 0.05$ . The three time intervals I identified as having proportional hazards were: 0-3 months, 3-12 months and 1-5 years. The corresponding columns in Table 8-8 present the hazard ratio of re-entry among the sample still at risk of re-entry during this period (i.e. excluding children who had already re-entered care). The sample sizes (N) for each interval were: 4,076 for 0-3 months; 3,535 for 3-12 months; 3,054 for 1-5 years. Theta for shared frailty by local authority in the Cox proportional hazards model was 0.07,  $p = 0.001$ .

#### **8.4.4 Estimating the absolute risk of re-entering out-of-home care**

As hypothesised, it was possible to estimate the likelihood of re-entering out-of-home care within 3 months based on child and care characteristics at exit. The model that I developed to estimate the absolute risk of re-entry to out-of-home care within 3 months used the baseline hazard function at this point in time and the proportional hazard ratios of the following factors (as per Table 8-8):

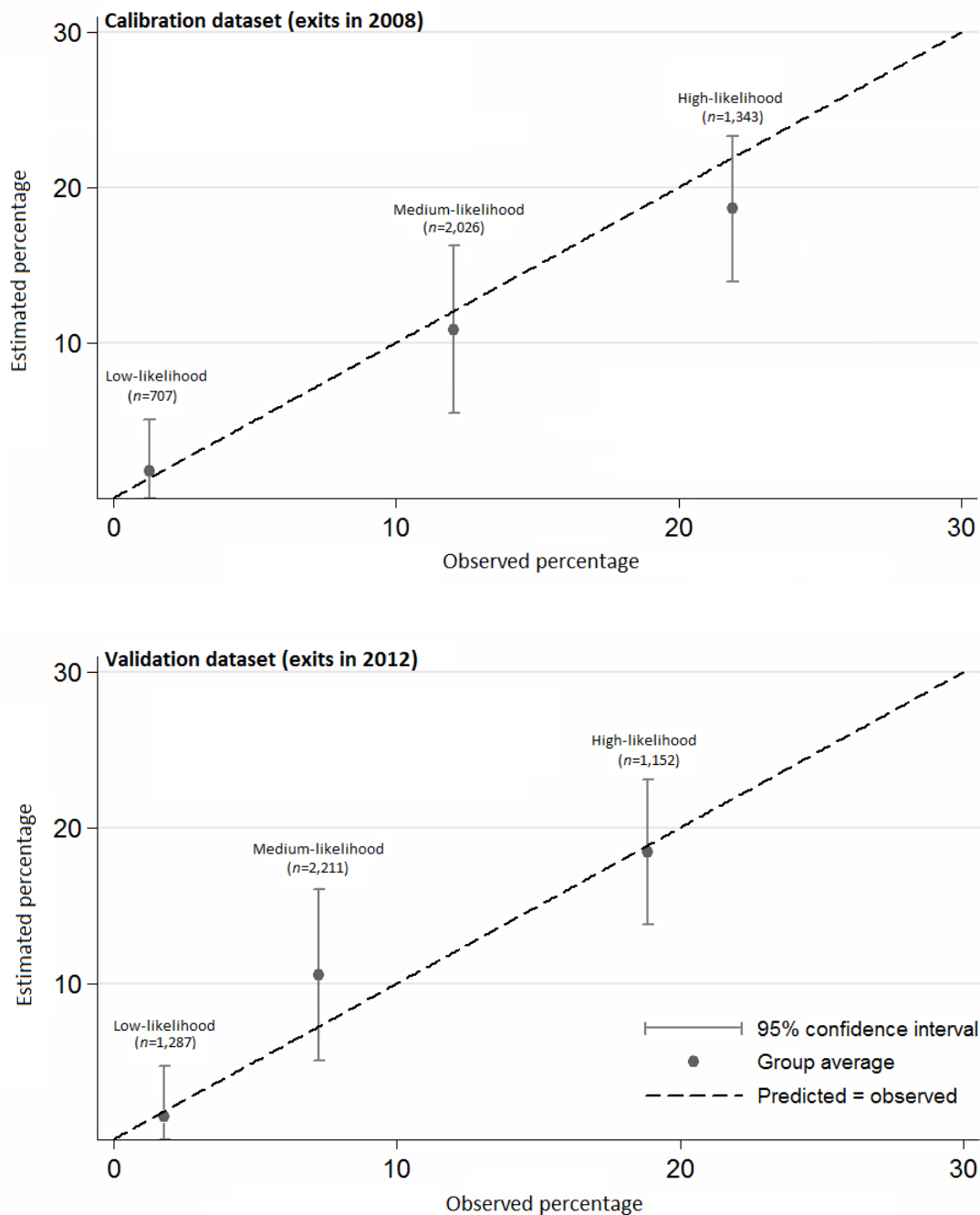
- age group at exit
- ethnic category
- category of need
- previous history of care
- length of current episode of out-of-home care
- legal status of episode at the time exit
- the mode of exit from care.

As previously mentioned, I included the length of the current episode of care in lieu of average placement length within a period of care because this information is likely to be more readily available to practitioners.

My estimation model had a Harrell's *c*-index of 0.79, Brier score of 0.11 and AUC of 0.78, which indicated good discrimination between children who did and did not re-enter care. Figure 8-4 illustrates that there was very good agreement between the likelihood of re-entry to care within 3 months that was estimated by my model and the actual proportion of children in each likelihood category that had re-entered care within 3 months. Overall, I categorised 17.4% of children who exited care in 2008 ( $n=707$ ) as low-likelihood for re-entering care within 3 months, 49.7% ( $n=2,026$ ) as medium-likelihood and 32.9% ( $n=1,343$ ) as high-likelihood. The estimated likelihood of re-entry for each group from my estimation model were <1%, 10.9% and 18.6% respectively, and the actual proportions that re-entered were <1%, 12.0% and 21.9%. Older children, those of White or Mixed ethnicity and those in care due to a disability were over-represented in the high-likelihood group (see Table 8-9). For example, 71.0% of children in the high-likelihood group were aged 11-15 years compared to 39.8% of the overall population. Likewise, children

who had been in care for longer, in compulsory care, were exiting care for the first time and who exited via a special guardianship or residence order were over-represented in the low-likelihood group. For example, 45.0% of children in the low-likelihood group left care through a special guardianship order compared to just 8.3% of the overall population.

When I applied my estimation model to the validation dataset of children who exited care in 2012, the Brier score was 0.07, the AUC was 0.75 and there was good agreement between the estimated likelihood of re-entry to out-of-home care and the actual proportion of children who re-entered care within 3 months, particularly for the low- and high-likelihood groups (see Figure 8-4). Among children who exited care in 2012, I categorised 27.7% ( $n=1,287$ ) as low-likelihood for re-entering out-of-home care within 3 months, 47.5% ( $n=2,211$ ) as medium-likelihood and 24.8% ( $n=1,152$ ) as high-likelihood. The estimated rates of re-entry for each group were 1.4%, 10.5% and 18.4% respectively, and the actual observed rates were 1.7%, 7.2% and 18.8%.



**Figure 8-4 Observed versus estimated percentage of children re-entering care within 3 months**

Figure 8-4 shows the actual observed percentage of children who re-entered out-of-home care within 3 months versus the percentage estimated by my model for children who exited in 2008 (calibration dataset, N=4,076) and 2012 (validation dataset, N=4,650). Children were grouped as low-, medium- or high-likelihood based on their demographic and care characteristics (detailed in Table 8-9). Based on this validated estimation model, I then created a simple, online tool that could be used to calculate a group's likelihood of re-entering out-of-home care within 3 months, based on demographic and care characteristics. A beta version of my 'likelihood of re-entry to care' tool is available at: <https://louisemcqrathlone.com/tools/>



**Table 8-9 Characteristics of children assigned to the low-, medium-, and high-likelihood of rapid re-entry to care groups (%)**

Dataset (year of exit)	Calibration (2008)			Validation (2012)		
	Low (707)	Medium (2,026)	High (1,343)	Low (1,287)	Medium (2,211)	High (1,152)
<i>Age group at exit</i>						
<1 year	6.7	13.4	8.8	10.2	15.0	8.1
1 to 4 years	59.8	32.2	1.5	54.0	32.8	1.2
5 to 10 years	23.5	24.9	18.8	27.3	27.5	21.6
11 to 15 years	10.0	29.5	71.0	8.5	24.7	69.1
<i>Ethnic category<sup>a</sup></i>						
White	65.1	64.4	84.2	72.6	67.0	81.7
Mixed	10.0	10.1	7.7	10.1	10.0	9.3
Asian	6.8	7.5	2.2	5.1	6.7	2.4
Black	15.7	14.5	4.5	9.4	12.7	4.7
Other	2.4	3.0	0.7	2.3	2.5	0.8
<i>Category of need<sup>b</sup></i>						
Abuse or neglect	67.8	60.1	36.7	70.2	65.7	43.7
Child's disability	0.1	0.2	5.6	0.0	0.4	5.3
Parental disability	8.5	8.1	4.4	6.8	5.6	2.5
Family in acute stress	5.1	9.3	21.1	5.5	7.5	17.8
Family dysfunction	9.5	11.0	24.0	13.0	14.0	26.6
Unacceptable behavior	1.0	3.8	7.5	0.6	2.7	3.9
Low income	0.4	0.3	0.5	0.4	0.2	0.2
Absent parenting	7.6	7.3	0.2	3.6	4.0	0.1
Previous care history?	87.6	88.1	74.1	90.3	90.0	77.1
Voluntary care at exit	11.0	54.9	97.7	15.1	54.2	97.1
<i>Duration of episode</i>						
<3 months	6.7	32.5	64.7	3.5	27.2	61.9
3-9 months	17.3	13.7	2.2	16.7	14.6	2.5
9+ months	76.0	53.8	33.1	79.8	58.2	35.6
<i>Type of exit</i>						
Returned home	20.1	62.0	86.5	10.3	59.7	88.0
Placed with parents	7.9	26.0	1.2	4.0	26.3	2.3
Special guardianship	45.0	0.9	-	61.9	3.9	-
Residence order	21.9	1.7	-	21.9	3.3	0.2
Other	5.1	9.4	12.3	1.9	6.8	9.5

Table 8-9 shows the distribution of characteristics included in my estimation model for children in the calibration and validation datasets. <sup>a</sup>Ethnicity was not recorded for 0.5% (n=19) of children exiting care in 2008 and 1.0% (n=45) of children exiting care in 2012. <sup>b</sup>Though there may be multiple reasons why a child enters out-of-home care, only one can be recorded in the Children Looked After (CLA) dataset. When more than one applies to a case the highest ordered reason in the list is chosen.

## **8.5 Discussion**

### **8.5.1 Summary of findings**

Overall, more than one-third of children exiting out-of-home care in 2008 re-entered within 5 years. However, most re-entries occurred within 1 year of exit and almost 40% within 3 months. The likelihood of exiting and re-entering care was associated with both child and care characteristics. Higher rates of re-entry were associated with older age when exiting out-of-home care, being of White or Mixed ethnicity, returning home when exiting care and shorter average duration of care placements. Based on these associations, it was possible to estimate which groups were most likely to re-enter care within 3 months of exit.

### **8.5.2 Strengths and limitations**

There have been several studies quantifying the proportion of children who re-enter care in England; however, these have been limited to sub-national samples of children or focused on those who exit the out-of-home care system in a particular way (Farmer & Lutman, 2012; Farmer & Wijedasa, 2013; Wade *et al.*, 2010, 2014). Therefore, a key strength of this analysis is that it was based on a large, national sample of data and included all children who returned home, were placed with their parents or left care via a legal order. A further strength is that prior to conducting Cox proportional hazards modelling I thoroughly explored whether the crucial assumption of proportionality of hazards was true. As a result, I was able to identify and account for time-varying hazards in my analysis and ultimately provide a more robust and detailed description of the influence of child and care factors on re-entry. Finally, I was able to develop a model that translated relative hazard ratios into an absolute measure of likelihood. A strength of this approach is that absolute measures provide a sense of the scale of the outcome of interest and are easier to interpret than relative measures (Hernán, 2010).

One limitation of my re-entry analysis is that it did not include the small proportion of children (6.3%) who left care in 2008 aged 16+ years or those who exited care through a custodial sentence (1.1%). Furthermore, my re-entry analysis could not include children who were adopted as it is not possible to link pre- and post-

adoption records of care in the CLA dataset. As a result, the overall rate of re-entry I calculated is likely to be an under-estimation of the true value for the total looked after child population. In addition, limitations in the range and granularity of information collected in the CLA dataset meant that I could not distinguish between planned and unplanned exits and re-entries; nor could my analyses account for variation in important parental or child risk factors that have been associated with re-entry to care in other studies, such as type of abuse, family composition, mental or physical health conditions, exposure to violence or substance misuse (Barth *et al.*, 2008; Liao & White, 2014; Testa *et al.*, 2015; White, 2016; Yampolskaya, Armstrong & Vargo, 2007).

### **8.5.3 Comparison of findings to other studies**

The rate of re-entry to care among children who returned home to their parents in my analysis differed from those reported elsewhere. For example, one case series study of children who returned home to their birth parents estimated that 65% had re-entered care within 5 years (Farmer & Lutman, 2012) and an analysis of CLA data by the DfE found that of children who returned home between the 1<sup>st</sup> April 2006 and the 31<sup>st</sup> March 2007, 29.7% had re-entered care within 5 years (Department for Education, 2013c). In contrast, I estimated that 40.5% of children who returned to their parents re-entered care within 5 years. However, Farmer and Lutman (2012) only included maltreated children in their sample, whereas the DfE and my analysis included all children who returned home, regardless of their category of need. My analysis similarly excluded children who exited care aged 16+ years; however, these children were included in the DfE analysis. Given that both category of need and age at exit were associated with re-entry care, it is plausible that (at least some of) the difference in these estimates of re-entry to care may be attributable to differences in the underlying samples.

In my analysis, the one in eight children (13.0%) who exited care via a special guardianship or residence order were least likely to re-enter (4.2% and 8.9% within 5 years, respectively). These estimates of re-entry were slightly lower than those described elsewhere. For example, Wade *et al.* (2014) reported that 5.7% of SGOs had broken down within 5 years and Selwyn, Wijedasa and Meakings (2014)

estimated that 14.7% of residence orders had broken down in the same period. Both studies used the same source of administrative data that I used in my analysis; however, the difference in estimates may be because older adolescents were not included in my sample. Alternatively, it could also be possible that the rate of breakdown has decreased over time, given that the other studies related to children who exited care before 2008. Further work to explore changes over time in the rate of re-entry to care would be useful. Analyses of adoption breakdown would be particularly valuable, given the current focus on increasing the number and speed of adoptions in England (Department for Education, 2012). I could not explore adoption breakdown in my study due to limitations of the administrative dataset, but this may be possible in the future as information on re-entry to out-of-home care following adoption has been collected in the CLA dataset since 2013. However, as adoption appears to be a key government policy further work is urgently required to determine how retrospective linkage to enable long-term follow-up could be achieved, particularly given the barriers to data linkage previously discussed in Chapter 5.

#### **8.5.4 Main implications of findings**

One of the main implications of this analysis is it provides further evidence of the comparatively lower rates of re-entry associated with SGOs, which may be useful for policy makers and service providers. However, it is important that the selection bias associated with the use of SGOs is acknowledged. Not all children in out-of-home care will be able (or want) to achieve this type of care arrangement and legal permanence (Wade *et al.*, 2014). Although I controlled for differences in available demographic and care characteristics between children who exited care via SGOs, it is likely that there are other differences in child or parental risk factors that are not recorded in the CLA dataset that may account for some of the variation in the observed rates of re-entry. Rigorous comparative studies are required to fully understand the effectiveness of arrangements for exiting the out-of-home care system; however, these are generally lacking in relation to the evaluation of out-of-home care interventions (Maclean, Sims, O'Donnell & Gilbert, 2016).

Category of need was an important factor associated with re-entry to care. The quarter of children (28.0%) who were in out-of-home care due to family dysfunction, acute stress or low income had the highest rate of re-entry to care (43.0% within 5 years). Moreover, more than 80% of re-entries in this group were for the same reason. Indeed, overall, the majority of children (82.4%) re-entered care for the same category of need as had been recorded in their previous episode of care. Children who re-entered care within 3 months were even more likely to re-enter care for the same reasons than children who re-entered care after longer periods of time (91.4% vs 71.6% of children re-entering care after 1 year, for example). This suggests that some children may be exiting out-of-home care before the issues that led them to enter care initially have been resolved.

Children who were placed in care voluntarily were more likely to re-enter out-of-home care. One possible explanation for this observed association is that parents can withdraw consent for a voluntary care placement, at any time and without reason. Therefore, it is likely that a proportion of these exits will have received less professional scrutiny and may not have met thresholds for exits that would be required for an episode of compulsory out-of-home care to end. However, the higher rate of re-entry associated with voluntary placements may also be due to increased use of trial periods at home before permanent exits from out-of-home care: although, according to DfE guidance (Department for Education, 2017e), such trial periods should be coded as temporary placements, rather than placements with parents. Without being able to distinguish between planned and unplanned exits, it is difficult to interpret the increased likelihood of re-entry to out-of-home care for children on voluntary placements. There is however potential for further work as this information has been collected in the CLA dataset since 2014.

Characteristics of children's care histories were also associated with rates of re-entry in my analysis. For example, a previous exit and re-entry to out-of-home care was strongly and consistently associated with an increased hazard of another re-entry. Although the proportion of children who had experienced repeated entries to out-of-home care was relatively small (16.6%), almost half the group re-entered within 5 years and so they represent a group that could be targeted for additional

support. Currently, official government statistics and reports tend to focus on experiences of care during a 12-month period (Department for Education, 2017f). However, my findings highlight the importance of taking a longer term view when analysing data related to looked after children.

To create a more robust evidence base for guiding policy and practice development, analyses of re-entry to care should take a longitudinal, life course approach that accounts for cumulative experiences of out-of-home care throughout childhood. For example, I found that the total number of placement changes and the average placement length were more significant predictors than the duration of the current episode of care. Similarly, although early instability in care (i.e. 2+ placement moves during the first 100 days) had been associated with increased likelihood of re-entry to care in other studies (Akin, 2011), it was not a significant factor in my analysis. This suggests that initial difficulties achieving placement stability may be negated in the long-term with consistent, stable care.

In the context of out-of-home care, decision-making is often guided or informed by risk assessment tools (Gambrill & Shlonsky, 2000; Shlonsky, 2015). However, I do not suggest that the estimation model or online tool I created should be used for individual care planning or decision-making. The likelihood of rapid re-entry to out-of-home care that is estimated by my model is based on a very limited number of group-level characteristics from a national population and results should not be extrapolated to individual cases. In creating this tool, my primary aim was to communicate complex findings related to re-entry to care in a more accessible way. This could help to enhance social care practitioners understanding of which groups of children are most likely to rapidly re-enter out-of-home care and who may be in need of additional support and monitoring when leaving care.

There are some practical, population-level applications of my estimation model that may be appropriate. Given that more than 40% of re-entries occur within 3 months of exit, my estimation model may also be useful for informing service planning. Based on the size and profile of a population of looked after children, the number who are likely to return to out-of-home care within 3 months could be estimated by

calculating the proportion of the population in each likelihood category and their mean probability of re-entry. This application would be most appropriate at a national level as my model is based on national data and includes a shared frailty effect to account for local authority-level effects on the likelihood of children re-entering care. Consequently, it is unlikely that national estimates of likelihood would be accurate at a local authority-level, given the differences in policy, practice and availability of resources. With further work it may be possible to adapt my model for use at a local authority level; however, it may be less accurate due to small sample sizes.

Though movements in and out of the care system are considered a disruption to permanence for already vulnerable children, it is important to re-iterate the point that re-entry to out-of-home care is not an intrinsically negative outcome. For example, a series of planned placements with parents that aim to transition a child out of foster care gradually may be preferable to a sudden return home, for both parents and children (Department of Families, Housing, Community Services and Indigenous Affairs, 2010). Similarly, remaining outside the care system cannot be considered a positive outcome if a child is unhappy or exposed to harm (NSPCC, 2012; Fuller, 2005). Hence, any re-entry to out-of-home care that is in the best interests of safeguarding and nurturing a child must be viewed positively. However, in a climate of financial cutbacks and growing pressure on social care systems, the challenge is to ensure that avoidable re-entries to out-of-home care (e.g., due to a lack of support or poor planning) are prevented through more effective use of increasingly scarce resources and better targeting of groups who may be highly-likely to re-enter care.

## 8.6 Key points from Chapter 8

- I analysed administrative data for a large, representative sample of children who exited out-of-home care in 2008 to further explore the stability of care histories, by quantifying the proportion that re-enter care, describing the time to re-entry and identifying child and care characteristics associated with an increased likelihood of rapid re-entry to care.
- More than a third of children re-entered care within 5 years and a large proportion of these re-entries (37.6%) occurred within 3 months and under the same category of need (91.4%). This suggests that for some groups of children the issues underlying their need for out-of-home care may not have been adequately addressed at the time of exit.
- Not all children were equally likely to re-enter out-of-home care. Higher rates of re-entry were associated with an older age when exiting care, being of White or Mixed ethnicity, returning home and a shorter average placement duration. Based on these associations, it was possible to estimate which groups were most likely to re-enter care within 3 months. Such groups may be in need to additional support and monitoring when leaving care.



## Chapter 9 Changes over time in the use of out-of-home care

### Statement of authorship

I carried out all of the work presented in this chapter, which has been published as part of two peer-reviewed journal articles in *Child Abuse and Neglect* (reproduced in full in Appendix H-1).

### 9.1 Content and structure of Chapter 9

Hitherto, I have described the use of out-of-home care in terms of the proportion of children who are placed in care (Chapter 4), the characteristics of care histories (Chapters 5 and 6) and their stability (Chapters 7 and 8). In this final analysis chapter, I will outline how I described changes in these aspects of out-of-home care over time and explored some potential drivers of these changes. This set of descriptive analyses used more than 20 years' of data from the Children Looked After (CLA) dataset.

First, I will briefly outline the rationale, aim and objectives of this final part of my PhD study. Next, I will describe the methods that I used and present the results of my analyses. I will then discuss the main findings in relation to relevant published literature, the strengths and limitations of this analysis and the main implications. Finally, I will close this chapter with a summary of its key points.

## **9.2 Introduction**

### **9.2.1 How might out-of-home care have changed over time?**

Over the past two decades, children's social care services in England have been an area of considerable interest and change in terms of policy. Indeed, a report by Action for Children estimated that there were approximately 300 "different initiatives, strategies, funding streams, legislative acts and structural changes to services affecting children and young people" between 1998 and 2008 alone (Action for Children, 2008, p4).

Therefore, it is likely that there have been concurrent changes in practice related to the use of out-of-home care. For example, one of the main areas of policy interest in relation to out-of-home care has been to achieve permanence for children and care leavers. In the context of out-of-home care, discussions of permanence tend to focus on increasing the stability of care placements while in care and stability of exits when leaving care (e.g., increasing the use of adoptions). Hence, it is likely that the number of placement changes would have decreased over time while the use of legal orders aimed at achieving permanence would have increased.

According to cross-sectional statistics from the Department for Education (DfE), the number of looked after children has increased by more than 20% since 1992 (as reviewed in Section 2.4). During this period, the composition of the UK population has also changed dramatically; for instance, between 1991 and 2011 the proportion of ethnic minorities doubled from 7% to 14% (Centre on the Dynamics of Ethnicity, 2012). In Chapter 4, I highlighted that ethnic minorities were disproportionately more likely to be placed in out-of-home care than White children. Therefore, it may be possible that increases in the number of children in care described in cross-sectional DfE statistics are not due to changes in practice, but are an artefact of the changing ethnic composition of the child population.

### **9.2.2 The importance of perspective**

A limitation of cross-sectional DfE statistics is that they describe changes from a service point of view. Analyses of time trends from a child perspective are currently lacking. Given that children can be in contact with the out-of-home care system for

many years, it would be useful to understand the cumulative effects of changes in policy and practice on longitudinal care histories. Moreover, in Chapter 5, I identified that there can be a discrepancy in descriptions of care depending on whether a cross-sectional or longitudinal approach is taken. Hence, understanding changes over time from a child perspective could provide additional insights to service providers and social care practitioners.

### **9.2.3 Summary of the rationale for this analysis**

In recent decades, there has been considerable policy interest in children's social care services and numerous changes have been implemented. Concurrent changes in the use and characteristics of out-of-home care have been documented in official DfE analyses; however, as these are based on cross-sectional data, they cannot capture the cumulative effects of changes in policy and practice from a child's perspective. Analysis of administrative data taking a longitudinal approach could refine our understanding of how out-of-home care has changed over time.

### **9.2.4 Research questions and hypotheses**

1. How has the cumulative incidence of placement in out-of-home care changed over time among children in England?
2. How has increasing ethnic diversity affected the overall cumulative incidence of placement in out-of-home care?
3. How have the cumulative characteristics of first placements in out-of-home care changed over time?
4. How has the type of exit and rate of re-entry to care changed over time?

Based on the increasing numbers of looked after children described in cross-sectional statistics (as reviewed in Chapter 2), I hypothesised that the cumulative incidence of placement in out-of-home care would have increased among children in England since 1992 (Question 1). Moreover, for Question 2, I hypothesised that this increase over time would be attributable to the increased ethnic diversity of the child population in England given that my previous analysis showed that the cumulative incidence of placement in care was higher for all ethnic minorities (Chapter 4). For Question 3, I hypothesised that since the introduction of special

guardianship and residence orders as a mode of exit in 2007, the proportion of children exiting care in this way would have increased. Furthermore, as my previous analysis showed that these modes of exit were associated with lower rates of re-entry to care (Chapter 8), I hypothesised that the proportion of children re-entering care would have decreased over time. I had no pre-existing hypothesis for Question 3 as routine descriptions of out-of-home care placements in England are cross-sectional. Therefore, this analysis of the cumulative characteristics of first placements was exploratory.

### **9.2.5 Aim of this analysis**

To describe changes over time in aspects of out-of-home care have previously been explored in Chapters 4 to 8 of this thesis.

### **9.2.6 Objectives of this analysis**

- a) To compare the cumulative incidence of being placed in out-of-home care for children born between 1992 and 2012, overall and by ethnicity.
- b) To quantify the contribution of changes over time in the ethnic composition of the child population in England to concurrent changes in the cumulative incidence of placement in care.
- c) To describe key characteristics of first placements in out-of-home care for selected cohorts of children born between 1992 and 2012.
- d) To describe the type of exit and the proportion re-entering care for children who exited between 2007 and 2012.

## **9.3 Methods**

### **9.3.1 Data sources and study population**

The main data source for this set of analyses was an extract of CLA data, a routinely-collected, administrative social care dataset described in detail in Chapter 3. The data extract for this analysis contained complete care histories for one-third of children born between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 2012 who were placed in out-of-home care for non-respite reasons between the 1<sup>st</sup> January 1992 and the 31<sup>st</sup> December 2013 ( $N=93,652$ ).

To calculate the cumulative incidence of entry to out-of-home care and decompose changes over time, I derived denominator data from Office for National Statistics (ONS) mid-year population estimates (Office for National Statistics, 2017a) and ETHPOP data (Wohland, 2017). It was necessary to use ETHPOP data because ONS mid-year population estimates are not available by ethnicity and single year of age (Office for National Statistics, 2017a). I derived these denominator data for year of birth cohorts from calendar year data as per Table 9-1.

### **9.3.2 Changes in the cumulative incidence of out-of-home care**

The methods I used to identify first entries to out-of-home care and calculate the cumulative incidence of placement in care were previously described in detail in Chapter 4. To summarise, I defined first placement in out-of-home care as a child's first episode of out-of-home care for non-respite reasons. I then calculated the cumulative incidence of placement in care as the number of children who had entered care by a specified age (multiplied by 3.07 to adjust for the one-third sample) divided by the average number of children who would be that age in the relevant calendar year. For example when calculating the cumulative incidence of children born in 2000 who had entered care by age 3, the denominator was the average of the number of infants born in 2000, 1 year olds in 2001 and 2 year olds in 2002. This approach accounted for entry and exit of children from the denominator over time due to immigration, emigration and death.

When exploring changes over time in the cumulative incidence by ethnicity, I excluded children born before 2001 because there was uncertainty in both the

denominator and numerator populations. Firstly, ethnicity was not recorded in the CLA dataset before 2001 and, consequently, I would have needed to use multiple imputation to estimate the likely ethnicity of 18.4% of the total sample. However, this imputation would have been based on information from later year of birth cohorts which would not have been appropriate given the changes in ethnic distribution of the UK population over time. Secondly, the earliest calendar year for which denominator data were available was 2001. Previously, I had assumed that the ethnic distribution of the population had not changed between 1992 and 2001, but I did not feel that this was an appropriate assumption for an analysis exploring changes over time. I tested the significance of observed changes over time using a linear trend estimation test (see Appendix G-1).

**Table 9-1 Calendar year data used to derive year of birth denominator data for children born 1992 to 2012**

Year of birth	Calendar year																				
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1992	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
1993		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1994			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1995				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1996					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1997						0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1998							0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1999								0	1	2	3	4	5	6	7	8	9	10	11	12	13
2000									0	1	2	3	4	5	6	7	8	9	10	11	12
2001										0	1	2	3	4	5	6	7	8	9	10	11
2002											0	1	2	3	4	5	6	7	8	9	10
2003												0	1	2	3	4	5	6	7	8	9
2004													0	1	2	3	4	5	6	7	8
2005														0	1	2	3	4	5	6	7
2006															0	1	2	3	4	5	6
2007																0	1	2	3	4	5
2008																	0	1	2	3	4
2009																		0	1	2	3
2010																			0	1	2
2011																				0	1
2012																					0

Table 9-1 illustrates the single year of age from population estimates by calendar year that I used to derive denominator data by year of birth. Shading indicates the years for which ETHPOP data by ethnic category was not available. This table was previously presented as Table 4-2 in Chapter 4.

### 9.3.3 Decomposition analysis

Decomposition is a method that allows variation in a measure to be attributed to specific components; for example, overall wage variation in a population can be attributed to individual and group level components (Gibbons, Overman & Pelkonen, 2014). I used decomposition to explore the extent to which an increase in the ethnic diversity of the UK child population had contributed to the overall increase in the cumulative incidence of placement in care. The cumulative incidence of out-of-home care in a population at any time ( $t$ ) is simply a weighted sum of the cumulative incidences at  $t$  for each ethnic group. Accordingly, the overall cumulative incidence can be calculated by summing each ethnic-specific cumulative incidence at time  $t$  multiplied by its weight (i.e. the proportion of total child population in that ethnic group), as per Equation 9-1.

#### ***Equation 9-1 Cumulative incidence of placement in care***

$$CI \approx (Ww)(CIw) + (Wm)(CI_m) + (Wa)(CI_a) + (Wb)(CI_b) + (Wo)(CI_o)$$

where  $w, m, a, b, o$  = White, Mixed, Asian, Black and Other ethnicity respectively  
 $W$  = weight (i.e. proportion of total child population of a specified ethnicity)  
 $CI$  = cumulative incidence of being placed in out of home care

To explore changes over time, Equation 9-1 can be differentiated with respect to time using average weights for the two time periods of interest and, using the rules of calculus, Equation 9-2 can be derived.

#### ***Equation 9-2 Decomposition of a change in cumulative incidence over time into group components using midpoint estimates***

$$\Delta CI \approx (\bar{W}w)(\Delta CIw) + (\bar{W}m)(\Delta CI_m) + (\bar{W}a)(\Delta CI_a) + (\bar{W}b)(\Delta CI_b) + (\bar{W}o)(\Delta CI_o) + (\bar{C}Iw)(\Delta Ww) + (\bar{C}Im)(\Delta Wm) + (\bar{C}Ia)(\Delta Wa) + (\bar{C}Ib)(\Delta Wb) + (\bar{C}Io)(\Delta Wo)$$

where  $w, m, a, b, o$  = White, Mixed, Asian, Black and Other ethnicity respectively  
 $\bar{W}$  = average weight  
 $\Delta W$  = change in average weight  
 $\bar{C}I$  = average cumulative incidence of being placed in out of home care  
 $\Delta CI$  = change in average cumulative incidence



Using Equation 9-2, I decomposed the variance in the cumulative incidence of infants entering care between 2001 and 2012 into components attributable to changes in (a) the ethnic-specific cumulative incidences of entering care and (b) the ethnic composition of the total child population. First, I calculated the changes in the ethnic-specific weights and cumulative incidence of entering care for infants born 2001-03 and 2010-12, as well as the average weight and cumulative incidence for each ethnic group. I then substituted these values into Equation 9-2. I repeated this calculation for the cumulative incidences of entering care up to age 7 (as this was the oldest age for which there were two comparable year of birth groups).

#### **9.3.4 Changes in the characteristics of out-of-home care placements**

It was not possible for me to explore changes over time in childhood out-of-home care histories as most year of birth cohorts were aged <18 years by the 31<sup>st</sup> December 2013. However, based on my analysis of cumulative care histories in Chapter 5, most looked after children have just one period of out-of-home care (i.e. among the cohort of children born between 1992 and 1994, two-thirds of children (67.2%,  $n=13,335$ ) did not re-enter care during childhood). Therefore, I decided to compare characteristics of first placements in out-of-home care over time, as an alternative to complete care histories.

As the length of follow-up available for the year of birth cohorts in my data extract varied, I chose to describe the characteristics of first placements in out-of-home care over a 2-year period. I felt that this time frame was sufficiently long to explore the stability and duration of care experiences as, among the cohort of children born 1992 to 1994 for whom complete care histories were available, the majority had spent <2 years in care in total throughout childhood (59.6%,  $n=11,837$ ). I described the category of need and legal status at first entry to care for all children. I then described placement setting, duration and changes within a 2-year period for a sub-sample of children born in 3 years that spanned the time period of my dataset: 1992, 2000 and 2008. I did not include children who first entered care aged 16+ years in this analysis as they could not have 2 years of follow-up.

### **9.3.5 Changes in exits from and re-entries to out-of-home care**

I chose 2007 as the starting point of my analysis as this was the first full calendar year for which special guardianship and residence orders were available as a means of exiting the out-of-home care system in England. I chose 2012 as the end point as this allowed at least 1 year of follow-up to explore re-entries to care.

As per Chapter 8, I defined an exit from out-of-home care as (1) an episode of care that ended because a child ceased to be looked after or (2) as a change in placement from any out-of-home care setting to being placed with parents for a child who continued to be looked after. Using this definition, I identified all exits from out-of-home care between 2007 and 2012 using the 'placement setting' and 'reason for new episode' variables recorded in my CLA data extract, as per Appendix C-4. If a child exited care more than once in a calendar year, I selected their earliest exit in that year as the index exit for the re-entry analysis. I defined a 're-entry' as any placement in any out-of-home care following an exit from care. I excluded children who exited care through a custodial sentence and there is no information collected in the CLA dataset about the length of their custodial sentences. Additionally, I could not include children who had exited care through adoption as it is not possible to link pre- and post-adoption care histories in the CLA dataset.

For the sample of children who had exited care between 2007 and 2012 ( $N=23,659$ ), I explored re-entries to care by the 31<sup>st</sup> December 2013 using survival analysis methods. I described the cumulative proportion of children re-entering care by calendar year using a Kaplan-Meier (KM) curve. Follow-up was censored on a child's 18<sup>th</sup> birthday as they were no longer at risk of the outcome of interest. The length of follow-up varied by year of exit, from 6 years for exits in 2007 to 1 year for exits in 2012.

## 9.4 Results

### 9.4.1 Sample characteristics

The sample for this analysis comprised 93,652 children born between 1992 and 2012 who were placed in out-of-home care for non-respite reasons by the 31<sup>st</sup> December 2013. The demographic characteristics of this sample are summarised by grouped year of birth in Table 9-2.

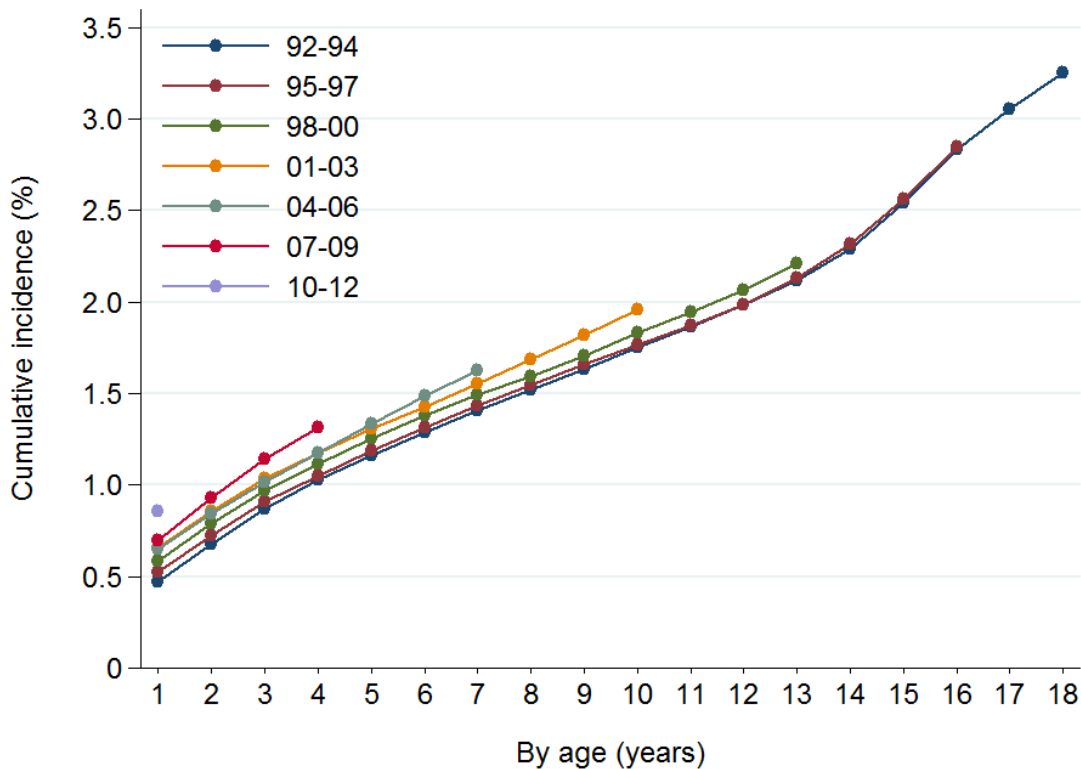
**Table 9-2 Characteristics of children born between 1992 and 2012 who were placed in out-of-home care in England by the 31<sup>st</sup> December 2013**

	Year of birth						
	1992-94	1995-97	1998-00	2001-03	2004-06	2007-09	2010-12
<i>N</i>	19,848	18,964	14,457	11,817	10,969	9,989	7,608
<i>Sex</i>							
Male	54.3%	52.9%	52.9%	53.0%	52.2%	52.4%	52.0%
Female	45.7%	47.1%	47.1%	47.0%	47.8%	47.8%	48.0%
<i>Ethnicity</i>							
White	68.1%	71.4%	78.5%	75.8%	74.7%	75.8%	77.0%
Mixed	5.7%	6.6%	8.4%	9.7%	10.8%	11.1%	11.5%
Asian	2.9%	3.2%	2.7%	3.9%	3.7%	3.5%	2.8%
Black	5.0%	6.2%	6.3%	8.6%	8.7%	6.7%	4.9%
Other <sup>a</sup>	1.7%	1.8%	1.3%	1.7%	1.5%	2.0%	1.7%
Unknown <sup>b</sup>	0.1%	0.2%	0.1%	0.2%	0.5%	1.0%	2.1%
Missing <sup>c</sup>	16.6%	10.6%	2.6%	n/a	n/a	n/a	n/a

<sup>a</sup>Other ethnicity includes Chinese, as per the categorisation used by the Department for Education in annual statistics. <sup>b</sup>Unknown ethnicity refers to when child or parent/carer refused to provide ethnicity data or this information was not obtained by the local authority, as recorded by the relevant codes in the Children Looked After (CLA) dataset (Department for Education, 2017e). <sup>c</sup>Ethnicity is missing for all children who were in care before the 1<sup>st</sup> April 2001, when ethnicity data were first collected in the CLA dataset.

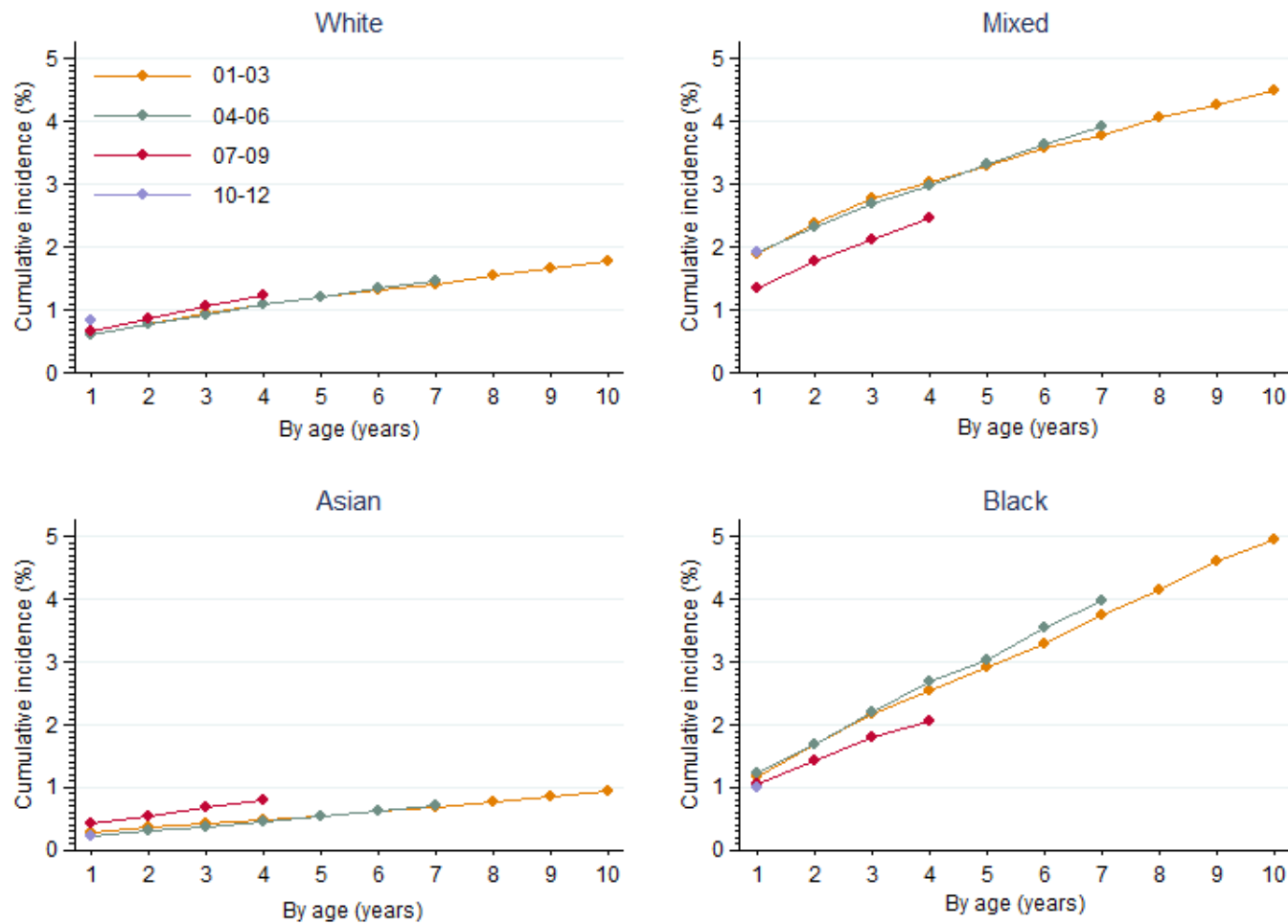
### 9.4.2 How has the cumulative incidence of placement in out-of-home care changed over time?

As previously presented in Chapter 4, 3.3% of children born between 1992 and 1994 had entered out-of-home care by age 18. As hypothesised, over time the cumulative incidence of entering out-of-home care increased significantly (Figure 9-1); for example, 0.9% of children born between 2010 and 2012 entered care during infancy (i.e. by age 1) compared to 0.5% of those born between 1992 and 1994 ( $p < 0.001$ ).



**Figure 9-1 Cumulative incidence of placement in out-of-home care, by year of birth**  
 The values from which Figure 9-1 is derived are given in Appendix G-1.

Among children born 2001-03, rates of entry by age 10 were lower in Asian (1.0%) and White (1.8%) children compared with children of Black (4.9%), Mixed (4.5%) or Other (3.1%) ethnicity. There were also changes over time in the cumulative incidence of entry to care by ethnicity (Figure 9-2); however these trends were mixed. Among White and Asian children the cumulative incidence had generally increased over time; for example, from 0.6% to 0.8% by age 1 for White children ( $p < 0.001$ ) and from 0.5% to 0.8% by age 4 for Asian children ( $p < 0.001$ ), whereas among children of Other ethnicity it had generally decreased over time (see Appendix G-1).



**Figure 9-2 Cumulative incidence of placement in out-of-home care, by year of birth and ethnicity**

The values from which Figure 9-2 is derived are given in Appendix G-1.

### 9.4.3 How has increasing ethnic diversity affected the overall cumulative incidence of placement in out-of-home care?

In contrast to my hypothesis, when I decomposed the overall increase in cumulative incidence of placement in out-of-home care by ages 1 to 7, the increase in the proportion of ethnic minority children in the UK population was found to have had a negligible effect (Table 9-3). Instead, the main determinant of the overall increase in the cumulative incidence of children entering out-of-home care was the concurrent increase over time in the cumulative incidence of placement in care among White children.

**Table 9-3 Decomposition of overall change in the cumulative incidence of entry to out-of-home care between 2001 and 2012 (percentage points)**

Overall variance in cumulative incidence (percentage points) <sup>a</sup>							
By age	1 year	2 years	3 years	4 years	5 years	6 years	7 years
Estimated	0.18	0.05	0.06	0.11	0.02	0.06	0.05
Actual	0.20	0.07	0.10	0.14	0.03	0.06	0.05
Variance attributable to changes in population weight (percentage points)							
By age	1 year	2 years	3 years	4 years	5 years	6 years	7 years
White	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02
Mixed	0.02	0.02	0.02	0.02	0.01	0.02	0.001
Asian	0.01	0.01	0.01	0.01	0.004	0.01	0.01
Black	0.004	0.01	0.01	0.004	0.003	0.004	0.01
Other	0.01	0.01	0.01	0.01	0.004	0.01	0.01
Variance attributable to changes in cumulative incidence (percentage points)							
By age	1 year	2 years	3 years	4 years	5 years	6 years	7 years
White	<b>0.18</b>	<b>0.07</b>	<b>0.09</b>	<b>0.12</b>	<b>0.02</b>	<b>0.03</b>	<b>0.05</b>
Mixed	0.002	-0.03	-0.05	-0.003	0.001	0.002	0.001
Asian	-0.004	0.02	0.02	0.003	-0.001	0.001	0.001
Black	-0.006	-0.01	-0.01	-0.02	0.004	0.01	0.01
Other	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.004

*Bold highlights the component for the greatest variance in the difference between cumulative incidences is attributable. <sup>a</sup>The birth cohorts between whom changes in cumulative incidence could be explored varied by age. Differences by age 1 were compared between children born in 2001-03 and 2010-12; between 2001-03 and 2007-09 by ages 2 and 3; and between 2001-03 and 2004-06 by ages 4 to 7.*

For example, the overall cumulative incidence of entering care by age 1 changed by 0.20 percentage points between children born 2001-03 and 2010-12 (0.7% vs 0.9%, respectively). Of this variance, 75% (0.15 percentage points) was attributable to the concurrent increase in the cumulative incidence of entry to care among White children, whereas changes in other ethnic-specific cumulative incidence or in the ethnic distribution of the population accounted for less than (+/-) 0.03 percentage points (+/- 15% of the overall variance). Similar results were observed for cumulative incidence by all other ages (Table 9-3). Therefore, the increase over time in the cumulative incidence of children entering care appears to be due to a small but significant increase in the cumulative incidence of entering care among White children, and not to the changing ethnic distribution of the child population in England.

#### **9.4.4 How have the characteristics of first placements changed over time?**

The recorded categories of need for children in out-of-home care have changed over time. The proportion of children placed in care for reasons related to absent parenting, acute family stress and child or parental illness or disability has decreased. Instead, children are increasingly likely to enter care for reasons related to abuse or neglect or family dysfunction (Table 9-4).

There have also been changes over time in the characteristics of care provided. For example, the proportion of children entering care for the first time voluntarily has decreased (Table 9-4). Children aged 1-10 years were increasingly placed in foster care rather than group care settings (Table 9-5). The number of weeks spent in care during the 2 years following first entry to out-of-home care increased for all children; for example, the mean number of weeks infants spent in care increased from 49 for those born in 1992 to 70 for those born in 2008. Stability of placements increased over time for older children; for example, 38.4% of 1-4 years olds born in 1992 had 2+ placement changes in a 2-year follow-up period compared to 13.9% of those born in 2008. However, there were no changes over time in the stability of placements among infants, with almost one in three (31.0%) experiencing multiple placements in the 2 years following first entry to care.

**Table 9-4 Category of need and legal status at first entry to out-of-home care, by age group and year of birth (%)**

	Year of birth						
	1992-1994	1995-1997	1998-2000	2001-2003	2004-2006	2007-2009	2010-2012
<b>Infants (N)</b>	2,886	3,083	3,349	3,602	3,903	4,504	5,445
<i>Category of need</i> <sup>a</sup>							
Abuse or neglect	41.6	52.7	64.2	67.0	67.0	67.3	69.9
Child's disability	0.9	1.4	1.0	0.9	0.8	0.6	0.4
Parental disability	11.7	9.5	7.8	7.8	6.5	5.7	4.9
Family in acute stress	14.7	12.4	7.4	7.4	8.3	8.0	6.5
Family dysfunction	1.5	2.4	7.0	8.6	10.4	13.5	15.0
Unacceptable behaviour	0.6	0.8	0.4	0.2	0.4	0.3	0.5
Low income	0.0	0.1	0.2	0.2	0.2	0.2	0.2
Absent parenting	19.6	15.1	10.7	7.8	6.4	4.4	2.8
Other <sup>b</sup>	9.4	5.7	1.3	n/a	n/a	n/a	n/a
<i>Legal status</i> <sup>c</sup>							
Voluntary	70.6	62.0	54.1	52.3	52.9	54.9	52.1
Child protection	14.6	17.8	19.6	18.2	17.0	13.4	11.5
Other compulsory	14.8	20.2	26.3	29.5	30.1	31.7	36.4
<b>1 to 4 year olds (N)</b>	4,284	3,940	3,809	3,565	4,073	4,925	n/a
<i>Category of need</i> <sup>a</sup>							
Abuse or neglect	49.4	61.1	65.7	67.5	66.1	69.0	
Child's disability	1.9	1.9	1.3	1.0	0.8	0.6	
Parental disability	18.4	13.3	11.3	8.3	6.7	5.0	
Family in acute stress	17.0	10.8	8.8	8.8	9.3	7.7	
Family dysfunction	3.5	5.9	7.8	9.4	13.0	15.1	
Unacceptable behaviour	0.8	0.6	0.4	0.5	0.4	0.6	
Low income	0.1	0.3	0.3	0.5	0.3	0.2	
Absent parenting	4.9	4.9	4.2	4.0	3.4	1.9	
Other <sup>b</sup>	3.9	1.3	0.1	n/a	n/a	n/a	
<i>Legal status</i> <sup>c</sup>							
Voluntary	69.3	59.7	56.4	52.2	53.3	50.6	
Child protection	16.6	19.5	18.7	22.5	23.2	22.4	
Other compulsory	14.1	20.8	24.9	25.3	23.5	27.0	
<b>5 to 10 year olds (N)</b>	4,331	4,012	3,850	3,712	n/a	n/a	
<i>Category of need</i> <sup>a</sup>							
Abuse or neglect	57.8	59.0	61.8	64.1			
Child's disability	5.4	5.1	4.0	3.5			
Parental disability	11.5	9.3	6.0	4.9			
Family in acute stress	10.2	9.4	9.9	8.7			
Family dysfunction	8.0	10.3	12.1	14.4			
Unacceptable behaviour	1.4	0.9	1.0	0.9			
Low income	0.3	0.3	0.3	0.2			
Absent parenting	4.9	5.8	4.9	3.2			
Other <sup>b</sup>	0.5	0.0	0.0	n/a			
<i>Legal status</i> <sup>c</sup>							
Voluntary	61.6	58.6	55.8	53.8			
Child protection	17.2	19.1	20.9	22.3			
Other compulsory	21.2	22.3	23.3	23.9			

(continued overleaf)



	Year of birth						
	1992-1994	1995-1997	1998-2000	2001-2003	2004-2006	2007-2009	2010-2012
<b>11 to 15 year olds (N)</b>	6,052	5,461	2,050	n/a	n/a	n/a	n/a
<i>Category of need<sup>a</sup></i>							
Abuse or neglect	34.5	42.4	55.4				
Child's disability	4.7	4.5	4.8				
Parental disability	2.7	3.0	3.1				
Family in acute stress	15.8	14.1	11.9				
Family dysfunction	18.5	20.3	17.8				
Unacceptable behaviour	9.6	6.6	3.1				
Low income	0.3	0.2	0.1				
Absent parenting	13.9	8.9	3.9				
<i>Legal status<sup>c</sup></i>							
Voluntary	77.9	76.0	66.2				
Child protection	10.3	12.0	16.2				
Other compulsory	11.8	12.0	17.6				
Youth justice	4.9	3.6	1.2				
<b>16+ year olds (N)</b>	2,198	919	n/a	n/a	n/a	n/a	n/a
<i>Category of need<sup>a</sup></i>							
Abuse or neglect	17.3	22.6					
Child's disability	4.3	4.8					
Parental disability	0.9	0.5					
Family in acute stress	13.2	14.5					
Family dysfunction	20.6	21.7					
Unacceptable behaviour	6.4	8.5					
Low income	1.5	0.5					
Absent parenting	35.9	26.9					
<i>Legal status<sup>c</sup></i>							
Voluntary	91.8	86.8					
Child protection	2.6	4.5					
Other compulsory	1.3	0.9					
Youth justice	4.3	7.8					

<sup>a</sup>Only one category of need can be recorded for each period of care; if more than one is applicable then the highest ordered reason is selected. <sup>b</sup>Category of need replaced the more detailed "reason looked after" variable in 2000. Reasons looked after with no comparable category of need (as per Appendix C-1) have been recorded as "Other". <sup>c</sup>Child protection refers to placement under a child assessment or emergency orders or under police protective powers. 'Other compulsory' refers to care, placement and freeing orders granted by the courts. Youth justice refers to being detained under PACE (Police and Criminal Evidence Act), sentenced to a supervision/youth rehabilitation order with a residence requirement, on remand or committed for trial or sentence.

**Table 9-5 Characteristics of first placement in out-of-home care, by age group at entry and year of birth**

<b>Year of birth</b>	<b>1992 (N=5,997)</b>			<b>2000 (N=4,384)</b>			<b>2008 (N=3,387)</b>		
<b>Setting<sup>a</sup></b>									
<i>Age group</i>	<i>Family</i>	<i>Group</i>	<i>Other</i>	<i>Family</i>	<i>Group</i>	<i>Other</i>	<i>Family</i>	<i>Group</i>	<i>Other</i>
<1 year	90.1%	8.4%	1.6%	89.9%	9.9%	0.3%	91.2%	8.5%	0.3%
1 to 4 years	95.9%	2.3%	1.8%	98.1%	1.8%	0.2%	99.2%	0.5%	0.4%
5 to 10 years	90.7%	8.0%	1.3%	95.8%	3.5%	0.6%			
11 to 15 years	73.4%	23.0%	3.5%						
<b>Duration (weeks)<sup>b</sup></b>									
<i>Age group</i>	<i>Mean</i>	<i>Median</i>		<i>Mean</i>	<i>Median</i>		<i>Mean</i>	<i>Median</i>	
<1 year	49	39		66	75		70	80	
1 to 4 years	45	24		63	78		67	83	
5 to 10 years	65	94		67	95				
11 to 15 years	57	61							
<b>Placements<sup>c</sup></b>									
<i>Age group</i>	<i>Mean</i>	<i>Range</i>	<i>2+ changes</i>	<i>Mean</i>	<i>Range</i>	<i>2+ changes</i>	<i>Mean</i>	<i>Range</i>	<i>2+ changes</i>
<1 year	2.59	1 to 52	32.2%	2.49	1 to 11	37.6%	2.25	1 to 10	31.0%
1 to 4 years	2.95	1 to 68	38.4%	2.26	1 to 31	32.2%	2.08	1 to 7	13.9%
5 to 10 years	2.70	1 to 61	35.9%	2.01	1 to 19	22.9%			
11 to 15 years	3.03	1 to 136	39.2%						

<sup>a</sup>Group setting includes children's homes, health-related residential settings, residential schools or other supported accommodation. Other setting includes remanded in custody or other placement. Codes in each placement category are described in Appendix C-3. <sup>b</sup>Mean and median weeks in care in the 2 years following first entry to out-of-home care. <sup>c</sup>Range and mean number of placements in the 2 years following first entry to out-of-home care and the proportion of children who experienced more than one placement change during this time (i.e. at least two placements).

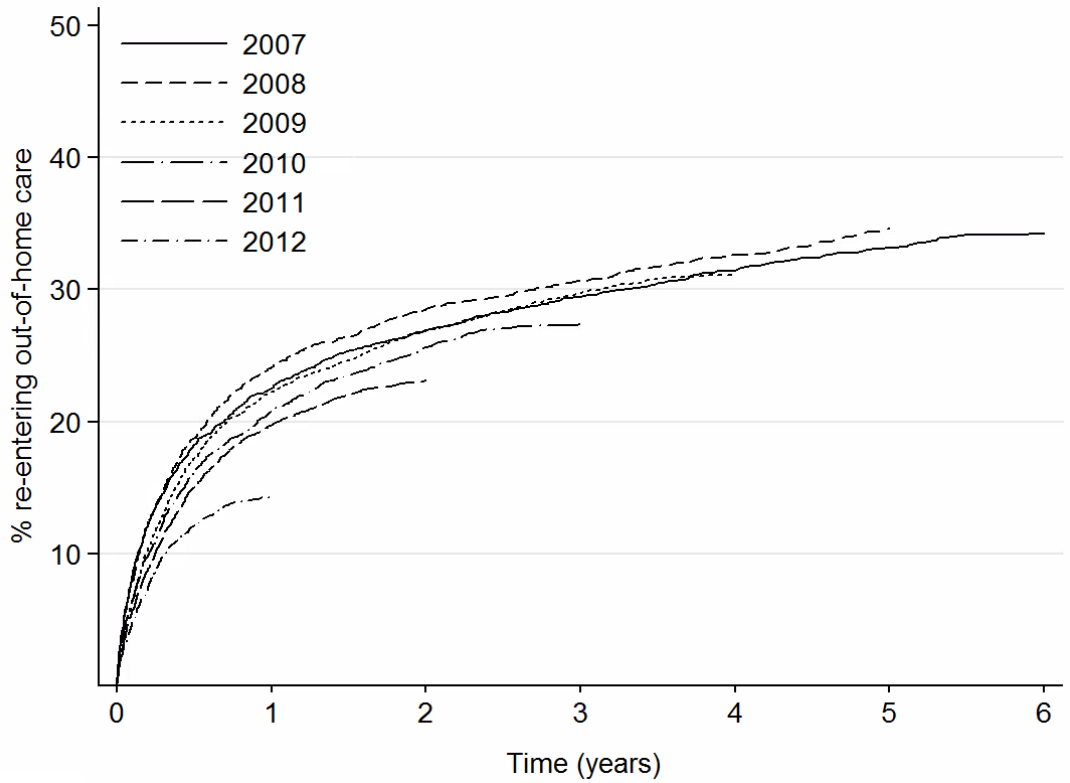
#### **9.4.5 How has the type of exit and rate of re-entry to care changed over time?**

Between 2007 and 2012, there were changes in how children exited out-of-home care (Table 9-6). As hypothesised, there were significant increases in the use of special guardianship and residence orders across all age groups; for example, among children aged 5-10 years the proportion exiting care via a special guardianship order (SGO) increased from 8.2% of exits in 2007 to 19.8% in 2012. Similarly, my hypothesis that the rate of re-entry to care would have decreased over time was also supported. Between 2007 and 2012, the overall percentage of children re-entering care decreased (Figure 9-3). For example, the proportion that re-entered within 1 year of exit decreased from 23.3% to 14.4%.

**Table 9-6 Percentage of exits from out-of-home care between 2007 and 2012, by age group at exit**

	Year of exit						Overall change <sup>a</sup>	p-value
	2007	2008	2009	2010	2011	2012		
<i>&lt;1 year (N)</i>	469	466	493	503	514	595		
Returned home	51.8	54.9	52.9	50.5	50.6	42.2	-9.6%	<b>0.002</b>
Placed with parents	20.7	20.2	19.1	22.5	27.0	23.9	+3.2%	0.22
Adopted	9.8	6.4	4.9	4.0	4.1	6.4	-3.4%	<b>0.04</b>
Special guardianship	6.6	5.8	7.7	7.4	7.6	14.1	+7.5%	<b>&lt;0.001</b>
Residence order	4.5	5.2	6.5	6.6	4.7	8.1	+3.6%	<b>0.02</b>
Other <sup>b</sup>	6.6	7.5	8.9	9.1	6.0	5.4	-1.2%	0.41
<i>1 to 4 years (N)</i>	1,675	1,865	1,821	2,012	2,220	2,350		
Returned home	31.5	31.8	35.3	31.4	27.2	25.4	-6.1%	<b>&lt;0.001</b>
Placed with parents	11.5	10.7	9.0	10.3	10.8	9.9	-1.7%	0.10
Adopted	39.9	41.2	38.7	35.4	37.5	39.0	-1.0%	0.56
Special guardianship	8.1	8.1	8.7	13.3	15.7	17.4	+9.3%	<b>&lt;0.001</b>
Residence order	4.4	3.9	4.3	4.8	5.7	5.9	+1.5%	<b>0.03</b>
Other <sup>b</sup>	4.5	4.2	4.0	4.8	3.2	2.4	-2.1%	<b>&lt;0.001</b>
<i>5 to 10 years (N)</i>	1,238	1,169	1,239	1,326	1,325	1,496		
Returned home	46.0	48.8	46.2	50.3	44.5	39.7	-6.3%	<b>&lt;0.001</b>
Placed with parents	13.2	10.7	11.9	10.0	12.4	9.6	-3.7%	<b>0.003</b>
Adopted	21.8	21.0	22.0	18.6	18.3	19.3	-2.5%	0.10
Special guardianship	8.2	9.3	9.3	11.8	15.2	19.8	+11.6%	<b>&lt;0.001</b>
Residence order	4.8	5.0	4.4	5.0	5.4	8.0	+3.2%	<b>&lt;0.001</b>
Other <sup>b</sup>	6.0	5.0	6.2	4.4	4.2	3.7	-2.3%	<b>0.01</b>
<i>11 to 15 years (N)</i>	1,485	1,643	1,647	1,625	1,526	1,470		
Returned home	66.3	69.3	70.0	69.7	72.2	69.6	+3.3%	0.06
Placed with parents	13.5	11.0	10.0	10.5	8.7	9.7	-3.7%	<b>0.001</b>
Adopted	1.3	1.5	0.9	1.2	0.8	1.2	-0.1%	0.81
Special guardianship	3.6	3.0	4.4	4.4	5.9	6.5	+2.9%	<b>&lt;0.001</b>
Residence order	1.3	2.1	1.9	2.8	2.5	3.4	+2.1%	<b>&lt;0.001</b>
Independent living	0.6	0.9	0.5	0.5	0.5	0.6	N/A	0.99
Custodial sentence	0.8	1.1	0.9	0.6	0.6	0.5	-0.3%	<b>&lt;0.001</b>
Other <sup>b</sup>	13.4	12.2	12.4	11.0	9.4	9.0	-4.4%	<b>&lt;0.001</b>

*This analysis included 25,716 exits in total: 4,867 in 2007; 5,143 in 2008; 5,200 in 2009; 5,466 in 2010; 5,585 in 2011; 5,911 in 2012. Bold highlighting indicates a significant difference at  $p < 0.05$  using a linear trend estimation test. <sup>a</sup>Overall change between 2007 and 2012. <sup>b</sup>Periods of out-of-home care that cease for any other reason are recorded as 'other' in the Children Looked After dataset.*



**Figure 9-3 Re-entry to out-of-home care, by year of exit**

Figure 9-3 shows the percentage of children aged <16 years when exiting out-of-home care who re-entered by the 31<sup>st</sup> December 2013, stratified by the year they exited care. The number of exits (N) was: 3,862 in 2007; 4,076 in 2008; 4,184 in 2009; 4,467 in 2010; 4,477 in 2011; 4,650 in 2012. Children who exited out-of-home care because they were adopted or sentenced to custody are not included.

## **9.5 Discussion**

### **9.5.1 Summary of main findings**

Since 1992, the proportion of children entering out-of-home care in England has increased, driven primarily by a small but significant change in the rate of entry to care among White children. During this period there appears to have been a shift in the types of need the out-of-home care system in England responds to. Children are now more likely to be placed in care for reasons related to maltreatment or chronic family dysfunction, rather than illness, disability or acute family stress. There have also been changes over time in the characteristics of out-of-home care placements. First placements have become longer and more stable, children are increasingly placed in foster care and fewer children re-enter care after leaving the system.

### **9.5.2 Strengths and limitations**

An important strength of my analysis is that it included more than 20 years of longitudinal data for a large, representative sample of children in England. Additionally, issues of recall or selection bias associated with survey-based studies of out-of-home care were negated through the use of national administrative data that did not rely on self-report by carers or care leavers. This meant that it was possible to reliably describe changes over time in the cumulative incidence and characteristics of out-of-home care. An additional strength is that by describing changes over time primarily in terms of birth cohorts (rather than calendar years), this analysis provides insight into the cumulative effects of the many changes in policy and practice that have been implemented in England over the past two decades. The main limitation of my analysis is that the focus on first entries to care and the following 2 years means that it does not fully capture children's cumulative care histories. A further limitation is that, as the CLA dataset does not contain detailed information related to episodes of care (e.g., support and interventions provided, parental contact or placement with siblings), my analysis could only provide a crude description of how the use of out-of-home care has changed over time.

### **9.5.3 Comparison of findings to other studies**

Changes over time in the cumulative incidence of placement in care have been explored among children in Denmark for a similar time period (Ubbesen, Gilbert & Thoburn, 2015). In their analysis, Ubbesen and colleagues (2015) reported a decreasing trend in cumulative incidence for children born between 1992 and 2008, in contrast to our increasing trend for the same year of birth cohorts.

As previously described in Chapter 2, very few studies in the UK have described the cumulative incidence of out-of-home care or cumulative care histories, and, to my knowledge, none have described changes over time. Thus, the main source of comparison for this analysis is the cross-sectional statistics that are routinely reported by the DfE. Based on my review of these cross-sectional statistics, it was evident that the number of children in care and use of foster care had increased significantly since 1992, whereas the use of voluntary care and number of placement changes had decreased. The same trends were also evident in my analysis of longitudinal data. For example, there was a relative increase of 80% in the cumulative incidence of placement in care for infants (from 0.5% for those born between 1992 and 1994 to 0.9% for those born between 2010 and 2012).

### **9.5.4 Main implications of findings**

Since 1992 the proportion of children entering out-of-home care has increased and, if patterns of entry to care observed for earlier birth cohorts continue, the overall proportion of children who enter care by age 18 will exceed 3.3% in the future. This analysis also demonstrates that concurrent changes in the ethnic composition of the child population appear to have had little impact on the cumulative incidence of children placed in care. Instead, the greatest contributor to the overall increase in the cumulative incidence of care was the small, yet significant, increase in the rate of entry to care among White children. Further work is required to understand the causes of this increase including the role of high-profile child welfare cases, changes in social work practice and increased diversity within the White population (e.g., due to immigration from Eastern European countries).

It seems that there has been a change over time in the type of out-of-home care that is provided in England, with a move away from short-term support for illness, disability or acute family stress (which I found was the most common type of care history among children born between 1992 and 1994 in Chapters 6 and 7) in favour of longer term care for reasons related to maltreatment or chronic family dysfunction. However, because my analysis is based on administrative data recorded by local authorities, this apparent shift over time in the types of care that is provided to looked after children may simply represent changes in the way that information is recorded or labelled by social workers. Nonetheless, it appears that more children are entering out-of-home care and are staying for longer. Children are also more likely to be part of the court system, with an increase in the proportion who are looked after under court orders. Such changes will have implications in terms of capacity and cost and need to be considered when developing children's social welfare policies, planning services and allocating resources, particularly in the current context of economic austerity. For example, if the trend of increased need for legal intervention continues there will be considerable financial implications, given that the average cost of care proceedings to remove a children from their parents is approximately £15,000 (Broadhurst & Mason, 2013). Further work to develop robust projections of the demand for and potential costs of services based on the findings of my analysis would be useful for service planning and provision.

Out-of-home care is an expensive intervention; in 2013/14, the estimated cost of providing out-of-home care to looked after children in England through children's homes and foster carers alone was £2.3 billion (Zayed & Harker, 2015). However, the implications of the state assuming the caring role of the parent for a significant proportion of children need to be considered not just in terms of economic costs but also in terms of individual and societal well-being. For some vulnerable children, levels of harm sufficient to justify entry to out-of-home care may potentially be prevented through early intervention; for example, through the Family Nurse Partnership which provides intensive support to vulnerable, young mothers through home visits (Department Of Health, 2012).



A further application of my analysis is the evaluation of changes in out-of-home care practice, with regard to relevant social care policy. For example, in England there has been an increased focus on early intervention in recent years (Allen, 2011) and the increasing proportion of infants entering out-of-home care evident in my analysis suggests a corresponding shift in practice over time. Permanence is also a central goal of the social care system and the decreasing proportion of children who experienced 2+ placement changes also indicates improvements have been made in this area. The stability of exits from care also appears to have increased, as evidenced by falling rates of re-entry between 2007 and 2013. The drivers of this decrease over time require further exploration, but changes in the profile of children placed in out-of-home care may be a contributing factor. For example, the increase over time in the cumulative incidence of out-of-home care and duration of first placements that I identified could indicate that thresholds for entering and exiting care have changed over time. Children entering and exiting care in more recent birth cohorts may represent less challenging cases which could account for the lower rates of re-entry observed over time. Given the significantly lower rates of re-entry associated with special guardianship and residence orders, their increased use may also have contributed to the overall decrease in rates of re-entry over time. This could suggest that these legal orders appear to represent a positive strategy for achieving permanence for vulnerable children; however, local variation in their structure and uptake must be acknowledged, as well as the element of selection associated with their use (Wade *et al.*, 2014). Further research is required to understand the reasons for the changes in practice that were observed in my analysis and to determine whether they are cost-effective, sustainable and improve outcomes for children and society.

## 9.6 Key points from Chapter 9

- I analysed administrative data for 93,652 children born between 1992 and 2012 to explore changes over time in the use of out-of-home care in England, including the cumulative incidence of placement in care, the duration of first placements and the stability of exits from care.
- Since 1992, the proportion of children entering out-of-home care in England has increased, driven primarily by a small but significant change in the rate of entry to care among White children. Increased proportions of ethnic minority children in the population have had little impact on the cumulative incidence of out-of-home care.
- The numerous changes to out-of-home care policy and practice since the enactment of the Children Act 1989 have had cumulative effects on children's experiences of care. Children born more recently are more likely to be placed in foster care, have longer stays in care and are less likely to re-enter the care system than children born between 1992 and 1994.
- Overall, there appears to have been a shift in the predominant type of out-of-home care that is provided in England, away from short-term support for illness, disability or acute family stress in favour of long-term care for reasons related to maltreatment or chronic family dysfunction.

## **Chapter 10 Discussion**

### **Statement of authorship**

All of the work presented in this chapter is my own.

### **10.1 Content and structure of Chapter 10**

In this final chapter, I will draw on material from across my thesis to describe the unique contribution that my PhD study has made and to highlight its overall strengths and limitations. I will then outline the main implications of the key findings from my PhD study, in terms of policy, practice and future research.

## **10.2 The unique contribution of my PhD study**

As outlined in Chapter 2, when I commenced this study there was a considerable body of empirical evidence demonstrating that placement in out-of-home is associated with a range of long-lasting adverse outcomes across health, educational and social domains. There was also ample evidence that children's outcomes vary by characteristics of their care histories, such as placement duration, stability and setting. Yet, despite the association between outcomes and characteristics of care histories, there were fundamental gaps in our understanding of how this social care intervention was used in England. Although it was widely acknowledged that a range of diverse social care interventions were included under the umbrella term of 'out-of-home care', the diversity of these interventions had not been explicitly described with few studies attempting to describe the longitudinal characteristics of care. Indeed, even basic questions such as how many children are placed in out-of-home care had not been adequately answered by routine statistics or research literature. Consequently, I suggested that before we can evaluate the effects of out-of-home care as a social care intervention, there was a prerequisite to first characterise its use more thoroughly. Ergo, the aim of this thesis was to characterise the use of out-of-home care among children in England through secondary analysis of routinely-collected administrative data, namely the Children Looked After (CLA) dataset.

Through a series of six quantitative analyses using CLA data related to large, representative samples of children, my PhD study has presented new evidence related to the use of out-of-home care. For example:

- This study was the first to measure the cumulative incidence of placement in out-of-home care throughout childhood (Chapter 4). Based on my analysis, it is evident that the state assumes the role of parent for a substantial proportion of children in England. Overall, one in thirty children born between 1992 and 1994 spent time in out-of-home care by age 18 and, notably, up to one in ten ethnic minority children had been placed in care during childhood. In addition, there was substantial variation in the

proportion of children who were ever placed in out-of-home care between different local authorities.

- This study was the first to describe the cumulative care histories for children in England accounting for all episodes of out-of-home care throughout childhood (Chapter 5). My analysis highlighted that out-of-home care histories are extremely diverse; thus, the current focus on selected populations of looked after children in official reports describing their outcomes prevents thorough evaluation of the effects of this social care intervention. Furthermore, my analysis demonstrated that in comparison to longitudinal analyses of cumulative care histories, cross-sectional statistics provide an incomplete and distorted profile of the experiences of children in out-of-home care system.
- This study was the first to attempt to classify the types of out-of-home care that are provided to children in England (Chapter 6). Despite the unique and diverse nature of children's care histories, I identified seven distinct latent classes of types of out-of-home care. Most children who were placed in out-of-home care had care histories that could be classified as a 'single, short, voluntary stay'.
- This study was the first to describe the patterns of out-of-home care placements throughout childhood using sequence analysis (Chapter 7). In total, I identified six patterns of out-of-home care that varied in terms of the timing, duration and number of placements. Most placement patterns were complex with several placement changes and/or exits and re-entries to care observed throughout childhood. However, complexity was not necessarily synonymous with instability and the majority of children appeared to achieve some form of stability, either outside of or within the out-of-home care system. This analysis reinforced the value of looking beyond the time frame of a statistical year when exploring the stability of out-of-home care.
- This study was the first to develop a model-based tool that estimated the likelihood of rapid re-entry to out-of-home care within 3 months of exit (Chapter 8). Overall, more than a third of children re-entered out-of-home care within 5 years of exit. Higher rates of re-entry were associated with

older age when exiting out-of-home care, being of White or Mixed ethnicity, returning to parents on exit and a shorter average placement length. Based on these associations, it was possible to estimate which groups were most likely to re-enter care within 3 months of exit: these children were likely to re-enter care for the same reason (91.4%) and may represent groups in need of additional support and monitoring when leaving care.

- This study was the first to describe changes over time in the use of out-of-home care using a birth cohort approach (Chapter 9). My final set of analyses described changes in the cumulative incidence of care and the characteristics of care placements for children born between 1992 and 2012. Over time, the proportion of children entering out-of-home care in England has increased, driven primarily by a small but significant change in the rate of entry to care among White children. The numerous changes to policy and practice related to out-of-home care since the enactment of the Children Act 1989 have had cumulative effects on children's experiences of care. During this period, there appears to have been a shift in the type of out-of-home care provided in England, away from short-term support for illness, disability or acute family stress in favour of long-term care for reasons related to maltreatment or chronic family dysfunction.

### **10.3 Strengths and limitations of my PhD study**

Each set of analyses that formed my PhD study was subject to the strengths and limitations of the chosen methods, which have already been discussed in detail in the relevant chapters (Chapters 3 to 9). However, there are also a number of overarching strengths and limitations that apply to my study as a whole.

The main limitation of my study relates to the lack of information related to the children placed in out-of-home care, the types of services they received whilst being looked after and their family and home circumstances. This is due to the narrow scope of information that is currently collected in the CLA dataset. In acknowledgement of this limitation, I chose to address research questions that I felt could be adequately answered by the restricted range of information available in

the CLA dataset. Hence, I focused on aspects of care that were more objective and quantifiable, such as the cumulative incidence of first entries, the proportion of children who re-entered care and sequences of placements throughout childhood. Notwithstanding the limited range of information, there are a number of strengths in relation to secondary analysis of the CLA dataset in comparison to survey- or interview-based studies related to the use of out-of-home care, as previously outlined in detail in Chapter 2. For example, my CLA data extract contained a large, nationally-representative sample of children with up to 18 years of longitudinal data available and negated issues related to selection or recall bias.

Another criticism that could be levelled at my PhD study is that most of the analyses I conducted related to a historical cohort of children who were born between 1992 and 1994. Consequently, my findings do not reflect current practice in relation to out-of-home care in England. Indeed, the final set of analyses I conducted showed that the use of out-of-home care has changed over time; hence, it is unlikely that the findings I described for my historical cohort in Chapters 5 to 7 apply wholly to children who are placed in care today. This is a major limitation in terms of the generalisability and applicability of my study's findings to current policy and practice. However, while I acknowledge this limitation, I would argue that my PhD study does still make a valuable contribution to policy and practice. Firstly, historical analyses are necessary as a baseline to evaluate changes over time. Secondly, placement in out-of-home care is associated with long-lasting adverse outcomes; thus, by focusing on a historical cohort, there is potential to explore outcomes in adulthood with a more nuanced understanding of children's care histories. Finally, although the findings may not be directly applicable to children who are currently in out-of-home care, my PhD study has highlighted the importance of taking a longitudinal and child-centred approach to monitoring the use of out-of-home care and has demonstrated the value of a range of quantitative methods that are not commonly used in social work research. It would be possible to replicate the analyses I carried out in my study using more recent birth cohorts over time frames that do not span an entire childhood to gain further insights into how out-of-home care is used as a social care intervention in England today.

## **10.4 Implications of my PhD study**

### **10.4.1 Related to policy and practice**

- It is imperative that, when monitoring the use and characteristics of out-of-home care using routinely-collected administrative data, policy makers supplement cross-sectional statistics with longitudinal analyses. Firstly, an over-reliance on cross-sectional statistics provides a distorted view of the type of out-of-home care that is provided to children in England, and consequently is not an adequate evidence base for evaluating policies or planning services. More importantly, cross-sectional statistics cannot capture the complexity of care experiences from a child perspective which should be at the heart of all decisions related to out-of-home care, at both policy and practice level.
- Based on my analyses of cumulative care histories (Chapters 5 to 7), it appears that for most children who were placed in out-of-home care in England, it was a short-term intervention. Short-term out-of-home care placements are undoubtedly necessary in some circumstances and can have a profound impact on children's well-being; for instance, when they are used to remove a child from a harmful situation or to respond to an acute crisis. However, given the disruption to permanence that placement in care represents for children, policy makers should explore whether there is scope for greater use of supportive in-home interventions within the care system.
- Findings from my analysis of cumulative care histories also indicate that most children are placed in out-of-home care for reasons related to abuse or neglect (Chapter 5) and that this proportion is increasing over time (Chapter 9). Hence, prevention of maltreatment is likely to have a significant effect on the demand for out-of-home care. Policy makers should consider whether some of the need for out-of-home care may be mitigated by taking a public health approach to reducing maltreatment.
- Based on my analysis of changes over time in the use of out-of-home care (Chapter 9), it appears that more children are being placed in out-of-home care and are staying in care for longer. If these trends continue the demand



for and costs of providing out-of-home care services in England are set to increase. This should be considered by policy makers and service providers, particularly in the continued climate of financial austerity.

- In Chapter 5, I highlighted that more than 40% of children who exit the care system for the final time after the age of 16 are placed in non-foster care settings. These children are not entitled to the same level of ongoing support as children in foster care, despite the fact that they are more likely to have complex health and social issues. In the interest of equity, policy makers and practitioners need to consider how this substantial group of young people can receive appropriate support into adulthood that is, at the least, equivalent to current 'Staying Put' arrangements.
- To fully evaluate the effects of out-of-home care as a social care intervention, long-term outcomes (e.g., educational achievement) should be evaluated for all children who have a history of care, regardless of their current care status or length of time in continuous care.

#### **10.4.2 Related to data collection**

- The current local-authority specific child identifier in the CLA dataset should be replaced with a national identifier to ensure that care records for the same individual can be linked across administrative boundaries. This will enable the proportion of children placed in care and their cumulative care histories to be more accurately described.
- Additional data fields to record secondary category of need codes should be added to the CLA dataset to allow the complex needs of children served by the out-of-home care system to be understood more fully.
- Given the current policy focus on early intervention and the increased cumulative incidence of placement in out-of-home care among young children that I identified in Chapter 9, it is important that educational outcomes can be explored for children who are only in care before they attend school. Currently, this is not possible because linkage to the National Pupil Database (NPD) is based on having a unique pupil number (UPN) recorded, which typically occurs at first entry to the mandated education

sector. The responsibility of a local authority to assign a UPN to a child should be extended to all children who are looked after or in need.

- Collecting additional information related to children, their families and the nature of the social care interventions they receive would increase the utility of analyses that are possible using CLA data. In particular, links between parents and children would allow the intergenerational nature of care experiences to be explored as the longevity of the CLA dataset increases. As a minimum, a measure of area-level deprivation should be included in the CLA dataset, given the association with placement in out-of-home care.

#### **10.4.3 Related to future research**

- Further work to develop methods for risk-standardising measures such as cumulative incidence would help to uncover the extent to which observed variation by sex, ethnicity and local authority signifies actual differences in organisational practice.
- Sequence analysis could be a useful tool for exploring other aspects of stability beyond placement changes, such as legal permanence, changes in social workers, school moves, or a combination of these factors.
- Exploring how educational outcomes vary between latent classes of types of out-of-home may contribute to a more nuanced and refined assessment of the effects of this social care intervention.
- Linkage of CLA data to health, economic and justice datasets is currently not possible due to the lack of identifiers that are collected. Future work should explore whether intermediate linkage of CLA to NPD data can enable a wider range of outcomes to be explored for looked after children.

## **10.5 Concluding remarks**

The state assumes the caring role of parent for a substantial proportion of children in England and, if the trends observed in my PhD study continue, this proportion is set to increase. In assuming the role of corporate parent, there is a duty to ensure that this vulnerable group of children receives the best possible care to enable them to thrive and reach their full potential. In order to evaluate whether this duty has been met it is necessary to understand the type of care looked after children have received and how this relates to their outcomes, both in childhood and in later life. To this end, my PhD study has provided evidence about how out-of-home care is used, where previously there was little longitudinal evidence to support policy and practice. The next step in understanding the relationship between differential care histories and outcomes remains to be addressed in future work.

## Appendices

## Appendix A Terminology related to out-of-home care

### A-1 Glossary of key terms related to looked after child and associated legislation

Term	Associated legislation	Looked after?	Further details
Full care order	Section 31 of the Children Act 1989	All children subject to a care order are looked after.	A full care order can be made in care proceedings brought under section 31 of the Children Act 1989, if there are reasonable grounds to believe that a child has suffered or is likely to suffer significant harm. A full care order grants shared parental responsibility for a child to the local authority specified in the order. A full care order lasts until a child is 18 years old or until it is discharged, either by the courts or through the granting of an adoption order. A placement order suspends a care order, but it is reinstated if the placement order is revoked. Care orders cannot be granted for children who are aged 17, or 16 years if they are married.
Interim care order	Section 38 of the Children Act 1989	All children subject to an interim care order are looked after.	An interim care order can be granted by the courts before the final hearing in care proceedings, provided that there are reasonable grounds for believing that a child has suffered or is at risk of suffering significant harm. An interim care order has the same effect as a full care order in terms of sharing parental responsibility, but it is time limited. Since the enactment of the Children and Families Act 2014, this time period can vary and is specified as part of the granting of the interim care order.
Freeing order	Section 18 of the Adoption Act 1976	All children subject to a freeing order are looked after.	Applications for freeing orders can no longer be made in England as the legislation underlying their use was repealed with the implementation of the Adoption and Children Act 2002. Section 21 of this act introduced placement orders, which replaced freeing orders from the 30 <sup>th</sup> December 2005.

*(continued overleaf)*

<b>Term</b>	<b>Associated legislation</b>	<b>Looked after?</b>	<b>Further details</b>
Placement order	Section 21 of the Adoption and Children Act 2002	All children subject to a placement care order are looked after.	A placement order can be made in relation to a looked after child who is the subject of a care order, or where there is no parent or guardian. A placement order gives a local authority the power to place a child with prospective adopters. A placement order can be granted by the courts without parental consent. A placement order suspends a care order, but the care order is reinstated if the placement order is revoked. A placement order is not time limited; it continues until it is revoked by the courts, an adoption order is made or the child reaches the age of 18, marries or enters a civil partnership.
Emergency protection order	Section 44 of the Children Act 1989	All children subject to an emergency protection order are looked after.	A local authority, an officer of the National Society for the Prevention of Cruelty to Children (NSPCC), a police constable or any other person can apply for an emergency protection order where there is an immediate risk of significant harm to a child. An emergency protection order allows a local authority to acquire parental responsibility for a child and necessitates that a section 47 enquiry is undertaken for the child. Emergency protection orders are time-limited: they last for up to 8 days and can be extended once by a further 7 days.
Child assessment order	Section 43 of the Children Act 1989	All children accommodated while subject to a child assessment order are looked after.	A child assessment order directs that a child be produced so that an authorised assessment may take place. A child assessment order can be made for cases where there are suspicions, but no firm evidence, of actual or likely significant harm, in circumstances not constituting an emergency. Child assessment orders are time-limited and last for up to 7 days.
On remand	Section 21 of the Children Act 1989	Not all children on remand are looked after.	If a youth justice court case is adjourned, the young person who is charged with an offence can be remanded on bail until the next date the case is heard in court. If a condition of bail is that a child must reside in local authority or youth detention accommodation, the young person becomes looked after. Remands to youth detention accommodation specify that a child must be placed in a secure children's home, a secure training centre or a young offender institution. Remands to local authority accommodation allow the local authority to decide on the setting.

*(continued overleaf)*

<b>Term</b>	<b>Associated legislation</b>	<b>Looked after?</b>	<b>Further details</b>
Supervision order	Section 12 of the Children and Young People Act 1969	Not all children subject to a supervision order are looked after.	Supervision orders can no longer be made in criminal proceedings in England as the legislation underlying their use was repealed with the implementation of the Criminal Justice and Immigration Act 2008. Section 1 of this act introduced youth rehabilitation orders, which replaced supervision orders from the 30 <sup>th</sup> November 2009.
Youth rehabilitation order	Section 1 of the Criminal Justice and Immigration Act 2008	Not all children subject to a youth rehabilitation order are looked after.	A youth rehabilitation order is a non-custodial, community sentence that can be imposed on a young person by the courts when they are sentenced for committing a criminal offence. If this sentence includes a requirement to live in local authority accommodation, the young person becomes looked after by the local authority. All other children subject to a youth rehabilitation order are not considered looked after.
Adoption order	Adoption and Children Act 2002, Children and Adoption Act 2006	Children subject to an adoption order cease to be looked after.	An adoption order permanently transfers parental rights and responsibilities for a child from their birth parent(s) to their adoptive parent(s). The courts can dispense with parental consent to an adoption order if it deems the adoption is in the best interests of the child. An adoption order can also be granted for children who are not looked after; for example, children who are being adopted by their step parents.
Residence order	Section 8 of the Children Act 1989	Children subject to a child arrangement order cease to be looked after.	A residence order specifies who a child should live with. Residence orders were replaced by child arrangement orders on the 22 <sup>nd</sup> April 2014.
Child arrangement order	Section 8 of the Children Act 1989	Children subject to a child arrangement order cease to be looked after.	A child arrangement order specifies who a child should live with. A child arrangement order can be granted for children who are not looked after; for example, children involved in private family law cases, such as divorce cases.
Special guardianship order	Section 14 of the Children Act 1989	Children subject to a special guardianship order cease to be looked after.	A special guardianship order appoints one or more individuals to be a child's special guardian(s) who shares parental rights and responsibilities with the child's birth parents. A special guardianship order can be granted for children who are not looked after; for example, who have been cared for in private fostering arrangements.

*(continued overleaf)*

<b>Term</b>	<b>Associated legislation</b>	<b>Looked after?</b>	<b>Further details</b>
Single, voluntary accommodation	Section 20 of the Children Act 1989	All children in Section 20 accommodation are looked after.	Children may be accommodated on a one-off basis by a local authority if they have no parent, are lost or abandoned or if their parents are not able to provide them with suitable accommodation and agree to the child being accommodated.
Agreed series of short-term breaks (respite care)	Section 20 of the Children Act 1989	All children in Section 20 accommodation are looked after.	Children may be accommodated in an agreed series of short-term breaks by a local authority to provide respite care, with parental consent.
Agreed series of short-term breaks (respite care)	Section 17 of the Children Act 1989	Designated children in need, but not looked after.	Children may be accommodated in an agreed series of short-term breaks by a local authority to provide respite care, with parental consent. The decision to provide respite care under section 17 or 20 of the Children Act 1989 is made by the local authority based on the needs and circumstances of the child and their family.
Police protection	Section 46 of the Children Act 1989	All children in Section 46 police protection are looked after.	If a police constable has reasonable cause to believe that a child would otherwise be likely to suffer significant harm, the child may be kept in or removed to suitable accommodation where they may be protected.
Detained in police custody	Section 38 of the Police and Criminal Evidence Act 1984	All children detained in police custody are looked after.	When a young person is charged with a criminal offence, they may be released on bail pending appearance at court. If bail is denied, they will be detained in police custody. Section 38 of the Police and Criminal Evidence Act 1984 requires the police custody officer to transfer young people aged <18 years to local authority accommodation. Section 21 of the Children Act 1989 requires the local authority to accommodate any young person transferred from police custody. This action means that the young person becomes looked after by the local authority.

*The information presented in this glossary was derived from the relevant UK legislation (HM Government, 2017) or from guidance related to this legislation (tri.x, 2014) or the Children Looked After (CLA) dataset (Department for Education, 2017e).*



## **Appendix B Systematic review of research literature on the epidemiology of out-of-home care**

### **B-1 Review question: how many children in England are placed out-of-home care?**

The search terms I used for this review question were:

("ever" OR "life?course" OR "life?long" OR "life?time" OR "life?table" OR "childhood" OR "cumulative" OR "prevalence" OR "longitudinal" OR "epidemiology") [Title/abstract] AND ("out?of?home care" OR "foster care" OR "in care" OR "care contact" OR "social services contact" OR "care history") [Title/abstract] AND ("England" OR "English" OR "UK" OR "Britain" OR "British" OR "ALSPAC" OR "BCS" OR "LSYPE" OR "MCS" OR "NCDS" OR "YCS") [Title/abstract]

The abbreviations are for panel studies identified as a source of data on social work service users (Maxwell *et al.*, 2012).

The inclusion criteria for this review question were:

- peer-reviewed publications
- published in the English language
- reporting a cumulative measure of being placed in out-of-home care (e.g., cumulative incidence or proportion)
- in an English or British population.

**B-2 Review question: what are the characteristics of out-of-home care placements?**

The search terms I used for this review question were:

("out?of?home care" OR "foster care" OR "in care" OR "care contact" OR "social services contact" OR "care history") [Title/abstract] AND ("England" OR "English" OR "UK" OR "Britain" OR "British" OR "ALSPAC" OR "BCS" OR "LSYPE" OR "MCS" OR "NCDS" OR "YCS") [Title/abstract]

The abbreviations are for panel studies identified as a source of data on social work service users (Maxwell *et al.*, 2012).

The inclusion criteria for this review question were:

- peer-reviewed publications
- published in the English language
- reporting quantitative, cumulative or longitudinal characteristics of out-of-home care placements (e.g., number of placements, type of setting or time spent in care)
- in an English or British population.

### **B-3 Potentially eligible books and reports not available for review**

In my snowball search related to the characteristics of out-of-home care placements, I identified the following books or reports that were not available through University College London's library, and which were consequently not included in my review:

- Biehal, N., Clayden, J., Stein, M. & Wade, J. (1995) *Moving on: Young people and leaving care schemes*. London: UK; HMSO.
- Biehal, N., Ellison, S., Baker, C. & Sinclair, I. (2010) *Belonging and permanence: Outcomes in long-term foster care and adoption*. London: UK, British Association for Adoption and Fostering.
- Bullock, R., Gooch, D. & Little, M. (1998) *Children returning home: The re-unification of families*. Aldershot: UK; Ashgate Publishing Limited.
- Bullock, R., Little, M. & Milham, S. (1993) *Going home: The return of children separated from families*. London: UK; Dartmouth Publishing Company.
- Farmer, E.R.G. & Parker, R.A. (1991) *Trials and tribulations: Returning children from local authority care to their families*. London: UK; HMSO.
- Ivaldi, I. (2000) *Surveying adoption: A comprehensive analysis of local authority adoptions 1998-1999 (England)*. London: UK; British Association for Adoption and Fostering.
- Packman, J. & Hall, C. (1998) *From care to accommodation: Support, protection and control in child care services – studies in evaluating the Children Act 1989*. London: UK; The Stationery Office.
- Sinclair, I., Gibbs, I., Wilson, K. & Baker, C. (2009) *Foster children: Where they go and how they get on*. London: UK; Jessica Kingsley.

## Appendix C Mapping and categorisation of codes in the Children Looked After dataset

### C-1 Reason looked after variable codes mapped to each category of need

Category of need	Description	Reason looked after code(s)
Abuse or neglect	Children in need as a result of, or at risk of, abuse or neglect.	10 Preventative child welfare 20 Abuse or neglect
Child's illness or disability	Children and their families whose main need for services arises out of the child's disability, illness or intrinsic condition.	14 Child has learning disability 15 Child has physical/sensory disability 16 Child has physical/sensory and learning disability
Parental illness or disability	Children whose main need for services arises because of the capacity of their parents to care for them is impaired by disability, illness, mental illness, or addictions.	1 Ill-health of parent(s)
Family in acute stress	Children whose needs arise from living in a family going through temporary crisis such that parenting capacity is diminished and some of the children's needs are not being adequately met.	4 Family is homeless 7 Parent(s) need relief
Family dysfunction	Children whose needs arise mainly out of their living with families where the parenting capacity is chronically inadequate.	No corresponding reasons looked after
Socially unacceptable behaviour	Children and families whose needs for services arise primarily out of their children's behaviour impacting detrimentally on the community.	21 Risky behaviour 22 Child has been found guilty of an offence 23 Child is accused of an offence
Low income	Children, either living in families or independently, whose need for services arise mainly from being dependent on an income below the standard state entitlements.	No corresponding reasons looked after

*(continued overleaf)*

Category of need	Description	Reason looked after code(s)
Absent parenting	Children whose need for services arises mainly from having no parents available to provide for them. Children whose parents decide it is in the best interests of the child to be adopted would be included in this category.	2 No parent or guardian
		3 Abandoned or lost
		5 Parent(s) in prison
		9 Child aged 16+ years is homeless
		11 Adoption at request of parent(s)
		12 Child freed for adoption
		13 Breakdown of adoptive family
Other <sup>a</sup>	Reason looked after codes that have no equivalent category of need, in my opinion, or whose meaning is not known.	8 Child requested to be looked after
		6 Meaning of this code is not known
		19 Meaning of this code is not known
		29 Meaning of this code is not known

*Category of need codes were introduced on the 1st April 2000 and replaced the previously used reason looked after codes. There is no official guidance from the Department for Education (DfE) on how the former reason looked after codes relate to the current category of need codes (Department of Health Statistics, 1999). Appendix C-1 shows the reason looked after codes that I mapped to each category of need as part of my PhD study. The description of the category of need codes is taken verbatim from the most recent SSDA903 return guidance document published by the DfE (Department for Education, 2017e). The description of the reason looked after codes are collated from personal correspondence with the National Pupil Database & Data Sharing team at the DfE and historic government department circulars and guidance documents I identified. <sup>a</sup>I created the "other" category of need for my PhD study as there were three historic reason looked after codes that the DfE did not know the meaning of and for which I could find no documentation online. The "other" category of need also included one reason looked after code that I did not feel had an obvious, equivalent category of need. Specifically, reason looked after #8 refers to a child requesting to be looked after, but does not include details of why the request was made.*

## C-2 Legal status categories created for my PhD study and associated variable codes

Legal status category	Legal status	Code	Description	Years in use <sup>a</sup>
Care orders	Interim care order	C1	Local authority is granted legal responsibility for the child. Time limited.	1992-
	Full care order	C2	Local authority is granted legal responsibility for the child. Not time limited.	1992-
Placement orders	Freeing order	D1	A child is freed for adoption. Replaced by placement orders.	1992-2005
	Placement order	E1	A child is freed for adoption.	2006-
Child protection	Police protection	L1	A child is under police protection and in local authority accommodation.	1992-
	Emergency protection order	L2	A court order granted when there are reasonable grounds for believing there is immediate risk of significant harm to the child.	1992-
	Child assessment order	L3	A court order which allows a local authority to make an assessment of a child's state of health or welfare. The child is only looked after if he/she is taken into local authority accommodation for the purpose of carrying out the assessment.	1992-
Youth justice	On remand	J1	A child is remanded to local authority or youth detention accommodation as part of criminal proceedings.	1992-
	Detained by police	J2	A child is helping police with their enquiries and is accommodated by the local authority.	1992-
	Sentenced to a youth rehabilitation order <sup>b</sup>	J3	A child is subject to a youth rehabilitation order that includes a requirement to be placed in local authority accommodation, including an intensive fostering placement.	1992-
Voluntary (non-respite) <sup>c</sup>	Single section 20 accommodation	V2	Single period of accommodation under section 20 of the Children Act 1989 because the child is lost or abandoned, no person has parental responsibility for them or the person caring for them cannot provide suitable accommodation or care.	1992-

Appendix C-2 shows the five categories of legal status that I created for my PhD study with the associated legal status codes used in the Children Looked After (CLA) dataset. Further details of these legal orders and police powers are given in the glossary in Appendix A-1. <sup>a</sup>The years in use refer to the statistical years that the codes were used in the CLA dataset (i.e. 2006 refers to the statistical year from the 1<sup>st</sup> April 2005 to the 31<sup>st</sup> March 2006). <sup>b</sup>Previously, code J3 was used to record supervision orders which were replaced by youth rehabilitation orders in 2009. <sup>c</sup>Children can also be looked after voluntarily for respite reasons via an agreed series of short-term breaks under section 20 of the Children Act 1989; however, children placed in respite care were beyond the scope of my PhD study.

**C-3 Out-of-home care placement categories created for my PhD study and associated variable codes**

Placement category	Placement type	Code	Description	Years in use <sup>a</sup>			
Family care	Placed for adoption	A1	Placed for adoption not with current foster carer.	1992-2006			
		A2	Placed for adoption with current foster carer.	2005-2006			
		A3	Placed for adoption with current foster carer, with parental/guardian consent.	2007-			
		A4	Placed for adoption not with current foster carer, with parental/guardian consent.	2007-			
		A5	Placed for adoption with current foster carer, where parental/guardian consent was dispensed by courts.	2007-			
		A6	Placed for adoption not with current foster carer, where parental/guardian consent was dispensed by courts.	2007-			
	Foster care (stranger)	Foster care (stranger)	F8	Foster placement with other foster carer.	1992-2000		
			F2	Foster placement with other foster carer inside local authority boundary, provided by local authority.	2001-2008		
			F3	Foster placement with other foster carer inside local authority boundary, arranged through agency.	2001-2008		
			F5	Foster placement with other foster carer outside local authority boundary, provided by local authority.	2001-2008		
			F6	Foster placement with other foster carer outside local authority boundary, arranged through agency.	2001-2008		
			Q2	Foster placement with other foster carer.	2009-2014		
			U4	Foster placement with other foster carer that is long-term fostering.	2014-		
			U5	Foster placement with other foster carer who is also an approved adopter that is fostering for adoption/concurrent planning.	2014-		
			U6	Foster placement with other foster carer friend that is not long-term fostering or fostering for adoption/concurrent planning.	2014-		
			Foster care (kin)	Foster care (kin)	F9	Foster placement with relative or friend.	1992-2000
					F1	Foster placement with relative or friend inside local authority boundary.	2001-2008
					F4	Foster placement with relative or friend outside local authority boundary.	2001-2008
Q1	Foster placement with relative or friend.	2009-2014					
U4	Foster placement with relative or friend that is long-term fostering.	2014-					
U5	Foster placement with relative or friend who is also an approved adopter that is fostering for adoption/concurrent planning.	2014-					
U6	Foster placement with relative or friend that is not long-term fostering or fostering for adoption/concurrent planning.	2014-					

*(continued overleaf)*

Placement category	Placement type	Code	Description	Years in use <sup>a</sup>
Independent living	Independent living	P2	Independent living e.g. in flat, lodgings, bedsit, B&B or with friends, with or without formal support.	1992-
		P3	Residential employment including apprenticeships where accommodation is provided.	1992-
Group care	Children's home	H3	Children's homes inside local authority boundary.	1992-2008
		H4	Children's homes outside local authority boundary.	1992-2008
		K2	Children's homes.	2009-
	Residential care home	R1	Residential care home.	1992-
		R2	NHS/Health Trust or other establishment providing medical or nursing care.	1992-
	Residential school	S1	All residential schools, except where dual-registered as a school and children's home.	1992-
		H9	Residential accommodation not subject to children's homes regulations but where formal support or supervision is provided.	1992-2000
		H5	Residential accommodation not subject to children's homes regulations but where formal support or supervision is provided.	2001-
Other care	Secure unit	R3	Family centre or mother and baby unit.	1992-
		H1	Secure children's home inside local authority boundary.	1992-2008
		H2	Secure children's home outside local authority boundary.	1992-2008
	Other	K1	Secure children's home.	2009-
		R4	Youth treatment centre. <sup>b</sup>	1992-2003
Z1	Other placements.	1992-		

Appendix C-3 shows the four categories of out-of-home care placements that I created for my PhD study with the associated placement type codes used in the Children Looked After (CLA) dataset. In addition to the placement setting codes presented in this table, there are also codes to record when a looked after child is placed at home with a parent or is missing from their placement. These codes are not included in Appendix C-3 as these circumstances are not out-of-home care placement settings, per se. <sup>a</sup>The years in use refer to the statistical years that the codes were used in the CLA dataset (i.e. 2006 refers to the statistical year from the 1<sup>st</sup> April 2005 to the 31<sup>st</sup> March 2006). <sup>b</sup>The last youth treatment centre in England (Glenthorne) closed in 2002.



#### C-4 Identifying exits from out-of-home care using codes recorded in the Children Looked After (CLA) dataset

Code <sup>a</sup>	Department for Education description	Exit category	Identify re-entries?
P1	Placed at home to live with parents, relatives, or other person with parental responsibility, but continues to be subject to a care order.	Placed with parents	Yes
E4	Returned home to live with parents, relatives, or other person with parental responsibility (not under a residence/child arrangement order or special guardianship order).	Returned home	Yes
E43	Special guardianship order made to former foster carers.	Special guardianship order	Yes
E44	Special guardianship order made to carers other than former foster carers.		
E41	Residence order granted.	Residence order	Yes
E5	Moved into independent living arrangement and no longer looked after: supportive accommodation providing formalised advice/support arrangements (e.g., hostels, care leaver project).	Independent living	Yes
E6	Moved into independent living arrangement and no longer looked after: supportive accommodation providing no formalised advice/support arrangements (e.g., bedsit, own flat, living with friends).		
E8	Period of being looked after ceased for any other reason.	Other	Yes
E11	Adopted – application for an adoption order unopposed.	Adoption	No
E12	Adopted – consent dispensed with by court.		
E9	Sentenced to custody.	Sentenced to custody	Yes <sup>b</sup>
E2	Died.	Died	n/a
E7	Transferred to care funded by Adult Social Services.	Transferred to adult social services	n/a

<sup>a</sup>P1 is a placement code, all other codes are reason episode ceased codes (Department for Education, 2017e). <sup>b</sup>Although it is possible to identify re-entries to care following an exit via a custodial sentence, I did not include this group in my survival analyses due to censoring of their time to re-entry.

## Appendix D The incidence of out-of-home care

### D-1 Ethnic distribution of the cohort of children born between 1992 and 1994 before and after multiple imputation to replace missing data (N=19,848)

Ethnicity	Original		Imputed	
	n	%	n	%
White	10,477	52.8	14,315	72.1
Mixed	955	4.8	1,320	6.7
Asian	1,019	5.1	1,393	7.0
Black	1,339	6.8	1,818	9.2
Other <sup>a</sup>	646	3.3	920	4.6
Refused/not	82	0.4	82	0.4
Missing	5,330	26.9	-	-

Column totals may exceed 100% due to rounding. <sup>a</sup>Other ethnicity includes Chinese, as per the categories used in official statistics related to looked after children in England (Department for Education, 2017e). <sup>b</sup>When a child or parent/carer refuses to provide ethnicity data or ethnicity information is not obtained by the local authority the respective codes recorded in the Children Looked After dataset are 'REFU' and 'NOBT'.

**D-2 Age-specific incidence (%) of placement of out-of-home care among children in England born between 1992 and 1994 (N=19,848)**

	At age (years)																	
	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
All	0.46	0.20	0.19	0.16	0.13	0.12	0.12	0.11	0.11	0.12	0.12	0.12	0.15	0.18	0.26	0.30	0.23	0.15
<i>Sex</i>																		
Males	0.49	0.22	0.20	0.15	0.14	0.12	0.12	0.13	0.13	0.14	0.13	0.14	0.16	0.18	0.26	0.30	0.27	0.17
Females	<b>0.41</b>	<b>0.19</b>	0.19	0.16	0.12	0.12	0.12	<b>0.10</b>	<b>0.10</b>	<b>0.11</b>	<b>0.12</b>	<b>0.10</b>	<b>0.13</b>	0.18	0.27	<b>0.29</b>	<b>0.19</b>	<b>0.12</b>
<i>Ethnicity</i>																		
White	0.39	0.18	0.17	0.14	0.12	0.12	0.11	0.10	0.10	0.11	0.10	0.10	0.12	0.15	0.21	0.22	0.12	0.08
Mixed	<b>1.12</b>	<b>0.54</b>	<b>0.50</b>	<b>0.40</b>	<b>0.34</b>	<b>0.28</b>	<b>0.33</b>	<b>0.25</b>	<b>0.25</b>	<b>0.26</b>	<b>0.23</b>	<b>0.21</b>	<b>0.23</b>	<b>0.37</b>	<b>0.50</b>	<b>0.41</b>	<b>0.33</b>	<b>0.14</b>
Asian	<b>0.46</b>	0.17	0.16	<b>0.10</b>	<b>0.09</b>	<b>0.06</b>	<b>0.04</b>	<b>0.05</b>	<b>0.04</b>	<b>0.07</b>	<b>0.06</b>	0.10	0.12	0.18	<b>0.46</b>	<b>0.57</b>	<b>0.52</b>	<b>0.19</b>
Black	<b>1.40</b>	<b>0.57</b>	<b>0.48</b>	<b>0.35</b>	<b>0.25</b>	<b>0.23</b>	<b>0.20</b>	<b>0.21</b>	<b>0.30</b>	<b>0.30</b>	<b>0.40</b>	<b>0.37</b>	<b>0.39</b>	<b>0.52</b>	<b>0.83</b>	<b>1.02</b>	<b>1.06</b>	<b>0.63</b>
Other	<b>2.62</b>	<b>0.98</b>	<b>0.86</b>	<b>0.62</b>	<b>0.44</b>	<b>0.32</b>	<b>0.32</b>	<b>0.20</b>	<b>0.16</b>	<b>0.32</b>	<b>0.14</b>	<b>0.02</b>	<b>0.13</b>	<b>0.46</b>	<b>1.01</b>	<b>2.33</b>	<b>2.55</b>	<b>0.49</b>

Appendix D-2 shows the age-specific incidence of placement in out-of-home care at a given single year of age. I used mid-year population estimates by single year of age to derive appropriate denominator data for the overall and sex-stratified incidences (Office for National Statistics, 2017a). I used ETHPOP data to derive appropriate denominator data for the ethnicity-stratified incidences (Wohland et al., 2017). Shading highlights the ages that denominator data were not available for this cohort of children. For these incidence calculations, the denominator was the population at age 9 (the first age for which data were available in the ETHPOP dataset (Wohland et al., 2010)) The significance of differences by sex and ethnicity were calculated using a t-test (with a reference group of boys and children of White ethnicity, respectively). Bold highlighting indicates significance at  $p < 0.05$ .

### D-3 Cumulative incidence (%) of placement of out-of-home care among children in England born between 1992 and 1994 (N=19,848)

	By age (years)																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
All	0.46	0.66	0.86	1.01	1.14	1.27	1.39	1.50	1.61	1.74	1.86	1.98	2.12	2.31	2.57	2.83	3.10	3.25
<i>Sex</i>																		
Males	0.49	0.71	0.90	1.06	1.19	1.32	1.44	1.56	1.69	1.83	1.96	2.10	2.26	2.45	2.71	3.01	3.28	3.46
Females	<b>0.41</b>	<b>0.60</b>	<b>0.79</b>	<b>0.95</b>	<b>1.08</b>	<b>1.20</b>	<b>1.32</b>	<b>1.42</b>	<b>1.52</b>	<b>1.63</b>	<b>1.74</b>	<b>1.85</b>	<b>1.98</b>	<b>2.16</b>	<b>2.42</b>	<b>2.72</b>	<b>2.91</b>	<b>3.03</b>
<i>Ethnicity</i>																		
White	0.39	0.57	0.74	0.88	1.00	1.12	1.24	1.34	1.44	1.55	1.65	1.75	1.87	2.02	2.23	2.44	2.56	2.64
Mixed	<b>1.12</b>	<b>1.66</b>	<b>2.16</b>	<b>2.56</b>	<b>2.90</b>	<b>3.18</b>	<b>3.51</b>	<b>3.77</b>	<b>4.02</b>	<b>4.28</b>	<b>4.50</b>	<b>4.71</b>	<b>4.95</b>	<b>5.31</b>	<b>5.82</b>	<b>6.22</b>	<b>6.56</b>	<b>6.70</b>
Asian	<b>0.46</b>	0.63	0.79	0.89	0.98	1.03	<b>1.07</b>	<b>1.12</b>	<b>1.16</b>	<b>1.24</b>	<b>1.29</b>	<b>1.39</b>	<b>1.51</b>	<b>1.69</b>	2.15	<b>2.72</b>	<b>3.23</b>	<b>3.42</b>
Black	<b>1.40</b>	<b>1.97</b>	<b>2.45</b>	<b>2.80</b>	<b>3.05</b>	<b>3.28</b>	<b>3.48</b>	<b>3.69</b>	<b>3.99</b>	<b>4.29</b>	<b>4.69</b>	<b>5.06</b>	<b>5.45</b>	<b>5.96</b>	<b>6.80</b>	<b>7.81</b>	<b>8.88</b>	<b>9.51</b>
Other	<b>2.62</b>	<b>3.61</b>	<b>4.47</b>	<b>5.09</b>	<b>5.53</b>	<b>5.85</b>	<b>6.17</b>	<b>6.37</b>	<b>6.53</b>	<b>6.85</b>	<b>6.99</b>	<b>7.01</b>	<b>7.14</b>	<b>7.59</b>	<b>8.60</b>	<b>10.94</b>	<b>13.48</b>	<b>13.98</b>

Appendix D-3 shows the cumulative incidence of placement in out-of-home care by a given year of age. I used mid-year population estimates by single year of age to derive appropriate denominator data for the overall and sex-stratified cumulative incidences (Office for National Statistics, 2017a). I used ETHPOP data to derive appropriate denominator data for the ethnicity-stratified cumulative incidences (Wohland et al., 2017). Shading highlights the ages that denominator data were not available for this cohort of children. For these incidence calculations, the denominator was the population at age 9 (the first age for which data were available in the ETHPOP dataset (Wohland et al., 2010)). The significance of differences by sex and ethnicity were calculated using a t-test (with a reference group of boys and children of White ethnicity, respectively). Bold highlighting indicates significance at  $p < 0.001$ .

## Appendix E Patterns of out-of-home care placements

**E-1 Demographic and selected care characteristics of the full cohort of children born between 1992 and 1994 and the randomly selected sub-sample used in my sequence analysis (N=19,848)**

		<b>Full cohort (N=19,848)</b>		<b>Sub-sample (N=16,000)</b>		<b>p-value</b>
		<b>n</b>	<b>%</b>	<b>n</b>	<b>%</b>	
<i>Sex</i>	Male	10,783	54.3	8,701	54.4	0.76
	Female	9,065	45.7	7,229	45.2	
<i>Ethnicity</i>	White	14,315	72.1	11,519	72.0	0.49
	Mixed	1,320	6.7	1,074	6.7	
	Asian	1,393	7.0	1,136	7.1	
	Black	1,818	9.2	1,463	9.1	
	Other	920	4.6	736	4.6	
	Missing	82	0.4	72	0.5	
<i>Age group at first entry to out-of-home care</i>	<1 year	2,941	14.8	2,353	14.7	0.54
	1 to 4 years	4,342	21.9	3,517	22.0	
	5 to 10 years	4,374	22.0	3,539	22.1	
	11 to 15 years	6,013	30.3	4,819	30.1	
	16+ years	2,178	11.0	1,772	11.1	
<i>Total re-entries to out-of-home care</i>	No re-entries	13,335	67.2	10,722	67.0	0.46
	1 re-entry	3,910	19.7	3,168	19.8	
	>1 re-entry	2,603	13.1	2,110	13.2	
<i>Total time spent in out-of-home care</i>	Mean	2 years, 8 months		2 years, 8 months		0.93
	Median	1 year, 3 months		1 year, 3 months		
<i>Total placement changes</i>	Mean	2.6 changes		2.6 changes		0.95
	Median	1 change		1 change		

*Bold highlighting indicates significance at  $p < 0.05$  using  $\chi^2$  tests for categorical variables and t-test for continuous variables.*

## Appendix F Re-entry to care estimation model

**F-1 Multivariable associations with re-entry to care within 3 months from Cox proportional hazards model for variables included in the estimation model**

		HR <sub>adj</sub>	95% CI	p-value
<i>Age group at exit</i>	<1 year	(ref)		
	1 to 4 years	0.69	0.49-0.97	<b>0.03</b>
	5 to 11 years	0.76	0.54-1.06	0.10
	11 to 15 years	1.21	0.89-1.63	0.23
<i>Ethnic category</i>	Black, Asian or Other	(ref)		
	White or Mixed	1.53	1.19-1.97	<b>0.001</b>
<i>Category of need</i>	Abuse or neglect	(ref)		
	Child disability	1.10	0.62-2.02	0.74
	Parental health	0.91	0.61-1.36	0.64
	Family stress or dysfunction	1.36	1.11-1.66	<b>0.002</b>
	Socially unacceptable behavior	1.08	0.72-1.62	0.72
	Absent parenting	0.51	0.28-0.92	<b>0.03</b>
<i>Previous care history?</i>	No	(ref)		
	Yes	1.31	1.05-1.63	<b>0.02</b>
<i>Current placement length*</i>	<3 months	(ref)		
	3-6 months	0.39	0.23-0.65	<b>&lt;0.001</b>
	6-9 months	0.34	0.18-0.64	<b>0.001</b>
	9+ months	0.69	0.56-0.83	<b>&lt;0.001</b>
<i>In care voluntarily?</i>	No	(ref)		
	Yes	1.83	1.35-2.50	<b>&lt;0.001</b>
<i>Type of exit</i>	Returned home	(ref)		
	Placed with parents	2.81	2.23-3.63	<b>0.002</b>
	Special guardianship order	0.01	0.01-0.03	<b>&lt;0.001</b>
	Residence order	0.12	0.54-1.06	0.10
	Other	1.21	0.93-1.63	0.23

HR<sub>adj</sub>=adjusted hazard ratio; CI=confidence interval. Bold denotes significance at level  $p < 0.05$ .  $N=4,076$ . Theta for shared frailty by local authority was 0.07,  $p=0.001$ . \*'Current placement length' was included instead of 'average length of placement' as this information is more likely to be readily available in practice. Having chosen the variables to be included in my estimation model, I used bootstrapping with 1,000 repetitions to validate the accuracy of their effect sizes (i.e. hazard ratios). The baseline hazard ratio was 0.08.

## Appendix G Changes over time

### G-1 Changes over time in the cumulative incidence (%) of placement of out-of-home care among children in England born between 1992 and 2012, overall and by ethnicity

	Year of birth	By age (years)						
		1	4	7	10	13	16	18
<i>All</i>	1992-94	0.46	1.01	1.39	1.74	2.12	2.83	3.25
	1995-97	<b>0.52</b>	<b>1.05</b>	<b>1.44</b>	1.77	2.13	2.85	
	1998-00	<b>0.59</b>	<b>1.12</b>	<b>1.49</b>	<b>1.83</b>	<b>2.21</b>		
	2001-03	<b>0.65</b>	<b>1.17</b>	<b>1.55</b>	<b>1.96</b>			
	2004-06	<b>0.65</b>	<b>1.18</b>	<b>1.63</b>				
	2007-09	<b>0.70</b>	<b>1.32</b>					
	2010-12	<b>0.85</b>						
<i>White</i>	2001-03	0.60	1.08	1.42	1.78			
	2004-06	0.60	1.08	<b>1.48</b>				
	2007-09	<b>0.65</b>	<b>1.23</b>					
	2010-12	<b>0.82</b>						
<i>Mixed</i>	2001-03	1.88	3.05	3.78	4.50			
	2004-06	1.91	2.99	3.93				
	2007-09	<b>1.35</b>	<b>2.46</b>					
	2010-12	1.93						
<i>Asian</i>	2001-03	0.28	0.50	0.69	0.95			
	2004-06	0.23	0.45	0.71				
	2007-09	<b>0.43</b>	<b>0.80</b>					
	2010-12	0.24						
<i>Black</i>	2001-03	1.16	2.55	3.76	4.94			
	2004-06	1.23	2.68	3.97				
	2007-09	1.05	<b>2.06</b>					
	2010-12	1.00						
<i>Other</i>	2001-03	1.09	1.93	2.44	3.09			
	2004-06	<b>0.81</b>	<b>1.55</b>	<b>2.06</b>				
	2007-09	<b>0.91</b>	<b>1.69</b>					
	2010-12	<b>0.82</b>						

The number of children placed in out-of-home care who were born 1992-94=19,848; 1995-97=18,964; 1998-2000=14,457; 2001-03=11,817; 2004-06=10,969; 2007-09=9,989; 2010-12=7,608. Ethnic-specific cumulative incidence was only calculated for children born in or after 2001 as ethnicity data were first collected in the Children Looked After (CLA) dataset from the 1<sup>st</sup> April 2001. I used mid-year population estimates by single year of age to derive appropriate denominator data for the overall and sex-stratified cumulative incidences (Office for National Statistics, 2017a). I used ETHPOP data to derive appropriate denominator data for the ethnicity-stratified cumulative incidences (Wohland et al., 2017). Bold highlighting indicates significance at  $p < 0.05$  using a linear trend estimation test (reference group=children born 1992 to 1994).

# Appendix H Research profile

## H-1 Peer-reviewed publications resulting from my PhD study

Child Abuse & Neglect 51 (2016) 163–171

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Contents lists available at ScienceDirect

### Child Abuse & Neglect



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Research article

## Changes in first entry to out-of-home care from 1992 to 2012 among children in England<sup>☆</sup>

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**ABSTRACT**

Placement in out-of-home care (OHC) indicates serious childhood adversity and is associated with multiple adverse outcomes. Each year 0.5% of children in England live in OHC but evidence is lacking on the cumulative proportion who enter during childhood and how this varies over time. We measured the proportion of children born between 1992 and 2011 who entered OHC, including variation in rates of entry over time, and explored the determinants of these changes using decomposition methods. We also described changes in placement type, duration and stability. By age 18, 3.3% of children born 1992–94 entered OHC. This proportion varied by ethnicity (1.6% of White vs. 4.5% of Black children born 2001–03 entered OHC by age 9, 95% CI [1.5–1.7] and [4.4–4.6],  $p < 0.001$ ) and increased over time (0.8% of children born 2009–11 entered OHC by age 1 vs. 0.5% born 1992–94, 95% CI [0.7–0.9] and [0.4–0.6],  $p < 0.001$ ). This overall increase was driven primarily by the increased rate of entry among White children and not by concurrent changes in the population's ethnic composition. The proportion of children entering OHC in England is increasing and characteristics of the care they receive are changing with earlier intervention and longer, more stable placements. Further research is required to understand the reasons for these changes in practice and whether they are cost-effective, sustainable, and improve outcomes for children and society.

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In England, a looked after child is one who is in under the care of a local authority. Under the Children Act 1989, children who are at risk of or are experiencing significant harm (e.g., due to neglect or abuse) can be voluntarily accommodated or compulsorily removed from their parents by a court order. Approximately 60,000 children in England are looked after in OHC each year (Department for Education, 2015) representing 0.5% of the child population. Recently Ubbesen, Gilbert, and Thoburn (2015) reported that 1.6% of children in England born 1992–94 entered OHC by age 16. However, this study did not include children who were placed in care voluntarily and the use of OHC has increased over time, particularly among infants (Gilbert et al., 2012). Therefore the cumulative proportion is likely to be higher; for example, 3.6% of children born in 1970

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spent time in OHC during their childhood (Viner & Taylor, 2005). Ethnic disproportionalities in the use of OHC have been described in other high-income settings, such as the United States (Magruder & Shaw, 2008), Canada (Fallon et al., 2013), and Australia (Tilbury, 2009), with indigenous aboriginal populations and ethnic minorities significantly over-represented. Despite recent increases in the proportion of non-White ethnic minorities in the population (Centre on the Dynamics of Ethnicity, 2012), such variation has not been well-explored in England.

Placement in out-of-home care (OHC) indicates serious childhood adversity sufficient for the State to assume responsibility for a child. Children entering OHC are a vulnerable group and most continue to experience problems whilst in care and after they exit, though the reasons for this are complex. Thus, being in OHC is associated with multiple adverse outcomes both in childhood and in later life (Akister, Owens, & Goodyer, 2010; Richardson & Lelliott, 2003) including poorer health (Ford, Vostanis, Meltzer, & Goodman, 2007; Goodman, Ford, Corbin, & Meltzer, 2004; Martin, Ford, Goodman, Meltzer, & Logan, 2014; Meltzer, Gatward, Corbin, Goodman, & Ford, 2002), risky behaviour such as smoking, drinking, and drug taking (Meltzer et al., 2002), and higher rates of teenage pregnancy and premature death (Vinnerljung & Sallnäs, 2008). Children in OHC also have lower educational attainment (Botchway, Quigley, & Gray, 2014; Vinnerljung & Sallnäs, 2008), are more likely to be permanently excluded from school (Viner & Taylor, 2005), and are less likely to have good relationships with their peers (Meltzer et al., 2002). As adults, they are more likely than their peers to be unemployed (Viner & Taylor, 2005), imprisoned, homeless, or a victim of violent crime (Pritchard & Butler, 2000). Age at entry to OHC, placement setting, and stability of care are associated with better or worse outcomes (Tarren-Sweeney, 2008). For example, children in family foster care have better mental health outcomes than those in residential group care (Meltzer et al., 2002) while multiple placement changes are associated with a higher prevalence of psychiatric disorders (Ford et al., 2007).

To plan future services and allocate increasingly scarce resources, it is important to understand what proportion of children are placed in OHC and what drives changes over time in rates of entry to care. Exploring the type of care provided to children is also important as this affects a wide range of health, social, and educational outcomes, as well as the financial costs of care provision. We aimed to use national administrative data to describe how many children in England enter OHC by age 18 including variation by broad ethnic group. We also sought to investigate the determinants of changes in the proportion of children entering care over time vis-à-vis concurrent changes in the population's ethnic composition, and to describe variation in the characteristics of care known to influence outcomes, namely placement type, duration, and stability.

## Method

### Data Sources

Data related to children in care in England has been collected routinely by the Department for Education since 1992. However, complete care histories are only available for those with a day of birth divisible by three due to data collection restrictions between 1998 and 2003. The dataset used in this study described all episodes of care between January 1, 1992, and December 31, 2012, (including placement type, legal status, reason child was looked after, gender, date of birth, and ethnicity) for 92,190 children born between January 1, 1992, and December 31, 2011. This sample represented one-third of all looked after children. Children who were looked after but remained with their parents or whose placement location was unknown were excluded from analyses, as well as children in OHC for respite reasons (as they typically have complex health needs). To calculate rates of entry to OHC, denominator data by gender, ethnicity, and single year of age was derived from mid-year population estimates. As mid-year estimates were not available by ethnicity in later years (Office for National Statistics, 2015), ETHPOP data (Wohland et al., 2015) was used as an alternative source of denominator data from 2001.

### Cumulative Proportion of Children Entering Out-of-Home Care

First entry to OHC was defined as the start date of a child's first episode of OHC for non-respite reasons. If a period of respite care was concurrent with OHC for non-respite reasons (i.e. it had been used to ease a child into OHC for other reasons such as neglect) the start date of the respite episode was considered the first entry to OHC. Entry to OHC was analysed by age and grouped year of birth (e.g., 1992–94 to 2009–11). The numbers entering care at each age from infants (<1 year) to 17 years were counted and multiplied by 3.05 to adjust for the one-third sample. To calculate the age-, gender-, and ethnicity-specific cumulative proportions, the number of children who had entered OHC was divided by the average number of children who would be that age in the relevant calendar year. For example when calculating the cumulative proportion of children born in 2000 who had entered OHC by age three, the denominator was the average of the number of infants born in 2000, 1 year olds in 2001, 2 year olds in 2002, and 3 year olds in 2003. This approach accounted for entry and exit of children from the denominator over time due to immigration, emigration and death. Rates of entry by ethnicity were not calculated for children born before 2001 due to the high proportion with unknown ethnicity (18.4%).

The composition of the United Kingdom's population changed dramatically during the study period with a doubling of non-White ethnic minorities from 7% in 1991 to 14% in 2011 (Centre on the Dynamics of Ethnicity, 2012). Therefore, we hypothesised that any overall increase in the proportion of children entering care may be an artefact of the changing ethnic composition of the child population, and attributable to an increase in the number of black and mixed ethnicity children who are more likely to become looked after. To explore this possibility, variance in the cumulative proportion of children

entering OHC over time was decomposed (Gibbons, Overman, & Pelkonen, 2014) into changes in (a) the ethnic-specific rates of entry to OHC and (b) the ethnic composition of the child population (see Supplementary Box 1 for further details).

#### Characteristics of Out-of-Home Care

Type, duration, and stability of OHC placements are difficult to describe as multiple entries and exits over childhood are possible. Placement at first entry was used to describe variation in characteristics of care by age and over time. Characteristics of care were explored for the two years following first entry to care as we felt this timeframe was sufficiently long to explore stability and duration of long-term placements but also allowed more recent changes in policies and practices to be explored. For these analyses, children born in three years across the period for which data was available (1992, 2000 and 2008) were selected ( $N = 13,700$ ). Placement setting at first entry to OHC was grouped into four broad categories: (a) family care: placed for adoption and kin or stranger foster care; (b) group care: children's home, health-related residential accommodation, residential school, and other supported accommodation; (c) independent living, and (d) other (including in custody). As children may be temporarily placed in one care setting while waiting for a more appropriate setting to become available, if a child's placement changed within seven days of first entry the subsequent placement was used for this analysis. Children who entered care for the first time after December 31, 2010 or after their 16th birthday were excluded as they could not have two years of follow-up. Variation in type of placement and proportion of children with more than one placement change by year of birth groups and age group was evaluated using  $\chi^2$  tests and variation in duration of care evaluated using ANOVA. All analyses were carried out using Stata v13.

#### Results

##### Sample Characteristics

The study sample comprised 84,674 children placed in OHC for non-respite reasons (see Supplementary Fig. 1). Most children entered OHC for the first time through voluntary placement under Section 20 of Children Act 1989 (see Table 1); however, this proportion decreased over time (e.g., from 73.0% of infants born in 1992–94 to 53.7% of those born 2009–11,  $p < 0.001$ ). The majority of children became looked after for reasons related to abuse or neglect except adolescents aged 16 or older who were most likely to enter due to absent parenting.

##### Cumulative Proportion of Children Entering Out-of-Home Care

By age 18, 3.3% of children born in 1992–1994 had entered OHC (see Fig. 1). Some gender variation was evident with 3.5% of boys becoming looked after during their childhood compared to 3.0% of girls ( $p < 0.001$ , see Table 2). The proportion of children entering OHC also varied significantly by ethnicity (see Table 2). Among children born in 2001–03 (the earliest year of birth group for which ethnicity was recorded for >99% of children), rates of entry by age nine were lowest in White

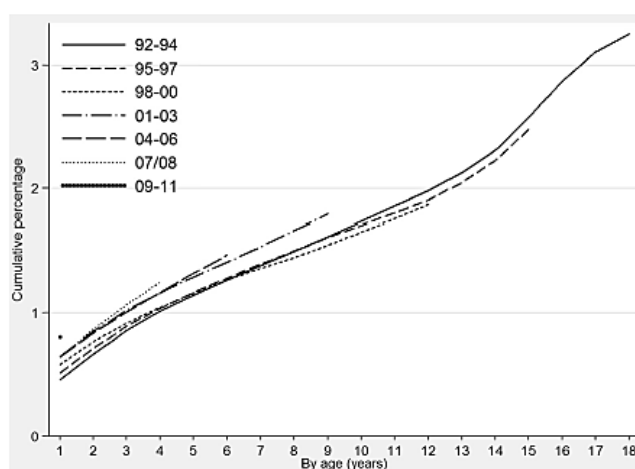


Fig. 1. Cumulative proportion of children entering out-of-home care by grouped year of birth and age.

**Table 1**  
 Characteristics of looked after children at first entry to out-of-home care, by year of birth (%).

	1992–94	1995–97	1998–00	2001–03	2004–06	2007/08	2009–11
<b>All children (N)</b>	19,751	17,415	13,058	11,001	10,070	6,141	7,328
<i>Gender</i>							
Male	54.5	52.2	53.4	52.7	52.0	52.7	51.6
Female	45.6	47.8	46.6	47.3	48.0	47.3	48.4
<i>Ethnicity<sup>a</sup></i>							
White	72.6	75.4	77.9	76.4	75.3	75.4	78.4
Mixed	6.6	7.1	8.4	9.8	11.1	11.9	11.6
Asian	7.1	5.2	3.7	3.8	3.7	3.8	3.0
Black	9.3	9.2	8.0	8.5	8.4	6.8	5.3
Other	4.5	3.1	2.0	1.6	1.5	2.1	1.8
Unknown	27.4	19.0	5.8	0.2	0.5	0.6	1.8
<b>Infants (N)</b>	2,886	3,083	3,349	3,602	3,903	2,813	5,153
<i>Reason looked after<sup>b</sup></i>							
Abuse or neglect	41.6	52.7	64.2	67.0	67.0	67.1	69.0
Child's disability	0.9	1.4	1.0	0.9	0.8	0.6	0.4
Parental illness or disability	11.7	9.5	7.8	7.8	6.5	6.1	5.1
Family in acute stress	14.7	12.4	7.4	7.4	8.3	8.3	6.8
Family dysfunction	1.5	2.4	7.0	8.6	10.4	12.2	15.0
Socially unacceptable behaviour	0.6	0.8	0.4	0.2	0.4	0.2	0.4
Low income	0.0	0.1	0.2	0.2	0.2	0.2	0.2
Absent parenting	19.6	15.1	10.7	7.8	6.4	5.2	3.1
Other <sup>c</sup>	9.4	5.7	1.3	n/a	n/a	n/a	n/a
<i>Legal status<sup>d</sup></i>							
Care order	14.2	19.9	26.1	29.5	29.9	29.5	35.0
Placement order	0.6	0.2	0.2	0.1	0.2	0.1	0.1
Child protection	14.6	17.8	19.6	18.2	17.0	13.6	12.1
Voluntary placements	70.6	62.0	54.1	52.3	52.9	56.8	52.8
<b>1–4 year olds (N)</b>	4,284	3,940	3,809	3,565	4,073	3,184	2,087
<i>Reason looked after<sup>b</sup></i>							
Abuse or neglect	49.4	61.1	65.7	67.5	66.1	69.3	69.6
Child's disability	1.9	1.9	1.3	1.0	0.8	0.4	0.6
Parental illness or disability	18.4	13.3	11.3	8.3	6.7	5.0	4.5
Family in acute stress	17.0	10.8	8.8	8.8	9.3	8.2	7.1
Family dysfunction	3.5	5.9	7.8	9.4	13.0	14.2	16.1
Socially unacceptable behaviour	0.8	0.6	0.4	0.5	0.4	0.6	0.9
Low income	0.1	0.3	0.3	0.5	0.3	0.2	0.3
Absent parenting	4.9	4.9	4.2	4.0	3.4	2.1	1.0
Other <sup>c</sup>	3.9	1.3	0.1	n/a	n/a	n/a	n/a
<i>Legal status<sup>d</sup></i>							
Care order	14.0	20.7	24.8	25.2	23.2	25.7	28.3
Placement order	0.0	0.1	0.1	0.0	0.2	0.1	0.7
Child protection	16.6	19.5	18.7	22.5	23.2	22.7	20.9
Voluntary placements	69.3	59.7	56.4	52.2	53.3	51.5	50.1
<b>5–10 year olds (N)</b>	4,331	4,012	3,850	3,712	2,094	n/a	n/a
<i>Reason looked after<sup>b</sup></i>							
Abuse or neglect	57.8	59.0	61.8	64.1	67.3		
Child's disability	5.4	5.1	4.0	3.5	1.9		
Parental illness or disability	11.5	9.3	6.0	4.9	4.6		
Family in acute stress	10.2	9.4	9.9	8.7	8.9		
Family dysfunction	8.0	10.3	12.1	14.4	13.9		
Socially unacceptable behaviour	1.4	0.9	1.0	0.9	0.8		
Low income	0.3	0.3	0.3	0.2	0.4		
Absent parenting	4.9	5.8	4.9	3.2	2.1		
Other <sup>c</sup>	0.5	0.0	0.0	n/a	n/a		
<i>Legal status<sup>d</sup></i>							
Care order	21.1	22.3	23.2	23.9	26.5		
Placement order	0.0	0.0	0.0	0.0	0.1		
Child protection	17.2	19.1	20.9	22.3	22.4		
Voluntary placements	61.6	58.6	55.8	53.8	51.0		
<b>11–15 year olds (N)</b>	6,052	5,461	2,050	n/a	n/a	n/a	n/a
<i>Reason looked after<sup>b</sup></i>							
Abuse or neglect	34.5	42.4	55.4				
Child's disability	4.7	4.5	4.8				

Table 1 (Continued)

	1992–94	1995–97	1998–00	2001–03	2004–06	2007/08	2009–11
Parental illness or disability	2.7	3.0	3.1				
Family in acute stress	15.8	14.1	11.9				
Family dysfunction	18.5	20.3	17.8				
Socially unacceptable behaviour	9.6	6.6	3.1				
Low income	0.3	0.2	0.1				
Absent parenting	13.9	8.9	3.9				
<i>Legal status<sup>d</sup></i>							
Care order	6.9	8.4	16.3				
Placement order	0.0	0.0	0.0				
Child protection	10.3	12.0	16.2				
Voluntary placements	77.9	76.0	66.2				
Youth justice	4.9	3.6	1.2				
<b>16+ year olds (N)</b>	2,198	919	n/a	n/a	n/a	n/a	n/a
<i>Reason looked after<sup>b</sup></i>							
Abuse or neglect	17.3	22.6					
Child's disability	4.3	4.8					
Parental illness or disability	0.9	0.5					
Family in acute stress	13.2	14.5					
Family dysfunction	20.6	21.7					
Socially unacceptable behaviour	6.4	8.5					
Low income	1.5	0.5					
Absent parenting	35.9	26.9					
<i>Legal status<sup>d</sup></i>							
Care order	1.3	0.9					
Placement order	0.0	0.0					
Child protection	2.6	4.5					
Voluntary placements	91.8	86.8					
Youth justice	4.3	7.8					

<sup>a</sup> Calculated as % of those with known ethnicity.

<sup>b</sup> Only one reason looked after can be selected for each child; if more than one is applicable then the highest ordered reason should be selected.

<sup>c</sup> "Reason looked after" replaced the more detailed "category of need" variable in 2000. Categories of need with no comparable reason looked after have been classed here as "Other". Codes in each reason looked after category are described in Supplementary Table 1.

<sup>d</sup> Care order – full or interim care order; placement order – freeing or placement order; child protection – under child assessment order, police protection or emergency protection order; voluntary – single period of accommodation under Section 20 of the Children Act 1989; youth justice – detained under PACE (Police and Criminal Evidence Act), sentenced to CYP A 1969 supervision order with residence requirement, on remand or committed for trial or sentence. Codes in each legal status category are described in Supplementary Table 2.

<sup>e</sup> A small number of children born in 2007/08 and aged 5 at first entry to care ( $n = 144$ ) or born 2001/03 and aged 11 ( $n = 122$ ) have been excluded from this table.

(1.6%) and Asian (0.8%) children compared with Mixed (4.2%) and Black (4.5%) children ( $p < 0.001$ ). Over time the proportion of children entering OHC increased significantly; 0.8% of children born in 2009–11 entered care by age one compared with 0.5% of those born in 1992–94 ( $p < 0.001$ ). As the proportion of non-White ethnic minorities in England doubled during the study time period we hypothesised that the overall increase in the proportion of children entering care may be an artefact of the changing ethnic composition of the child population, and attributable to an increase in the number of Black and Mixed ethnicity children who are more likely to enter care. However, when the overall increase was decomposed into components attributable to changes in (a) population weights and (b) ethnic-specific rates of entry to care, the increase in the proportion of children who were non-White was found to have had a negligible effect. Instead the increase over time in the rate of entry to care among White children was the main determinant of the overall increase in the proportion of children in OHC (see Table 3). Among infants, the increase in the rate of entry among White children between 2001–03 and 2009–11 accounted for an absolute increase of 0.15 percentage points in the overall cumulative proportion entering OHC, while changes in other ethnic-specific rates or in the ethnic distribution of the population accounted for changes of less than (+/–) 0.03 percentage points. The increase over time in the proportion of children entering OHC appears to be due to a small yet significant increase in the rate of entry to OHC among white children and not the changing ethnic distribution of children in England.

#### Characteristics of Out-of-Home Care

A small number of children (2.8%) changed placement type within one week of first entry to OHC and the majority subsequently moved to stranger or kin foster care settings. Type of placement varied with age at first OHC entry (see Table 4(i)). The majority of infants were placed in a family care setting (i.e. foster care or placed for adoption): almost 10% were placed in a group care setting, primarily health-related residential care settings including mother and baby units. Compared with infants, 1–4 year olds were more likely to be placed in family care settings and the proportion placed in group care settings (e.g., children's homes, residential schools, etc.) increased with age. Over time, young children (1–10

**Table 2**  
Cumulative percentage of children entering OHC by year of birth, age, gender and ethnicity.

	Year of birth	By age (years)						
		1	4	6	9	12	15	18
All	1992–94	0.46	1.01	1.27	1.61	1.98	2.57	3.25
	1995–97	0.51	1.04	1.28	1.61	1.91	2.48	
	1998–00	0.58	1.04	1.27	1.55	1.87		
	2001–03	0.65	1.16	1.41	1.80			
	2004–06	0.64	1.17	1.47				
	2007/08	0.64	1.25					
	2009–11	0.81						
Boys	1992–94	0.49	1.06	1.32	1.69	2.11	2.71	3.46
	1995–97	0.54	1.07	1.33	1.68	2.00	2.54	
	1998–00	0.60	1.09	1.32	1.62	1.97		
	2001–03	0.67	1.20	1.46	1.97			
	2004–06	0.64	1.19	1.49				
	2007/08	0.66	1.29					
	2009–11	0.81						
Girls	1992–94	0.41	0.95	1.20	1.52	1.85	2.43	3.03
	1995–97	0.47	0.99	1.22	1.52	1.80	2.40	
	1998–00	0.53	0.99	1.20	1.47	1.76		
	2001–03	0.60	1.11	1.36	1.73			
	2004–06	0.61	1.13	1.44				
	2007/08	0.59	1.19					
	2009–11	0.76						
White	2001–03	0.59	1.07	1.30	1.64			
	2004–06	0.59	1.07	1.34				
	2007/08	0.59	1.15					
	2009–11	0.77						
Mixed	2001–03	1.87	3.03	3.55	4.22			
	2004–06	1.89	2.96	3.60				
	2007/08	1.63	2.97					
	2009–11	1.80						
Asian	2001–03	0.28	0.49	0.61	0.84			
	2004–06	0.23	0.44	0.63				
	2007/08	0.27	0.52					
	2009–11	0.23						
Black	2001–03	1.16	2.53	3.24	4.52			
	2004–06	1.21	2.66	3.51				
	2007/08	1.16	2.37					
	2009–11	1.10						
Other	2001–03	1.08	1.92	2.21	2.74			
	2004–06	0.81	1.54	1.99				
	2007/08	0.96	1.83					
	2009–11	0.85						

Ethnicity was poorly recorded for children born between 1992 and 2000 (6–27% missing) therefore ethnic-specific rates could not be calculated for the earlier year of birth groups. ETHPOP data (Wohland et al., 2015) was used as the source of denominator data by ethnicity.

year olds) were increasingly placed in foster care rather than group care settings. More than a third of children entering OHC for the first time aged 16 or older were placed in independent living.

The number of placement changes also varied by age at first entry (see Table 4(ii)) and adolescents were most likely to experience more than one placement change in the two years following their first entry to OHC. Stability of placements improved over time for older children; for example, 38.4% of 1–4 years olds born in 1992 had more than one placement change compared to 13.9% of those born in 2008 ( $p < 0.001$ ). However, no improvements were over time were evident among infants with almost one in three experiencing multiple placements in the two years following first entry to OHC.

The number of weeks spent in care during the two years following first entry to OHC varied by age group with children who entered for the first time aged 5–10 years spending the longest time (see Table 4(iii)). Over time, the average duration of care in the two years following first entry to OHC increased for all children; for example, the mean number of weeks in care increased from 49 for infants born in 1992 to 70 for those born in 2008.

## Discussion

Our study is the first to describe the cumulative proportion of children entering OHC in England. By age 18, 3.3% of children in England experienced at least one placement in OHC and significantly higher rates of entry were evident amongst children

**Table 3**  
Contribution of changes in population weights and ethnic-specific rates of entry to care to overall changes in the proportion of children entering out-of-home care (absolute percentage points).

	By age 1	By age 2	By age 3	By age 4	By age 5	By age 6	By age 7
Actual overall change	0.14	0.15	0.04	0.08	0.08	0.06	0.05
Attributable to change in population weight							
- White	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02
- Mixed	0.02	0.02	0.02	0.02	0.02	0.02	0.01
- Asian	0.005	0.01	0.01	0.01	0.01	0.005	0.005
- Black	0.005	0.01	0.01	0.01	0.01	0.004	0.004
- Other	0.01	0.01	0.01	0.01	0.01	0.005	0.005
Attributable to change in rate of entry to OHC							
- White	0.15	0.15	0.04	0.07	0.07	0.04	0.03
- Mixed	-0.003	-0.01	-0.01	-0.003	-0.001	0.002	0.004
- Asian	-0.004	-0.005	-0.002	0.003	0.003	0.002	0.001
- Black	-0.002	-0.01	-0.004	-0.005	-0.01	0.01	0.005
- Other	-0.003	-0.003	-0.001	-0.001	0.001	-0.002	-0.004
Calculated change <sup>d</sup>	0.15	0.14	0.04	0.08	0.08	0.07	0.04

OHC= out-of-home care. Additional details related to decomposition methodology and results given in Supplementary Box 1.

<sup>a</sup> As ethnicity was not recorded for all individuals there may be slight differences between actual overall change and the change calculated by summing ethnic-specific changes.

of Mixed or Black ethnicity. From 1992 to 2012, the proportion of children entering OHC increased, driven primarily by a small but significant change in the rate of entry to care among White children. There were also changes over time in the characteristics of care. Children were increasingly placed in family type settings and first placements became longer and more stable.

An important strength of this study is that issues of recall or selection bias associated with survey-based studies of entry to OHC were negated through the use of national administrative data that included all looked after children in England and

**Table 4**  
Characteristics of out-of-home care during the two years following first entry, by age and year of birth.

Age group at first entry	1992			2000			2008		
	Family	Group	Other	Family	Group	Other	Family	Group	Other
(i) First placement type <sup>a</sup>									
<1 year	90.1%	8.4%	1.6%	89.9%	9.9%	0.3%	91.2%	8.5%	0.3%
1–4 years	95.9%	2.3%	1.8%	98.1%	1.8%	0.2%	99.2%	0.5%	0.4%
5–10 years	90.7%	8.0%	1.3%	95.8%	3.5%	0.6%			
11–15 years <sup>b</sup>	73.4%	23.0%	3.5%						
16+ years <sup>b</sup>	30.0%	34.6%	35.3%						
Age group at first entry	1992			2000			2008		
	Mean	Range	>1 change	Mean	Range	>1 change	Mean	Range	>1 change
(ii) Placement changes <sup>c</sup>									
<1 year	1.59	0–51	32.2%	1.49	0–10	37.6%	1.25	0–9	31.0%
1–4 years	1.95	0–67	38.4%	1.26	0–30	32.2%	1.08	0–16	13.9%
5–10 years	1.70	0–60	35.9%	1.01	0–18	22.9%			
11–15 years	2.03	0–135	39.2%						
Age group at first entry	1992		2000		2008				
	Mean	Median	Mean	Median	Mean	Median			
(iii) Time in care (weeks) <sup>d</sup>									
<1 year	49	39	66	75	70	80			
1–4 years	45	24	63	78	67	83			
5–10 years	65	94	67	95					
11–15 years	57	61							

<sup>a</sup> Family placement – placed for adoption and kin or stranger foster care; group placement – children's home, health-related residential setting, residential school or other supported accommodation; other placement – independent living, in custody or other placement. Codes in each placement category are described in Supplementary Table 3.

<sup>b</sup> Of children born in 1992, 1% of those entering care aged 11–15 and 33% of those aged 16+ were placed in independent living.

<sup>c</sup> Range and mean number of placement changes in the two years following first entry to out-of-home care and the proportion of children who experienced more than one placement change during this time.

<sup>d</sup> Mean and median weeks in care in the two years following first entry to out-of-home care.

did not rely on self-report by carers or care leavers. Furthermore, the longitudinal nature of the dataset allowed changes over time in rates of entry to care and its characteristics to be reliably described. However, as country of birth was not recorded in the dataset, a birth cohort approach could not be used to calculate the cumulative proportion of children entering care though other studies have found similar results when using both census denominator and birth cohort methods (Magruder & Shaw, 2008; Ubbesen et al., 2015). A further limitation is that, as the dataset did not contain detailed information related to care (e.g., support and interventions provided, parental contact, placement with siblings, etc.), our results provide only a crude description of the type of care children receive. Finally, the main limitation of this study is that the focus on first entries to OHC, and the following two years, means our analyses do not account for complex trajectories of care where multiple entries and exits throughout childhood are possible.

As the proportion of children entering OHC is a commonly used measure in social care research, our analyses can be used for cross-national comparisons. For example, the cumulative proportion of infants born in 2007 placed in OHC in England (0.6%) was similar to New Zealand and the US, higher than Australia or Sweden (0.3% each) and lower than Manitoba, Canada (2.9%) (Gilbert et al., 2009). The proportion of children born 1992–94 entering OHC by age 16 (2.9%) was similar to that reported in Denmark (3.4%); however, over time, rates of entry to OHC decreased in Denmark (Ubbesen et al., 2015) but increased in England. Exploration of differences and divergent trends such as these may be useful for informing policy development. Projections based on our results could also be used to plan future services. Since 1992 the proportion of children entering OHC has increased and, if patterns of entry to care observed for older cohorts of children continue, the overall proportion of children who enter OHC by age 18 will exceed 3.3% in the future. Such increases will have implications in terms of capacity and cost and need to be considered when developing children's social welfare policies, planning services, and allocating resources. Our results also demonstrate that the proportion of children who are voluntarily placed in care has decreased over time. If this trend of increased need for legal intervention continues it will also have financial implications as the average cost of care proceedings to remove a children from their parents is £15,000 (Broadhurst & Mason, 2013). A further application of our analyses to policy makers is the evaluation of changes in practice with regard to social care policy. For example, in England there has been an increased focus on early intervention in recent years (Cabinet Office, 2011) and the increasing proportion of infants entering OHC evident in our analyses suggests a corresponding shift in practice over time. Permanence is also a central goal of the social care system and the decreasing proportion of children who experience more than one placement move indicates improvements have been made. However, these improvements were not evident in all age groups with no change over time among infants, despite the importance of stability of caregivers during this developmentally sensitive time (Berens & Nelson, 2015). In this way, our results can be used by social care practitioners to identify subgroups of children with potentially unmet needs.

Ethnic disproportionalities were evident among children in England with those of Black, Mixed, or Other ethnicity more likely to be placed in care. However, the scale of ethnic variation was not as pronounced as in other countries, such as the United States (Magruder & Shaw, 2008), and not all ethnic minorities were over-represented: as described elsewhere (Thoburn, Ashok, & Proctor, 2005) those of Asian ethnicity were significantly less likely to enter OHC. Our results also demonstrate that concurrent changes in the population's ethnic composition appear to have had little impact on the overall proportion of children in care, and instead the greatest determinant was the small yet significant increase in the rate of entry to care among White children. Further work is required to understand the causes of this increase including the role of high profile child welfare cases, changes in social work practice, and increased diversity within the White population (e.g., due to immigration from Eastern European countries). Future research would also include exploration of trajectories of care among looked after children, beyond first entries and the following two years. For example, total time spent in OHC over childhood, mode of exit (e.g., adoption or return to parents), re-entry to OHC, and the relationship between these factors remains to be explored. It would also be useful to explore variation by local authority in entry to OHC, care characteristics and how these have changed over time, particularly in relation to differing social care budgets. Finally, an important next step would be to explore the effects of changes in OHC described in our results on outcomes in childhood and later life by linking social care data to health, education, and justice datasets. However, this would require collaboration across government departments and, in the absence of a common identifier, the development of effective algorithms for linkage.

Currently, one in thirty children in England experience at least one episode of OHC before their 18th birthday and, if current trends continue, this figure is set to increase in the future. The amount of time children spend in care also appears to be increasing in the short-term i.e. the two years following first entry. More children entering care and staying for longer will have financial implications for service providers and policy makers, particularly in the current context of economic austerity. OHC is an expensive intervention but the implications of the State assuming the caring role of the parent for a significant proportion of children need to be considered, not just in terms of economic costs but also in terms of the individual and societal well-being. For example, for some vulnerable children, levels of harm sufficient to justify entry to OHC care may potentially be prevented through early, intensive family support. For other children OHC is necessary to safeguard and improve their well-being and it is important that measures are taken to continually improve the services they receive. Our analyses highlight some changes over time in the characteristics of OHC that mean children are now more likely to be placed in a stable, family-type setting, which is likely to be beneficial in terms of a wide range of outcomes. Further research is required to understand the reasons for observed changes in practice and whether they are cost-effective, sustainable, and improve outcomes for children and society.

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## References

- Akister, J., Owens, M., & Goodyer, I. M. (2010). Leaving care and mental health: Outcomes for children in out-of-home care during the transition to adulthood. *Health Research Policy and Systems/BioMed Central*, 8, 10. <http://dx.doi.org/10.1186/1478-4505-8-10>
- Berens, A. E., & Nelson, C. A. (2015). The science of early adversity: Is there a role for large institutions in the care of vulnerable children? *The Lancet*, 376(14), 1–11. [http://dx.doi.org/10.1016/S0140-6736\(14\)61131-4](http://dx.doi.org/10.1016/S0140-6736(14)61131-4)
- Botchway, S. K., Quigley, M. A., & Gray, R. (2014). Pregnancy-associated outcomes in women who spent some of their childhood looked after by local authorities: Findings from the UK Millennium Cohort Study. *BMJ Open*, 4(12), e005468. <http://dx.doi.org/10.1136/bmjopen-2014-005468>
- Broadhurst, K., & Mason, C. (2013). Maternal outcasts: Raising the profile of women who are vulnerable to successive, compulsory removals of their children – A plea for preventative action. *Journal of Social Welfare and Family Law*, 35(July), 1–14. <http://dx.doi.org/10.1080/09649069.2013.805061>
- Centre on the Dynamics of Ethnicity. (2012). *How has ethnic diversity grown 1991–2001–2011?* Retrieved from <http://www.ethnicity.ac.uk/research/outputs/briefings/dynamics-of-diversity/>
- Department for Education. (2015). *Statistics on children under local authority care at national and local authority level*. Retrieved from <https://www.gov.uk/government/collections/statistics-looked-after-children>
- Fallon, B., Chabot, M., Fluke, J., Blackstock, C., MacLaurin, B., & Tonmyr, L. (2013). Placement decisions and disparities among Aboriginal children: Further analysis of the Canadian incidence study of reported child abuse and neglect part A: Comparisons of the 1998 and 2003 surveys. *Child Abuse & Neglect*, 37(1), 47–60. <http://dx.doi.org/10.1016/j.chiabu.2012.10.001>
- Ford, T., Vostanis, P., Meltzer, H., & Goodman, R. (2007). Psychiatric disorder among British children looked after by local authorities: Comparison with children living in private households. *The British Journal of Psychiatry: The Journal of Mental Science*, 190, 319–325. <http://dx.doi.org/10.1192/bjp.bp.106.025023>
- Gibbons, S., Overman, H. G., & Pelkonen, P. (2014). Area disparities in Britain: Understanding the contribution of people vs. place through variance decompositions. *Oxford Bulletin of Economics and Statistics*, 76(5), 745–763. <http://dx.doi.org/10.1111/obes.12043>
- Gilbert, R., Fluke, J., O'Donnell, M., Gonzalez-Izquierdo, A., Brownell, M., Gulliver, P., Janson, S., & Sidebotham, P. (2012). Child maltreatment: Variation in trends and policies in six developed countries. *The Lancet*, 379(9817), 758–772. [http://dx.doi.org/10.1016/S0140-6736\(11\)61087-8](http://dx.doi.org/10.1016/S0140-6736(11)61087-8)
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, 373(9657), 68–81. [http://dx.doi.org/10.1016/S0140-6736\(08\)61706-7](http://dx.doi.org/10.1016/S0140-6736(08)61706-7)
- Goodman, R., Ford, T., Corbin, T., & Meltzer, H. (2004). Using the Strengths and Difficulties Questionnaire (SDQ) multi-informant algorithm to screen looked-after children for psychiatric disorders. *European Child & Adolescent Psychiatry*, 13(Suppl. 2), II25–II31. <http://dx.doi.org/10.1007/s00787-004-2005-3>
- Cabinet Office. (2011). *Early Intervention: The Next Steps*. Retrieved from <https://www.gov.uk/government/publications/early-intervention-the-next-steps-2>
- Magruder, J., & Shaw, T. V. (2008). Children ever in care: An examination of cumulative disproportionality. *Child Welfare*, 87(2), 169–188. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18972937>
- Martin, A., Ford, T., Goodman, R., Meltzer, H., & Logan, S. (2014). Physical illness in looked after children: A cross-sectional study. *Archives of Disease in Childhood*, 99(2), 103–107. <http://dx.doi.org/10.1136/archdischild-2013-303993>
- Meltzer, H., Gatward, R., Corbin, T., Goodman, R., & Ford, T. (2002). *The mental health of young people looked after by local authorities in England*. pp. 1–264. Office for National Statistics. (n.d.). *Population Estimates*. Retrieved from <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Estimates>.
- Pritchard, C., & Butler, A. (2000). A follow-up study of criminality, murder and the cost of crime in cohorts of 'Excluded-From-School' and 'Looked-After-Children' adolescents in England. *International Journal of Adolescent Medicine and Health*, 12(2–3), 223–244. <http://dx.doi.org/10.1515/IJAMH.2000.12.2-3.223>
- Richardson, J., & Lelliott, P. (2003). Mental health of looked after children. *Advances in Psychiatric Treatment*, 9, 249–251.
- Tarren-Sweeney, M. (2008). The mental health of children in out-of-home care. *Current Opinion in Psychiatry*, 21(4), 345–349. <http://dx.doi.org/10.1097/YCO.0b013e32830321fa>
- Thoburn, J., Ashok, C., & Proctor, J. (2005). *Child welfare service for minority ethnic families: The research reviewed*. London, U.K.: Jessica Kingsley Publishers.
- Tilbury, C. (2009). The over-representation of indigenous children in the Australian child welfare system. *International Journal of Social Welfare*, 18(1), 57–64. <http://dx.doi.org/10.1111/j.1468-2397.2008.00577.x>
- Ubbesen, M.-B., Gilbert, R., & Thoburn, J. (2015). Cumulative incidence of entry into out-of-home care: Changes over time in Denmark and England. *Child Abuse & Neglect*, 42, 63–71. <http://dx.doi.org/10.1016/j.chiabu.2014.10.006>
- Viner, R. M., & Taylor, B. (2005). Adult health and social outcomes of children who have been in public care: Population-based study. *Pediatrics*, 115(4), 894–899. <http://dx.doi.org/10.1542/peds.2004-1311>
- Vinnerljung, B., & Sallnäs, M. (2008). Into adulthood: A follow-up study of 718 young people who were placed in out-of-home care during their teens. *Child & Family Social Work*, 13(2), 144–155. <http://dx.doi.org/10.1111/j.1365-2206.2007.00527.x>
- Wohland, P., Burkitt, M., Norma, P., Rees, P., Boden, P., & Durham, H. (n.d.). *ETHPOP Database, ESRC Follow on Fund Ethnic group population trends*. Retrieved from [www.ethpop.org](http://www.ethpop.org)

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.chiabu.2015.10.020>.





Data Resource Profile

## Data Resource Profile: Children Looked After Return (CLA)

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### Data resource basics

#### Childhood adversity

Early exposure to adversity, such as abuse or neglect, is associated with poorer outcomes across social, education and health domains.<sup>1,2</sup> Children in care (referred to as looked-after children in the UK<sup>3</sup>) are a vulnerable group who experience adversity serious enough for the state to intervene in family life and place them under the supervision of child protection services within the home or, more frequently, to remove the child and place them in out-of-home care (OHC).<sup>4</sup> In England, placement in OHC can be voluntary (i.e. with parental consent) or mandated by a court. Some looked-after children have complex health needs and are voluntarily placed in temporary care in order to provide respite to their parents,<sup>5</sup> but the majority of children in OHC are removed from their parents for reasons related to abuse or neglect.<sup>6</sup>

Being in OHC is an indicator of serious childhood adversity and a predictor of future adverse health, education and social outcomes.<sup>7</sup> For example, children in OHC have poorer mental and physical health than their peers,<sup>8–10</sup> are more likely to engage in risky behaviours such as smoking, drinking and drug-taking<sup>11</sup> and have higher rates of teenage pregnancy and premature death.<sup>12</sup> The causes of these

adverse outcomes are complex and there is considerable heterogeneity among looked-after children.<sup>13–15</sup> Some variation in outcomes has been associated with key characteristics of the care children receive while being looked after (e.g. age at first entry, setting, duration, stability) or with their exit from the social care system (e.g. destination, re-entry).<sup>16–18</sup> For example, children in foster care have better mental health outcomes than those in residential group care,<sup>11</sup> and psychiatric disorders are more common among children who experience multiple placement moves.<sup>10</sup> It is therefore important to determine the prevalence among the child population of being placed in OHC and to explore how different types or patterns of care are associated with outcomes, both in childhood and in later life.

Many studies of looked-after children in the UK are based on surveys;<sup>8–10</sup> however, these may have selection and/or recall biases, and an alternative administrative data source that can be used is the Children Looked After Return (CLA). The CLA offers an important resource to improve understanding about the characteristics of children placed in OHC, how patterns of care vary across the country and are changing over time, and the relationships between the type or pattern of care and subsequent outcomes.

### Purpose and scope of the Children Looked After Return

In England, children's social care services are delivered at local government level (i.e. by local authorities). The CLA is a national individual-level dataset held by the Department for Education (DfE), which contains information on all looked-after children and recent care leavers in England. Data collection began in 1992 (Table 1) and is ongoing via an annual online census of local authorities. Initially, data collection was mandated for all children in England who were looked after in the year ending 31 March 1992; however, between 1998 and 2003 it was restricted to a one-third sample (selected as children with a day of birth divisible by three) before reverting to include all looked-after children in 2004. The CLA contains detailed care histories for looked-after children including the start and end dates of each episode of OHC.

According to the DfE, the purpose of the CLA is to monitor the care and outcomes of looked-after children (while in care and on reaching adulthood) and to enable evaluation of the potential effects of government policy initiatives.<sup>5</sup> Outcome data were first collected in 1999, but were limited to the activity of children in care at age 16 years (i.e. taking exams, in further education, working, etc.). Since 2009, the outcome data collected by local authorities have been expanded to include child-level information on health-related outcomes such as immunizations, health checks and Strengths & Difficulties Questionnaire (SDQ) scores. However, outcome data are only collected for children in continuous care for 12 months or more. In 2002, collection of data on the activity and accommodation of care leavers at age 19 began with further follow-up at other ages introduced in later years.

All looked-after children are included in CLA (with the exception of the previously-described sample restrictions between 1998 and 2003). However, the CLA does not include private fostering arrangements in which a child is cared for by an adult who is not a close relative (i.e. someone other than a parent, grandparent, sibling, aunt or uncle).<sup>19</sup> The most recent CLA for the year ending 31 March 2015 contained details of 99 230 looked-after children—the highest figure since 1985.<sup>20</sup> Coverage of care leavers in CLA is not complete; information was collected for 84% ( $n = 22\,510$ ) in 2014 and 88% ( $n = 23\,170$ ) in 2015.<sup>20</sup>

### Data collected

#### Dataset production

Each year, all 150 local authorities in England must submit details of the looked-after children in their area and the

Table 1. Coverage of data in the Children Looked After Return (1992 to 2016)

Year (ending 31 March)	Child characteristics <sup>a</sup>	Episode information <sup>a</sup>	Adoption information	Outcome information <sup>b</sup>	Care leaver information <sup>c</sup>
2016					
2015					
2014					
2013					
2012					
2011					
2010					
2009					
2008					
2007					
2006					
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					
1994					
1993					
1992					

Plain shading shows individual-level data, patterned shading shows aggregate data.

<sup>a</sup>Individual-level information was collected for children whose day of birth was divisible by three between 1998 and 2003. Aggregate data were collected for all other children.

<sup>b</sup>Outcome data are only collected for children who have been looked after continuously for 12 months or more on 31 March. The type of outcome data currently collected is listed in Table 2.

<sup>c</sup>Data collection for care leavers was initially at age 19 years only, but has been extended to those aged 20 or 21 since 2014. It will include children who leave care at age 17 and 18 from 2016. The information collected for care leavers is listed in Table 2.

Table 2. Measures collected by Children Looked After Return

Child characteristics	Episode information	Indicators and outcomes of care
<p>For all children in care</p> <ul style="list-style-type: none"> <li>Child ID</li> <li>Gender</li> <li>Date of birth</li> <li>Ethnicity</li> <li>Unique Pupil Number</li> <li>Is a girl in care a mother?</li> <li>Is the child in care an unaccompanied asylum seeker?</li> </ul>	<p>For all children in care</p> <ul style="list-style-type: none"> <li>Local authority providing care</li> <li>Start date of care episodes</li> <li>Reason a new episode started</li> <li>Reason a placement changed</li> <li>Legal status of child</li> <li>Category of need of child</li> <li>Placement type</li> <li>Placement location (in/outside local authority)</li> <li>Placement provider (local authority, voluntary sector, etc.)*</li> <li>Unique Reference Number of placement provider</li> <li>End date of care episodes</li> <li>Reason episode ceased</li> </ul> <p>For children in continuous care for 12 months</p> <ul style="list-style-type: none"> <li>Home postcode when entering care</li> <li>Placement postcode</li> <li>Distance between placement and home</li> </ul>	<p>For children in continuous care for 12 months</p> <ul style="list-style-type: none"> <li>Was the child convicted during the year (if aged &gt; 10 years)?</li> <li>Are health surveillance checks up to date (if aged &lt; 5 years)?</li> <li>Are immunizations up to date?</li> <li>Were the child's teeth checked by a dentist during the year?</li> <li>Are annual health assessments up to date?</li> <li>Was the child identified as having a substance misuse problem?</li> <li>Was the child offered an intervention for substance misuse problem?</li> <li>Was the child eligible to take GCSE examinations?</li> <li>What was the child doing when aged 16 or over (e.g. in school, employment)?</li> <li>Strengths &amp; Difficulties Questionnaire score</li> </ul> <p>For care leavers</p> <ul style="list-style-type: none"> <li>Was the local authority in touch with the young person during the year?</li> <li>What was the child doing on their birthday (i.e. in education, employment)?</li> <li>What type of accommodation was the child living in on their birthday?</li> <li>Was the accommodation suitable?</li> </ul>

The years in which these variables were collected in the CLA vary and are described in full in official Department for Education guidance. The undefined variables are available for request from the Department for Education through the National Pupil Dataset team. Other variables are not routinely available to researchers, but can be requested. \*Care episodes recorded in CLA are funded by the state via local authorities, but may be delivered on their behalf through approved private organizations (e.g. a looked-after child may be placed with an agency foster carer or in a children's home run by a charity).

care provided to them during the period 1 April to 31 March to the DfE, via an online census. The number of children in care varies from year to year, but in the most recent period of data collection (1 April 2014 to 31 March 2015) data were collected for 99 230 children. Local authorities must also provide information for specific groups of care leavers (i.e. young people who were looked after as adolescents and whose 19th to 21st birthday occurred during the preceding year). Data must be returned and checked by local authorities before the end of June.<sup>5</sup> A national dataset is then collated by DfE. Aggregate tables and summary statistics (at national and local authority levels) are then produced by DfE and published online.<sup>21</sup>

#### Dataset structure: episodes and periods of care

In the CLA, a child's care record is divided into episodes. An episode is the length of time a child is looked after under the same legal status and in the same placement. When a child's legal status and/or placement changes, a new episode begins.<sup>5</sup> The start and end date of each individual episode is recorded in the CLA, and an episode cannot be less than 24 h. Episodes of care can be in the home (under supervision) or in alternative out-of-home accommodation (e.g. with a foster carer or in a children's home, Supplementary Table 1, available as Supplementary data at *IJE* online) and can be voluntary or legally mandated (Supplementary Table 2, available as Supplementary data at *IJE* online). A period of care is the time that a child is continuously looked after by a local authority. A period can consist of one or more episodes.

#### Measures collected in CLA

The measures collected in CLA have changed over time but can be broadly grouped as child characteristics, episode information, and indicators and outcomes of care (Table 2).

#### Child characteristics

When a child becomes looked after by a local authority for the first time, they are assigned a child ID—the main identifier in the CLA. This allows a child's record of care to be linked over time and enables longitudinal analyses. The demographic information collected in the CLA is limited to date of birth, gender and ethnicity (18 categories). Names are not collected. Whether a child is an unaccompanied asylum seeker (or a mother, for girls who are looked after) is also recorded, but this information is not routinely available to researchers. A pseudonymized unique pupil number (UPN) is recorded for looked-after children who attend a maintained (or state-funded) school

or nursery in England,<sup>22</sup> which allows linkage of CLA data to other education and social care datasets held by DfE.

#### Episode information

Detailed information related to each episode of care is collected in the CLA; for example, start and end dates, placement type, location and provider. Placement type describes the setting in which a child is cared for. Children may be placed at home with their parents while being looked after, but the majority are removed and placed in OHC.<sup>6</sup> OHC placements include foster care by relatives, friends, strangers or potential adopters; group care in children's homes, residential schools, care homes or residential units; independent living in a bed and breakfast (B&B), flat or bedsit and 'other' settings such as young offender institutes and prisons. The codes used to record placement type have changed over time and are described in Supplementary Table 1. When a child's placement changes (even to another placement of the same type) a new episode begins. However, only placements lasting 24 h or more are recorded; therefore if multiple placement changes occur in 1 day, only the final placement is recorded.<sup>5</sup>

The reason a child becomes looked after is recorded in the CLA as their 'category of need'. These hierarchical categories are: abuse or neglect, child's disability, parental illness or disability, family in acute stress, family dysfunction, socially unacceptable behaviour, low income and absent parenting. Though it is likely that a child will become looked after for a combination of the above reasons, only one (the highest ordered in the list) is recorded.<sup>23</sup> Before the 1 April 2000, a more detailed variable was used to capture the reason a child was looked after, and the relationship between these former 'reasons looked after' and current 'categories of need' is described in Supplementary Table 2.

The legal status of a child describes the legal framework under which a child enters the social care system. For example, child protection is used to ensure the safety of a child who is considered to be in need, and this legal status category includes emergency protection orders and police protection powers (used in urgent cases where rapid intervention is required) and child assessment orders (used in non-emergency cases where there are suspicions but no convincing evidence of actual or likely harm).<sup>24</sup> Children can also be looked after voluntarily (i.e. with parental consent) under Section 20 of the Children Act 1989.<sup>3</sup> Though it is possible for a child to have multiple legal statuses (e.g. to be under a care order and awaiting trial), only the most recent legal status is recorded in the CLA. As for placement setting, if there are multiple changes in 1 day, only the final legal status is recorded.<sup>5</sup> The codes used to record legal status have changed over time and are described in Supplementary Table 3 (available as Supplementary data at *IJE* online).

When a child ceases to be looked after, the reason the period of care ended is recorded. For example, a child may cease to be looked after because they return home to their parents or are adopted. They may also leave care through the granting of a residence or special guardianship order which confers differing levels of parental responsibility to a guardian<sup>25</sup> (such as a relative or former foster carer). The codes used to record the reason OHC ceases and how a child exits the social care system are described in Supplementary Table 4 (available as Supplementary data at *IJE* online).

#### Indicators and outcomes of care

One of purposes of the CLA is to monitor outcomes of looked-after children while in care and on reaching adulthood; however, outcomes are generally recorded only for children who have been in continuous care for 12 months or more. The data recorded for these children in long-term care include whether they were convicted of a crime, identified as having a substance misuse problem, offered intervention to treat substance misuse, and had up-to-date health checks, dental examinations and immunizations. Children aged 4 to 16 years should also have an annual SDQ score recorded (which can be used as an indicator of emotional or behavioural disorders). Similarly, outcome data are only collected for 'relevant and eligible' care leavers as defined by current DfE guidance,<sup>3</sup> i.e. a young person who was looked after at the age of 16 or 17 and had been looked after for at least 13 weeks after the age of 14. The outcomes recorded for care leavers are participation in education and/or employment and living arrangements, currently at age 19 to 21. Indicators of care, such as time to adoption, participation in statutory case reviews and being missing from care, are also collected in CLA. Data related to indicators and outcomes of care are not routinely available to researchers but can be requested.

#### Data quality checks

The CLA undergoes a number of automated validation checks when data are being returned by local authorities;<sup>26</sup> for example, fields that are blank or contain an invalid value will be flagged for review and correction. Unlikely/impossible sequences of dates or combinations of legal status and placement are also automatically flagged, as is information that contradicts records entered in previous years for the same child. During the validation checks, local authorities may correct errors or update previous years' data (i.e. enter an end date for an episode of care that had been ongoing at the time of the latest census).

## Data resource use

### Describing trends

DfE statistical tables and reports are published annually and are readily available to the general public online (<https://www.gov.uk/government/organisations/department-for-education/about/statistics>). These DfE tables include information on the rate of looked-after children in England by local authority, which can be used as an area-level indicator of childhood adversity. CLA data are used to monitor the use of OHC in England and outcomes of looked-after children over time. For example, recent DfE reports indicate that the rates of substance misuse and offending are falling among children in care,<sup>20</sup> but the proportion of care leavers not in education, employment or training (NEET) has increased.<sup>27</sup>

### Monitoring outcomes using linkage

Only limited educational outcomes are recorded in CLA; however, another DfE administrative dataset [(The National Pupil Dataset (NPD))] contains detailed information on a broad range of educational outcomes, including absences, exclusions, Special Educational Needs (SEN) support and type of school attended. Since 2006, NPD and CLA data have been routinely linked via UPN<sup>28</sup> by the DfE; this linked dataset has been used to describe the relative educational outcomes for children looked after in continuous care for 12 months or more.<sup>27</sup> Pseudonymized linked CLA-NPD data have also been used by researchers. For example, a recent study by Sebba *et al.*<sup>29</sup> explored the effects of the type and timing of OHC on children's educational outcomes, specifically the attainment of children eligible to sit GCSE exams in 2013. This study also involved linkage to a third DfE dataset that contains details of children who are referred to social services but are not placed in care (the Children In Need (CIN) dataset), available from 2009. This additional linkage allowed researchers to conduct more granular analyses in terms of exposure to adversity during childhood. Children in care (due to serious adversity) were compared with children in need (who experienced adversity at a level that was insufficient to warrant state involvement) and with all other children who were not in care or in need. The results of these analyses suggest that some of the gap in educational attainment between children in care and their peers can be attributed to differences in deprivation and SDQ scores, but early placement in long-term foster care can have a protective effect on attainment.<sup>29</sup> However, this analysis was limited to children in care at the time of sitting their GCSE exams (at age 15/16), and early exposure to care was simplistically defined as being in continuous care for at least 12 months and having also been in care during late primary school years (Key Stage 2).

### Analyses across the child life course

DfE reports make limited use of the rich longitudinal records of care available in CLA. For example, DfE annual reports focus on the number of placement moves a child has during a year, rather than the total number of moves they experience during their total time in care. However, the CLA can also be used to generate evidence on the child life course of care. For example, in a recent study that used longitudinal CLA data, we calculated the proportion of children in England who ever entered care throughout childhood, using synthetic birth cohorts. We found that one in 30 children born 1992–94 (3.3%) had entered OHC by age 18 years,<sup>30</sup> a much higher figure than the 0.6–0.9% of children who spend time in care in any given year as reported by the DfE.<sup>20</sup> The cumulative proportion of children ever entering care also appeared to be increasing (particularly among infants) and was disproportionately higher among Black, Mixed or Other ethnicity children. Decomposition of these changes over time vis-à-vis concurrent changes in the ethnic composition of the child population indicated that the overall increase in the proportion of children entering care was primarily due to an increase in the proportion of White children entering care, rather than increased ethnic diversity among children in England.

### Cross-national comparisons

Aggregate or child-level CLA data can also be used to explore variation in child protection and social care systems between different countries. For example, Gilbert *et al.* compared trends in the use of OHC among infants in England with five other countries using annual CLA figures published by DfE,<sup>31</sup> and Ubbesen *et al.* used individual-level longitudinal CLA data to compare the patterns of entry to care and type of OHC used in Denmark and England.<sup>32</sup>

### Strengths and weaknesses

#### Strengths

The main strengths of the CLA are that it has national coverage and is an administrative dataset, thereby negating issues of recall or selection bias associated with survey-based studies of OHC that rely on self-report by care leavers or caregivers. The CLA has collected cross-sectional data annually since 1992, and this allows for changes over time in the population of looked-after children, and the characteristics of the care they receive, to be reliably described. The CLA is also a longitudinal dataset that contains complete histories for children and allows care trajectories to be explored in detail. An additional strength is

that summary statistics are freely available to download online for use as an indicator of local authority-level adversity during childhood. Furthermore, the DfE recognizes the unique value of the CLA as a longitudinal data source for policy evaluation and research and they are committed to continued data collection and improvement of content. For example, permanence is a central component of current social care policy in England;<sup>33</sup> therefore, indicators of a breakdown in a permanent exit from care (i.e. adoption, special guardianship order or residence order) and of permanence within social care system via long-term foster care, were recently introduced.<sup>23</sup> CLA data can also be used to evaluate local policies as data are available broken down by local authority.

#### Weaknesses

The restriction of data collection between 1998 and 2003 limits the power of the longitudinal dataset, particularly when exploring variation by local authority or for relatively rare placements or outcomes (e.g. death). A further limitation is that child ID is a local authority-specific identifier. If a child is looked after in more than one local authority, they will be assigned multiple child IDs, consequently preventing linkage of care records across these administrative boundaries. Similarly, when a child is adopted they receive a new legal identity. Therefore, if they subsequently become looked after again, they are assigned a new child ID. This means that a child's records of care pre- and post-adoption are not linked. However, the main limitation of the CLA is that (as it is an administrative dataset) it does not contain baseline characteristics of children entering care or their families or provide detailed information related to the care and support looked-after children receive (e.g., interventions provided, parental contact, placement with siblings, etc.). Furthermore, outcome data are only collected for specific groups of looked-after children and care leavers, and linkage to other non-DfE datasets (related to health or justice, for example) is not facilitated as names are not collected.

#### Data resource access

Aggregate statistical tables, annual reports and documentation related to CLA are available to the public at [<https://www.gov.uk/search?q=children+looked+after>]. Requests for pseudonymized child-level CLA can be made by researchers through the NPD team at DfE. Data related to child characteristics and episodes of care (underlined in Figure 2) are routinely available for request from 2006 onwards. Other years of data or variables (such as SDQ score, postcode or UPN) are not routinely available, but can be

requested and have been supplied to researchers in the past.<sup>29</sup> Though CLA data is pseudonymized, it is considered 'tier 1' (i.e. sensitive personal information); therefore to obtain an extract, researchers must complete an information security questionnaire and application form, which are considered by an advisory panel. When making an application for CLA data, the need for each requested variable must be clearly justified by researchers. Applications can also be made to link CLA data to NPD and/or CIN data. Further application details and documents are available at [https://www.gov.uk/guidance/national-pupil-database-apply-for-a-data-extract].

### Supplementary Data

Supplementary data are available at *IJE* online.

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### References

1. Anda RF, Felitti VJ, Bremner JD *et al.* The enduring effects of abuse and related adverse experiences in childhood. *Eur Arch Psychiatry Clin Neurosci* 2006;256:174–86.
2. Shonkoff JP, Gamer AS, Siegel BS *et al.* The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* 2012;129:e232–46.
3. UK Government. *Children Act 1989 (UK)*. London: Stationery Office, 1989.
4. Daniel B. Concepts of adversity, risk, vulnerability and resilience: a discussion in the context of the 'child protection system.' *Soc Policy Soc* 2010;9:23141.
5. Department for Education. *Children Looked After by Local Authorities in England: Guide to the SSDA903 Collection April 2016 to 31 March 2017*. London: Department for Education, 2015.
6. Holmes L, Soper J. *Update to the Cost of Foster Care*. London: Department for Education, 2010.
7. Viner RM, Taylor B. Adult health and social outcomes of children who have been in public care: population-based study. *Pediatrics* 2005;115:894–99.
8. Martin A, Ford T, Goodman R, Meltzer H, Logan S. Physical illness in looked-after children: a cross-sectional study. *Arch Dis Child* 2014;99:103–7.
9. Goodman R, Ford T, Corbin T, Meltzer H. Using the Strengths and Difficulties Questionnaire (SDQ) multi-informant algorithm to screen looked-after children for psychiatric disorders. *Eur Child Adolesc Psychiatry* 2004;13:25–31.
10. Ford T, Vostanis P, Meltzer H, Goodman R. Psychiatric disorder among British children looked after by local authorities: comparison with children living in private households. *Br J Psychiatry* 2007;190:319–25.
11. Meltzer H, Gatward R, Corbin T, Goodman R, Ford T. *The Mental Health of Young People Looked After by Local Authorities in England*. London: The Stationery Office, 2002.
12. Vinnerljung B, Sällnäs M. Into adulthood: a follow-up study of 718 young people who were placed in out-of-home care during their teens. *Child Fam Soc Work* 2008;13:144–55.
13. Connelly G, Chakrabarti M. Improving the educational experience of children and young people in public care: a Scottish perspective. *Int J Incl Educ* 2008;12:347–61.
14. Harris MS, Jackson LJ, O'Brien K, Pecora PJ. Disproportionality in education and employment outcomes of adult foster care alumni. *Child Youth Serv Rev* 2009;31:1150–59.
15. Jackson S, Martin PY. Surviving the care system: education and resilience. *J Adolesc* 1998;21:569–83.

#### CLA in a nutshell

- Looked-after children represent a vulnerable population who have encountered serious early adversity and have poorer health, social and educational outcomes than their peers, both in childhood and in later life.
- The Children Looked After Return (CLA) is an administrative dataset routinely collected by the Department for Education in England to monitor outcomes of looked-after children (while in care and on reaching adulthood) and to enable evaluation of the potential effects of government policy initiatives.
- It contains child-level data about all looked-after children in England and recent care leavers, including child characteristics, episodes of care and outcomes.
- Data collection began in 1992, and since then the CLA has been used by researchers to describe the prevalence of children in care and explore their relative educational outcomes through linkage with other datasets.
- Aggregate statistics are publicly available and researchers can apply for pseudonymized, child-level extracts (including linkage to other Department for Education datasets) at [https://www.gov.uk/guidance/national-pupil-database-apply-for-a-data-extract].

16. Jones R, Everson-Hock ES, Papaioannou D *et al.* Factors associated with outcomes for looked-after children and young people: a correlates review of the literature. *Child Care Health Dev* 2011;37:613–22.
17. Taren-Sweeney M. The mental health of children in out-of-home care. *Curr Opin Psychiatry* 2008;21:345–49.
18. Berens AE, Nelson CA. The science of early adversity: is there a role for large institutions in the care of vulnerable children? *Lancet* 2015;376:1–11.
19. Department for Education. *Notifications of Private Fostering Arrangements: Year Ending 31 March 2014*. London: Department for Education, 2014.
20. Department for Education. *Statistical First Release 34/2015: Children Looked After in England (Including Adoption and Care Leavers) Year Ending 31 March 2015*. London: Department for Education, 2015.
21. Department for Education. *Outcomes for Children Looked After by Local Authorities*. London: Department for Education, 2015.
22. Department for Education. *Unique Pupil Numbers (UPN): A Guide for Schools and Local Authorities*. London: Department for Education, 2013.
23. Department for Education. *Children Looked After by Local Authorities in England: Guide to the SSDA903 Collection 1 April 2014 to 31 March 2015*. London: Department for Education, 2014.
24. Law J, Martin EA. *A Dictionary of Law*. 8th edn. Oxford, UK: Oxford University Press, 2015.
25. Department for Education. *Special Guardianship Guidance*. London: Department for Education, 2005.
26. Department for Education. *Children Looked After Return 2014 to 2015: Validation Checks*. London: Department for Education, 2014.
27. Department for Education. *Statistical First Release: Outcomes for Children Looked After by Local Authorities in England, as at 31 March 2014*. London: Department for Education, 2014.
28. Department for Education. *Children in Need Census Matched to the National Pupil Database*. London: Department for Education, 2014.
29. Sebba J, Berridge D, Luke N *et al.* *The Educational Progress of Looked After Children in England: Linking Care and Educational Data*. Oxford, UK: Oxford University Press, 2015.
30. Mc Grath-Lone L, Dearden L, Nasim B, Harron K, Gilbert R. Changes in first entry to out-of-home care from 1992 to 2012 among children in England. *Child Abuse Negl* 2015;51:163–71.
31. Gilbert R, Fluke J, O'Donnell M *et al.* Child maltreatment: variation in trends and policies in six developed countries. *Lancet* 2012;379:758–72.
32. Ubbesen M-B, Gilbert R, Thoburn J. Cumulative incidence of entry into out-of-home care: Changes over time in Denmark and England. *Child Abuse Negl* 2015;42:63–71.
33. Department for Education. *Data Pack: Improving Permanence for Looked After Children*. London: Department for Education, 2013.





Contents lists available at ScienceDirect

Child Abuse &amp; Neglect



## Factors associated with re-entry to out-of-home care among children in England



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### ABSTRACT

Exiting and re-entering out-of-home care (OHC) is considered a disruption to permanence which may have long-lasting, negative consequences for children due to a lack of stability and continuity. Each year approximately one-third of children in OHC in England exit, but information is lacking on rates of re-entries and associated factors. Using national administrative data, we calculated rates of re-entry among children exiting OHC from 2007 to 2012, identified key child and care factors associated with re-entry using Cox proportional hazards modelling, and developed a simple probability calculator to estimate which groups of children are most likely to re-enter OHC within three months. Between 2007 and 2012 re-entries to OHC in England decreased (from 23.3% to 14.4% within one year of exit,  $p < 0.001$ ), possibly due to concurrent changes in the way children exited OHC. Overall, more than one-third of children exiting OHC in 2008 re-entered within five years (35.3%,  $N = 4076$ ), but rates of re-entry varied by child and care characteristics including age, ethnicity, mode of exit, and placement stability. Based on these associated factors, we developed a calculator that can estimate the likelihood of rapid re-entry to OHC for a group of children and could be used by social care practitioners or service planners. Our findings provide insight into which groups of children are most likely to re-enter OHC, who may benefit from additional support or ongoing monitoring.

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### 1. Introduction

A central goal of England's social care system is to ensure that children have permanence (Department for Education, 2015a). This permanence (i.e. emotional, physical, and legal security, stability, and continuity (Department for Education, 2013)) helps children develop and maintain a sense of identity and belonging during childhood and beyond (Thomas, 2013). Most children in the care of the State (who are known as looked-after children) are placed in out-of-home care (OHC), such as with a foster carer or in a children's group home. OHC can provide permanence to children – through stable, long-term foster care, for example. However, current policy favours achieving permanence in a permanent family setting outside of the OHC system, with a particular focus on adoption (Department for Education, 2016a; Department of Health, 2000).

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Each year approximately one-third of children exit OHC (Department for Education, 2015b). When exiting OHC a child can either return home to their birth parents (with or without further supervision from social services), be adopted, or be placed with a guardian via a court order (Boddy, 2013). These legal orders include special guardianship and residence orders which confer differing levels of parental responsibility to a guardian but, unlike adoption orders, do not terminate the birth parents' rights (Department for Education, 2016b). A subsequent re-entry to OHC is considered a breakdown of permanence for a looked-after child, but rates of re-entry are not well-described. Case series studies among children who returned home to their birth parents have reported that almost half re-enter within two years (Farmer & Wijedasa, 2013) and two-thirds within five years (Farmer & Lutman, 2012). However, government figures (which are based on national administrative data) put the five-year re-entry rate after a return home at 30% (Department for Education, 2013). Since their introduction in 2006, two studies have explored special guardianship and residence order breakdowns using national data, and the five-year re-entry rates are estimated to be 6% and 15%, respectively (Selwyn, Wijedasa, & Meakings, 2014; Wade, Sinclair, Stuttard, & Simmonds, 2014). High rates of adoption breakdown (up to 60% in some age groups) have been reported in the media (Henderson, 2012), but a recently-conducted, large-scale academic study found that just 3.2% of adopted children had re-entered OHC within twelve years (Selwyn et al., 2014).

Re-entry to care is associated with a range of child and care characteristics; for example, one study in England found that children were more likely to re-enter OHC if a previous return home had broken down, or there was inadequate preparation and support after their exit (Farmer & Wijedasa, 2013). Similarly, a study of special guardianship orders found a significant association between breakdown and whether the guardian was the child's former foster carer or relative (Wade et al., 2014). Most recently, an association between more placement moves while in OHC and an increased likelihood of an adoption, special guardianship or residence order breaking down have been described (Selwyn et al., 2014). Studies in other countries have described associations with re-entry to OHC and the child's age at exit (Orsi, 2015; White, 2016; Yampolskaya, Armstrong, & Vargo, 2007), ethnicity (Orsi, 2015; Shaw, 2006), having behavioral or health problems (Barth, Weigensberg, Fisher, Fetrow, & Green, 2008; Liao & White, 2014; Testa, Snyder, Wu, Rolock, & Liao, 2015; White, 2016; Yampolskaya et al., 2007), a longer time spent in care (McDonald, Bryson, & Poertner, 2006; Wells & Guo, 1999), placement setting (Carnochan, Rizik-Baer, & Austin, 2013; Lee, Jonson-Reid, & Drake, 2012), and placement stability (Carnochan et al., 2013).

A lack of permanence is associated with negative outcomes for children. For example, a qualitative study of fostered and adopted children found that feelings of insecurity hindered the development of close and trusting relationships with their caregivers (Selwyn & Quinton, 2004). It is however difficult to disentangle the causes and consequences of a lack of permanence: a child's experience of abuse or neglect before entering OHC is likely to affect their feeling of security as well as relationships with caregivers, for example. Nonetheless, (the sometimes repeated cycles of) exits and re-entries to OHC represent a disruption to permanence for children. It has been suggested that improved provision of social care support to children exiting OHC and their families could potentially reduce the rate of re-entry (Holmes, 2014). In order to identify groups with a high likelihood of re-entry and allocate increasingly scarce resources more efficiently, a thorough understanding of the factors associated with re-entry to OHC is needed. However, this is currently lacking as the majority of the published literature on the topic is from the United States and not applicable to the English context, given the significant differences in population demographics, societal structures, and social care systems. In this study, we aimed to use national administrative data to identify child and care factors associated with re-entry to OHC among children in England. We also sought to develop a simple, online calculator that could be used by social care practitioners to identify groups of children who are most likely to re-enter OHC, and thus may have the greatest need for additional support when exiting care.

## 2. Method

### 2.1. Study extract

Since 1992, data related to children in care in England has been routinely collected from local authorities (local government bodies responsible for delivering children's social care services) by the Department for Education (DfE) using the Children Looked After return (CLA). This longitudinal, individual-level dataset contains information on child characteristics and episodes of care, including: date of birth, ethnicity, reason a child was looked after, placement type, and reason each episode of care ceased. Children's care histories are linked over time via a unique identifier; however, complete care histories are only available for one-third of children (namely, those whose day of birth is divisible by three as data was not collected for other children between 1998 and 2003). For further details of the CLA dataset see (Mc Grath-Lone, Harron, Dearden, Nasim, & Gilbert, 2016).

For this study, we derived a CLA extract of children who were placed in OHC for non-respite reasons. We did not include children in voluntary, short-term respite placements as their re-entry to OHC is often planned, at regular intervals (e.g., every weekend) and for respite care for serious chronic health conditions. As such, the initial study extract contained all episodes of care from January 1, 1992 to December 31, 2013 for one-third of children born on or after January 1, 1992 who were placed in OHC for non-respite reasons ( $N=95,369$ ). Ethical approval was not required for this study as it was a secondary analysis of de-identified administrative data; however, all applications for CLA data are reviewed by an advisory panel at DfE before access to the data is granted.

## 2.2. Describing rates of re-entry to out-of-home care

A limitation of CLA data is that it cannot be used to explore re-entry to OHC among children who are adopted. If an adopted child re-enters the social care system they are assigned a new unique identifier in CLA, which prevents linkage of pre- and post-adoption care histories. It is also not appropriate to use CLA data to explore re-entries to OHC among children who exit care because they are sentenced to custody, as their time to re-entry will be affected by the time they spend in custody. Similarly, it is difficult to interpret exits and re-entries to OHC for older adolescents as independent living (where a young person lives in a bedsit, apartment or other lodgings, either alone or with friends) can be used as either a care placement or mode of exit from care and its use varies across local authorities. We therefore excluded children who exited OHC aged 16 or older or via adoption orders or custodial sentences from our re-entry analysis. For all other children, exits since January 1, 2007 (the year special guardianship and residence orders were introduced) were identified and categorised using CLA codes as per Supplementary Table S1. If a child exited OHC more than once in a calendar year, their first exit in that year was selected as the index exit ( $N = 21,716$ ).

Re-entries to OHC by 31 December 2013 were explored using survival analysis methods. The cumulative proportion of children re-entering OHC by year and type of exit was described using Kaplan-Meier curves. The length of follow-up varied by year of exit, from 6 years for children exiting care in 2007 to 1 year for children exiting care in 2012, and follow-up was censored on a child's 18th birthday (as they were no longer at risk of the outcome of interest).

## 2.3. Identifying factors associated with re-entry to out-of-home care

Factors associated with re-entry to care were explored using a sub-sample of children who exited OHC in 2008 ( $N = 4076$ , see Supplementary Fig. S1). This year was selected as it allowed re-entry within a comparatively long follow-up period to be explored, but was after the introduction of special guardianship and residence orders. Cox proportional hazards modelling was used as it is a survival analysis method that allows the hazard or likelihood of an outcome to be estimated while accounting for multiple explanatory variables (e.g., demographic or care characteristics).

A Cox proportional hazards model has two main assumptions: firstly, that censoring is non-informative and secondly, that the hazard of an explanatory variable is proportional (i.e. constant over time). In this study, censoring of follow-up was non-informative as only children who had reached the age of 18 and were no longer at risk of the outcome of interest did not have the full five year follow-up. However, several variables violated the proportionality assumption (i.e. their hazards were not constant and changed over time). For these time-varying variables we used Aalen's linear hazards model (Buchholz, Sauerbrei, & Royston, 2014) to plot the cumulative regression coefficients against follow-up time and identified three periods over which hazards were proportional: 0–3 months, 3–12 months and 1–5 years (see Supplementary Fig. S2). New dummy variables that had proportional hazards in these time periods were derived and so both key assumptions of Cox proportional hazards model were met in this study.

The association between each explanatory variable and re-entry to OHC was initially assessed using a univariate Cox proportional hazard model. A multivariable model was then created in a stepwise fashion by including all variables associated with re-entry at univariate level (where  $p < 0.10$ ) and removing non-significant variables in turn until only significant factors remained. No significant interactions between explanatory variables were identified and the effect of clustering within local authorities was accounted for by using a shared-frailty Cox proportional hazard model (see Supplementary Table S2 for details of the final model). It was not possible to explore variation in the factors associated with re-entry to OHC at a local authority level due to a lack of power.

## 2.4. Developing a tool to estimate the likelihood of re-entry to out-of-home care

Although estimating the likelihood of re-entry to OHC over a period of years would be useful for long term service planning (e.g. in terms of informing future capacity needs), we felt that a shorter period of time was likely to be more relevant to social care practitioners. In this analysis, we chose to focus on re-entries to OHC within three months to supplement social workers understanding of which groups of children are most likely to rapidly re-enter OHC, as these groups may potentially need closer monitoring or additional support. This short period of time also accounted for more than one-third of all re-entries that occurred within five years (i.e. 37.6%). (Future planned work will focus on developing models for longer periods of time).

To explore which groups of children were most likely to re-enter OHC rapidly, a simplified Cox proportional hazards model that included factors associated with re-entry within three months and that a social worker could be reasonably expected to know about a child was developed. For example, while the average length of a child's placements was significantly associated with re-entry to OHC this information may not be readily available to a social worker and so time in care was included instead. Bootstrapping (x 1000 repetitions) was used to internally validate the effect sizes of the included variables and the baseline hazard of re-entry to care at three months was estimated. This information was then used to develop a model that estimated the absolute likelihood of rapid re-entry to OHC, rather than a relative hazard.

The discrimination of the model (i.e. its ability to distinguish between children who do and do not re-enter care) was assessed by calculating the Harrell's c-score and its predictive power was evaluated by measuring the Brier score and area under the curve (AUC) of the receiver operating characteristic curve. Finally, an external dataset of children who exited OHC in 2012 ( $N = 4650$ ) was used to validate the model by evaluating the Brier score, AUC and the agreement between the

Re-entry to out-of-home care among children aged &lt;16 years, by year of exit (2007–2012)

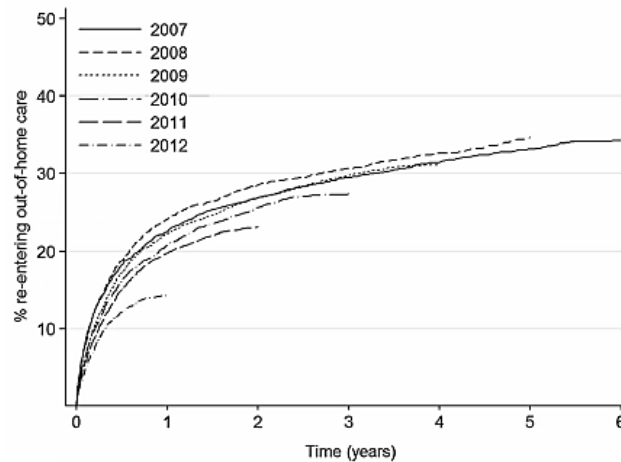


Fig. 1. Re-entry to out-of-home care among children aged <16 years, by year of exit (2007–2012).

Fig. 1 shows the percentage of children aged <16 when exiting out-of-home care who re-entered by 31st December 2013, stratified by the year they exited. The number of exits ( $N$ ) was 3862 in 2007; 4076 in 2008; 4184 in 2009; 4467 in 2010; 4477 in 2011 and 4650 in 2012. Children who exited out-of-home care because they were adopted or sentenced to custody are not included.

observed and estimated probability of re-entry (Altman & Royston, 2000). The validated model was then used to create a simple, online calculator that estimates the probability of re-entry to OHC within three months.

### 3. Results

#### 3.1. Rates of re-entry to out-of-home care among children in England

The proportion of children re-entering OHC decreased over time (see Fig. 1). For example, the proportion that re-entered within one year of exit decreased from 23.3% to 14.4% between 2007 and 2012 ( $p < 0.001$ ). However, during this period there were concurrent changes in the type of exit from OHC (see Supplementary Table S3). In particular, there were significant increases in the use of special guardianship and residence orders across all age groups; for example, among children aged 5 to 10 years the proportion exiting care via a special guardianship order increased from 8.2% of exits in 2007 to 19.8% in 2012 ( $p < 0.001$ ).

Detailed characteristics of our sub-sample of children who exited OHC in 2008 ( $N = 4076$ ) are described in Table 1. Overall, 35.3% re-entered OHC within five years of exit ( $n = 1438$ ). On average re-entry occurred within one year of exit (mean: 324 days); however, a fifth of re-entries ( $n = 283$ ) occurred within one month of exit and almost 40% ( $n = 541$ ) within three months.

#### 3.2. Factors associated with re-entry to out-of-home care

Among the sub-sample of children who exited OHC in 2008 ( $N = 4076$ ), rates of re-entry to OHC varied significantly by child characteristics such as age at exit and ethnic category (see Table 2). For example, just 26.1% of children of Asian, Black or Other ethnicity re-entered OHC within five years compared to 37.6% of children of White or Mixed ethnicity ( $p < 0.001$ ). Rates of re-entry to OHC within five years also varied by care characteristics: a previous history of being in OHC, placement in group care rather than foster care and being in care voluntarily (i.e. care was not court mandated) were associated with higher rates. In contrast, being placed with a relative (i.e. kin care), longer placements and fewer placement changes were associated with lower rates of re-entry. Re-entry to OHC within five years also varied by the type of exit from care, from 40.5% of children who were returned home to 4.2% of those exiting via a special guardianship order.

Adjusting for other factors, children aged 11 to 15 years when exiting care were more likely than younger children to re-enter within five years (Table 3,  $HR_{adj}$ : 1.49; 95%CI: 1.27–1.76,  $p < 0.001$ ). Similarly, children of White or Mixed ethnicity were more likely to re-enter OHC compared to children of Asian, Black or Other ethnicity ( $HR_{adj}$ : 1.50; 95%CI: 1.27–1.76,

**Table 1**  
Characteristics of children exiting out-of-home care in 2008 (N = 4076).

Child characteristics		Age at exit (years)			
Sex	n	%	n	%	
Male	2144	52.6	<1	436	10.7
Female	1932	47.4	1 to 4	1096	26.9
			5 to 10	923	22.6
			11 to 15	1621	39.8
<i>Ethnic category<sup>a</sup></i>			Mean	8 years	
White	2896	71.1	Median	8 years	
Mixed	378	9.3			
Asian	230	5.6			
Black	465	11.4			
Other (including Chinese)	88	2.2			
<i>Care characteristics at entry</i>					
<i>Reason for entering OHC<sup>b</sup></i>	n	%	<i>In OHC voluntarily?</i>	n	%
Abuse or neglect	2189	53.7	Yes	2546	62.5
Child's disability	79	1.9	No	1530	37.5
Parental disability	284	7.0			
Family in acute stress	506	12.4	<i>Type of placement</i>		
Family dysfunction	614	15.1	Foster care	3599	88.3
Socially unacceptable behavior	184	4.5	Group care	413	10.1
Low income	15	0.4	Other	64	1.6
Absent parenting	205	5.0			
			<i>Placed with kin at entry?</i>		
<i>Previous history of OHC?</i>			Yes	295	7.2
Yes	678	16.6	No	3781	92.8
No	3398	83.4			
<i>Care characteristics at exit</i>					
<i>Placement changes</i>	n	%	<i>In OHC voluntarily?</i>	n	%
None	2456	60.3	Yes	2502	61.4
1 to 4 changes	1518	37.2	No	1574	38.6
5+ changes	102	2.5			
			<i>Type of placement</i>		
<i>Time in OHC</i>			Foster care	3564	87.4
Mean	297 days		Group care	423	10.4
Median	93 days		Other	89	2.2
<12 months	2103	51.6	<i>Placed with kin at exit?</i>		
12+ months	1973	48.4	Yes	638	15.7
			No	3438	84.3
<i>Average placement length</i>			<i>Type of exit from OHC<sup>d</sup></i>		
<3 months	2136	52.4	Returned home	2560	62.8
3–9 months	989	24.3	Placed with parents	598	14.7
9+ months	951	23.3	Special guardianship	337	8.3
			Residence order	190	4.7
<i>Early instability of OHC?<sup>c</sup></i>			Other	391	9.6
Yes	669	16.4			
No	3407	83.6			

OHC = out-of-home care.

<sup>a</sup> Ethnicity was not recorded for 0.5% (n = 19).<sup>b</sup> Though there may be multiple reasons why a child enters OHC, only one can be recorded in the Children Looked After (CLA) dataset. When more than one applies to a case the highest ordered reason in the list is chosen. For further details of these "category of need" codes please see (Mc Grath-Lone et al., 2016a).<sup>c</sup> Early instability of care was defined as more than two placement changes in the first 100 days of care (as per (Akin, 2011)).<sup>d</sup> Children returned home are no longer under the supervision of social services, whereas children placed with parents continue to be supervised. Periods of being looked after that ceased for any other reason are recorded as "other" in the CLA dataset.

$p < 0.001$ ). A consistent association with a previous history of OHC and number of placement changes was also evident. Children who had already exited and re-entered OHC were 44% more likely to re-enter within five years as children exiting care for the first time. Those who had experienced five or more placement changes while in OHC were 56% more likely to re-enter compared to children who had not changed placement.

Other care characteristics were also associated with re-entry to care but had time-varying effects. For example, being in voluntary care rather than court-mandated care was associated with a higher probability of re-entry to OHC; however, the level of increased likelihood diminished over time from 83% in the three months following exit to 47% between one and five years after exit. Similarly, longer placements were associated with lower likelihood of re-entry but the strength of this association decreased over time. The effect of the reason a child was in care also varied over time: children who were in care due to disability were more likely to re-enter care in the long term (i.e. 1–5 years following exit) but there were no significant associations with earlier re-entries (i.e. within three months or 3–12 months). Children in care due to family stress, dysfunction or low income were more likely to re-enter care in the short term (i.e. within three months) and those in

**Table 2**  
Percentage of children who exited out-of-home care in 2008 and re-entered within five years of exit and univariate association in Cox proportional hazard model.

	%	HR	95% CI	p-value		%	HR	95% CI	p-value
<b>Child characteristics</b>					<b>Care characteristics at exit</b>				
<b>Sex</b>					<b>Placement changes</b>				
Male	35.8	(ref)			None	32.8	(ref)		
Female	34.7	0.94	0.85–1.04	0.25	1 to 4	35.6	1.22	1.10–1.36	<0.001
					5+	64.7	2.90	2.09–3.62	<0.001
<b>Age at exit (years)</b>					<b>Time in OHC</b>				
<1	31.0	(ref)			<12 months	38.7	(ref)		
1 to 4	24.5	0.74	0.60–0.91	<b>0.004</b>	12+ months	31.6	0.87	0.78–0.96	<0.001
5 to 11	29.7	0.89	0.73–1.10	0.28					
11 to 15	46.9	1.71	1.41–2.06	<0.001	<b>Average placement length</b>				
					<3 months	42.7	(ref)		
<b>Ethnic category<sup>a</sup></b>					3–9 months	33.9	0.84	0.74–0.95	<b>0.01</b>
Black, Asian or Other	26.1	(ref)			9+ months	20.1	0.42	0.36–0.50	<0.001
White or Mixed	37.6	1.63	1.40–1.89	<0.001	<b>Early instability of OHC?<sup>b</sup></b>				
<b>Care characteristics at entry</b>					No	33.9	(ref)		
<b>Reason for entering OHC<sup>c</sup></b>					Yes	42.5	1.77	1.55–2.02	<0.001
Abuse or neglect	31.2	(ref)			<b>Placement category</b>				
Child disability	41.8	1.32	0.94–1.86	0.11	Family	33.2	(ref)		
Parental health	37.3	1.13	0.92–1.39	0.25	Group	52.0	2.07	1.79–2.39	<0.001
Family stress/dysfunction	43.0	1.47	1.31–1.66	<0.001	Other	38.2	1.30	0.92–1.83	0.13
Unacceptable behavior	50.5	1.81	1.46–2.25	<0.001	<b>In OHC voluntarily at exit?</b>				
Absent parenting	16.6	0.43	0.31–0.61	<0.001	No	42.0	(ref)		
<b>Previous history of OHC?</b>					Yes	24.7	1.52	1.35–1.71	<0.001
No	32.5	(ref)			<b>Placed with kin at exit?</b>				
Yes	49.3	1.85	1.64–2.09	<0.001	No	38.6	(ref)		
<b>In OHC voluntarily at entry?</b>					Yes	17.2	0.35	0.29–0.43	<0.001
No	40.6	(ref)			<b>Type of exit from OHC<sup>d</sup></b>				
Yes	26.5	1.54	1.37–1.73	<0.001	Returned home	40.5	(ref)		
<b>Type of placement</b>					Placed with parents	39.8	1.09	0.77–1.38	0.89
Family or other	34.3	(ref)			Special guardianship order	4.2	0.08	0.04–0.13	<0.001
Group	43.8	1.09	1.02–1.18	<b>0.04</b>	Residence order	8.9	0.17	0.10–0.27	<0.001
<b>Placed with kin at entry?</b>					Other	34.0	0.83	0.69–0.99	<b>0.04</b>
No	36.4	(ref)							
Yes	20.4	0.46	0.36–0.60	<0.001					

OHC= out-of-home care; HR= hazard ratio; CI= confidence interval. Bold denotes significance at level  $p < 0.05$ . Overall, 4076 children who exited OHC in 2008 were included in the analysis; the  $N$  for each characteristic in Table 2 is as per  $n$  in Table 1.

<sup>a</sup> The assumption of proportional hazards was only met when ethnicity was binarised as 'White or Mixed' versus 'Asian, Black or Other'. Ethnicity was not recorded for 0.5% ( $n = 19$ ).

<sup>b</sup> Though there may be multiple reasons why a child enters OHC, only one can be recorded in the Children Looked After (CLA) dataset. The highest ordered reason in the list is chosen when more than one applies to a case. As there was no significant difference between the survival curves of children in care due family dysfunction, acute stress or low income, these reasons for entry to OHC were combined.

<sup>c</sup> Early instability of care was defined as more than two placement changes in the first 100 days of care (as per (Akin, 2011)).

<sup>d</sup> Children returned home are no longer under the supervision of social services, whereas children placed with parents continue to be supervised. Periods of being looked after that ceased for any other reason are recorded as "other" in the CLA dataset.

care due to absent parenting were consistently less likely to re-enter care within the five year follow-up period. Accounting for other factors, children who were placed with their parents had a higher likelihood of re-entering OHC than those who were returned home throughout the five year follow-up period. Conversely, children who exited via special guardianship or residence orders were consistently less likely to re-enter care.

### 3.3. Estimating the likelihood of re-entering out-of-home care

The model for our probability calculator used baseline risk and proportional hazard ratios to estimate an average likelihood of re-entry to OHC within three months based on the following group characteristics: age group at exit, ethnic category, reason the child was in OHC, had the child exited OHC previously, length of current episode of OHC, whether the child was in voluntary or court-mandated care and the mode of exit from care (e.g. return home, residence order, etc.). This estimation model to calculate the likelihood of rapid re-entry to OHC had a Harrell's  $c$ -score of 0.79 and AUC of 0.78 which indicated good discrimination between children who did and did not re-enter OHC (both measures can range from 0.5 to 1.0, where 1.0 is perfect discrimination). Calibration of the model was also good with a Brier score of 0.11 (which ranges from 0 to 1, where 0 is a perfect prediction).

**Table 3**  
Factors associated with re-entry to OHC among children who exited care in 2008.

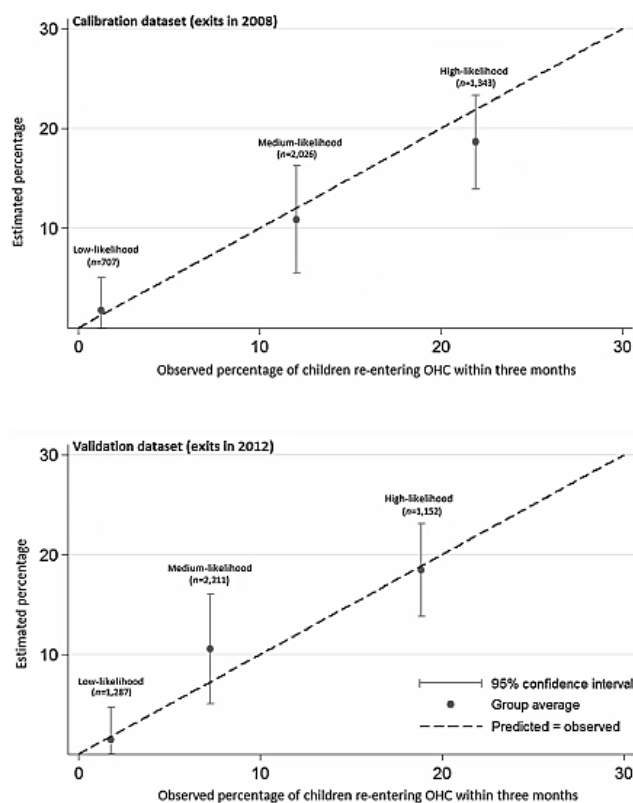
	Re-enter within 3 months			Re-enter within 3–12 months			Re-enter within 1–5 years		
	HR <sub>adj</sub>	95% CI	p-value	HR <sub>adj</sub>	95% CI	p-value	HR <sub>adj</sub>	95% CI	p-value
<b>Child characteristics</b>									
<i>Age at exit (years)</i>									
<1	(ref)			(ref)			(ref)		
1 to 4	0.95	0.77–1.18	0.64	0.95	0.77–1.18	0.64	0.95	0.77–1.18	0.64
5 to 11	1.12	0.91–1.39	0.30	1.12	0.91–1.39	0.30	1.12	0.91–1.39	0.30
11 to 15	1.49	1.27–1.76	<b>&lt;0.001</b>	1.49	1.27–1.76	<b>&lt;0.001</b>	1.49	1.27–1.76	<b>&lt;0.001</b>
<i>Ethnic category</i>									
Black, Asian or Other	(ref)			(ref)			(ref)		
White or Mixed	1.50	1.27–1.76	<b>&lt;0.001</b>	1.50	1.27–1.76	<b>&lt;0.001</b>	1.50	1.27–1.76	<b>&lt;0.001</b>
<b>Care characteristics at entry</b>									
<i>Reason in OHC</i>									
Abuse or neglect	(ref)			(ref)			(ref)		
Child disability	1.30	0.75–2.27	0.35	0.88	0.45–1.72	0.70	1.45	1.03–1.78	<b>0.04</b>
Parental health	0.90	0.62–1.32	0.58	1.09	0.76–1.56	0.63	1.23	0.87–1.74	0.24
Family stress or dysfunction	1.48	1.22–1.80	<b>&lt;0.001</b>	1.17	0.95–1.45	0.14	0.96	0.76–1.21	0.72
Unacceptable behavior	1.09	0.74–1.60	0.66	1.60	1.12–2.29	<b>0.01</b>	1.36	0.87–2.13	0.18
Absent parenting	0.54	0.31–0.94	<b>0.03</b>	0.44	0.25–0.80	<b>0.01</b>	0.35	0.17–0.71	<b>0.004</b>
<i>Previous history of OHC?</i>									
No	(ref)			(ref)			(ref)		
Yes	1.44	1.26–1.64	<b>&lt;0.001</b>	1.44	1.26–1.64	<b>&lt;0.001</b>	1.44	1.26–1.64	<b>&lt;0.001</b>
<b>Care characteristics at exit</b>									
<i>Average placement length</i>									
<3 months	(ref)			(ref)			(ref)		
3–9 months	0.46	0.36–0.59	<b>&lt;0.001</b>	1.04	0.84–1.29	0.47	1.18	0.93–1.48	0.17
9+ months	0.34	0.25–0.47	<b>&lt;0.001</b>	0.51	0.43–0.77	<b>&lt;0.001</b>	0.61	0.46–0.83	<b>0.001</b>
<i>Placement changes</i>									
No changes	(ref)			(ref)			(ref)		
1 to 4 changes	1.03	0.87–1.28	0.63	1.03	0.87–1.28	0.63	1.03	0.87–1.28	0.63
5+ changes	1.56	1.50–1.64	<b>&lt;0.001</b>	1.56	1.50–1.64	<b>&lt;0.001</b>	1.56	1.50–1.64	<b>&lt;0.001</b>
<i>In OHC voluntarily?</i>									
No	(ref)			(ref)			(ref)		
Yes	1.83	1.35–2.46	<b>&lt;0.001</b>	2.03	1.50–2.76	<b>&lt;0.0001</b>	1.47	1.09–1.91	<b>0.01</b>
<i>Type of exit from OHC</i>									
Returned home	(ref)			(ref)			(ref)		
Placed with parents	6.64	4.58–9.63	<b>&lt;0.001</b>	9.72	6.69–14.1	<b>&lt;0.001</b>	6.50	4.54–9.29	<b>&lt;0.001</b>
Special guardianship order	0.01	0.01–0.03	<b>&lt;0.001</b>	0.15	0.05–0.42	<b>&lt;0.001</b>	0.26	0.13–0.51	<b>&lt;0.001</b>
Residence order	0.15	0.04–0.63	<b>0.01</b>	0.40	0.20–0.83	<b>&lt;0.001</b>	0.27	0.13–0.58	<b>0.001</b>
Other	1.21	0.93–1.58	0.16	0.79	0.57–1.11	0.17	0.57	0.38–0.78	<b>0.01</b>

OHC = out-of-home care; HR<sub>adj</sub> = adjusted hazard ratio; CI = confidence interval. Bold denotes significance at level  $p < 0.05$ . Three periods of follow-up during which the hazards of explanatory variables were proportional were identified: 0 to 3 months, 3 to 12 months and 1 to 5 years. The corresponding columns in Table 3 present the hazard ratio of re-entry among the population still at risk of re-entry during this period (i.e. excluding children who had already re-entered care). The sample sizes ( $N$ ) was 4076 between 0 and 3 months; 3535 between 3 and 12 months and 3054 between 1 and 5 years. Theta for shared frailty by local authority in the Cox proportional hazards model was 0.07,  $p = 0.001$ .

This estimation model calculated a 10% likelihood of re-entry for the “average” group of children (i.e. one with the most common demographic and care characteristics from Table 1). However, the likelihood of re-entry estimated by our model varied between groups from <1% to 29.4% depending on its characteristics (interquartile range: 7.6% to 16.8%). Based on the distribution of likelihood, three categories were created: *low*- (<5%, which included approximately the lowest quartile of children in terms of likelihood), *medium*- (5–15%) and *high-likelihood* (>15%, which included the highest quartile). Fig. 2 illustrates that in the calibration dataset (i.e. children who exited OHC in 2008) there was very good agreement between the likelihood of re-entry to OHC estimated by our model and the actual proportion of children in each category that re-entered OHC within three months.

When the estimation model was applied to a validation dataset of children who exited care in 2012, the Brier score was 0.07, the AUC was 0.75 and again there was good agreement between the estimated likelihood of re-entry to OHC and the actual proportion of each group that re-entered OHC, particularly for the *low*- and *high-likelihood* groups (see Fig. 2). Based on this validated estimation model, we then created a simple, online tool that could be used to calculate a group's likelihood of re-entering OHC within three months, based on selected demographic and care characteristics. A beta version of the probability of re-entry calculator developed as part of our study is available at <https://louisemcgrathlone.com/tools/>.

Overall, 17.4% of children who exited care in 2008 ( $n = 707$ ) were categorised as *low-likelihood* for re-entering care within three months, 49.7% ( $n = 2026$ ) as *medium-likelihood* and 32.9% ( $n = 1343$ ) as *high-likelihood*. The estimated rates of re-entry for each group from our probability calculator were <1%, 10.9% and 18.6% respectively, and the actual observed rates were <1%, 12.0% and 21.9%. Older children, those of White or Mixed ethnicity and those in care due to a disability were over-represented in the *high-likelihood* group (see Supplementary Table S4). For example, 71.0% of children in the *high-likelihood* group were



**Fig. 2.** Observed versus estimated percentage of children exiting out-of-home care in 2008 and 2012 who rapidly re-enter. Fig. 2 shows the actual observed percentage of children who re-entered out-of-home care (OHC) within three months versus the percentage estimated by our model for children who exited in 2008 (calibration dataset,  $N = 4076$ ) and 2012 (validation dataset,  $N = 4650$ ). Children were grouped as *low*-, *medium*- or *high-likelihood* based on their demographic and care characteristics (detailed in Supplementary Table S4).

aged 11–15 compared to 39.8% of the overall population ( $p < 0.001$ ). Similarly, children who had been in care for longer, in court-mandated care, were exiting care for the first time and who exited via a special guardianship or residence order were over-represented in the *low-likelihood* group. For example, 45.0% of children in the *low-likelihood* group left care through a special guardianship order compared to just 8.3% of the overall population ( $p < 0.001$ ).

Among children who exited care in 2012, 27.7% of children ( $n = 1287$ ) were categorised as *low-likelihood* for re-entering OHC within three months, 47.5% ( $n = 2211$ ) as *medium-likelihood* and 24.8% ( $n = 1152$ ) as *high-likelihood*. The estimated rates of re-entry for each group were 1.4%, 10.5% and 18.4% respectively, and the actual observed rates were 1.7%, 7.2% and 18.8%.

#### 4. Discussion

Between 2007 and 2012 the rate of re-entry to OHC among children in England decreased. Results from the probability calculator indicated a change over time in the profile of children exiting OHC: the proportion of children identified as *high-likelihood* for rapid re-entry decreased from one in three children exiting care in 2008 to one in four in 2012 (32.9% vs. 24.8%,  $p < 0.001$ ). Overall, more than one-third of children exiting OHC in 2008 re-entered within five years. However, rates of re-entry varied by child and care characteristics with higher rates associated with older age when exiting OHC, being of White or Mixed ethnicity, returning to parents on exit, and shorter average placement length.

One limitation is that our analyses do not include the small proportion of children (6.3%) who left care aged 16 or 17. As a result, the overall rate of re-entry we calculated is likely to be an underestimation for the total child population in England.



Our analyses also could not include children who were adopted as it is not possible to link pre- and post-adoption records of care. Furthermore, limitations in the range and detail of information collected in the CLA dataset meant that we could not distinguish between planned and unplanned exits and re-entries; nor could our analyses account for variation in important parental or child risk factors for re-entry (such as type of abuse, family composition, mental or physical health conditions, exposure to violence, substance misuse, etc.). A strength of our analysis is that we used data for the whole of England with long-term follow up from 1992 to 2013 and included children who returned home, were placed with their parents or left care via a legal order (in comparison to other studies based on sub-national samples or focused on one mode of exit only (Farmer & Lutman, 2012; Farmer & Wijedasa, 2013; Wade, Biehal, Farrelly, & Sinclair, 2010; Wade et al., 2014)). Furthermore, our survival analysis incorporated time-varying hazards and provided more detailed descriptions of the influence of child and care factors on re-entry than other studies that assume proportionality throughout the follow-up period. The key strength of our study is the practical application of our findings: we developed a simple, online calculator that can be used by service planners and social care practitioners to estimate which groups are most likely to rapidly re-enter OHC.

The one in eight children (13.0%) who exited care via a special guardianship or residence order were least likely to re-enter OHC (4.2% and 8.9% within five years, respectively). These estimates of breakdown were slightly lower than those described by (Selwyn et al., 2014), most likely because older adolescents were not included in our sample. Nonetheless, our findings provide further evidence for comparatively lower rates of breakdown associated with special guardianship orders, which may be useful for policy makers and service providers.

As well as mode of exit, placement stability and lifetime experiences of care were important factors associated with rates of re-entry. For example, we found that the total number of placement changes and the average placement length were more significant predictors than the total time spent in care. Children were less likely to re-enter OHC within five years if their placements lasted nine months or longer on average (though the strength of this effect diminished over time). Whereas early instability in care (i.e. two or more placement moves during the first 100 days) had been associated with increased likelihood of re-entry to care in other studies (Akin, 2011), it was not a significant factor in our analyses. This suggests that initial difficulties achieving placement stability may be negated in the long-term with consistent, stable care.

A previous exit and re-entry to OHC was also strongly and consistently associated with an increased hazard of another re-entry. Although the proportion of children who had experienced repeated entries to OHC was relatively small (16.6%), almost half the group re-entered within five years and so they represent a group that could be targeted for additional support. Currently, official government statistics and reports tend to focus on experiences of care during a 12-month period (Department for Education, 2015a), but our findings highlight the importance of taking a longer term view when analysing data related to looked-after children. To ensure the best and most robust evidence base for guiding policy and practice development, analyses should take a longitudinal, life course approach that accounts for experiences of OHC throughout childhood. In particular, such analyses of adoption breakdown could serve as a valuable evidence base given the current focus on increasing the number and speed of adoptions in England (Department for Education, 2012). Adoption breakdown could not be explored in this study due to limitations of the administrative dataset but may be possible in the future as information on re-entry to OHC following adoption has been collected in the CLA dataset since 2013. However, as adoption appears to be a key government policy further work is urgently required to determine how retrospective linkage to enable long-term follow-up could be achieved.

Other care characteristics (such as placement setting or being placed with a relative) did not significantly affect re-entry to OHC, but the context of a child's entry to the care system did. Although the majority of children (53.7%) enter OHC for reasons of abuse or neglect, more than a quarter of entries (28.0%) were due to family dysfunction, acute stress or low income. These children had the highest rate of re-entry (43.0% within five years), were significantly more likely to re-enter OHC within three months of exit, and more than 80% of re-entries in this group were for the same reason (with a further 12.0% returning to OHC due to abuse or neglect). This suggests that some children may be returning home before the issues that led them to enter OHC have been resolved. Children who were placed in care voluntarily (rather than under a court order) were also more likely to re-enter OHC. One possible explanation for this observed association is that parents can withdraw consent for a voluntary care placement and so it is likely that a proportion of these exits will have received less professional scrutiny and may not have met thresholds for exits that would be required for court-mandated OHC. However, the higher rate of re-entry associated with voluntary placements may also be due to increased use of "trial periods" at home before permanent exits from OHC. As such, it is difficult to interpret the increased likelihood of re-entry to OHC for children on voluntary placements without being able to distinguish between planned and unplanned exits. There is however potential for further work in this area as this information has been collected in the CLA dataset since 2014.

Research that describes factors associated with re-entry to OHC can help social care practitioners to identify groups of children that may require additional support or closer monitoring when exiting care. However, much of the published research on this topic presents results in the form of hazard ratios which can be difficult to interpret meaningfully, particularly if there is no indication of the absolute likelihood of re-entry. In healthcare, risk score calculators are frequently used to incorporate statistical associations from research into clinical practice and service planning, but their use in social care is far more limited. To our knowledge, our online calculator is the first that can be used to estimate the likelihood of rapid re-entry to OHC within three months which account for more than 40% of re-entries. This simple tool could be used by social care practitioners to explore which groups of children are most likely to re-enter OHC and may need support to reduce the likelihood of re-entry. There are also implications for service providers who could gain greater understanding of the profile of their child population. To aid service planning the number of children who are likely to return to OHC within three months

could be estimated by calculating the proportion of the population in each likelihood category and their average probability of re-entry. Work to expand our probability calculator to estimate the likelihood of re-entry to OHC over longer periods of time (up to five years) is currently ongoing and may be useful for longer term service and strategy planning. However, it is important to note that unlike risk score calculators in a healthcare context, that may be used to guide treatment decisions, the tool we have developed is not designed or intended to be used for individual care planning or decision-making. The purpose of the tool is to supplement social care practitioners understanding of which groups of children are most likely to rapidly re-enter OHC. The likelihood of rapid re-entry to OHC that is estimated by our model is based on a limited number of group-level characteristics from a national population and results cannot and should not be extrapolated below this level.

Permanence for children exiting OHC in England appears to be improving, as evidenced by falling rates of re-entry between 2007 and 2013. The drivers of this decrease over time require further exploration, but changes in the risk profile of children placed in OHC may be a contributing factor. For example, increasing rates of entry to and lengths of stay in OHC (Mc Grath-Lone, Dearden, Nasim, Harron & Gilbert, 2016) could indicate that thresholds for entering and exiting OHC have changed over time. Children entering and exiting OHC may represent less challenging cases which could account for the lower rates of re-entry observed. Given the significantly lower rates of re-entry associated with special guardianship and residence orders, their increased use may also have contributed to the overall decrease in rates of re-entry over time. As such, these legal orders appear to represent a positive strategy for achieving permanence for vulnerable children. However, local variation in their structure and uptake (Wade et al., 2014) must be acknowledged, as well as the element of selection associated with their use – not all children in care will be able to achieve (or want) this type of care arrangement and legal permanence. Furthermore, while differences in available demographic and care characteristics between children who return home and who exit via these legal orders were controlled for in this analysis, it is likely that there are other differences in child or parental risk factors not recorded in the CLA dataset that may account for some of the variation in the observed rates or re-entry. To fully understand the effectiveness of OHC and arrangements for exiting the OHC system, rigorous comparative studies (which are currently lacking in the evaluation of OHC interventions (Maclean, Sims, O'Donnell & Gilbert, 2016)) are required.

Though movements in and out of the care system are considered a disruption to permanence for already vulnerable children, it is also important to acknowledge that re-entry to OHC is not an intrinsically negative outcome. For example, a series of planned placements with parents that aim to transition a child out of foster care gradually may be preferable to a sudden return home (for both parents and children) (Department of Families, Housing, Community Services and Indigenous Affairs, 2010). Similarly, remaining outside the care system cannot be considered a positive outcome if a child is unhappy or exposed to harm (Fuller, 2005; NSPCC, 2012) and so a re-entry to OHC that is in the best interests of safeguarding and nurturing a child should be viewed positively. However, in a climate of financial cutbacks and growing pressure on social care systems, the challenge is to ensure that avoidable re-entries to OHC (e.g., due to a lack of support or poor planning) are prevented through better targeting of groups who may be highly-likely to re-enter care and more effective use of increasingly scarce resources.

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#### References

- Akin, B. A. (2011). Predictors of foster care exits to permanency: A competing risks analysis of reunification, guardianship, and adoption. *Children and Youth Services Review*, 33, 999–1011. <http://dx.doi.org/10.1016/j.childyouth.2011.01.008>
- Altman, D. G., & Royston, P. (2000). What do we mean by validating a prognostic model? *Statistics in Medicine*, 19, 453–473. [http://dx.doi.org/10.1002/\(SICI\)1097-0258\(20000229\)19:4<453::AID-SIM350>3.0.CO;2-5](http://dx.doi.org/10.1002/(SICI)1097-0258(20000229)19:4<453::AID-SIM350>3.0.CO;2-5)
- Barth, R. P., Weigensberg, E. C., Fisher, P. A., Fetrow, B., & Green, R. L. (2008). Reentry of elementary aged children following reunification from foster care. *Children and Youth Services Review*, 30, 353–364. <http://dx.doi.org/10.1016/j.childyouth.2007.10.002>
- Boddy, J. (2013). *Understanding permanence for looked after children: A review of research for the care inquiry*. Retrieved from: <https://www.thefosteringnetwork.org.uk/sites/www.fostering.net/files/resources/england/understanding-permanence-for-lac-janet-boddy.pdf>
- Buchholz, A., Sauerbrel, W., & Royston, P. (2014). A measure for assessing functions of time-Varying effects in survival analysis. *Open Journal of Statistics*, 4, 977–998.
- Carnochan, S., Rizik-Baer, D., & Austin, M. J. (2013). Preventing re-entry to foster care. *Journal of Evidence-Based Social Work*, 10, 196–209. <http://dx.doi.org/10.1080/15433714.2013.788949>
- Department for Education. (2012). *An action plan for adoption: Tackling delay*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/180250/action\\_plan\\_for\\_adoption.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/180250/action_plan_for_adoption.pdf)
- Department for Education. (2013). *Improving permanence for looked after children*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/245513/consultation\\_document.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245513/consultation_document.pdf)
- Department for Education. (2015a). *The Children Act 1989 guidance and regulations Volume 2: care planning, placement and case review*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/441643/Children\\_Act\\_Guidance\\_2015.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/441643/Children_Act_Guidance_2015.pdf)

- Department for Education. (2015b). *Statistical first release 34/2015: children looked after in england (including adoption and care leavers) year ending 31 March 2015*. [retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/464756/SFR34\\_2015\\_Text.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464756/SFR34_2015_Text.pdf)]
- Department for Education. (2016a). *Adoption: A vision for change*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/512826/Adoption\\_Policy\\_Paper\\_30\\_March\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/512826/Adoption_Policy_Paper_30_March_2016.pdf)
- Department for Education. (2016b). *Special guardianship guidance*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/503547/special\\_guardianship\\_guidance.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/503547/special_guardianship_guidance.pdf)
- Department of Families, Housing, Community Services and Indigenous Affairs. (2010). *Transitioning from out of home care to independence*. [https://www.dss.gov.au/sites/default/files/documents/trans\\_to\\_ind.pdf](https://www.dss.gov.au/sites/default/files/documents/trans_to_ind.pdf)
- Department of Health. (2000). *Adoption: A new approach*. [Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/263529/5017.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263529/5017.pdf)]
- Farmer, E., & Lutman, E. (2012). *Effective working with neglected children and their families: Linking interventions to long-Term outcomes*. London, England: Jessica Kingsley Publishers.
- Farmer, E., & Wijedasa, D. (2013). The reunification of looked after children with their parents: What contributes to return stability? *British Journal of Social Work*, 43, 1611–1629. <http://dx.doi.org/10.1093/bjsw/bcs066>
- Fuller, T. (2005). Child safety at reunification: A case-control study of matremnt recurrence following return home from substitute care. *Child and Youth Services Review*, 27, 1293–1306. <http://dx.doi.org/10.1016/j.chidyouth.2005.01.004>
- Henderson, M. (2012). Adoption: Why the system is ruining lives. In *The guardian*. Retrieved from: <https://www.theguardian.com/society/2012/oct/31/adoption-why-system-ruining-lives>
- Holmes, L. (2014). *Supporting children and families returning home from care: Counting the Costs*. Retrieved from: <http://www.lboro.ac.uk/media/wwlboroacuk/content/cctfr/publications/Supporting%20children%20and%20families%20returning%20home%20from%20care.pdf>
- Lee, S., Jonson-Reid, M., & Drake, B. (2012). Foster care re-entry: Exploring the role of foster care characteristics, in-home child welfare services and cross-sector services. *Children and Youth Services Review*, 34, 1825–1833. <http://dx.doi.org/10.1016/j.chidyouth.2012.05.007>
- Liao, M., & White, K. R. (2014). Post-permanency service needs, service utilization, and placement discontinuity for kinship versus non-kinship families. *Children and Youth Services Review*, 44, 370–378. <http://dx.doi.org/10.1016/j.chidyouth.2014.07.007>
- Maclelan, M., Sims, S., O'Donnell, M., & Gilbert, R. (2016). Out-of-home care versus in-home care for children who have been maltreated: A systematic review of health and wellbeing outcomes. *Child Abuse Review*, <http://dx.doi.org/10.1002/car.2437> [in press]
- Mc Grath-Lone, L., Harron, K., Dearden, L., Nasim, B., & Gilbert, R. (2016). Data resource profile: Children looked after return (CLA). *International Journal of Epidemiology*, 45, 715–717. <http://dx.doi.org/10.1093/ije/dyw117>
- Mc Grath-Lone, L., Dearden, L., Nasim, B., Harron, K., & Gilbert, R. (2016). Changes in first entry to out-of-home care from 1992 to 2012 among children in England. *Child Abuse & Neglect*, 51, 163–171. <http://dx.doi.org/10.1016/j.chiabu.2015.10.020>
- McDonald, T., Bryson, S., & Poertner, J. (2006). Balancing reunification and reentry goals. *Children and Youth Services Review*, 28, 47–58. <http://dx.doi.org/10.1016/j.chidyouth.2005.02.007>
- NSPCC. (2012). *Returning home from care: What's best for children?* Retrieved from: <https://www.nspcc.org.uk/globalassets/documents/research-reports/returning-home-from-care-best-children.pdf>
- Orsi, R. (2015). Predicting re-involvement for children adopted out of a public child welfare system. *Child Abuse & Neglect*, 39, 175–184. <http://dx.doi.org/10.1016/j.chiabu.2014.10.005>
- Selwyn, J., Wijedasa, D., & Meakings, S. (2014). *Beyond the Adoption Order: Challenges interventions and adoption disruption*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/301889/Final\\_Report\\_-\\_3rd\\_April\\_2014v2.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/301889/Final_Report_-_3rd_April_2014v2.pdf)
- Shaw, T. V. (2006). Reentry into the foster care system after reunification. *Children and Youth Services Review*, 28, 1375–1390. <http://dx.doi.org/10.1016/j.chidyouth.2006.02.006>
- Testa, M. F., Snyder, S. M., Wu, Q., Rolock, N., & Liao, M. L. (2015). Adoption and guardianship: A moderated mediation analysis of predictors of post-Permanency continuity. *American Journal of Orthopsychiatry*, 85, 107–118. <http://dx.doi.org/10.1037/ort0000019>
- Thomas, C. (2013). *Adoption for looked after children: Messages from research an overview of the adoption research initiative*. Retrieved from: <http://adoptionresearchinitiative.org.uk/docs/ARI%20overview-WEB.pdf>
- Wade, J., Biehal, N., Farrelly, N., & Sinclair, I. (2010). *Maltreated children in the looked after system: A comparison of outcomes for those who go home and those who do not*. London, UK: Department for Education.
- Wade, J., Sinclair, I., Sturtard, L., & Simmonds, J. (2014). *Investigating Special Guardianship: Experiences, outcomes and challenges*. Retrieved from: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/267061/DFE-RBX-10-06-1.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/267061/DFE-RBX-10-06-1.pdf)
- Wells, K., & Guo, S. (1999). Reunification and reentry of foster children. *Children & Youth Services Review*, 4, 273–294.
- White, K. R. (2016). Placement discontinuity for older children and adolescents who exit foster care through adoption or guardianship: A systematic review. *Child and Adolescent Social Work Journal*, 33, 377–394. <http://dx.doi.org/10.1007/s10560-015-0425-1>
- Yampolskaya, S., Armstrong, M. L., & Vargo, A. C. (2007). Factors associated with exiting and reentry into out-of-home care under Community-Based Care in Florida. *Children and Youth Services Review*, 29, 1352–1367. <http://dx.doi.org/10.1016/j.chidyouth.2007.05.010>

#### Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.chiabu.2016.11.012>.

## H-2 Other publications resulting from my PhD study

I have also written blogs and created a podcast to communicate the findings of my PhD study to the general public.

- Mc Grath-Lone L, Woodman J, Gilbert R. *Response to “Safeguarding children and improving their care in the UK”*. The Lancet. 2015; 386(10004), 1630.
- Hard Evidence: are more children going into care? Blog published on The Conversation, Dec 2015. Available at: <https://theconversation.com/hard-evidence-are-more-children-going-into-care-51290>
- Understanding the use of out-of-home care throughout childhood using administrative data. Blog published on ADRN website. Available at: <https://adrn.ac.uk/understand-data/blog/out-of-home-care/>
- Why some children are more likely to go back into care. Blog published on The Conversation, Jan 2017. Available at: <https://theconversation.com/why-some-children-are-more-likely-to-go-back-into-care-than-others-70181>
- Helping children in care. Podcast published on ADRN website. Available at: <https://adrn.ac.uk/research-impact/expertise-and-collaboration/hear-the-experts/children-in-care/>

### **H-3 Presentations resulting from my PhD study**

#### **2015**

- *Barriers to exploring the educational outcomes of children looked-after in England using administrative data.* Oral presentation at the British Society for Population Studies Conference; Leeds, UK.
- *Challenges to longitudinal analyses for children in care in England.* Oral presentation at the International Society for Prevention of Child Abuse & Neglect European Conference; Bucharest, Romania.
- *Changing trends in first entries to out-of-home among children in England: analysis of national administrative data from 1992 to 2012.* Oral and poster presentation at the Society for Longitudinal and Life Course Studies Conference; Dublin, Ireland.

#### **2016**

- *Factors associated with re-entry to out-of-home care among children in England: analysis of administrative social care data.* Oral presentation at the Annual ADRN Research Conference; London, UK.
- *Local variation in the use of out-of-home care in England: analysis of linked administrative data.* Oral presentation at the International Population Data Linkage Conference; Swansea, UK.
- *Predicting re-entry to out-of-home care among children in England.* Paper presented at the International Society for the Prevention of Child Abuse & Neglect Congress; Calgary, Canada.
- *Analysis of longitudinal NPD data for looked after children: strengths, limitations and initial findings.* Oral presentation at the NPD User Group Meeting; Bristol, UK.

#### **2017**

- *Using administrative data to explore experiences of out-of-home care among adolescents.* Invited oral presentation at the Children's Policy Research Unit symposium; London, UK.
- *Childhood care histories among children in England.* Oral presentation at the Annual ADRN Research Conference; Edinburgh, UK.
- *Latent classes of out-of-home care histories among children in England.* Oral and poster presentation at the Society of Longitudinal and Life Course Studies Conference; Stirling, UK.
- *Understanding longitudinal experiences of out-of-home care using administrative data.* Oral presentation at the NPD User Group Meeting, London, England.

## References

- Aalen, O.O. (1989) A linear regression model for the analysis of life times. *Statistics in Medicine*. 8 (8), 907–925.
- Abbot, A. & Tsay, A. (2000) Sequence analysis and optimal matching methods in sociology. *Sociological Methods & Research*. 29 (1), 3–33.
- Action for Children (2008) Key facts about children’s policy, legislation and politics over the past 21 years. In: Action for Children (ed.), *As long as it takes: A new politics for children*. pp. 4-6. Available from: <https://www.actionforchildren.org.uk/media/3272/alait.pdf> [Accessed 1<sup>st</sup> September 2017].
- Agresti, A. & Yang, M.C. (1987) An empirical investigation of some effects of sparseness in contingency tables. *Computational Statistics & Data Analysis*. 5 (1), 9–21.
- Akin, B.A. (2011) Predictors of foster care exits to permanency: A competing risks analysis of reunification, guardianship, and adoption. *Children and Youth Services Review*. 33, 999–1011.
- Akister, J., Owens, M. & Goodyer, I.M. (2010) Leaving care and mental health: Outcomes for children in out-of-home care during the transition to adulthood. *Health Research Policy and Systems*. 8 (1), 10.
- Allen, G. (2011) *Early intervention: The next steps*. Cabinet Office and Department for Work and Pensions. Report number: 404489/0111
- Allen, M. & Donkin, A. (2015) *The impact of adverse experiences in the home on the health of children and young people, and inequalities in prevalence and effects*. The Institute of Health Equity. Available from: <https://www.basw.co.uk/resource/?id=5051> [Accessed 1<sup>st</sup> September 2017].
- Alma Economics (2017) *Estimating the number of vulnerable children (29 groups)*. Office of the Children's Commissioner for England. Technical paper 6 in Children's Commissioner project on vulnerable children.
- Altman, D.G. & Royston, P. (2000) What do we mean by validating a prognostic model *Statistics in Medicine*. 19 (4), 453–473.
- Anda, R.F., Butchart, A., Felitti, V.J. & Brown, D.W. (2010) Building a framework for global surveillance of the public health implications of adverse childhood experiences. *American Journal of Preventive Medicine*. 39 (1), 93–98.
- Andersen, S.H. (2014) Complex patterns: On the characteristics of children who experience high and low degrees of foster-care drift. *British Journal of Social Work*. 44, 1545–1562.
- Anderson, L., Vostanis, P. & Spencer, N. (2004) The health needs of children aged 6–12 years in foster care. *Adoption & Fostering*. 28 (3), 31–40.

- Ashley, C. & Roth, D. (2014) *What happens to siblings in the care system?* Family Rights Group and Kinship Care Alliance. Available from: <https://www.frg.org.uk/images/PDFS/siblings-in-care-final-report-january-2015.pdf> [Accessed 1<sup>st</sup> September 2017].
- Attar, S., Parker, G. & Wade, J. (2007) The potential of secondary data sources to explore the life chances of looked-after children in the care system in the UK. *Journal of Children's Services*. 2 (2), 39–47.
- Axford, N. (2008) Are looked after children socially excluded? *Adoption & Fostering*. 32 (4), 5–18.
- Bailey, K.D. (1994) *Typologies and taxonomies: An introduction to classification techniques*. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-102.
- Bainham, A. & Gilmore, S. (2013) *Children: The modern law*. 4<sup>th</sup> edition. Bristol: UK, Jordan Publishing Ltd.
- Barban, N. & Billari, F.C. (2012) Classifying life course trajectories: A comparison of latent class and sequence analysis. *Journal of the Royal Statistical Society. Series C: Applied Statistics*. 61 (5), 765–784.
- Barnes, P., Price, L., Maddocks, A., Cheung, W.Y., *et al.* (2005) Immunisation status in the public care system: A comparative study. *Vaccine*. 23 (21), 2820–2823.
- Barth, R.P., Weigensberg, E.C., Fisher, P.A., Fetrow, B. & Green, R.L. (2008) Re-entry of elementary aged school children following reunification from foster care. *Child and Youth Services Review*. 30, 353-364.
- British Association of Social Workers. (2016) *Power to test different ways of working – Fact sheet*. Available from: <https://www.basw.co.uk/resource/?id=5932> [Accessed 1<sup>st</sup> September 2017].
- Beck, A. (2006) Addressing the mental health needs of looked after children who move placement frequently. *Adoption & Fostering*. 30 (3), 60–65.
- Beckett, C. & McKeigue, B. (2010) Objects of concern: Caring for children during care proceedings. *British Journal of Social Work*. 40 (7), 2086–2101.
- Bell, J. & Gowans, H. (2016) *Legal Issues for ADRN Users*. Administrative Data Research Network. Available from: [https://adrn.ac.uk/media/174205/legal\\_guide\\_final.pdf](https://adrn.ac.uk/media/174205/legal_guide_final.pdf) [Accessed 1<sup>st</sup> September 2017].
- Bellera, C.A., MacGrogan, G., Debled, M., de Lara, C.T., *et al.* (2010) Variables with time-varying effects and the Cox model: Some statistical concepts illustrated with a prognostic factor study in breast cancer. *BMC Medical Research Methodology*. 10 (20).
- Benbenishty, R., Davidson-Arad, B., López, M., Devaney, J., *et al.* (2015) Decision making in child protection: An international comparative study on maltreatment substantiation, risk assessment and interventions recommendations, and the role of professionals' child welfare attitudes. *Child Abuse and Neglect*. 49, 63–75.

Benchimol, E.I., Smeeth, L., Guttman, A., Harron, K., *et al.* (2015) The REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement. *PLoS Medicine*. 12 (10).

Berens, A.E. & Nelson, C.A. (2015) The science of early adversity: Is there a role for large institutions in the care of vulnerable children? *The Lancet*. 6736 (14), 1–11.

Berger, L.M., Bruch, S.K., Johnson, E.I., James, S., *et al.* (2009) Estimating the ‘impact’ of out-of-home placement on child well-being: Approaching the problem of selection bias. *Child Development*. 80 (6), 1856–1876.

Berrick, J., Barth, R. & Needell, B. (1994) A comparison of kinship foster homes and foster family homes: Implications for kinship foster care as family preservation. *Child and Youth Services Review*. 16, 33–63.

Berridge, D. (2012) Educating young people in care: What have we learned? *Children and Youth Services Review*. 34 (6), 1171–1175.

Berridge, D., Biehal, N. & Henry, L. (2012) *Living in children’s residential homes*. Department for Education. Report number: DFE-RR201.

Biehal, N., Cusworth, L. & Wade, J. (2014) *Keeping children safe: Allegations concerning the abuse or neglect of children in care*. National Society for the Prevention of Cruelty to Children. Available from: <https://www.nspcc.org.uk/globalassets/documents/evaluation-of-services/keeping-children-safe-report.pdf> [Accessed 1<sup>st</sup> September 2017].

Black, M.M., Walker, S.P., Fernald, L.C.H., Andersen, C.T., *et al.* (2017) Early childhood development coming of age: Science through the life course. *The Lancet*. 389 (10064), 77–90.

Boddy, J. (2013) *Understanding permanence for looked after children: A review of research for the care inquiry*. The Care Inquiry. Available from: [http://sro.sussex.ac.uk/44711/1/Boddy\\_2013\\_Understanding\\_Permanence.pdf](http://sro.sussex.ac.uk/44711/1/Boddy_2013_Understanding_Permanence.pdf) [Accessed 1<sup>st</sup> September 2017].

Bond, H. (2016) *Thinking about fostering? The definitive guide to fostering in the UK*. London: UK, CoramBAAF and British Association of Adoption and Fostering.

Bonita, R. & Beaglehole, R. (2006) *Basic epidemiology*. 2<sup>nd</sup> edition. Geneva: Switzerland, World Health Organisation.

Bostock, L. (2004) By private arrangement? Safeguarding the welfare of private foster children. *Children and Society*. 18, 66–73.

Botchway, S.K., Quigley, M.A. & Gray, R. (2014) Pregnancy-associated outcomes in women who spent some of their childhood looked after by local authorities: Findings from the UK Millennium Cohort Study. *BMJ Open*. 4 (12), e005468.

Bouwmeester, W., Zuithoff, N.P.A., Mallett, S., Geerlings, M.I., *et al.* (2012) Reporting and methods in clinical prediction research: A systematic review. *PLoS Medicine*. 9 (5), e1001221.



Boyle, C. (2015) What is the impact of birth family contact on children in adoption and long-term foster care? A systematic review. *Child & Family Social Work*. 22 (15), 22–33.

British Association of Adoption and Fostering (2014) *Foster care: Some questions answered*. London: UK, British Association of Adoption and Fostering.

Britto, P.R., Lye, S.J., Proulx, K., Yousafzai, A.K., *et al.* (2017) Nurturing care: Promoting early childhood development. *The Lancet*. 389 (10064), 91–102.

Broadhurst, K. & Mason, C. (2013) Maternal outcasts: Raising the profile of women who are vulnerable to successive, compulsory removals of their children – A plea for preventative action. *Journal of Social Welfare and Family Law*. 35 (3), 291–314.

Brown, K. (2011) 'Vulnerability': Handle with care. *Ethics and Social Welfare*. 5 (3), 313–321.

Brown, L. & Sen, R. (2014) Improving outcomes for looked after children: A critical analysis of kinship care. *Practice: Social Work in Action*. 26 (3), 161–180. A

Bruce, J., Fisher, P.A., Pears, K.C. & Levine, S. (2009) Morning cortisol levels in preschool-aged foster children: Differential effects of maltreatment type. *Developmental Psychobiology*. 51, 14–23.

Buchanan, A. (1999) Are care leavers significantly dissatisfied and depressed in adult life? *Adoption & Fostering*. 23 (4), 35–40.

Buchholz, A., Sauerbrei, W. & Royston, P. (2014) A measure for assessing functions of time-varying effects in survival analysis. *Open Journal of Statistics*. 4, 977–998.

Bullock, R. & Gaehl, E. (2012) Children in care: A long-term follow up of criminality and mortality. *Children and Youth Services Review*. 34 (9), 1947–1955.

Bullock, R. & Parker, R. (2014) *A review of services for children in care since 1945 and a comparison with the situation in Jersey*. The Independent Jersey Care Inquiry. Available from: <http://www.jerseycareinquiry.org/Transcripts/Day%206%20documents.pdf> [Accessed 1<sup>st</sup> September 2017].

Burgermeister, D. (2007) Childhood adversity: A review of measurement instruments. *Journal of Nursing Measurement*. 15 (3), 163–176.

Butler, I. & Payne, H. (1997) The health of children looked after by the local authority. *Adoption & Fostering*. 21 (2), 28–35.

Bywaters, P., Brady, G., Bunting, L., Daniel, B., *et al.* (2017) *Identifying and understanding inequalities in child welfare intervention rates: Comparative studies in four UK countries*. Nuffield Foundation. Available from: <http://www.coventry.ac.uk/Global/08%20New%20Research%20Section/16469-17%20CWIP%20-%20BRIEFING%20%20FINAL.pdf> [Accessed 1<sup>st</sup> September 2017].

Bywaters, P., Brady, G., Sparks, T. & Bos, E. (2014a) Child welfare inequalities: New evidence, further questions. *Child and Family Social Work*. 21 (3), 369–380.

- Bywaters, P., Brady, G., Sparks, T. & Bos, E. (2014b) Inequalities in child welfare intervention rates: The intersection of deprivation and identity. *Child and Family Social Work*. 21 (4), 452–463.
- Carnochan, S., Rizik-Baer, D. & Austin, M.J. (2013) Preventing re-entry to foster care. *Journal of Evidence-Based Social Work*. 10 (3), 196–209.
- Celeux, G. & Soromenho, G. (1996) An entropy criterion for assessing the numbers of clusters in a mixture model. *Journal of Classification*. 13 (2), 195–212.
- Centre on the Dynamics of Ethnicity (2012) *How has ethnic diversity grown 1991-2001-2011?* Centre on the Dynamics of Ethnicity. Available from: <https://www.ethnicity.ac.uk/medialibrary/briefings/dynamicsofdiversity/how-has-ethnic-diversity-grown-1991-2001-2011.pdf> [Accessed 1<sup>st</sup> September 2017].
- Cheung, S.Y. & Heath, A. (1994) After care: The education and occupation of adults who have been in care. *Oxford Review of Education*. 20 (3), 361–374.
- Children Act 1989. Available from: <http://www.legislation.gov.uk/ukpga/1989/41/contents>
- Children's Commissioner for England (2017) *On measuring the number of vulnerable children in England*. Office of the Children's Commissioner for England. Available from: <https://www.childrenscommissioner.gov.uk/wp-content/uploads/2017/07/CCO-On-vulnerability-Overveiw.pdf> [Accessed 1<sup>st</sup> September 2017].
- Coakley, J.F. & Berrick, J.D. (2008) In a rush to permanency: Preventing adoption disruption. *Child and Family Social Work*. 13, 101–112.
- Collins, L. & Lanza, S. (2010) *Latent class and latent transition analysis: With applications in the social, behavioural and health sciences*. New York: US, John Wiley & Sons.
- Connelly, G. & Furnivall, J. (2013) Addressing low attainment of children in public care: The Scottish experience. *European Journal of Social Work*. 16 (1), 88–104.
- Connelly, R., Playford, C.J., Gayle, V. & Dibben, C. (2016) The role of administrative data in the big data revolution in social science research. *Social Science Research*. 59, 1–12.
- Conrad-Hiebner, A. & Paschall, K.W. (2017) Determining risk for child physical harm through the classification of economic insecurity. *Children and Youth Services Review*. 78, 161–169.
- Cooper, K. & Stewart, K. (2013) *Does money affect children's outcomes? A systematic review*. Joseph Rowntree Foundation. Available from: <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/money-children-outcomes-full.pdf> [Accessed 1<sup>st</sup> September 2017].
- Coram and Coram International (2017) *Constructing a definition of vulnerability – Attempts to define and measure*. Office of the Children's Commissioner for England. Technical paper 1 in Children's Commissioner project on vulnerable children.
- Cordis Bright (2017a) *Assessment of the outcomes of vulnerable children*. Office of the Children's Commissioner for England. Technical paper 4 in Children's Commissioner project on vulnerable children.

- Cordis Bright (2017b) *Defining child vulnerability: Definitions, frameworks and groups*. Office of the Children's Commissioner for England. Technical paper 2 in Children's Commissioner project on vulnerable children.
- Courtney, M.E., Hook, J.L. & Lee, J.S. (2012) Distinct subgroups of former foster youth during young adulthood: Implications for policy and practice. *Child Care in Practice*. 18 (4), 409–418.
- Cressie, N. & Read, T.R.C. (1989) Pearson's  $\chi^2$  and the log likelihood ratio statistic  $G^2$ : A comparative review. *International Statistical Review*. 57 (1), 19–43.
- Dahl, S.K., Larsen, J.T., Petersen, L., Ubbesen, M.B., *et al.* (2017) Early adversity and risk for moderate to severe unipolar depressive disorder in adolescence and adulthood: A register-based study of 978,647 individuals. *Journal of Affective Disorders*. 214, 122–129.
- Daniel, B. (2010) Concepts of adversity, risk, vulnerability and resilience: A discussion in the context of the 'child protection system'. *Social Policy and Society*. 9 (2), 231–241.
- Daniel, B., Wassall, S. & Gilligan, R. (1999) *Child development for child care and protection workers*. London: UK, Jessica Kingsley Publisher.
- Darker, I., Ward, H. & Caulfield, L. (2008) An analysis of offending by young people looked after by local authorities. *Youth Justice*. 8 (2), 134–148.
- Davey, D. & Pithouse, A. (2008) Schooling and looked after children: Exploring contexts and outcomes in standard attainment tests (SATs). *Adoption & Fostering*. 32 (3), 60–72.
- Dean, N. & Raftery, A.E. (2010) Latent class analysis variable selection. *Annals of the Institute of Statistical Mathematics*. 62 (1), 11–35.
- Department for Children, Schools and Families (2009) *Deprivation and education: The evidence on pupils in England, foundation stage to key stage*. Report number: DCSF-RTP-09-01.
- Department for Children, Schools and Families (2010) *Short breaks: Statutory guidance on how to safeguard and promote the welfare of disabled children using short breaks*. Report number: DCSF-00183-2010.
- Department for Children, Schools and Families & Department of Health (2009) *Statutory guidance on promoting the health and well-being of looked after children*. Report number: DCSF-01071-200.
- Department for Communities and Local Government (2009) *National indicators for local authorities and local authority partnerships: Updated national indicator definitions*. Report number: 07 LGSR 05193.
- Department for Communities and Local Government (2015) *The English indices of deprivation 2015: Technical report*. ISBN 978-1-4098-4689-5.
- Department for Education (2017a) *Adoption scorecards year ending March 2016*. Available from: <https://www.gov.uk/government/publications/adoption-scorecards> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2017b) *Adoption scorecards year ending March 2016: Methodology and guidance document*. Report number: DFE-00236-2017.

Department for Education (2016a) *Adoption: A vision for change*. Report number: DFE-00094-2016.

Department for Education (2012) *An action plan for adoption: Tackling delay*. Report number: DfE-00030-2011.

Department for Education (2017c) *Analysing family circumstances and education*. Report number: DFE-00135-2017.

Department for Education (2013a) *Analysis of Children in Need census matched to the National Pupil Database: Methodology document*. Available from: <http://webarchive.nationalarchives.gov.uk/20130319152637/https://media.education.gov.uk/assets/files/pdf/m/sfr27-2012aam.pdf> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2007) *Care matters: Time for change*. Report number: 00541-2007BKT-EN.

Department for Education (2016b) *Characteristics of children in need: 2015 to 2016*. Report number: SFR52/2016

Department for Education (2017d) *Children accommodated in secure children's homes at 31 March 2017: England and Wales*. Report number: SFR23/20173

Department for Education (2013b) *Children Act 1989 guidance and regulations volume 5: Children's homes*. Report number: DFE-00229-2013.

Department for Education (2005) *Children in Need guidance: Chapter 4- Definitions of need codes*. Available from: <http://webarchive.nationalarchives.gov.uk/20050727111951/http://www.dh.gov.uk/assetRoot/04/02/21/37/04022137.pdf> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2017e) *Children looked after by local authorities in England: Guide to the SSDA903 collection 1 April 2016 to 31 March 2017*. Report number: DFE-00300-2015.

Department for Education (2016c) *Children looked after in England (including adoption and care leavers), year ending 31 March 2016: Additional tables' text*. Report number: SFR41/2016

Department for Education (2017f) *Children looked after in England (including adoption) year ending 31 March 2016: National tables*. Report number: SFR41/2016

Department for Education (2016e) *Children looked after in England year ending 31 March 2016: Methodology and quality document*. Report number: SFR41/2016

Department for Education (2016d) *Children looked after return 2015 to 2016: Validation checks*. Report number: DFE-00053-2016.

Department for Education (2013c) *Data Pack: Improving permanence for looked after children*. Report number: DFE-00275-2013.

Department for Education (2010) *Family and friends care: Statutory guidance for local authorities*. Report number: DfE-00025-2011.

Department for Education (2015a) *Guidance on secure children's homes: How to place a child aged under 13*. Available from: <https://www.gov.uk/guidance/secure-childrens-homes-how-to-place-a-child-aged-under-13> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2013d) *National minimum standards for the welfare of children*. Available from: <https://www.gov.uk/government/collections/national-minimum-standards> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2014b) *National pupil database: Apply for a data extract*. Available at: <https://www.gov.uk/guidance/national-pupil-database-apply-for-a-data-extract> [Accessed 1<sup>st</sup> September 2017].

Department for Education (2014c) *Notifications of private fostering arrangements, year ending 31 March 2014*. Report number: SFR22/2014.

Department for Education (2014d) *Outcomes for children looked after by local authorities in England, year ending 31 March 2014: Main text*. Report number: SFR49/2014.

Department for Education (2017g) *Outcomes for children looked after by local authorities, year ending 31 March 2016: Main text*. Report number: SFR22/2014.

Department for Education (2017h) *Outcomes for looked after children, year ending 31 March 2016: National tables*. Report number: SFR22/2014.

Department for Education (2017i) *Revised destinations of key stage 4 and key stage 5 students, England, 2014/15*. Report number: SFR01/2017.

Department for Education (2014a) *Statutory guidance on court orders and pre-proceedings: For local authorities*. Report number: DfE-00031-2014.

Department for Education (2015b) *The Children Act 1989 guidance and regulations volume 2: Care planning, placement and case review*. Report number: DfE-00169-2015

Department for Education (2013e) *Unique pupil numbers (UPN): A guide for schools and local authorities*. Available from: <https://www.gov.uk/government/publications/unique-pupil-numbers> [Accessed 1<sup>st</sup> September 2017]

Department for Education and Skills (2006) *Autumn performance report 2006: Achievement against Public Service Agreement targets*. Report number: CM 6992.

Department for Education and Skills (2005) *Special guardianship guidance: Children Act 1989 regulations*. Available from: [goo.gl/W3DBs6](http://goo.gl/W3DBs6) [Accessed 1<sup>st</sup> September 2017].

Department of Families, Housing, Community Services and Indigenous Affairs (2010) *Transitioning from out-of-home care to independence*. Available from: [https://www.dss.gov.au/sites/default/files/documents/trans\\_to\\_ind.pdf](https://www.dss.gov.au/sites/default/files/documents/trans_to_ind.pdf) [Accessed 1<sup>st</sup> September 2017].

Department of Health (2000) *Adoption: A new approach*. Report number: CM 5017.

Department of Health (2012) *Family Nurse Partnership programme: Information leaflet*. Available from: <https://www.gov.uk/government/publications/family-nurse-partnership-programme-information-leaflet> [Accessed 1<sup>st</sup> September 2017].

Department of Health (1999) *Quality protects: The government's objectives for children's social services*. Report number: LP3/014 16474 SC.

Department of Health Statistics (1999) *Revised SSDA903 codes*. Obtained through personal correspondence with the National Pupil Database Access team at the Department for Education.

Dex, S. & Hollingworth, K. (2012) *Children's and young people's voices on their wellbeing*. Department for Education. Report number: CWRC-00108-2012.

Dickson, K., Sutcliffe, K. & Gough, D. (2010) *What outcomes matter to looked after children and young people and their families and carers? A systematic review of their experiences, views and preferences*. Evidence for Policy and Practice Information and Co-ordinating Centre. Available from: <https://www.nice.org.uk%2Fguidance%2Fph28%2Fevidence%2Freview-e5-qualitative-review-of-experiences-views-and-preferences-433764685&usg=AFQjCNFfzwtHOpIhD434fN7D5ICUaCrghA> [Accessed 1<sup>st</sup> September 2017].

Dixon, J. (2008) Young people leaving care: Health, well-being and outcomes. *Child and Family Social Work*. 13 (2), 207–217.

Dixon, J., Wade, J., Byford, S., Weatherly, H., *et al.* (2006) *Young people leaving care: A study of costs and outcomes*. Department for Education & Skills. ISBN 1-903959-03-9.

Doidge, J.C. (2016) *The epidemiology of adverse childhood experiences in Australia*. PhD thesis, University of South Australia, Adelaide, Australia.

Dover, D.C. & Schopflocher, D.P. (2011) Using funnel plots in public health surveillance. *Population Health Metrics*. 9 (1), 58.

Doyle Jr., J.J. (2013) Causal effects of foster care: An instrumental-variables approach. *Children and Youth Services Review*. 35 (7), 1143–1151.

Doyle Jr., J.J. (2008) Child protection and adult crime: Using investigator assignment to estimate causal effects of foster care. *Journal of Political Economy*. 116 (4), 746–770.

Doyle Jr., J.J. (2007) Child protection and child outcomes: Measuring the effects of foster care. *The American Economic Review*. 97 (5), 1583–1610.

Drake, B. & Jonson-Reid, M. (1999) Some thoughts on the increasing use of administrative data in child maltreatment research. *Child Maltreatment*. 4 (4) 308–315.

Dregan, A., Brown, J. & Armstrong, D. (2011) Do adult emotional and behavioural outcomes vary as a function of diverse childhood experiences of the public care system? *Psychological Medicine*. 41 (10), 2213–2220.

Dregan, A. & Gulliford, M.C. (2012) Foster care, residential care and public care placement patterns are associated with adult life trajectories: Population-based cohort study. *Social Psychiatry and Psychiatric Epidemiology*. 47 (9), 1517–1526.

Dworsky, A. (2015) Child welfare services involvement among the children of young parents in foster care. *Child Abuse and Neglect*. 45 (90), 68–79.

Elklit, A., Karstoft, K.I., Armour, C., Feddern, D., *et al.* (2013) Predicting criminality from child maltreatment typologies and posttraumatic stress symptoms. *European Journal of Psychotraumatology*. 4, 19825.

Elliott, M. (2015) Quantitative research and the secondary analysis of longitudinal data in social work research. In: L Hardwick, R Smith, & A Worsely (eds.), *Innovations in Social Work Research*. London and Philadelphia, Jessica Kingsley Publishers. pp. 259–273.

Fallesen, P. (2014) Identifying divergent foster care careers for Danish children. *Child Abuse and Neglect*. 38 (11), 1860–1871.

Fallesen, P. (2013) Time well spent: The duration of foster care and early adult labour market, educational, and health outcomes. *Journal of Adolescence*. 36 (6), 1003–1011.

Fallesen, P., Emanuel, N. & Wildeman, C. (2014) Cumulative risks of foster care placement for Danish children. *PloS One*. 9 (10), e109207.

Fallon, B., Chabot, M., Fluke, J., Blackstock, C., *et al.* (2013) Placement decisions and disparities among Aboriginal children: further analysis of the Canadian incidence study of reported child abuse and neglect: Comparisons of the 1998 and 2003 surveys. *Child Abuse and Neglect*. 37 (1), 47–60.

Farmer, E. (2009) How do placements in kinship care compare with those in non-kin foster care: Placement patterns, progress and outcomes? *Child and Family Social Work*. 14 (3), 331–342.

Farmer, E. & Lutman, E. (2012) *Effective Working with Neglected Children and their Families: Linking Interventions to Long-Term Outcomes*. London: UK, Jessica Kingsley Publishers.

Farmer, E. & Pollock, S. (2003) Managing sexually abused and/or abusing children in substitute care. *Child and Family Social Work*. 8 (2), 101–112.

Farmer, E. & Wijedasa, D. (2013) The reunification of looked after children with their parents: What contributes to return stability? *British Journal of Social Work*. 43, 1611–1629.

Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., *et al.* (1998) Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine*. 14 (4), 245–258.

Ford, T., Vostanis, P., Meltzer, H. & Goodman, R. (2007) Psychiatric disorder among British children looked after by local authorities: comparison with children living in private households. *The British Journal of Psychiatry*. 190, 319–325.

Forrester, D., Goodman, K., Cocker, C., Binnie, C., *et al.* (2009) What is the impact of public care on children's welfare? A review of research findings from England and Wales and their policy implications. *Journal of Social Policy*. 38 (3), 439–456.

- Franzen, E., Vinnerljung, B. & Hjern, A. (2008) The epidemiology of out-of-home care for children and youth: A National Cohort Study. *British Journal of Social Work*. 38 (6), 1043–1059.
- Fuller, T.L. (2005) Child safety at reunification: A case-control study of maltreatment recurrence following return home from substitute care. *Children and Youth Services Review*. 27, 1293-1306.
- Gambrill, E. & Shlonsky, A. (2000) Risk assessment in context. *Children and Youth Services Review*. 22 (11-12), 813–837.
- García-Martín, M.A., Salas, M.D., Bernedo, I.M. & Fuentes, M.J. (2014) Foster Care Profiles: A Guide to Identifying At-Risk Placements. *Journal of Child and Family Studies*. 24 (9), 2579–2588.
- Gibbons, S., Overman, H.G. & Pelkonen, P. (2014) Area disparities in Britain: Understanding the contribution of people vs. place through variance decompositions. *Oxford Bulletin of Economics and Statistics*. 76 (5), 745–763.
- Gilbert, R., Fluke, J., O'Donnell, M., Gonzalez-Izquierdo, A., *et al.* (2012) Child maltreatment: Variation in trends and policies in six developed countries. *The Lancet*. 379 (9817), 758–772.
- Gilbert, R., Widom, C.S., Browne, K., Fergusson, D., *et al.* (2009) Burden and consequences of child maltreatment in high-income countries. *The Lancet*. 373 (9657), 68–81.
- Glare, P., Virik, K., Jones, M., Hudson, M., *et al.* (2003) A systematic review of physicians' survival predictions in terminally ill cancer patients. *BMJ*. 327
- Goerge, R.M. & Lee, B.J. (2001) Matching and cleaning administrative data. In: C.F. Citro, R.A. Moffitt, & M. Van Ploeg (eds.), *Studies of Higher Population: Data Collection and Research Issues*. Washington DC: US, National Academies Press. pp. 197–219.
- Goerge, R.M., Van Voorhis, J., Grant, S. & Casey, K. (1992) Special-education experiences of foster children: an empirical study. *Child Welfare Journal of Policy Practice and Progress*. 71 (5), 419–437.
- Goodman, R., Ford, T., Simmons, H., Gatward, R., *et al.* (2000) Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *The British Journal of Psychiatry*. 177 (6), 534–539.
- Gorin, S. & Jobe, A. (2013) Young people who have been maltreated: Different needs—different responses? *British Journal of Social Work*. 43, 1330–1346.
- Guo, S. (2009) *Pocket guide to social work research methods: Survival analysis*. Oxford: UK, Oxford University Press.
- Gypen, L., Vanderfaeillie, J., De Maeyer, S., Belenger, L., *et al.* (2017) Outcomes of children who grew up in foster care: Systematic-review. *Children and Youth Services Review*. 76, 74–83.
- Hagenaars, J.A. & McCutcheon, A.L. (2002) *Applied latent class analysis*. Cambridge, MA: US, Cambridge University Press.



- Halpin, B. (2016) *Cluster analysis stopping rules in Stata*. University of Limerick Department of Sociology Working Paper WP2016-01.
- Halpin, B. (2012) *Sequence analysis of life-course data: A comparison of distance measures*. University of Limerick Department of Sociology Working Paper WP2012-02.
- Hardcastle, K.A., Bellis, M.A., Hughes, K. & Sethi, D. (2015) *Implementing child maltreatment prevention programmes: What the experts say*. World Health Organisation. Available from: <http://www.euro.who.int/en/publications/abstracts/implementing-child-maltreatment-prevention-programmes-what-the-experts-say-2015> [Accessed 1<sup>st</sup> September 2017].
- Hart, D. & La Valle, I. (2016) *Local authority use of secure placements*. Research report. Department for Education. Report number: DFE-RR515.
- Hart, D., La Valle, I. & Holmes, L. (2015) *The place of residential care in the English child welfare system*. Report number: DFE-RR450.
- Havlicek, J. (2010) Patterns of movement in foster care: An optimal matching analysis. *Social Service Review*. 84(3): 403-435.
- Heath, A.F., Colton, M.J. & Aldgate, J. (1994) Failure to escape: A longitudinal study of foster children's educational attainment. *British Journal of Social Work*. 24 (3), 241.
- Henderson, M. (2012) *Adoption: Why the system is ruining lives*. The Guardian (online). Available from: <https://www.theguardian.com/society/2012/oct/31/adoption-why-system-ruining-lives> [Accessed 1<sup>st</sup> September 2017].
- Hernán, M.A. (2010) The hazards of hazard ratios. *Epidemiology*. 21 (1), 13–15.
- Hill, C.M. & Watkins, J. (2003) Statutory health assessments for looked-after children: what do they achieve? *Childcare, Health and Development*. 29 (1), 3–13.
- Hillen, T., Gafson, L., Drage, L. & Conlan, L.-M. (2006) Assessing the prevalence of mental health disorders and mental health needs among preschool children in care in England. *Infant Mental Health Journal*. 33 (4), 411–420.
- HM Government (2013) *Staying put: Arrangements for care leavers aged 18 and above to stay on with their former foster carers. DfE, DWP and HMRC guidance*. Report number: DFE-00061-2013.
- HM Government (2006) *Reaching out: An action plan on social exclusion*. Report number: 276684/0906/D16.
- HM Government (2010) *The Children Act 1989 guidance and regulations volume 4: Fostering services*. Report number: DfE-00023-2011.
- HM Government (2017) *UK legislation online*. Available from: <http://www.legislation.gov.uk/> [Accessed 1<sup>st</sup> September 2017].
- HM Inspectorate of Prisons (2011) *The care of looked after children in custody: A short thematic review*. Report number: 978-1-84099-463-6.

Holmes, L. (2014) *Supporting children and families returning home from care: Counting the costs*. National Society for the Prevention of Cruelty to Children. Available from: <https://www.nspcc.org.uk/services-and-resources/research-and-resources/2014/supporting-children-families-returning-home-from-care-counting-costs/> [Accessed 1<sup>st</sup> September 2017].

Hosmer, D., Lemeshow, S. & Sturdivant, R. (2013) *Applied logistic regression*. 3<sup>rd</sup> edition. New York: US, John Wiley & Sons.

Hosmer, D.W. & Royston, P. (2002) Using Aalen's linear hazards model to investigate time-varying effects in the proportional hazards regression model. *The Stata Journal*. 2 (4), 331–350.

Howell, D.C. (2000) Chi-square test - analysis of contingency tables. In: M Lovric (ed.), *International Encyclopedia of Statistical Science*. Berlin: Germany, Springer. pp. 250-252.

Jackson, S. & Ajayi, S. (2007) Foster care and higher education. *Adoption & Fostering*. 31 (1), 62–72.

Jackson, S., Ajayi, S. & Quigley, M. (2005) *Going to university from care*. Buttle UK. Available from: <http://www.buttleuk.org/research/by-degrees-going-to-university-from-care> [Accessed 1<sup>st</sup> September].

Jackson, S. & Cameron, C. (2012) Leaving care: Looking ahead and aiming higher. *Children and Youth Services Review*. 34 (6), 1107–1114.

Jackson, S. & Martin, P.Y. (1998) Surviving the care system: education and resilience. *Journal of Adolescence*. 21 (5), 569–583.

Jarpe-Ratner, E., Bellamy, J.L., Yang, D.H. & Smithgall, C. (2015) Using child welfare assessments and latent class analysis to identify prevalence and comorbidity of parent service needs. *Children and Youth Services Review*. 57, 75–82.

Johnson-Motoyama, M., Moore, T.D., Damman, J.L. & Rudlang-Perman, K. (2017) Using administrative data to monitor racial/ethnic disparities and disproportionality within child welfare agencies: Process and preliminary outcomes. *Journal of Public Child Welfare*. [Pre-print] Available from: <http://www.tandfonline.com/doi/abs/10.1080/15548732.2017.1301842> [Accessed 1<sup>st</sup> September 2017]

Jones, L. (1998) The social and family correlates of successful reunification of children in foster care. *Children and Youth Services Review*. 20 (4), 305–323.

Jones, P. & Elias, P. (2006) *Administrative data as a research resource: A selected audit*. National Centre for Research Methods Working Paper 452.

Jones, R., Everson-Hock, E.S., Papaioannou, D., Guillaume, L., *et al.* (2011) Factors associated with outcomes for looked-after children and young people: a correlates review of the literature. *Childcare, Health and Development*. 37 (5), 613–622.

Jordanova, V., Stewart, R., Goldberg, D., Bebbington, P.E., *et al.* (2007) Age variation in life events and their relationship with common mental disorders in a national survey population. *Social Psychiatry and Psychiatric Epidemiology*. 42 (8), 611–616.

- Kalmakis, K.A. & Chandler, G.E. (2015) Health consequences of adverse childhood experiences: A systematic review. *Journal of the American Association of Nurse Practitioners*. 27 (8), 457–465.
- Kansagara, D., Englander, H., Salanitro, A., Kagen, D., *et al.* (2011) Risk prediction models for hospital readmission: A systematic review. *Journal of the American Medical Association*. 306 (15), 1688-1698.
- Katz, C.C., Courtney, M.E. & Novotny, E. (2016) Pre-foster care maltreatment class as a predictor of maltreatment in foster care. *Child and Adolescent Social Work Journal*. 34 (1), 35-49.
- Keller, T.E., Cusick, G.R. & Courtney, M.E. (2007) Approaching the transition to adulthood: Distinctive profiles of adolescents ageing out of the child welfare system. *The Social Service Review*. 81 (3), 453–484.
- Kelly, Y., Sacker, A., Del Bono, E., Francesconi, M., *et al.* (2011) What role for the home learning environment and parenting in reducing socioeconomic gradient in child development? Findings from the Millennium Cohort Study. *Archives of Disease in Childhood*. 96, 832–837.
- Kessler, R.C., Davis, C.G. & Kendler, K.S. (1997) Childhood adversity and adult psychiatric disorder in the US National Comorbidity Survey. *Psychological Medicine*. 27 (5), 1101-1119.
- Kessler, R.C., McLaughlin, K.A., Green, J.G., Gruber, M.J., *et al.* (2010) Childhood adversities and adult psychopathology in the WHO world mental health surveys. *British Journal of Psychiatry*. 197 (5), 378–385.
- Kirton, D. (2016) (In)Sufficient? Ethnicity and foster care in English local authorities. *Child and Family Social Work*. 21 (4), 492–501.
- Knapp, M., King, D., Healey, A. & Thomas, C. (2011) Economic outcomes in adulthood and their associations with antisocial conduct, attention deficit and anxiety problems in childhood. *Journal of Mental Health Policy and Economics*. 14 (3), 137–147.
- Laming, H. (2009) *The protection of children in England: A progress report*. Department for Children, Schools and Families. Report number: HC 330 2008-09.
- Lanza, S., Dziak, J., Huang, L., Wagner, A., *et al.* (2015a) *LCA Stata Plugin, version 1.2*. University Park: The Methodology Center, Penn State. Available from methodology.psu.edu [Accessed 1<sup>st</sup> September 2017].
- Lanza, S., Dziak, J., Huang, L., Wagner, A., *et al.* (2015b) *LCA Stata plugin users' guide (version 1.2)*. University Park: The Methodology Center, Penn State. Available from methodology.psu.edu [Accessed 1<sup>st</sup> September 2017].
- Law, J. & Martin, E.A. (2009) *A Dictionary of Law*. 7<sup>th</sup> edition. Oxford: UK, Oxford University Press.
- Lawson, K. & Cann, R. (2017) *State of the nation's foster care 2016: What foster carers think and feel about fostering*. The Fostering Network. Available from: <https://www.thefosteringnetwork.org.uk/sites/www.fostering.net/files/content/stateofthenationsfostercare2016.pdf> [Accessed 1<sup>st</sup> September 2017].

- Lee, S. (2009) *The role of foster care placement in later problem behaviour*. PhD thesis, Graduate School of Arts and Sciences of Washington University, St Louis, US.
- Lee, S., Jonson-Reid, M. & Drake, B. (2012) Foster care re-entry: Exploring the role of foster care characteristics, in-home child welfare services and cross-sector services. *Children and Youth Services Review*. 34 (9), 1825–1833.
- Lesnard, L. (2010) Setting cost in optimal matching to uncover contemporaneous socio-temporal patterns. *Sociological Methods & Research*. 38 (3), 389-419.
- Liao, M. & White, K.R. (2014) Post-permanency service needs, service utilization, and placement discontinuity for kinship versus non-kinship families. *Child and Youth Services Review*. 44, 370-378.
- Lippold, M.A., Kainz, K. & Sabatine, E. (2017) Using advanced quantitative methods to study the prevention of social problems. *British Journal of Social Work*. (pre-print). Available from: <https://academic.oup.com/bjsw/article-abstract/doi/10.1093/bjsw/bcw172/2877171> [Accessed 1<sup>st</sup> September].
- Livingston, M., Stewart, A., Allard, T., Ogilvie, J., *et al.* (2008) Understanding juvenile trajectories. *Australian & New Zealand Journal of Criminology*. 41 (3), 345–363.
- Long, S., Evans, R., Fletcher, A., Hewitt, G., *et al.* (2017) Comparison of substance use, subjective well-being and interpersonal relationships among young people in foster care and private households: A cross sectional analysis of the School Health Research Network survey in Wales. *BMJ Open*. 7 (2), e014198.
- Longfield, A. (2017) *Stability index: Overview and initial findings*. Office of the Children's Commissioner for England. Available from: <https://www.childrenscommissioner.gov.uk/publication/stability-index-initial-findings-and-technical-report/> [Accessed 1<sup>st</sup> September 2017]
- Maclean, K. & Gunion, M. (2003) Learning with care: The education of children looked after away from home by local authorities in Scotland. *Adoption & Fostering*. 27 (2), 20–31.
- Maclean, M., Sims, S., O'Donnell, M. & Gilbert, R. (2016) Out-of-home care versus in-home care for children who have been maltreated: A systematic review of health and wellbeing outcomes. *Child Abuse Review*. 25 (4), 251-272.
- Maclean, M, Taylor, C.L. & O'Donnell, M. (2017) Relationship between out-of-home care placement history characteristics and educational achievement: A population level linked data study. *Child Abuse and Neglect*. 70, 146–159.
- Magruder, J. & Shaw, T. V (2008) Children ever in care: An examination of cumulative disproportionality. *Child Welfare*. 87 (2), 169–188.
- Marmot, M. (2010) *Fair society, healthy lives: The Marmot review*. Available from: [www.ucl.ac.uk/marmotreview](http://www.ucl.ac.uk/marmotreview) [Accessed 1<sup>st</sup> September 2017].
- Marsh, P. & Thoburn, J. (2002) The adoption and permanence debate in England and Wales. *Child and Family Social Work*. 7 (2), 131–132.

- Martin, A., Ford, T., Goodman, R., Meltzer, H., *et al.* (2014) Physical illness in looked-after children: a cross-sectional study. *Archives of Disease in Childhood*. 99 (2), 103–107.
- Mathers, S., Hardy, G., Clancy, C., Dixon, J., *et al.* (2016) *Starting out right: Early education and looked after children*. University of Oxford and Family and Childcare Trust. Available from: <https://www.familyandchildcaretrust.org/file/2510/download?token=4jIBTIOV> [Accessed 1<sup>st</sup> September 2017].
- Maxwell, N., Scourfield, J., Gould, N. & Huxley, P. (2012) UK panel data on social work service users. *British Journal of Social Work*. 42 (1), 165–184.
- Maydeu-Olivares, A. & Cai, L. (2006) A cautionary note on using  $G^2$  to assess relative model fit in categorical data analysis. *Multivariate Behavioral Research*. 41 (1), 55–64.
- Mc Grath-Lone, L., Harron, K., Dearden, L., Nasim, B., *et al.* (2016) Data resource profile: Children Looked After Return (CLA). *International Journal of Epidemiology*. 45 (3), 716-717f.
- McCann, J., James, A., Wilson, S. & Dunn, G. (1993) Prevalence of psychiatric disorders in young people in the care system. *BMJ*. 313, 1529.
- McClung, M. & Gayle, V. (2010) Exploring the care effects of multiple factors on the educational achievement of children looked after at home and away from home: An investigation of two Scottish local authorities. *Child and Family Social Work*. 15 (4), 409–431.
- McDonagh, T. (2011) *Tackling homelessness and exclusion: Understanding complex lives*. Joseph Rowntree Foundation. Available from: [http://www.homeless.org.uk/sites/default/files/site-attachments/Roundup\\_2715\\_Homelessness\\_aw.pdf](http://www.homeless.org.uk/sites/default/files/site-attachments/Roundup_2715_Homelessness_aw.pdf) [Accessed 1<sup>st</sup> September 2017].
- McDonald, T., Bryson, S. & Poertner, J. (2006) Balancing reunification and re-entry goals. *Children and Youth Services Review*. 28 (1), 47–58.
- McLaughlin, K.A. (2016) Future directions in childhood adversity and youth psychopathology. *Journal of Clinical Childhood and Adolescent Psychology*. 45 (3), 361–382.
- Meltzer, H. (2000) *The mental health of children and adolescents in Great Britain*. Office of National Statistics. ISBN 0 11 621373 6.
- Meltzer, H., Gatward, R., Corbin, T., Goodman, R., *et al.* (2003) *The mental health of young people looked after by local authorities in England*. Office of National Statistics. ISBN 0 11 621651 4.
- Meltzer, H., Lader, D., Corbin, T., Goodman, R., *et al.* (2004a) *The mental health of young people looked after by local authorities in Scotland*. The Stationery Office.
- Meltzer, H., Lader, D., Corbin, T., Goodman, R., *et al.* (2004b) *The mental health of young people looked after by local authorities in Wales*. The Stationery Office.
- Milligan, G. & Cooper, M. (1985) An examination of procedures for determining the number of clusters in a data set. *Psychometrika*. 50 (2), 159–179.

- Mooney, A., Statham, J., Monck, E. & Chambers, H. (2009) *Promoting the health of looked after children: A study to inform revision of the 2002 guidance*. Department for Children, Families and Schools Report number: DCSF-RR125.
- Morgan, G.B. (2014) Mixed mode latent class analysis: An examination of fit index performance for classification. *Structural Equation Modeling: A Multidisciplinary Journal*. 22 (1), 76–86.
- Munn, Z., Moola, S., Lisy, K. & Rittano, D. (2014) *The Joanna Briggs Institute reviewers' manual: The systematic review of prevalence and incidence data*. The Joanna Briggs Institute. Available from: [https://joannabriggs.org/assets/docs/sumari/ReviewersManual\\_2014-The-Systematic-Review-of-Prevalence-and-Incidence-Data\\_v2.pdf](https://joannabriggs.org/assets/docs/sumari/ReviewersManual_2014-The-Systematic-Review-of-Prevalence-and-Incidence-Data_v2.pdf) [Accessed 1<sup>st</sup> September].
- Munro, E. (2010) *Munro review of child protection part 1: A systems analysis*. Department for Education. Report number: DFE-00548-2010.
- Munro, E. (2011a) *Munro review of child protection: Final report - a child-centred system*. Department for Education. Report number: CM 8062.
- Munro, E. (2011b) *Munro review of child protection: Interim report - the child's journey*. Department for Education. Report number: DFE-00010-2011.
- Munro, E. & Hardy, A. (2006) *Placement stability: A review of the literature*. Department for Education. Available from: <https://dspace.lboro.ac.uk/2134/2919> [Accessed 1<sup>st</sup> September 2017].
- Munro, E., Brown, R. & Manful, E. (2011) *Safeguarding children statistics: The availability and comparability of data in the UK*. Department for Education. Report number: DFE-RB153.
- Munro, E.R., Hollingworth, K., Quy, K., McDermid, S., et al. (2014) *Residential parenting assessments: Uses, costs and contributions to effective and timely decision-making in public law cases*. Department for Education. Report number: DFE-RR370.
- Murphy, E. & Fairtlough, A. (2015) The successful reunification of abused and neglected looked after children with their families: A case-file audit. *British Journal of Social Work*. 45 (8), 2261–2280.
- Muthén, B. (2003) Latent variable analysis: Growth mixture modelling and related techniques for longitudinal data. In: D. Kaplan (ed.), *Handbook of quantitative methodology for the social sciences*. Newland Park: CA, Sage. pp. 345–368.
- Nandy, S., Selwyn, J., Farmer, E. & Vaisey, P. (2011) *Spotlight on kinship care: Using census microdata to examine the extent and nature of kinship care in the UK at the turn of the twentieth century*. University of Bristol. Available from: <http://www.bristol.ac.uk/media-library/sites/sps/migrated/documents/finalkinship.pdf> [Accessed 1<sup>st</sup> September 2017].
- Narey, M. (2016) *Residential care in England: Report of Sir Martin Narey's independent review of children's residential care*. University of Bristol. Available from: <http://www.bristol.ac.uk/media-library/sites/sps/migrated/documents/finalkinship.pdf> [Accessed 1<sup>st</sup> September 2017].

National Audit Office (2015) *Care leavers' transition to adulthood*. Department for Education. Report number: DP 10766-001.

National Society for the Prevention of Cruelty to Children (2012). *Returning home from care: What's best for children*. Available from: <https://www.nspcc.org.uk/globalassets/documents/research-reports/returning-home-from-care-best-children.pdf> [Accessed 1<sup>st</sup> September 2017].

National Statistician's Office (2014) *Using administrative data: Good practice guidance for statisticians*. Available from: <https://gss.civilservice.gov.uk/wp-content/uploads/2012/12/Interim-Admin-Data-guidance.pdf> [Accessed 1<sup>st</sup> September 2017].

Neely-Barnes, S. (2010) Latent class models in social work. *Social Work Research*. 34 (2), 114–121.

Nelson, C., Fox, N. & Zeanah, C. (2014) *Romania's abandoned children: Deprivation, brain development, and the struggle for recovery*. Harvard: MA, Harvard University Press.

Nylund, K.L., Asparouhov, T. & Muthén, B.O. (2007) Deciding on the number of classes in latent class analysis and growth mixture modelling: A Monte Carlo simulation study. *Structural Equation Modeling*. 14 (4), 535–569.

O'Donnell, M., Maclean, M., Sims, S., Brownell, M., *et al.* (2016) Entering out-of-home care during childhood: Cumulative incidence study in Canada and Australia. *Child Abuse and Neglect*. 59, 78–87.

O'Higgins, A., Sebba, J. & Luke, N. (2015) *What is the relationship between being in care and the educational outcomes of children?* Rees Centre and University of Oxford. Available from: [http://reescentre.education.ox.ac.uk/wordpress/wp-content/uploads/2015/09/ReesCentreReview\\_EducationalOutcomes.pdf](http://reescentre.education.ox.ac.uk/wordpress/wp-content/uploads/2015/09/ReesCentreReview_EducationalOutcomes.pdf) [Accessed 1<sup>st</sup> September 2017].

O'Sullivan, A. & Westerman, R. (2007) Closing the gap: Investigating the barriers to educational achievement for looked after children. *Adoption & Fostering*. 31 (1), 13–20.

Office for National Statistics (2008) *A framework for identifying sources of statistical error in estimates of public service output and productivity*. Available from: <https://www.ons.gov.uk/ons/guide-method/ukcemga/ukcemga-publications/publications/archive/a-framework-for-identifying-sources.pdf> [Accessed 1<sup>st</sup> September 2017].

Office for National Statistics (2017a) *Annual mid-year population estimates*. Available from: <http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Estimates> [Accessed 1<sup>st</sup> September 2017].

Office for National Statistics (2017b) *Annual mid-year population estimates: Quality and methodology information*. Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/methodologyguideformid2015ukpopulationestimatesenglandandwalesjune2016> [Accessed 1<sup>st</sup> September 2017].

Office for National Statistics (2016) *Baby names: England and Wales, 1996*. Available from: <http://webarchive.nationalarchives.gov.uk/20150908010847/http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcM%3A77-243762> [Accessed 1<sup>st</sup> September 2017].

Office for National Statistics (2010) *Population estimates: A short guide to population estimates*. Available from: <https://tinyurl.com/y6uanr3c> [Accessed 1<sup>st</sup> September 2017].

Office for National Statistics (2017c) *Population estimates for UK, England and Wales, Scotland and Northern Ireland: Time series 1971 to current year*. Available from: <http://webarchive.nationalarchives.gov.uk/20160105223339/http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/index.html> [Accessed 1<sup>st</sup> September 2017].

Ofsted (2016) *Children's social care data in England*. Department for Education. Available from: <https://www.gov.uk/government/statistics/childrens-social-care-data-in-england-2016> [Accessed 1<sup>st</sup> September 2017].

Orsi, R. (2015) Predicting re-involvement for children adopted out of a public child welfare system. *Child Abuse and Neglect*. 39, 175–184.

Østergaard, S.D., Larsen, J.T., Dalsgaard, S., Wilens, T.E., *et al.* (2016) Predicting ADHD by assessment of Rutter's indicators of adversity in infancy. *PLoS ONE*. 11 (6), 1–15.

Owen, C. & Statham, J. (2009) *Disproportionality in child welfare: the prevalence of black and minority ethnic children within the 'looked after' and 'children in need' populations and on child protection registers in England*. Department for Children, Families and Schools. Report number: DCSF RR124.

Panchamia, N. & Thomas, P. (2017) *Public Service Agreements and the Prime Minister's Delivery Unit*. Institute for Government. Available from: <https://www.instituteforgovernment.org.uk/sites/default/files/case%20study%20psas.pdf> [Accessed 1<sup>st</sup> September 2017].

Pecora, P.J., Kessler, R.C., O'Brien, K., White, C.R., *et al.* (2006) Educational and employment outcomes of adults formerly placed in foster care: Results from the Northwest Foster Care Alumni Study. *Children and Youth Services Review*. 28 (12), 1459–1481.

Pelton, L.H. (2016) Coercion and child harm: A response to Sarah Font. *Child Abuse and Neglect*. 59, 125–127.

Ploug, N. (2012) The Nordic child care regime - history, development and challenges. *Child and Youth Service Review*. 34 (3), 517–522.

Priestley, A. & Kennedy, L.A. (2015) *The health of looked after children and young people: A summary of the literature*. University of Strathclyde International Public Policy Institute. Available from: [https://pure.strath.ac.uk/portal/files/44184036/Kennedy\\_Priestley\\_IPPI2015\\_health\\_of\\_looked\\_after\\_children\\_and\\_young\\_people.pdf](https://pure.strath.ac.uk/portal/files/44184036/Kennedy_Priestley_IPPI2015_health_of_looked_after_children_and_young_people.pdf) [Accessed 1st September 2017].

Prison Reform Trust (2016) *In care, out of trouble: How the life chances of children in care can be transformed by protecting them from unnecessary involvement in the criminal justice system*. Report number: 978-1-908504-92-0.



- Pritchard, C. & Butler, A. (2000) A follow-up study of criminality, murder and the cost of crime in cohorts of 'excluded-from-school' and 'looked-after-children' adolescents in England. *International Journal of Adolescent Medicine and Health*. 12 (2-3), 223–244.
- Pritchard, C. & Williams, R. (2009) Does social work make a difference? A controlled study of former 'looked-after-children' and 'excluded-from-school' adolescents now men aged 16–24 subsequent offences, being victims of crime and suicide. *Journal of Social Work*. 9 (3), 285–307.
- Putnam-Hornstein, E. & King, B. (2014) Cumulative teen birth rates among girls in foster care at age 17: An analysis of linked birth and child protection records from California. *Child Abuse and Neglect*. 38 (4), 698–705.
- Putnam-Hornstein, E., Needell, B., King, B. & Johnson-Motoyama, M. (2013) Racial and ethnic disparities: A population-based examination of risk factors for involvement with child protective services. *Child Abuse and Neglect*. 37 (1), 33–46.
- Ranson, K.E. & Urichuk, L.J. (2008) The effect of parent–child attachment relationships on child biopsychosocial outcomes: A review. *Early Child Development and Care*. 178 (2), 129–152.
- Raymer, J., Yildiz, D. & Smith, P.W.F. (2013) *Review of methods for estimating populations with administrative data*. Southampton Statistical Sciences Research Institute. Available from: <https://www.nrscotland.gov.uk/files/census/2021-census/reports-publications/review-pop-admin-data.pdf> [Accessed 1<sup>st</sup> September 2017].
- Rees, P. (2013) The mental health, emotional literacy, cognitive ability, literacy attainment and 'resilience' of 'looked after children': A multidimensional, multiple-rater population based study. *The British Journal of Clinical Psychology*. 52 (2), 183–198.
- Reeve, K. (2011) *The hidden truth about homelessness experiences of single homelessness in England*. Crisis. Available from: [https://www.crisis.org.uk/media/236816/the\\_hidden\\_truth\\_about\\_homelessness\\_es.pdf](https://www.crisis.org.uk/media/236816/the_hidden_truth_about_homelessness_es.pdf) [Accessed 1<sup>st</sup> September 2017].
- Richardson, J. & Lelliott, P. (2003) Mental health of looked after children. *Advances in Psychiatric Treatment*. 9, 249–251.
- Rolock, N. (2011) New methodology: Measuring racial or ethnic disparities in child welfare. *Children and Youth Services Review*. 33 (9), 1531–1537.
- Romano, E., Zoccolillo, M. & Paquette, D. (2006) Histories of child maltreatment and psychiatric disorder in pregnant adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*. 45 (3), 329–336.
- Roos, L.E., Afifi, T.O., Martin, C.G., Pietrzak, R.H., *et al.* (2016) Linking typologies of childhood adversity to adult incarceration: Findings from a nationally representative sample. *The American Journal of Orthopsychiatry*. 86 (5), 584–593.
- Roos, L.L., Nicol, J.P. & Cageorge, S.M. (1987) Using administrative data for longitudinal research: Comparisons with primary data collection. *Journal of Chronic Diseases*. 40 (1), 41–49.

Royston, P. & Altman, D.G. (2013) External validation of a Cox prognostic model: Principles and methods. *BMC medical research methodology*. 13, 33.

Sabol, W., Coulton, C. & Polousky, E. (2004) Measuring child maltreatment risk in communities: A life table approach. *Child Abuse and Neglect*. 28 (9), 967–983.

Schofield, G., Biggart, L., Ward, E. & Larsson, B. (2015) Looked after children and offending: An exploration of risk, resilience and the role of social cognition. *Children and Youth Services Review*. 51, 125–133.

Schofield, G., Thoburn, J., Howell, D. & Dickens, J. (2007) The search for stability and permanence: Modelling the pathways of long-stay looked after children. *British Journal of Social Work*. 37 (4), 619–642.

Schofield, G. & Simmonds, J. (2009) *The child placement handbook. Research, policy and practice*. London: UK, CoramBAAF.

Sebba, J., Berridge, D., Luke, N., Fletcher, J., et al. (2015) *The educational progress of looked after children in England: Linking care and educational data*. Available from: [http://reescentre.education.ox.ac.uk/wordpress/wp-content/uploads/2015/11/EducationalProgressLookedAfterChildrenOverviewReport\\_Nov2015.pdf](http://reescentre.education.ox.ac.uk/wordpress/wp-content/uploads/2015/11/EducationalProgressLookedAfterChildrenOverviewReport_Nov2015.pdf) [Accessed 1<sup>st</sup> September 2017].

Selwyn, Harris, P., Quinton, D., Nawaz, S., et al. (2008) *Pathways to permanence for Black, Asian and Mixed ethnicity Children: Dilemmas, decision-making and outcomes*. Department for Children, Schools and Families. Report number: DCSF-RBX-13-08.

Selwyn, J. (2017) *Our lives, our care: Looked after children's views on their well-being*. Coram Voice. Available from: <http://www.coramvoice.org.uk/sites/default/files/FULL%20REPORT.pdf> [Accessed 1<sup>st</sup> September 2017].

Selwyn, J. & Quinton, D. (2004) Stability, permanence, outcomes and support: Foster care and adoption compared. *Adoption & Fostering*. 28 (4), 6–15.

Selwyn, J., Wijedasa, D. & Meakings, S. (2014) *Beyond the adoption order: Challenges, interventions and adoption disruption*. Department for Education. Report number: DFE-RR336.

Selwyn, J., Wood, M. & Newman, T. (2017) Looked after children and young people in England: Developing measures of subjective well-being. *Child Indicators Research*. 10, 363–380.

Sempik, J., Ward, H. & Darker, I. (2008) Emotional and behavioural difficulties of children and young people at entry into care. *Clinical Child Psychology and Psychiatry*. 13 (2), 221–233.

Sharland, E., Holland, P., Henderson, M., Zhang, M. L., et al. (2017) Assembling life history narratives from quantitative longitudinal panel data: What's the story for families using social work. *International Journal of Social Research Methodology*. 5579, 1-13.

- Sharp-Jeffs, N. (2017) To honour and obey? Forced marriage, honour based violence and going missing. In: K Shalev Greene & L Alys (eds.), *Missing persons: A handbook of research*. New York: US, Routledge. pp. 111-122.
- Shaw, J. (2017) Residential care and criminalisation: The impact of system abuse. *Safer Communities*. 16 (3), 112–121.
- Shaw, J. (2014) *Residential homes and the youth justice system: Identity, power and perceptions*. London: UK, Palgrave Macmillan.
- Shaw, T. V. (2006) Re-entry into the foster care system after reunification. *Children and Youth Services Review*. 28 (11), 1375–1390.
- Shaw, T. V., Putnam-Hornstein, E., Magruder, J. & Needell, B. (2008) Measuring racial disparity in child welfare. *Child Welfare*. 87 (2), 23–36.
- Shin, S.H., Hong, H.G. & Hazen, A.L. (2010) Childhood sexual abuse and adolescent substance use: A latent class analysis. *Drug and Alcohol Dependence*. 109 (1-3), 226–235.
- Shlonsky, A. (2015) Current status and prospects for improving decision making research in child protection: A commentary. *Child Abuse and Neglect*. 49, 154–162.
- Shonkoff, J.P., Garner, A.S., Siegel, B.S., Dobbins, M.I., *et al.* (2012) The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 129 (1), e232–e246.
- Simkiss, D. (2012) Outcomes for looked after children and young people. *Paediatrics and Child Health (United Kingdom)*. 22 (9), 388–392.
- Simkiss, D.E., Spencer, N.J., Stallard, N. & Thorogood, M. (2012) Health service use in families where children enter public care: a nested case control study using the General Practice Research Database. *BMC Health Services Research*. 12, 65.
- Simkiss, D.E., Stallard, N. & Thorogood, M. (2013) A systematic literature review of the risk factors associated with children entering public care. *Childcare, Health and Development*. 39 (5), 628–642.
- Sinclair, I., Baker, C., Lee, J. & Gibbs, I. (2007) *The pursuit of permanence: A study of the English child care system*. London: UK, Jessica Kingsley Publishers.
- Sinclair, I. & Gibbs, I. (1998) *Children's homes: A study in diversity*. London: UK, Wiley.
- Sinha, V., Trocmé, N., Fallon, B. & MacLaurin, B. (2013) Understanding the investigation-stage overrepresentation of First Nations children in the child welfare system: An analysis of the First Nations component of the Canadian Incidence Study of Reported Child Abuse and Neglect 2008. *Child Abuse and Neglect*. 37 (10), 821–831.
- Skuse, T., Macdonald, I. & Ward, H. (2001) *Outcomes for looked after children: The longitudinal study at the third data collection point*. Loughborough University. Available from: <https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/2936/1/TransformingYEARTWO.pdf> [Accessed 1<sup>st</sup> September 2017].
- Slater, T., Scourfield, J. & Sloan, L. (2012) Who is citing whom in social work? A response to Hodge, Lacasse and Benson. *British Journal of Social Work*. 42 (8), 1626–1633.

- Spiegelhalter, D. (2005) Funnel plots for comparing institutional performance. *Statistics in Medicine*. 24 (8), 1185–1202.
- Stanley, N., Riordan, D. & Alaszewski, H. (2005) The mental health of looked after children: Matching response to need. *Health and Social Care in the Community*. 13 (3), 239–248.
- StataCorp (2013) *Stata 13 multiple-Imputation reference manual*. College Station, TX: StataCorp LLC
- StataCorp (2015) *Stata statistical software: Release 14*. College Station, TX: StataCorp LLC
- StatsWales (2017) *Children Looked After at 31 March, 1977-2002*. Available from: <https://statswales.gov.wales/Catalogue/Health-and-Social-Care/Social-Services/Childrens-Services/Children-Looked-After> [Accessed 1<sup>st</sup> September 2017].
- Stein, M. (2005) *Resilience and young people leaving care: Overcoming the odds*. The University of York. Available from: <http://eprints.whiterose.ac.uk/73176/> [Accessed 1<sup>st</sup> September 2017].
- Sterne, J.A.C., White, I.R., Carlin, J.B., Spratt, M., *et al.* (2009) Multiple imputation for missing data in epidemiological and clinical research: Potential and pitfalls. *BMJ*. 338, 157–160.
- Sullivan, R. & Charles, G. (2010) *Disproportionate representation and First Nations child welfare in Canada*. University of Toronto. Available from: <http://search.library.utoronto.ca/details?9037222&uuid=59e72c7e-a599-48c9-a1ba-c4a530fedfc0> [Accessed 1<sup>st</sup> September 2017].
- Tarren-Sweeney, M. (2008) The mental health of children in out-of-home care. *Current Opinion in Psychiatry*. 21 (4), 345–349.
- Testa, M.F., Snyder, S., Wu, Q., Rolock, N., & Liao, M. (2015) Adoption and guardianship: A moderated mediation analysis of predictors of post-permanency continuity. *American Journal of Orthopsychiatry*. 85 (2) 107-118.
- Teyhan, A., Boyd, A. & Macleod, J. (2017) Investigating educational attainment at age 16 years in adolescents who are looked after or in need using record linkage and a birth cohort study. *Paper presented at the Informatics for Health Conference, Manchester: UK, 24-26<sup>th</sup> April 2017*.
- The National Archive (2014) *Children in Care catalogue*. Reference number: BN 98.
- Thoburn, J. (2008) Looked after children: 21 years of policy. In: Action for Children (ed.), *As long as it takes: A new politics for children*. pp 18-25. Available from: <https://www.actionforchildren.org.uk/media/3272/alait.pdf> [Accessed 1<sup>st</sup> September 2017].
- Thoburn, J. (2010) International perspectives on foster care. In: E Fernandez & R. P. Barth (eds.), *How does foster care work? International evidence on outcomes*. London, Jessica Kingsley. pp. 29–43.
- Thoburn, J., Ashok, C. & Proctor, J. (2005) *Child welfare services for minority ethnic families: The research reviewed*. London: UK, Jessica Kingsley Publishers.

- Thoburn, J. & Courtney, M.E. (2011) A guide through the knowledge base on children in out-of-home care. *Journal of Children's Services*. 6 (4), 210–227.
- Thomas, C. (2013) *Adoption for looked after children: Messages from research*. Adoption Research Initiative. Available from: [http://adoptionresearchinitiative.org.uk/docs/ARI%20overview\\_WEB.pdf](http://adoptionresearchinitiative.org.uk/docs/ARI%20overview_WEB.pdf) [Accessed 1<sup>st</sup> September 2017].
- Thornton, A., Hingley, S. & Mortimer, E. (2015) *A census of the children's homes workforce*. Department for Education. Report number: DFE-RR437.
- Tilbury, C. (2009) The over-representation of indigenous children in the Australian child welfare system. *International Journal of Social Welfare*. 18 (1), 57–64.
- tri.x (2014) *Children's services procedures and guidance*. Available from: [http://trixresources.proceduresonline.com/nat\\_key/index.htm](http://trixresources.proceduresonline.com/nat_key/index.htm) [Accessed 1<sup>st</sup> September 2017].
- Turney, K. & Wildeman, C. (2016) Mental and physical health of children in foster care. *Pediatrics*. 138 (5), e20161118.
- Ubbesen, M.-B., Gilbert, R. & Thoburn, J. (2015) Cumulative incidence of entry into out-of-home care: Changes over time in Denmark and England. *Child Abuse and Neglect*. 42, 63–71.
- UK Statistics Authority (2013) *Assessment of compliance with the code of practice for official statistics: Statistics on looked after children*. Assessment report 265. Available from: <https://www.statisticsauthority.gov.uk/archive/assessment/assessment/assessment-reports/assessment-report-265---statistics-on-looked-after-children.pdf> [Accessed 1<sup>st</sup> September 2017].
- UK Statistics Authority (2009) *Code of practice for official statistics*. Report number: 978-1-85774-902-1.
- UNICEF UK (2004) *The United Nations convention on the rights of the child*. Available from: <http://www.ohchr.org/Documents/ProfessionalInterest/crc.pdf> [Accessed 1<sup>st</sup> September 2017].
- Vandenbroucke, J.P. & Pearce, N. (2012) Incidence rates in dynamic populations. *International Journal of Epidemiology*. 41 (5), 1472–1479.
- Vibert, S. (2016) *Commissioning in children's services: What works?* Demos Social Policy. Available from: <https://www.demos.co.uk/project/commissioning-in-childrens-services-what-works/> [Accessed 1<sup>st</sup> September 2017].
- Villodas, M.T., Litrownik, A.J., Newton, R.R. & Davis, I.P. (2016) Long-term placement trajectories of children who were maltreated and entered the child welfare system at an early age: Consequences for physical and behavioural well-being. *Journal of Pediatric Psychology*. 41 (1), 46–54.
- Viner, R.M. & Taylor, B. (2005) Adult health and social outcomes of children who have been in public care: Population-based study. *Pediatrics*. 115 (4), 894–899.

Vinnerljung, B. & Sallnäs, M. (2008) Into adulthood: A follow-up study of 718 young people who were placed in out-of-home care during their teens. *Child & Family Social Work*. 13 (2), 144–155.

Wade, J., Biehal, N., Farrelly, N. & Sinclair, I. (2010) *Maltreated children in the looked after system: A comparison of outcomes for those who go home and those who do not*. Department for Education. Report number: DFE-RBX-10-06.

Wade, J. & Dixon, J. (2006) Making a home, finding a job: Investigating early housing and employment outcomes for young people leaving care. *Child and Family Social Work*. 11 (3), 199–208.

Wade, J., Sinclair, I., Stuttard, L. & Simmonds, J. (2014) *Investigating special guardianship: Experiences, outcomes and challenges*. Department for Education. Report number: DFE-RR372.

Ward, H. (2009) Patterns of instability: Moves within the care system, their reasons, contexts and consequences. *Children and Youth Services Review*. 31 (10), 1113–1118.

Welbourne, P. & Leeson, C. (2012) The education of children in care: A research review. *Journal of Children's Services*. 7 (2), 128–143.

Wells, K. & Guo, S. (1999) Reunification and re-entry of foster children. *Children and Youth Services Review*. 21 (4), 273–294.

Weyts, A. (2004) The educational achievements of looked after children: Do welfare systems make a difference to outcomes? *Adoption & Fostering*. 28 (3), 7–19.

White, K.R. (2016) Placement discontinuity for older children and adolescents who exit foster care through adoption or guardianship: A systematic review. *Child and Adolescent Social Work Journal*. 33 (4), 377–394.

Wiggins, R. & Sacker, A. (2012) Strategies for handling missing data in SEM: A user's perspective. In: G.A. Marcoulides & I Moustaki (eds.), *Latent variable and latent structure models*. Psychology Press. pp. 105–120.

Wildeman, C. & Emanuel, N. (2014) Cumulative risks of foster care placement by age 18 for U.S. children, 2000-2011. *PloS One*. 9 (3), e92785.

Wilkinson, J. & Bowyer, S. (2017) *The impacts of abuse and neglect on children and comparison of different placement options*. Department for Education. Report number: DFE-RR663.

Williams, J. (2001) Case-control study of the health of those looked after by local authorities. *Archives of Disease in Childhood*. 85 (4), 280–285.

Wohland, P., Burkitt, M., Norma, P., Rees, P., et al. (2017) *ETHPOP database, ESRC follow on fund 'Ethnic group population trends'*. Available from: [www.ethpop.org](http://www.ethpop.org) [Accessed 1<sup>st</sup> September 2017].

Wohland, P., Rees, P., Norman, P., Boden, P., et al. (2010) *Ethnic population projections for the UK and local areas, 2001-2051*. University of Leeds Working Paper 10/02.

- Wohlin, C. (2014) Guidelines for snowballing in systematic literature studies and a replication in software engineering. *Paper presented at the International Conference on Evaluation and Assessment in Software Engineering International Conference, London: UK, 13-14<sup>th</sup> May 2017.*
- Woollard, M. (2014) Administrative data: Problems and benefits. A perspective from the United Kingdom. In: A Dus, D Nelle, & G Stock (eds.), *Facing the Future: European Research Infrastructures for the Humanities and Social Sciences*. Berlin: Germany, SCIVERO Verlag. pp. 49-61.
- Wurpts, I.C. & Geiser, C. (2014) Is adding more indicators to a latent class analysis beneficial or detrimental? Results of a Monte-Carlo study. *Frontiers in Psychology*. 5, 1–15.
- Yampolskaya, S., Armstrong, M.I. & Vargo, A.C. (2007) Factors associated with exiting and re-entry into out-of-home care under community-based care in Florida. *Children and Youth Services Review*. 29 (10), 1352–1367.
- Yampolskaya, S., Sharrock, P., Armstrong, M.I., Strozier, A., *et al.* (2014) Profile of children placed in out-of-home care: Association with permanency outcomes. *Children and Youth Services Review*. 36, 195–200.
- Zayed, Y. & Harker, R. (2015) *Children in care in England: Statistics*. House of Commons Library. Report number: SN04470.
- Zetlin, A.G. & Weinberg, L.A. (2004) Understanding the plight of foster youth and improving their educational opportunities. *Child Abuse and Neglect*. 28 (9), 917–923.
- Zinn, A. & Havlicek, J. (2014) Pathways to residential care: Latent class and confirmatory analyses of adolescents' adverse placement event histories. *Social Service Review*. 88 (3), 367–406.