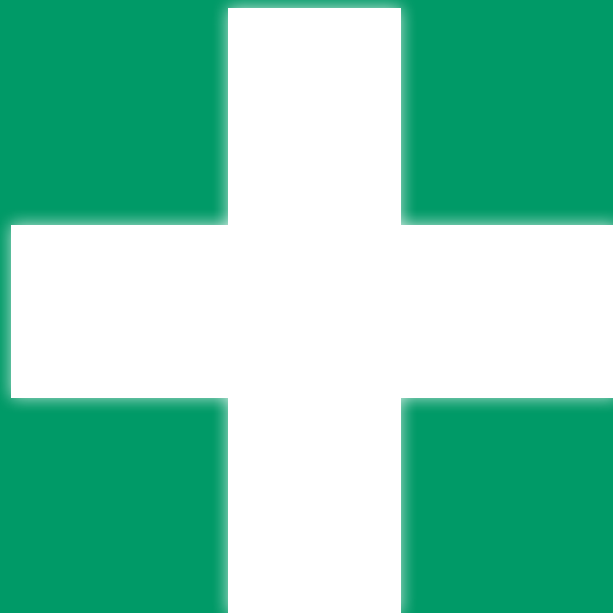


Self-care for minor ailments

Systematic reviews of qualitative and quantitative research



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Glossary

A&E (also known as **Emergency Department** or **Casualty**) deals with genuine life-threatening emergencies, such as loss of consciousness, breathing difficulties, and bleeding that cannot be stopped (NHS England 2015b).

Minor ailment is a non-serious medical condition, for which there are effective self-care options. A full list of the included conditions, as compiled by Pillay et al. (2010), can be found in Table 7.3.

Minor injuries unit for treatment as in the urgent care centre (NHS England 2015a).

Self-care ranges from consultation with friends, associates and family, internet searching/digital applications and the purchase of over-the-counter medicines to minor ailment advice in community pharmacies, walk in/urgent care centres, NHS111 and support from other healthcare professionals.

Traditional care includes GP (regular and out of hours) and A&E services

Urgent care centre for the treatment of minor illness or injury (cuts, sprains or rashes) that cannot wait until the GP surgery is open (NHS England).

Views refers to service-users attitudes and experiences of self-care for minor ailments

Walk-in centre for treatment as in the urgent care centre (NHS England 2015a).

Abbreviations

A&E	Accident and Emergency
AOM	Acute otitis media
BCT	Behaviour change techniques
BCW	Behaviour Change Wheel
CHI	Community Health Index
CI	Confidence interval
COM-B	Capability, opportunity, motivation and behaviour
ED	Emergency Department
ENT	Ear, nose and throat
Freq	Frequency
GP	General practitioner
HR	Hazard ratio
IMD	Index of Multiple Deprivation (2004)
IQR	Interquartile range
IRR	Incidence rate ratio
LRTI	Lower respiratory tract infection
MA	Minor Ailments
MC	Multiple choice
MRC	Medical Research Council
NA	Not applicable
NR	Not reported
NHS	National Health Service
Non-RCT	Non-randomised controlled trial
NS	Not significant
OR	Odds ratio
PAGB	Proprietary Association of Great Britain
PMAS	Pharmacy-based minor ailment scheme
PNR	Proportions not reported
POEM	Patient Oriented Eczema Measure
PSR	Population statistics reported
QoL	Quality of life
RCT	Randomised controlled trial
RQ	Research question
RTI	Respiratory tract infection
SD	Standard deviation
SIMD	Scottish Index of Multiple Deprivation
SM	Same minor ailment
SR	Self-reported
SS	Single survey
TDF	Theoretical Domains Framework
TSC	Triggers for Seeking Care
UK	United Kingdom
URTI	Upper respiratory tract infection
WM	Weighted mean
www	Worldwide web

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Overview of the project

Minor ailments (MAs) have been defined as non-complicated medical conditions which can be self-diagnosed and managed, with or without the support of a healthcare professional. Some minor ailments, however, consume significant numbers of appointments with general practitioners (GPs) and attendances at accident and emergency (A&E) departments, which places an unnecessary strain on these overstretched services.

People can often take care of their minor ailments themselves (such as a sore throat or cough) through for example, use of over-the-counter medicines and support from friends or family. Self-care services such as community pharmacy, walk-in/urgent care centres, and NHS111 can also provide support and reduce the burden on GP and A&E services.

This project brought together findings from research about self-care of minor ailments. We found 58 studies conducted in the UK. Overall, these studies showed that whilst in general, people are willing to self-care for their minor ailments, this preference for self-care was compromised by seven key influences. These included:

- **Lack of knowledge/skills** about available self-care services and management of minor symptoms.
- **Memory, attention and decision-making** in the context of considering alternatives to GP and A&E care.
- **Anxiety** (e.g., increased heart rate, sweating, trembling) that minor symptoms are due to some serious perceived health threat that warrants GP or A&E attention. Anxiety is more of an automatic and involuntary response compared to conscious beliefs about engaging in a behaviour (such as beliefs about perceived severity, below).
- **Reinforcement** of unnecessary GP attendances by healthcare professionals (e.g. through provision of antibiotics when they are not needed, thereby strengthening the connection between minor symptoms and the need for antibiotics). Reinforcement that care-seeking was inappropriate also helped service users to learn when it is appropriate to self-care.
- **Beliefs that the perceived severity of symptoms** and susceptibility to illness posed a serious health threat that warranted GP or A&E attention with children being seen as especially vulnerable.
- **Lack of social support** from peers or relatives. However, in some cases, social support was shown to legitimise inappropriate GP attendances (e.g. through encouraging GP visits).
- **Environmental context and resources issues relating to access** (e.g. time to access care) cost of over-the-counter medications, and limited professional roles (such as inability to prescribe or physically examine patients) were also shown to prevent self-care for minor ailments.

Existing interventions target a lack of knowledge and delayed antibiotics prescribing (e.g. issuing back-up prescriptions) with only the latter showing beneficial effects in terms of reducing the number of GP attendances. This is unsurprising, as education interventions on their own are often insufficient, especially when the behaviour is influenced by a range of factors as is the case for self-care. Surprisingly, the other influences identified as important to self-care were not directly evaluated in intervention studies. We therefore suggest a range of interventions based on the key influences of self-care that could be implemented and tested for effectiveness in practice. For example, *persuade* service-users from being overwhelmed by anxiety (such as enabling service-users to identify anxiety triggers that drive the urge to attend GP/A&E and develop strategies for managing them). See table 0.1 (executive summary) for a complete list of suggested strategies.

Whilst the involvement of key stakeholders helped to ensure the relevance of these findings for the UK policy context, many of the studies examined were not optimally designed or conducted; therefore, our conclusions must be considered cautiously. Further research is needed before we can be clear about the relative importance of each influence on the self-care of minor ailments.

Executive summary

Who this document is for

This summary document is written for a range of stakeholders involved in the self-care of minor ailments. This group may include GPs, community pharmacists and other public health practitioners; providers spanning primary and secondary care; researchers; health research commissioners and funders; and policymakers and regulators.

Aims

There is an extensive literature about self-care and long-term conditions, but less is known about self-care and minor ailments. Given the volume of general practitioners (GP) and accident and emergency (A&E) consultations that appear to be related to minor ailments, there was interest in finding out more about the policy issues for the roles of GP and A&E staff, and alternative sources of support, in the self-care of minor ailments. In the UK, self-care ranges from consultation with friends, associates and family, internet searching/ digital applications and the purchase of over-the-counter medicines to minor ailment advice in community pharmacies, walk in/urgent care centres, NHS111 and support from non-GP and non-A&E healthcare professionals. Self-care can be contrasted with formal care, which includes GP (regular and out-of-hours) and A&E services. This research sought to explore the factors that may influence self-care for minor ailments; and to evaluate the effectiveness of non-prescription interventions and services that support self-care for minor ailments. Three systematic reviews, and an overarching synthesis were conducted:

Review 1 qualitative interviews: we synthesised interview studies that explored service-users' attitudes towards and experiences of self-care for minor ailments.

Review 2 surveys: we explored service-users' attitudes towards, and experiences of, self-care for minor ailments, examined in quantitative surveys.

Review 3 effectiveness: we examined studies evaluating the effectiveness of behavioural interventions or services for minor ailments, in reducing health-service utilisation [GP, Out-of-hours GP, or A&E], or symptoms.

Overarching synthesis and 'behavioural analysis': we used a number of associated behaviour change tools to help understand self-care behaviours (including the Theoretical Domains Framework (TDF); Michie et al. 2005, COM-B model and Behaviour Change Wheel; Michie et al. 2011). These tools provide a systematic, comprehensive, and theory-based method to identify barriers to self-care and potential strategies to overcome them.

The TDF (Michie et al. 2005) consists of 14 theoretical domains that may explain behaviour derived from a synthesis of 33 theories of behaviour change. The 14 domains are: 1) Knowledge, 2) Skills, 3) Social/professional role and identity, 4) Beliefs about capabilities, 5) Optimism, 6) Beliefs about consequences, 7) Reinforcement, 8) Intentions, 9) Goals, 10) Memory, attention, and decision processes, 11) Environmental context and resources, 12) Social influences, 13) Emotion, and 14) Behavioural regulation.

The COM-B system (Michie et al. 2011) distils the TDF into three domains, being composed of people's *Capability, Opportunity and Motivation* to perform a behaviour.

The Behaviour Change Wheel (BCW; Michie et al. 2011) is used to identify potentially relevant intervention strategies based on the salient TDF and COM-B domains. Application of these behaviour change frameworks provides a theoretical basis for understanding and promoting self-care through systematic investigation.

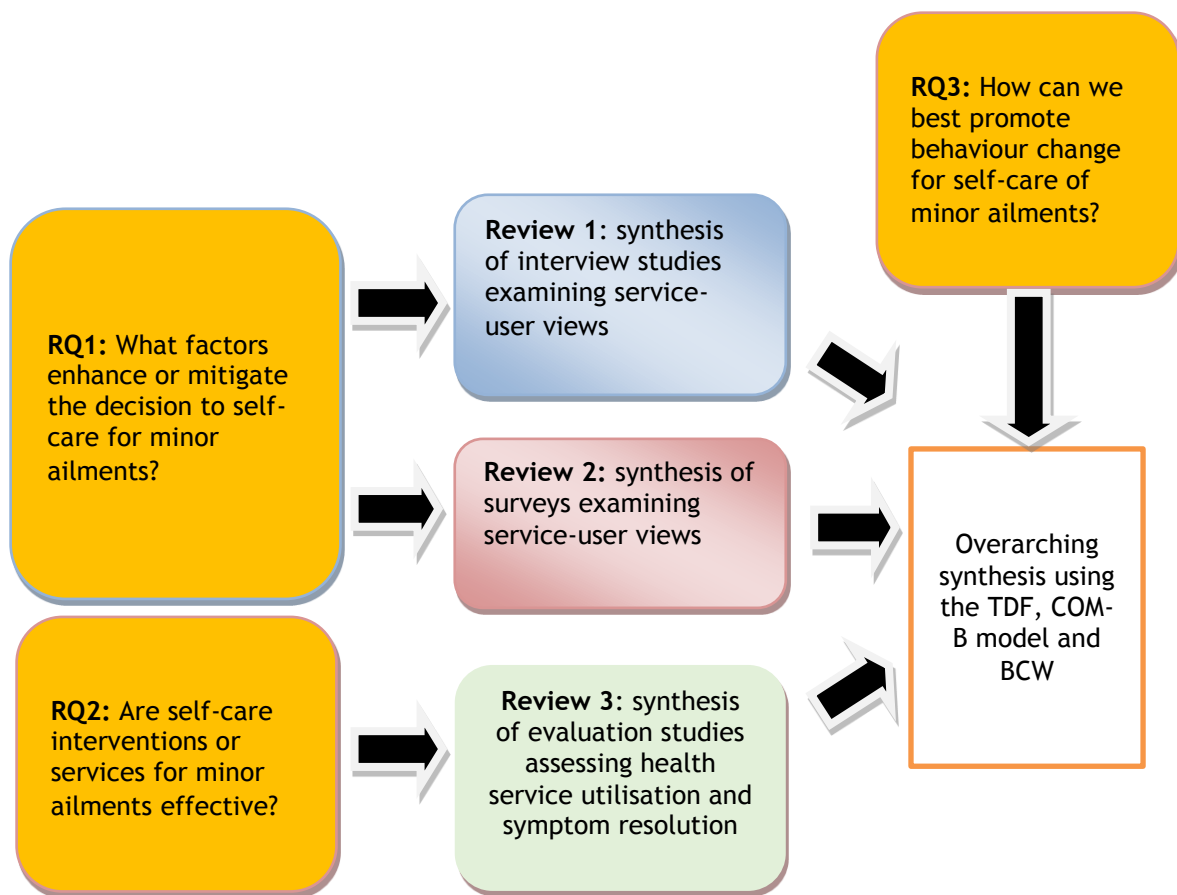


Figure 0.1: Overview of Research Questions (RQ) and relationships between reviews

Key findings

- Evidence from 20 interviews and 13 surveys identified multiple influences on self-care behaviour that were categorised within seven domains of the TDF: 1) Knowledge/Skills (which were combined into one domain as they overlapped considerably), 2) Memory, attention, and decision-making, 3) Emotion, 4) Reinforcement, 5) Beliefs about consequences, 6) Social influences, 7) Environmental context and resources
- With the exception of the educational (knowledge/skills) and delayed antibiotic prescribing interventions (that aim to reinforce associations between minor symptoms and successful self-management), none of the 26 included evaluations directly targeted these influences, indicating that existing interventions do not target the pre-cursors to self-care identified in the interviews and surveys
- With the exception of delayed antibiotic prescribing, the interventions were ineffective, perhaps because they did not target the multitude of influences identified in the interview and survey studies
- Mapping the above seven domains on to the COM-B system of behaviour change showed that all three aspects need to change in order to increase self-care behaviour: people's *capability* to self-care, their *motivation* to self-care and their *opportunity* to self-care
- Using the Behaviour Change Wheel (BCW), we were able to identify which strategies are likely to be effective in changing these factors (see Table 0.1).

What are the drivers and barriers to self-care?

The evidence shows that whilst people are generally willing to self-care for their minor ailments, a preference for traditional GP/A&E care was influenced by seven TDF domains. These influences, summarised below by TDF indicate that a multitude of influences underpin self-care behaviour.

- **Knowledge/skill.** Whilst the interview data implied that both symptom management and service knowledge are important pre-cursors to self-care, there were few survey or evaluation data to support these views. For example, whilst education was the most commonly tested intervention, there was little evidence to support its effectiveness.
- **Memory, attention and decision-making.** Survey results showed that 39% of those attending the GP and 14% of those attending A&E did so without considering alternatives. Fewer attendees at the urgent care centre/walk-in centre did not consider alternatives (weighted mean 6%), indicating perhaps that attending GP and A&E services is more of an automatic decision than for other services, particularly urgent care or walk-in centres (Chalder et al. 2007). There were no interview studies or evaluations for this domain.
- **Emotion.** Anxiety or worry, linked to the fear of negative health consequences, was identified in both the interview and survey reviews as an important barrier to self-care, providing compelling evidence for the importance of helping service-users to manage their anxiety in the decision to self-care.
- **Reinforcement.** This domain showed how previous treatment experiences impact on subsequent care-seeking behaviour and was identified as relevant in all three reviews. For example, there was some evidence to suggest that delayed antibiotic prescribing strategies are beneficial in reducing health service utilisation, presumably because this intervention works to weaken the association between minor symptoms and habitual behavioural responses that reflect the belief that antibiotic treatment is necessary. Potential moderators of these effects were also identified, including having received antibiotics in the past, type of minor ailment, and socio-economic status. No associated cost-effectiveness studies were located. This again indicates that attending GP and A&E services may be more of an automatic decision, based on previous experience and behaviour.
- **Beliefs about consequences.** Perceptions of illness severity (e.g. persistence, or pain) were identified, in both the interview and survey studies, as important pre-cursors to care seeking; this re-emphasises the relevance of education and skills training in symptom severity and management. The perception of illness susceptibility was also relevant especially with respect to children being seen as vulnerable.
- **Social influences.** The data from the interview review were mixed, showing that whilst social support can provide a useful alternative to traditional GP/A&E care, it can also legitimise inappropriate GP attendances.
- **Environment context and resources.** Access to healthcare services was identified as relevant in both the interview and survey studies, particularly with respect to geographical proximity to the service, the time taken to access care, and convenient opening hours. The survey results indicated that pharmacy, urgent care centre/walk-in centre and self-care were viewed as comparatively easier to access than both GP and A&E, suggesting that these services are sufficiently active in supporting self-care. Given that the majority of interview studies examining access issues sampled parents/carers views, access may be more important to this population than to other demographic groups. This supports the belief that children are vulnerable (above). The cost of over-the-counter medicines was also identified in the interviews and surveys, as a barrier to self-care for some, such as those exempt from prescription charges, as was lack of privacy for consultation. However, consultation rooms are now available in community pharmacies and many have set up NHS prescription services that don't require payment if exempt from charges.

Data from the interview review showed that, whilst some people saw referral to the GP as a barrier to self-care, others thought that it legitimised seeing a doctor. Needing a prescription was commonly reported, in the surveys, as the reason for attending the GP, and the same problem was discussed in some of the interview studies. A perceived need for a physical examination or test was identified commonly, in the surveys, as a reason for attending A&E, and this preference also emerged in the qualitative interview studies. Survey results indicate that continuity of care seemed

to be an important determinant among those attending their GP or urgent care centre/walk-in centre, but not for those who attended the pharmacy.

Having identified which domains, within the COM-B, need to change to bring about more self-care behaviour, possible intervention types or functions were considered, based on those incorporated into the BCW (see Figure 0.3) which provides a basis identifying which intervention strategies are most likely to be effective. These findings are summarised in Table 0.1 alongside suggestions for possible intervention strategies and behaviour change techniques which practitioners can consider employing. These strategies bear in mind that a key NHS priority is to flag the role of pharmacists in managing self-care and reduce the number of people going to their GP/A&E unnecessarily. They are also grounded in behavioural science, underpinned by a thorough review of the evidence, and explicit theory for their mechanism(s) of action.

With the exception of the physical opportunity domain (which maps onto the environmental context and resources TDF domain), all the suggested strategies target service users. Those related to physical opportunity are targeted at healthcare systems and professional roles to reflect the barriers associated with the physical context.

Figure 0.2: The COM-B model of behaviour change (Michie et al. 2011) with salient TDF domains for the self-care of minor ailments

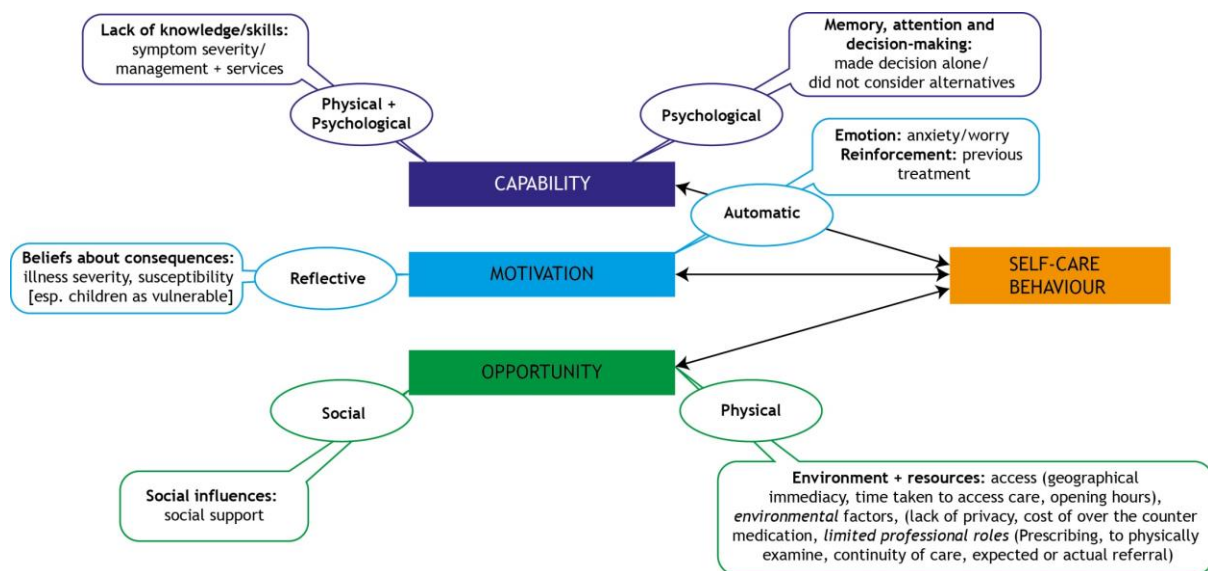
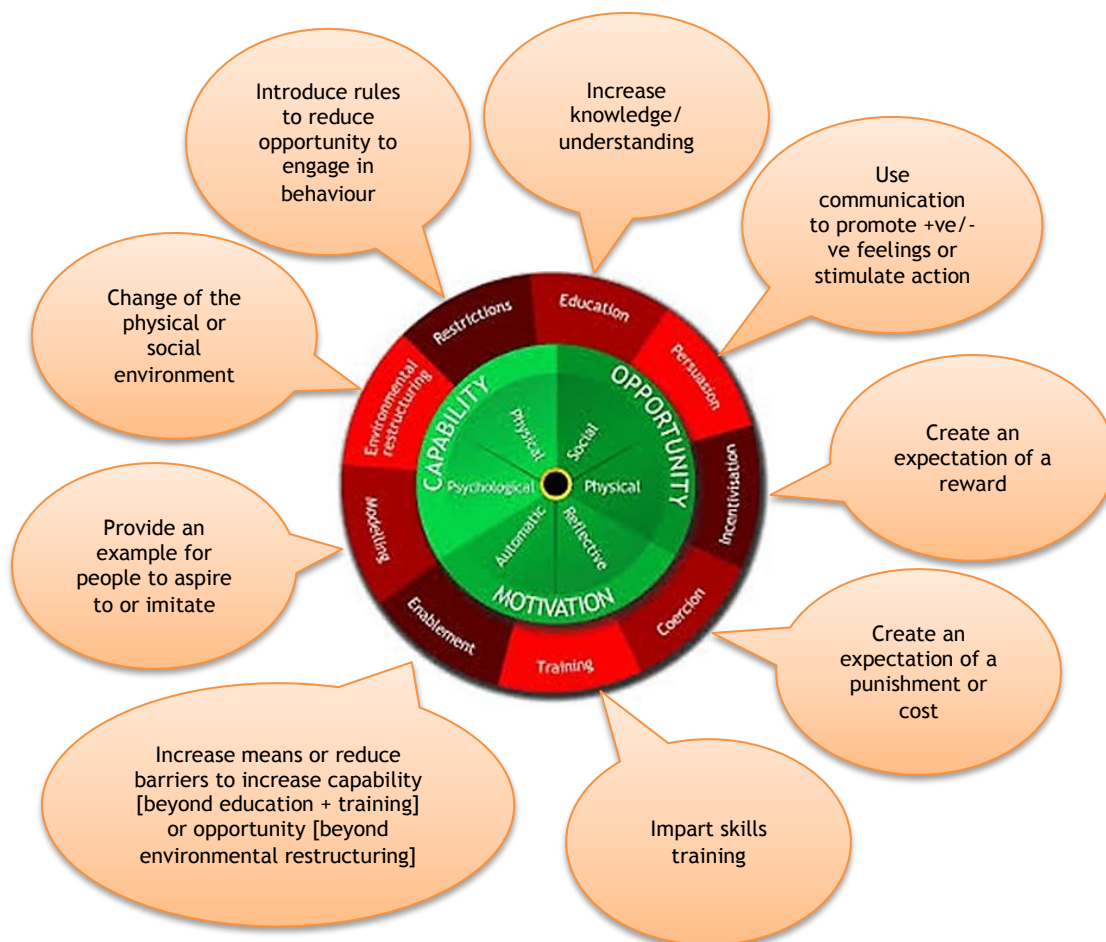


Figure 0.3: Behaviour change wheel and definition of the intervention functions



These strategies are summarised briefly below, organised by COM-B domain.

Capability (psychological)

Relevant TDF domains: Knowledge/skills, Memory, attention and decision-making

Education for service users could be used to influence the knowledge barrier to self-care and perceptions of psychological capability. For example, improving service-users' knowledge and understanding of how to identify and diagnose symptoms correctly, including how to distinguish between minor and more severe symptoms; how to self-manage and alleviate symptoms; and when it is appropriate to contact GP/A&E services.

Enablement of service users to engage in shared decision-making for the treatment of minor ailments could influence the Memory, attention and decision-making domain. For example, provision of decision support tools that prompt consideration of the range of self-care strategies before visiting the GP/A&E.

Capability (physical capability)

Relevant TDF domains: Knowledge/skills

Skill development, in addition to acquisition of knowledge, is emphasised to target the physical capability domain. For example, supporting service users to practise/rehearse the diagnosis and management of minor ailments.

Motivation (automatic)

Relevant TDF domains: Emotion and Reinforcement

Supporting service users to recognise and manage their anxiety as an urge to attend GP/A&E is likely to be helpful, given the role of anxiety in care-seeking behaviour. Other strategies that may

target more automatic decision processes and encourage self-care include: congratulating the service user each time that they self-care appropriately, and prompting service users to assess the degree of regret that they will feel if they inappropriately use GP/A&E. Pressure (labelled coercive in the original BCW) strategies may also help to modify habitual and automatic care-seeking behaviours. For example, refusal or delay in issuing prescription medication and/or the provision of feedback to the service user about the inappropriateness of their service use.

Motivation (reflective)

Relevant TDF domains: Beliefs about consequences

Education and persuasion could be used to encourage service users to be responsible for their own health. For example, provision of information about how much each consultation costs and persuasion to help strengthen the beliefs that the opinions of pharmacists and nurses are trustworthy.

Opportunity (social)

Relevant TDF domain: Social influences

Reassurance that self-care is appropriate may help target the barrier of limited social support and the social opportunity aspect of the COM-B model, for example, through support provided by the community pharmacist to enable self-care and provision and/or endorsement of links to credible sources of support.

Opportunity (Physical)

Relevant TDF domain: Environmental context and resources

Strategies that target healthcare systems and professional roles are suggested for the physical opportunity domain, as the associated barriers relate more directly to the physical context. Suggested strategies include ensuring that it is easier to access self-care services than GP/A&E care, providing links to reputable online websites and digital applications, and making free prescription medication more readily available at self-care services, such as community pharmacy. Other suggestions relate to professional health roles and include training more nurses and pharmacists with full prescribing rights, improving infrastructure to support better collaboration between health professionals (such as pharmacists and GPs), providing more patients with online access to their GP records, and providing a specialist transport service that can help patients who are otherwise unable to travel to health care services, or provide pharmacy delivery services that consult at home.

Recommendations

Here we consider the implications of the three reviews reported and their overarching synthesis. Given the generally low quality of the included studies (with a high potential for bias in ascertaining intervention effects), and the challenges in synthesising across reviews that use different methodologies, recommendations for research and, in particular, implications for policy and practice, can only be tentative.

The review findings suggest the following implications for policy and practice.

- Interventions should target a multitude of potentially modifiable influences that underpin decision-making for self-care; educational interventions on their own are unlikely to be effective. This suggests a need to consider co-ordinated approaches to interventions that span the individual, social and environmental pre-cursors to care-seeking behaviours.
- A range of feasible interventions [see Table 0.1], based on the behavioural analysis, could be implemented and tested for effectiveness in practice.
- Existing effective behaviour change interventions should continue to be supported, including issuing back-up (delayed) antibiotic prescriptions for minor conditions.

Each review responded to a research gap and, as far as we are aware, this is the first systematic review on self-care for minor ailments that synthesises the findings from a range of study types. The broad focus on self-care interventions and services **based in the UK and the involvement of key stakeholders** further helped to ensure its relevance for the UK policy context. These methods were enhanced by a comprehensive search to identify relevant studies. A key strength of the report

includes the novel application of the TDF and BCW to integrate evidence across different methodologies within a series of systematic reviews and, in doing so, provides a more comprehensive analysis than each method alone. The use of the TDF provided a clear structure, and permitted the application of pre-existing mechanistic knowledge (or theory) to studies on self-care. However, since theory was rarely employed explicitly in the studies, our coding was based on inference from the text, and the breadth and range of study foci posed a challenge for synthesis. For example, there was more of a focus on A&E in the surveys, compared with the interview studies, and the evaluations focused predominately on educational interventions. Given the different foci of the included studies (that spanned a range of health services and interventions), determining the relative importance of the identified barriers and facilitators was not possible. Thus, further empirical work is required to check whether the constructs regarded as 'key' actually do predict self-care behaviour, and to what extent. Following on from this, empirical work is required to check whether the links between theoretical assessment and suggested intervention strategies are valid. Evidence synthesis on the attitudes of those responsible for delivering interventions, such as pharmacists, nurses and GPs, would also be beneficial given that their attitudes can operate as barriers or facilitators to the implementation and effectiveness of these interventions. Further work to establish the context in which social support is beneficial for the self-care of minor ailments is also warranted, and potential moderators, especially being the parents/carers of young children, could usefully be researched. In future intervention work, we recommend that measures of symptom resolution and a full economic evaluation are included, as these are rare in current research practice.

Table 0.1: Main barriers to self-care, with possible interventions and techniques

Higher order theme	Barriers	COM-B	Intervention function	Behaviour Change Technique	Strategy example
Knowledge/skill					
Lack of knowledge/skill	Symptom severity/management	Psychological and Physical capability	Training/Education	Demonstration of the behaviour/Instruction on how to perform the behaviour/Feedback on behaviour/Behavioural rehearsal/practice	Educate/train service users (especially parents with one child and those with a lower socio-economic status) to identify warning symptoms, self-manage and alleviate symptoms, and identify when appropriate to contact GP/A&E
Memory, attention and decision-making					
	Made decision alone, did not consider alternatives	Psychological capability	Enablement	Adding object to environment, Action planning/ Goal setting/ Problem solving	<i>Enable</i> service users to seek professional, social or practical support (e.g. community pharmacy, internet support, telephone triage) as first port of call for their minor ailments. For example, through the use of decision support tools that prompt consideration of the range of self-care strategies
Emotions					
Negative emotion	Anxiety/worry	Automatic motivation	Persuasion/ Incentivisation/ Pressure ¹	Reduce negative emotions/Problem solving/coping strategies Social reward Anticipated regret Incompatible beliefs	<i>Persuade</i> service-user from being overwhelmed by anxiety (e.g., enable service-users to identify anxiety triggers that drive the urge to attend GP/A&E and develop strategies for managing them) <i>Incentivise</i> service-user by congratulating the person each time that they self-care appropriately <i>Pressure</i> service-user and health professionals to assess the degree of regret they will feel if they inappropriately use/refer to use health services <i>Pressure</i> service-user by drawing attention to overuse of GP and A&E services and self-identification as an appropriate user of health care services

¹ Pressure is referred to as Coercion in the BCW; this has been changed throughout this report, due to the possible perceived negative connotations of coercion.

Reinforcement					
Past behaviour/ experience	Previous treatment/ consultation	Automatic motivation	Pressure	Remove access to the reward/Feedback about the behaviour	Pressure service-user by refusing or delaying prescriptions (to reduce association between symptoms and need for prescription) Pressure service-user by giving feedback about the appropriateness of their care-seeking behaviour
Beliefs about Consequences					
Severity of symptoms	Persistence, Impact on day-to-day life, Painful, Unfamiliar, unspecified	Reflective motivation	Education/Persuasion	Verbal persuasion about capability/Information about social/environmental and health consequences/ Credible source	Persuade/educate service-user to be responsible for their own health and well-being in the first instance e.g., through provision of normative information that GP/A&E should be utilised for the management of serious health conditions only Persuade/educate service-user by telling them how much each consultation costs Persuade service-users that pharmacists and nurses opinions are trustworthy Enhance persuasion using a credible source (e.g., high status professional)
Susceptibility	Children as vulnerable	Reflexive motivation	See severity above	See severity above	See severity above
Health threat	Fear of negative consequences	Reflexive and Automatic motivation	See anxiety/worry and severity above	See anxiety/worry and severity above	See anxiety/worry and severity above
Social influences					
Social support	Informal advice from friends, family and others as first port of call	Social opportunity	Environmental restructuring/ Enablement	Behaviour substitution/Social /practical support Add object environment	Enable service-users to substitute visiting the GP /A&E with seeking appropriate social/practical support from friends, family, acquaintances and other health professionals Enable service-user to self-care through the provision of reassurance that self-care is appropriate Restructure the environment/enable service-users to self-care through provision of links to credible sources of support (e.g., websites, forums, telephone triage)

Environmental context and resources					
Access/convenience	Geographical immediacy, Time taken to access care/information, opening hours	Physical opportunity	Training/Restriction/Environmental restructuring/Enablement	Restructure the environment/ Add objects to the environment	<p><i>Restructure the environment</i> to make it comparatively easier to access self-care services/resources (vs GP/A&E) especially in context of telephone triage e.g., development and use of more streamlined decision support tools</p> <p><i>Restructure the environment</i> to provide a specialist transport service that can help patients who are otherwise unable to travel to health care services</p> <p><i>Restructure the environment</i> to extend opening hours of self-care services and offer patients greater access in the evenings and at weekends</p> <p><i>Restructure the environment</i> to publicise reputable online websites/apps using professional endorsement</p> <p><i>Restructure the environment</i> to educate service users on 24-hour pharmacy access, the benefits of Internet information, and NHS phone services - available 24 hours.</p>
Environmental factors	Cost of over-the-counter medicines	Physical opportunity	Environmental restructuring	Restructure the environment	<i>Restructure the environment</i> to make prescription medication more readily available at self-care services such as community pharmacy
Limited professional roles	Capacity to prescribe/continuity in care/expected or actual referral		Training/Environmental restructuring	Restructure the physical environment	<p><i>Train</i> more nurse and pharmacy health professionals with full prescribing rights</p> <p><i>Environmental restructuring</i> to enable better collaboration between health professionals such as the pharmacist and GP</p> <p><i>Environmental restructuring</i> to provide health professionals with full read and write access to GP records</p> <p><i>Environmental restructuring</i> to provide patients with online access to summary information of their GP records</p>
	Capacity to physically examine				<i>Restructure the environment</i> to promote self-examination

1. Introduction

1.1 Minor ailments

Minor ailments (Mas) have been defined as non-serious medical conditions for which there are effective self-care options available (Banks 2010). Some minor ailments, however, consume significant resources in terms of appointments with general practitioners (GPs) and attendances at accident and emergency (A&E), which place an unnecessary strain on services that struggle to meet demand (Fielding et al. 2015). The estimated share of consultations made by people with non-urgent conditions was 20% for visits to GPs (NHS England 2013) and from 15% to 40% for all A&E visits (Rowe et al. 2015). Ten conditions (back pain, dermatitis, heartburn and indigestion, nasal congestion, constipation, migraine, cough, acne, sprains and strains, and headache) have been shown to account for 75% of all GP and A&E visits for minor ailments (Pillay et al. 2010). The annual cost of the treatment of minor ailments by GPs in the UK has been estimated at £1.8 billion (Pillay et al. 2010).

1.2 What is self-care?

The Self Care Forum has described a continuum of self-care where at one end of the spectrum the individual is wholly responsible for their health and well-being, and at the other end responsibility lies solely with the health professional [see Figure 1.1]. Self-care therefore encompasses a range of actions that people take for themselves and their families to stay fit and maintain good physical and mental health; including prevention of illness or accidents; care for minor ailments and long-term conditions; and maintenance of health and wellbeing after an acute illness or discharge from hospital.

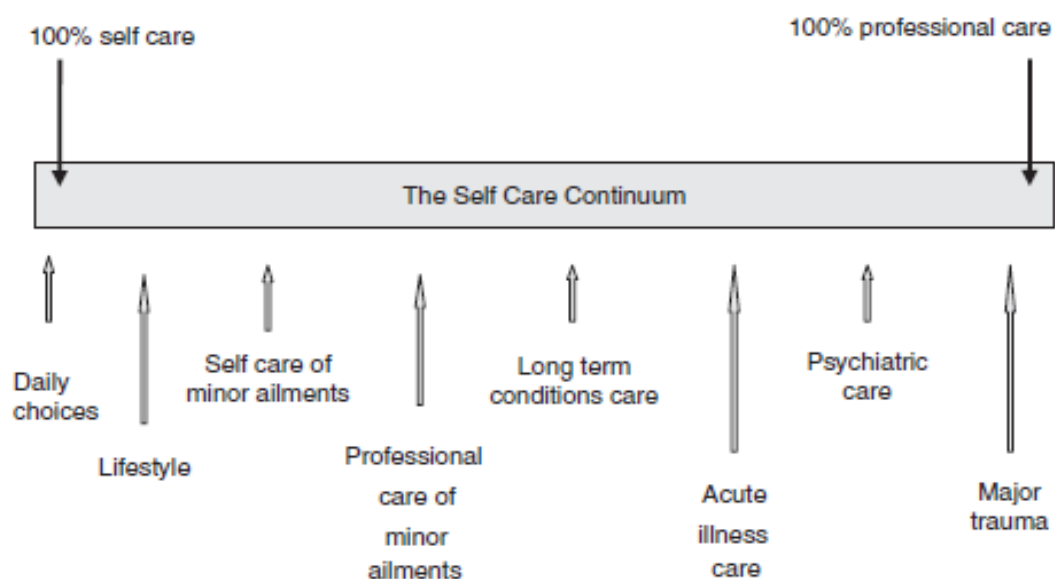


Figure 1.1: Continuum of self-care (Self Care Forum 2015)

Within the context of minor ailments, self-care ranges from consultation with friends, associates and family, internet searching/digital applications and the purchase of over-the-counter medicines to minor ailment advice in community pharmacies, walk in/urgent care centres, NHS111 and support from other healthcare professionals. Self-care is therefore about people, families and communities taking responsibility for their own health and wellbeing (Foot et al. 2014) and has been estimated to offer savings of up to £1.6 billion within the context of minor ailments (Pillay et al. 2010). Self-care could, therefore, reduce the demand for direct interaction with GP and A&E services.

1.3 Existing research

Most of the existing reviews in this field focus on self-care within the context of long-term conditions or chronic illnesses. For example, The King's Fund, National Voices evidence review (Foot et al. 2014) found that self-management education, practical support, coaching, interviewing and psychological support could lead to improved self-management behaviour and clinical outcomes; as well as reduced health service utilisation. However, data from Disease Analyzer, a UK primary care database managed by IMS Health, suggested that most people consult specifically for MAs and not as part of a consultation for a more serious condition. This suggests that there is value in looking at self-care in relation to MAs alone (rather than in the context of long-term conditions, Pillay et al. 2010).

As far as we know, only one published systematic review has examined self-care for minor ailments in the UK. In this review (Paudyal et al. 2013), 31 UK pharmacy-based minor ailment schemes (PMAS) were examined. Results showed that a high proportion of patients reported complete resolution of symptoms (proportions ranged 68 to 94%) and a low rate of GP re-consultation following the use of PMAS (proportions ranged from 2.4 to 23.4%).

These findings coincide with evidence to suggest that people would prefer to manage minor ailments through self-care (Porteous et al. 2006). However, lack of confidence and skill, and dependency on GPs, have been identified as key barriers to self-care (Banks 2010, Foot et al. 2014). These barriers are compounded by the problem that many ailments, while often minor, can be the start of something more serious. Nearly half of patients perceive that GPs and nurses are very willing to prescribe for minor ailments, and 62% of those who had a prescription issued at a previous episode of illness, chose to visit a GP at the next episode (Banks 2010). This indicates a discrepancy in the preference for self-care and actual help-seeking behaviour.

1.4 Behaviour change

The evidence suggests that behavioural change is needed to promote self-care behaviour (Banks 2010) to achieve positive policy outcomes in this area. However, it not yet clear which behavioural factors determine decisions to self-care (or not) and which interventions are more effective than others.

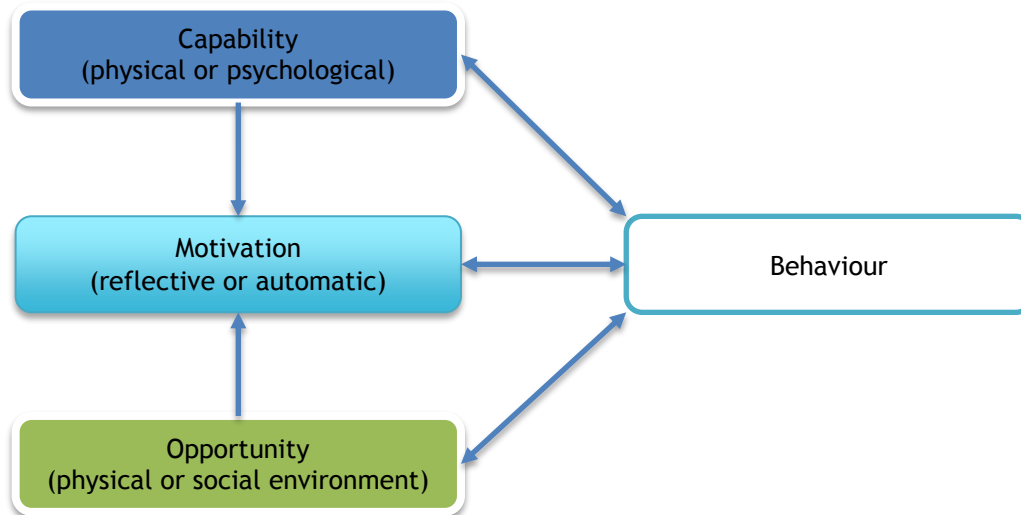
The revised Medical Research Council (MRC) framework for developing and evaluating complex interventions advocates using theory to help understand behaviour change (Craig et al. 2008). However, there are many theories of behaviour change, and it can be difficult to know which theory to use, in which context. The Theoretical Domains Framework (TDF) was developed to make theory more accessible (Michie et al. 2005, Michie et al. 2011) and simplifies 33 theories and 128 constructs that may explain behaviour change into 14 theoretical domains (Cane et al. 2012). The domains have good coverage, including individual-level factors such as knowledge and skills (e.g. skills), social factors (e.g. social influences, such as social support), and environment and resources factors (e.g. stressors, such as cost, and opening hours) and therefore prompts consideration of a wide range of possible behavioural determinants. This is important in the context of systematic reviews, as retrospective coding requires a sufficiently broad framework to capture the potential range of possible behavioural influences.

The TDF has been used systematically to elicit and characterise the barriers/enablers to behaviour change in a range of clinical contexts including behavioural contexts that share similarities with self-care, e.g. antibiotic stewardship (including use and prescribing). Whilst the TDF has been used primarily in interview and survey studies more recent examples include applications within the contexts of systematic reviews (Heslehurst et al. 2014). To our knowledge, however, there are no published examples of using the TDF to bring together qualitative and quantitative methodologies within a systematic review.

The TDF has been mapped onto the COM-B model of behaviour change, which comprises core components of capability (physical or psychological ability to carry out behaviour), opportunity (physical or social environmental factors that enable the behaviour) and motivation (reflective or automatic) that interact to generate behaviour change (depicted in Figure 1.2). The COM-B model forms the hub of the Behaviour Change Wheel (BCW; Michie et al. 2011) and like the TDF, helps to

identify the sources of behaviour that may be appropriate targets for intervention. The next layer of the BCW provides guidance on which intervention functions and behaviour change techniques (BCTs) could be applied to address the barriers identified in the COM-B/TDF behavioural analysis. Thus, the BCW not only helps to identify which components need to change in order for the target behaviour to occur, but also provides guidance on the strategies that can be used to change behaviour. Whilst this approach does not guarantee success, it does increase the likelihood of an intervention being successful, as it will target the actual barriers with an intervention function known to be effective for similar scenarios.

Figure 1.2: The COM-B model of behaviour change (Michie et al. 2011)



1.5 Aim and research questions

Finding ways to influence people’s behaviour positively is vital to encouraging more people to self-care and ensuring that those who already self-care continue to do so, even when faced with setbacks. There is a gap in the literature for a review that brings together evidence on the barriers and facilitators of self-care for minor ailments, and on the effectiveness of behavioural interventions and services in this area. Consistent with repeated calls for a theoretical approach to behaviour change, the TDF and BCW will be used to characterise potential theoretical drivers and associated strategies that could be useful in promoting self-care for minor ailments.

The broad aim of this review, is to explore the factors that may enhance, or limit, the effectiveness of interventions or services designed to promote self-care for minor ailments and to synthesise published evaluations of existing interventions/services to estimate their effectiveness.

Four reviews were conducted. **Review 1** synthesised interview studies that explored service-users’ attitudes towards and experiences of self-care for minor ailments and used the TDF to characterise their potential theoretical mechanisms of action. **Review 2** also explored service-users’ attitudes towards, and experiences of, self-care for minor ailments but examined quantitative survey data. **Review 3** synthesised the effectiveness of behavioural interventions or services for minor ailments. These three reviews are brought together in an overarching synthesis using the TDF, COM-B model and associated BCW to explore similarities, contradictions and gaps between these syntheses and to suggest possible approaches to intervention.

The following chapters present the results of each review in turn, followed by our conclusions (Chapter 6). A detailed account of the methods we used in each review can be found in Chapter 7.

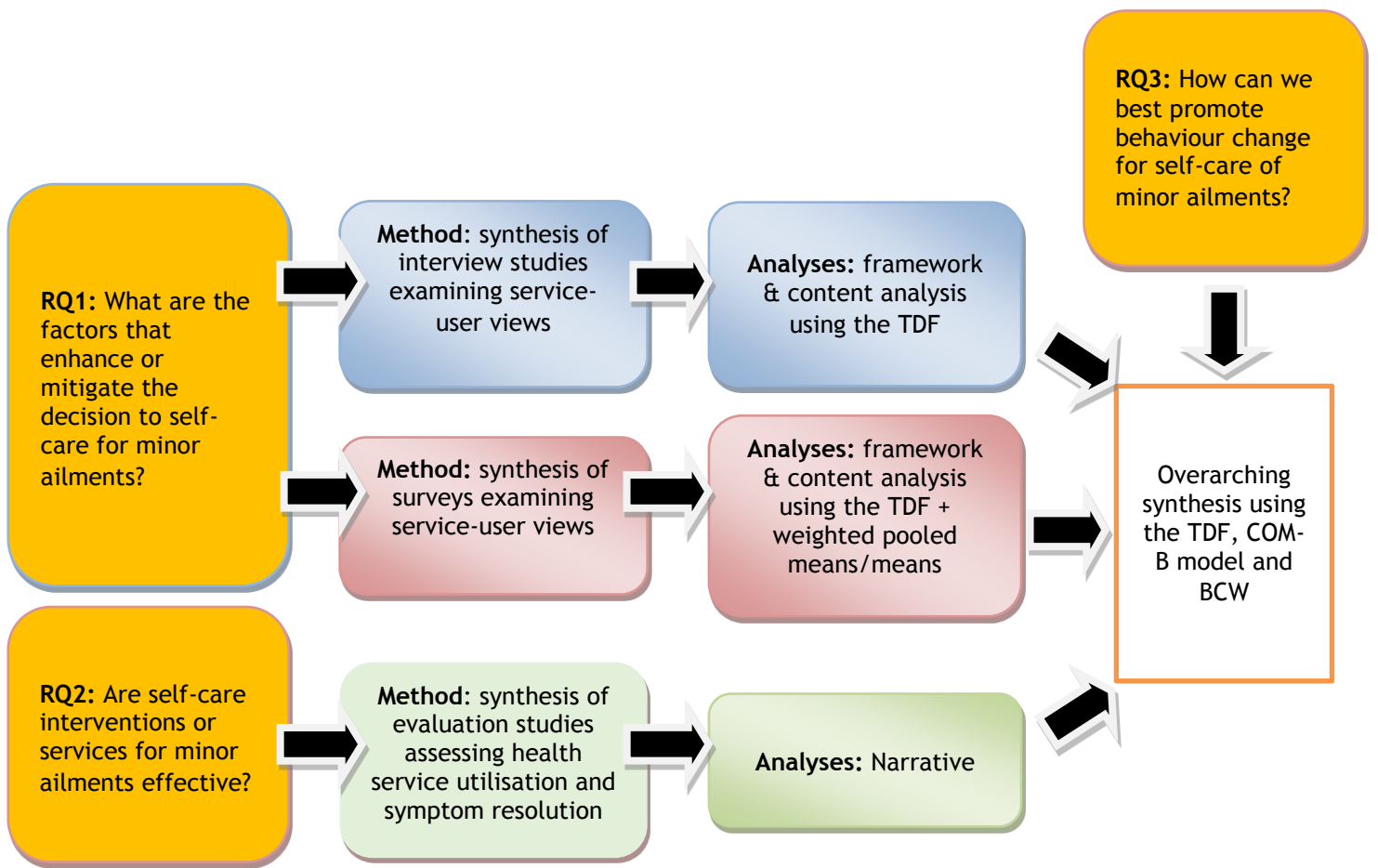


Figure 1.3: Overview of review methods

2. Review 1: Qualitative synthesis of interview studies - What are the factors that enhance or mitigate the decision to self-care for minor ailments?

2.1 Summary of evidence included in the qualitative synthesis of service-user interviews

- There were twenty **service-user interview studies** that included 638 participants, and 34 discussions (in one online parenting forum)².
- Sixteen studies were conducted in **England**, three were conducted in **Scotland**, and one assessed an online parenting forum with 95% of users based in the **UK**. The other 5% were based across the world, including Ireland, Australia, France, Switzerland and Spain.
- Most of the studies included participants' views of minor ailments in general, though in six studies, specific ailments were targeted.
- There was good coverage in terms of the self-care resources discussed, including information seeking and preferences (n=4); reasons why people consult their General Practitioner (GP) (n=4), GP out-of-hours (n=2), and A&E (n=1); views on the practice nurse (n=2); reasons why people self-care (n=3); and views on particular self-care services, including the community pharmacy (n=3), NHS walk-in centre (n=2), and NHS Direct (n=1).
- There was a good range of views in terms of gender (although the majority of participants were female) and age group, but few studies reported information on socio-economic status and there were few data from **minority-ethnic** service users.
- Study quality was generally high with 18 studies achieving a high rating though much of the data was descriptive.
- The study data were mapped onto six behavioural domains of the Theoretical Domains Framework including: knowledge and skills (which were combined into one domain as they overlapped considerably), emotions, reinforcement, social influences, beliefs about consequences, and environmental resources and context.

Table 2.1 provides an overview of each of the 20 studies; a more comprehensive table with details of participant characteristics is provided in Appendix 1.

Table 2.1: Overview of the 20 included interview studies

Study	Population target	Minor ailment	Focus	Sample size	Female (%)
Allen et al. (2002)	Parents/carers of young children	No targeting	Information and knowledge	29	100
Cabral et al. (2015)	Parents/carers of young children	Respiratory tract infection	Reasons why people consult their GP	60	97
Caldow et al. (2007)	General population	No targeting	Views on the practice nurse	48	67
Cantrill et al. (2006)	General population	No targeting	Reasons why people consult their GP	19	68

² Two studies assessed the same 27 participants (Jones et al. 2014, Neill et al. 2015) collecting their views on different topics.

Doyle (2013)	Parents/carers of young children	No targeting	Views about online peer support (self-care)	34 discussions	98 (% of users)
Everitt et al. (2003)	General population	Conjunctivitis	Information and knowledge	25	88
Gidman and Cowley (2013)	Parents/carers of young children	No targeting	Views on the pharmacy	26	65
Houston (2000)	Parents/carers of young children	No targeting	GP out-of-hours services	29	Mainly female (% NR)
Jackson et al. (2005)	General population	No targeting	walk-in centre	23	57
Jones et al. (2014)	Parents/carers of young children	No targeting	Information and knowledge	27	89
Lakhani (2012)	Ethnic minority - South Asian population - aged 28 to 90	No targeting	Reasons why people self-care	55	42
Leydon et al. (2009)	Adults 25-64	Urinary Tract Infections	Reasons why people consult their GP	20	100
McNulty et al. (2013)	General population	Respiratory tract infection	Reasons why people consult their GP	17	59
Milewa (2000)	General population	No targeting	Information and knowledge	85	61.2 (one NR)
Neill et al. (2015)	Parents/carers of young children	No targeting	Views on the pharmacy	27	89
O’Cathain et al. (2005)	General population	No targeting	NHS Direct	60	77
Porteous et al. (2015)	General population	No targeting	Reasons why people self-care	24	67
Redsell et al. (2007)	General population	No targeting	Views of the practice nurse	28	39
Stafford et al. (2014)	General population	Back pain	Views of A&E, walk-in centre and out-of-hours GP	11	NR
Tucker and Stewart (2015)	General population	Dermatitis	Views on the pharmacy	25	80

2.2 Summary of the findings

Six TDF domains were identified as relevant: knowledge/skills, emotions, reinforcement, beliefs about consequences, social influences, and environmental context and resources. Content analysis (Elo and Kyngäs 2008) within each TDF domain led to the identification of themes and sub-themes that were likely to influence the behavioural pathways to self-care. Table 2.2 details each theme and sub-theme, organised by TDF domain.

- Across the studies it emerged that **lack of knowledge or skills**, in relation to being able to distinguish between self-limiting and more severe conditions, and awareness of self-care services was linked to the absence of self-care.
- In relation to **emotions**, anxiety or worry appeared to be an important influence on preference for GP and A&E care. When a *health threat* was perceived, there was a general preference for GP or A&E care.

- **Reinforcement** influenced care-seeking primarily through past care-seeking experiences. For example, antibiotics prescribed for symptoms of flu reinforced the belief that GP care is necessary for minor ailments. However, retrospective analysis of inappropriate help seeking was also shown to reinforce beliefs about when self-care was appropriate. This indicates that it takes time and practice to establish the appropriateness of self-care versus the need for GP treatment when minor symptoms are present.
- **Beliefs about consequences** were important given that perceptions of illness severity (such as persistence, pain, unfamiliarity) and perceptions of illness susceptibility (especially children being seen as vulnerable) were identified as pre-cursors to inappropriate GP attendances. These findings indicate that people fear possible negative health consequences and make GP visits for reassurance and peace of mind.
- The **social influences** of social support and parental responsibility to do the right things were identified commonly across studies. However there was heterogeneity within the social support theme, with some participants using it as an alternative to traditional GP care, while others used it to legitimise inappropriate care-seeking. The **social influence** of not wanting to bother the GP was also important in deciding to self-care.
- **Environmental context and resources** were important in terms of convenient access, with geographical proximity, time taken to access care, restricted opening hours, repetitive and extensive questioning [in the context of telephone triage] and information overload [in the context of the worldwide web] identified as barriers to self-care. The cost of over-the-counter medications and lack of privacy in pharmacies were identified as barriers to self-care, as were conflicts of interest in the context of pharmaceutical companies and websites with advertising.

The limited roles of nurses and pharmacists caused mistrust in diagnoses, including for example, lack of access to medical records, capacity to conduct a physical examination, inability to prescribe or provide a medical certificate. In general, when a health threat was perceived there was greater trust in GPs than in alternative care providers, such as pharmacists and nurses.

Table 2.2: Summary of results from the interview studies

Overarching theme	Sub-themes	Number of relevant studies
Knowledge/skills		
Lack of knowledge	Management of symptoms/ Gauging symptom severity	8
	Self-care resources	5
Emotions		
Anxiety	Perceived health threat/negative health consequences	9
Reinforcement		
Past experience/behaviour	Previous treatment/consultations	10
Beliefs about consequences		
Severity of symptoms	Persistence	8
	Impact on day to day life	7
	Pain/severity/uncertainty	3
	Unfamiliar	4
	Unspecified	2
Susceptibility to symptoms	Presence of long-term condition	3
	Previous related illness	2
	Previous family illness and conditions (heredity)	2
	Children seen as vulnerable	3
Health threat	Fear of negative health consequences	9
Social influences		
Social support	Informal advice from friends, family or acquaintances as first port of call	12
Social norms	Parental responsibility to do right thing	3
	Appropriate use of health care services	9
Environmental context and resources		
Access	Geographical immediacy of service	1
	Time taken to access care	8
	Opening hours	4
	Repetitive and extensive questioning	3
	Information overload [worldwide web]	2
Environment	Lack of privacy for consultation	3
	Cost of over the counter medicines	3
Conflicts of interest	Pharmaceutical companies	3
	Websites with advertising	1
Limited roles	Capacity to prescribe	4
	Expected or actual referral to traditional care	11
	(In)access medical records	4
	Inability to provide medical certificate	1
	Capacity to physical examine (pharmacist only)	6
	Qualifications and experience	6

2.3 Presentation of findings by TDF domain

The following sections provide detail on each theme organised by the relevant TDF domain. Intervention suggestions from the study participants are also detailed, where reported. For easy reading, the references that support each theme are presented as footnotes in this section.

2.3.1 Knowledge/skills

Within the combined knowledge and skills domain *one* theme and *two* associated sub-themes were identified:

- lack of knowledge (encompassing self-diagnoses/symptom management and self-care resources)

Lack of knowledge due to uncertainty around what symptoms are associated with the most common and most serious illnesses, and how to distinguish between them, was commonly reported. Uncertainty about symptoms and their severity was associated with doubt about the nature of the illness and therefore how to diagnose and self-manage the illness appropriately. However, in one study, whilst the participants knew how to self-diagnose their condition (conjunctivitis)³ they did not know that the ailment was self-limiting and therefore still sought (unnecessary) treatment from the GP.

A lack of awareness of services for self-care within the local community was also reported⁴. This encompassed not only knowledge of the range of general resources available (e.g., pharmacy, walk-in centres and telephone triage, such as NHS direct)⁴, but also the bespoke services that they provided (e.g. minor ailment schemes)⁵. A few participants were also uncertain about how to access some services (e.g. repeat prescriptions)⁶.

Table 2.3: Overview of the knowledge/skills domain

Theme	Sub-theme	Example quote	Studies
Lack of knowledge	Self-diagnoses/symptom management	<i>I find it quite hard to tell from him coughing. ... I can't really tell from listening anyway whether it's a chest infection or not</i> (Cabral et al. 2015, p160)	Allen et al. (2002), Cabral et al. (2015), Cantrill et al. (2006), Doyle (2013), Everitt et al. (2003), Houston (2000), Lakhani (2012), Porteous et al. (2015)
	Self-care resources	<i>I didn't actually realise you can get stuff over the pharmacy</i> (O'Cathain et al. 2005 p1766)	Allen et al. (2002) Gidman and Cowley (2013), Jackson et al. (2005), Lakhani (2012), O'Cathain et al. (2005)

It also emerged that having more children and older children led to better coping among parents, due to previous experience in managing minor ailments⁷, for example:

I think the more kids you've got the easier it is because you've learnt from your first one. I think you're more aware (Allen et al. 2002, p464).

Similarly, those from more affluent areas had higher levels of self-efficacy with repeated experiences of self-limiting symptoms⁸. Demographic factors, such as number and age of children,

³ Everitt et al. 2003

⁴ Allen et al. 2002, Gidman and Cowley 2013, Jackson et al. (2005), Lakhani 2012, O'Cathain et al. 2005

⁵ Lakhani 2012

⁶ Gidman and Cowley 2013

⁷ Allen et al. 2002, Cabral et al. 2015

⁸ Cabral et al. 2015

and socio-economic status may therefore moderate knowledge/skills in the capacity to self-care appropriately.

In terms of intervention suggestions, participants requested information on symptoms that are self-limiting and how to manage them effectively; and on how to gauge symptom severity and how to identify marker symptoms for more serious conditions⁹.

The need for multiple delivery formats was highlighted so that information can be accessible to everybody, including those unable to read and write¹⁰. Participants generally welcomed the idea of face-to-face interaction with peers in community settings⁹, including community-delivered peer education systems, such as community champions¹¹. Face-to-face education on childhood illnesses by health visitors, and schools or nurseries, was also suggested¹².

The media were identified as a powerful vehicle for educating large groups of people, and in the two studies where it was discussed, most participants agreed that television was a particularly useful medium for delivering health messages¹⁴, especially for those who are unable to read or write¹². Mobile phones and internet-based resources were also identified as potentially useful media¹³ with the capacity to provide easy, quick and portable access. However, in one study, it was noted that older people may be less able to access/operate computers, therefore age may be a demographic barrier to accessing information electronically¹⁴. Other suggestions included written materials, such as booklets, leaflets, flash cards and small quizzes. In general, there was a consensus that information needed to be accessible and easy to comprehend¹². For example, it was suggested that online “clips of sounds of specific coughs (croup, whooping cough), respiratory movements (recession) or the appearance of different rashes (chickenpox, meningitis)” could be provided¹⁵.

2.3.2 Emotions

Within the emotions domain, only *one* theme was identified:

- Anxiety/worry

Anxiety/worry was the predominant emotion to emerge from the literature and is synonymous with *perceived health threat* in these data, which crosses both beliefs about consequences (see below) and emotion TDF domains. This domain highlights that identification with a possible health threat can cause the body to become more aroused, producing physical symptoms of anxiety (e.g. increased heart rate, sweating, trembling, and so on). Decision-making under circumstances of perceived threat, therefore, involves involuntary decision (automatic) processes that necessitate different approaches to intervention than more conscious (voluntary) behavioural decision-making¹⁶.

Table 2.4: Overview of the emotions domain

Theme	Sub-theme	Example quote	Studies
Anxiety /worry	n/a [synonymous with <i>perceived health threat in beliefs about</i>	<i>... actually I did have blood in my urine, which made me go to the doctor's 'cause I ... Yeah, I got a bit worried about that, certainly 'cause of my age</i> (Leydon et al. 2009, p223)	Allen et al. (2002), Cabral et al. (2015), Cantrill et al. (2006), Doyle (2013), Houston (2000), Jackson et al. (2005), Leydon et al. (2009),

⁹ Allen et al. 2002, Jones et al. 2014, Lakhani 2012

¹⁰ Jones et al. 2014

¹¹ Jones et al. 2014, Lakhani 2012

¹² Allen et al. 2002, Jones et al. 2014

¹³ Jones et al. 2014, p6

¹⁴ Lakhani 2012

¹⁵ Jones et al. 2014, p7

¹⁶ West 2007

	<i>consequences domain]</i>		O’Cathain et al. (2005), Stafford et al. (2014)
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2.3.4 Reinforcement

Within the reinforcement domain, only *one* theme and associated sub-theme was identified:

- Past experience/behaviour (previous treatment/consultations)

Previous treatment/consultation was the overriding theme and reflects how treatment for similar symptoms in the past impacted on future decision-making for the management of minor conditions. Specifically, symptoms or illness for which GPs had previously issued a prescription were more likely to lead to a GP consultation when the same symptoms re-occurred. Presumably the prescription had strengthened the belief that the GP must be consulted and that prescription medication was necessary¹⁷. This is consistent with one study reporting that once participants had sought A&E care for their back pain, over half did so again¹⁸.

Nonetheless, previous experiences of inappropriate care seeking were reported to have led patients to better understand when support from health professionals is necessary¹⁹. For example, one single mother, who had made no out-of-hours calls within the previous three years, reflected on how it had taken her time to learn when it was appropriate to call the doctor and when she could manage by herself. Thus, just as previous experiences had created a habitual response to defer herself to other care, the reverse is also true: help seeking that was retrospectively seen as inappropriate had educated the service user about when to self-care. This coincides with the findings in the knowledge/skill domain (above) that indicated that the number and age of children might moderate parents’ ability to manage their children’s minor ailments due to previous experience and practice.

Table 2.5: Overview of the reinforcement domain

Theme	Sub-theme	Example quote	Studies
Past experience/behaviour	Previous treatment/consultations	<i>... the doctor wouldn’t give them to you [antibiotics] ...if he didn’t think it was necessary (Everitt et al. 2003, p38)</i>	Allen et al. (2002), Cabral et al. (2015), Cantrill et al. (2006), Doyle (2013), Everitt et al. (2003), Houston (2000), Milewa (2000), O’Cathain et al. (2005), Porteous et al. (2015), Stafford et al. (2014)

2.3.5 Beliefs about consequences domain

Within the beliefs about consequences domain, *three* themes and nine associated sub-themes were identified:

- *Perceived severity of symptoms* (encompassing persistence, impact on daily life, pain, unfamiliarity and unspecified)
- *Perceived susceptibility* to symptoms (encompassing presence of a long-term condition, previous related illness, heredity, and perceptions of children as vulnerable)
- *Perceived health threat*

¹⁷ Cabral et al. 2015, Cantrill et al. 2006, Everitt et al. 2003

¹⁸ Stafford et al. 2014

¹⁹ Allen et al. 2002, Cantrill et al. 2006, O’Cathain et al. 2005, Porteous et al. 2015

Both themes of *perceived severity* and *susceptibility* usually marked the failure of self-care and prompted the use of out-of-hours²⁰ and regular²¹ GP services.

2.3.5.1 Perceived severity

Symptoms were perceived as severe when experienced as painful²², persistent²³, unfamiliar²⁴, or when they interrupted day-to-day activities, such as child care, work or schooling responsibilities²⁵. In other studies severity was identified as important but the aspects were unspecified²⁶. Thus, symptoms that fell outside of the individual's normal range of experience seemed to disempower self-management of minor conditions.

2.3.5.2 Perceived susceptibility

Perceived susceptibility was enhanced in a number of contexts, including the presence of a long-term condition, such as asthma in the context of respiratory tract infections²⁷; previous negative experiences that presented as similar to the current episode (self or family)²⁸; and among parents/carers, who endorsed the belief that children are vulnerable²⁹. For example, a parent, having decided to visit the GP, made the following statement:

I think, particularly with children, you have to be a bit more careful ... Because they [children] can change quickly and they can't tell you the same and they are more difficult to assess (Cabral et al. 2015, p158)

2.3.5.3 Perceived health threat

Consistent with the health belief model (Rosenstock et al. 1994), the themes of *severity* and *susceptibility* were closely associated with *perceived health threat*. Perceived health threat encompassed both cognitive and emotional aspects, such as doubt about the minor nature of the illness and fear of negative health consequences. This indicates that people lack the confidence to self-care because they fear possible negative health consequences, which overlaps with the lack of knowledge/skill theme, identified above. Decision-making under the circumstances of a perceived threat is, therefore, best characterised as an interplay between conscious (voluntary) and more involuntary (automatic) decision processes that require different approaches to intervention (West 2007). Given the considerable overlap of perceived health threat with anxiety/worry, these constructs are treated as synonymous in these data.

Table 2.6: Overview of the beliefs about consequences domain

Theme	Sub-theme	Example quote	Studies
Perceived severity/persistence of symptoms	Persistence	<i>It started mild, then got worse so that's why I went to the doctor (Leydon et al. 2009, p222)</i>	Allen et al. (2002), Cantrill et al. (2006), Houston (2000), Leydon et al. (2009), McNulty et al. (2013), Porteous et al. (2015), Redsell et al. (2007), Tucker and Stewart (2015)
	Impact on day to day life	<i>... I started drinking cranberry juice, and I drink a lot of water at work anyway, but it just didn't get any better, and having children I didn't want to feel any more poorly than I</i>	Cabral et al. (2015), Cantrill et al. (2006), Everitt et al. (2003), Leydon et al. (2009), McNulty et al. (2013),

²⁰ Houston 2000

²¹ Allen et al. 2002, Cantrill et al. 2006, Leydon et al. 2009, McNulty et al. 2013, Porteous et al. 2015, Redsell et al. 2007

²² Leydon et al. 2009, Stafford et al. 2014, Redsell et al. 2007,

²³ Allen et al. 2002, Cantrill et al. 2006, Houston 2000, Leydon et al. 2009, McNulty et al. 2013, Porteous et al. 2015, Redsell et al. 2007, Tucker and Stewart 2015

²⁴ Cabral et al. 2015, Leydon et al. 2009, Porteous et al. 2015, Stafford et al. 2014

²⁵ Cabral et al. 2015, Cantrill et al. 2006, Everitt et al. 2003, Leydon et al. 2009, McNulty et al. 2013, Porteous et al. 2015, Stafford et al. 2014

²⁶ Redsell et al. (2007), Jackson et al. (2005)

²⁷ Allen et al. 2002,

²⁸ Cabral et al. 2015, Cantrill et al. (2006) Lakhani 2012,, Porteous et al. (2015)

²⁹ Cabral et al. 2015, Everitt et al. 2003, Doyle 2013,

		<i>was feeling ... so I decided to go to the doctor ... (Leydon et al. 2009, p222)</i>	Porteous et al. (2015), Stafford et al. (2014)
	Pain/severity/uncertainty	<i>I was in so much pain. . .it was so intense. . . it was just too much. . .I was so desperate for some relief. . .I have a child and labour's meant to be painful but (not) compared to that. (Stafford et al. 2014, p68)</i>	Leydon et al. (2009), Redsell et al. (2007), Stafford et al. (2014)
	Unfamiliarity	<i>I woke up with really bad stabbing pains in my back, um, and it just felt different ... so I went to the doctor. It didn't feel the same ... (Leydon et al. 2009, p222)</i>	Cantrill et al. (2006), Leydon et al. (2009), Porteous et al. (2015), Stafford et al. (2014)
	Unspecified	<i>Nearly all participants expressed the desire to see a GP if they perceived a problem to be serious and a nurse if they considered it to be minor (Redsell et al. 2007, p175)</i>	Redsell et al. (2007), Jackson et al. (2005)
Perceived susceptibility	Presence of long-term condition	<i>I think I often feel a bit more paranoid with D because D is my youngest child but she's got kidney reflux so whenever she gets normal symptoms of a cold or something I always assume that maybe she gets another urine infection... but I've found that hard, and to know when I should phone and when I shouldn't (Allen et al. 2002, p464)</i>	Allen et al. (2002), Cabral et al. (2015), McNulty et al. (2013)
	Previous related illness	<i>I rushed him down to the doctor's, and apparently both his tonsils were - and he was on antibiotics straight away. I felt dreadful ... and I said, "How did I miss that?" ... And I think from then, since then I've been, I can't be having him suffer like that (Cabral et al. 2015, p161)</i>	Cabral et al. (2015), Lakhani (2012)
	Hereditary/family experience	<i>Mrs EE disclosed how she had consulted her GP about stomach pains; she wondered if I've got an ulcer, because my Dad had one (Porteous et al. 2015, p31)</i>	Cantrill et al. (2006), Porteous et al. (2015)
	Children as vulnerable	<i>in terms of with children you can't be too careful really (Cabral et al. 2015, p158)</i>	Cabral et al. (2015), Doyle (2013), Everitt et al. (2003)
Perceived health threat	NA	<i>... actually I did have blood in my urine, which made me go to the doctor's 'cause I ... Yeah, I got a bit worried about that, certainly 'cause of my age (Leydon et al. 2009, p223)</i>	Allen et al. (2002), Cabral et al. (2015), Cantrill et al. (2006), Doyle (2013), Houston (2000), Leydon et al. (2009), O'Cathain et al. (2005), Stafford et al. (2014)

2.3.6 Social influences

Within the social influences domain, two themes and two associated sub-themes were identified:

- Social support
- Social norms (encompassing parental responsibility and appropriate use of healthcare services)

2.3.6.1 Social support

Many participants across studies talked about seeking advice from friends and family as a first port of call when presented with minor ailments³⁰. The corollary belief being that, in the absence of social support, health professionals are expected to fill the gap³¹. Nonetheless, whilst social support from family and friends averted a trip to the GP in some cases³², in many others, participants were advised by their informant to visit their GP or other urgent care services³³.

The problem of potentially inappropriate advice is reflected in the following excerpt from an online parenting forum:

think you need to bring him back again to hospital, they need to find the reason for this[...] Bring him to hospital and demand they do a scan and investigate this further (Doyle 2013, p21)

These mixed findings suggest that, while social support can provide a useful alternative to traditional GP/A&E care, it can also encourage and legitimise potentially inappropriate help-seeking. These multiple decision pathways suggest the presence of possible moderating influences (for example, the skill, knowledge, and experience of the advisor), though these data did not identify any such factors.

2.3.6.2 Social norms

Many interviewees portrayed themselves as personally accountable for their own health and as responsible users of NHS resources, who would not consult a doctor unless it was really necessary³⁴. Those parents who refrained from using the doctors and out-of-hours services wanted to be viewed as 'coping well'. However, when a health threat was perceived there was a perceived *parental responsibility* to visit the GP, which caused conflict with the social norm to use health care services appropriately³⁵.

This coincides with the findings outlined above (in the beliefs about consequences domain) that highlight how perceived susceptibility to illness is enhanced for children due to their vulnerability. This conflicts with widespread reports of awareness of using healthcare services appropriately³⁶ and therefore highlights a tension between parental responsibility and appropriate use of health services.

³⁰ Allen et al. 2002, Cantrill et al. 2006, Houston 2000, Neill et al. 2015, Porteous et al. 2015, Stafford et al. 2014

³¹ Cantrill et al. 2006, Houston 2000, McNulty et al. 2013

³² Allen et al. (2002), Neill et al. 2015, p3051, Doyle (2013, Houston (2000), Jackson et al. (2005), Milewa (2000)

³³ Allen et al. (2002), Cantrill et al. 2006, Doyle 2013, Everitt et al. 2003, Houston (2000), Lakhani 2012, McNulty et al. 2013, Milewa (2000), Stafford et al. 2014

³⁴ Cabral et al. 2015, Jackson et al. 2005, O'Cathain et al. 2005, Porteous et al. 2015

³⁵ Cabral et al. (2015), Everitt et al. (2003), Houston (2000)

³⁶ Allen et al. 2002, Cabral et al. 2015, Everitt et al. 2003, Houston 2000, Jackson et al. 2005, Leydon et al. 2009, O'Cathain et al. 2005, Porteous et al. 2015, Tucker and Stewart 2015

Table 2.7: Overview of the social influences domain

Theme	Sub-theme	Example quote	Studies
Social support	Informal advice from friends, family or health professionals	<i>Oh is she OK, do I need to take her to the doctors?’ but that’s when my mum will come in and she’ll be like, “No, she’s fine, you know, all the things you went through when you were little, and that helps</i> (Neill et al. 2015, p3051)	Allen et al. (2002), Cantrill et al. (2006), Doyle (2013), Everitt et al. (2003), Houston (2000), Jackson et al. (2005), Lakhani (2012), Milewa (2000), McNulty et al. (2013), Neill et al. (2015), Porteous et al. (2015), Stafford et al. (2014)
Social norms	Parental responsibility	<i>‘... the only reason that I went so soon really was because it was him ... I just wanted to make sure that I was doing the right thing.’</i> (Everitt et al. 2003, p39)	Cabral et al. (2015), Everitt et al. (2003), Houston (2000)
	Appropriate use of healthcare services	<i>No I didn’t, no. No, I wouldn’t take up their time with something as simple as that.’</i> (McNulty et al. 2013, p431)	Allen et al. (2002), Cabral et al. (2015), Everitt et al. (2003), Houston (2000), Jackson et al. (2005), Leydon et al. (2009), O’Cathain et al. (2005), Porteous et al. (2015), Tucker and Stewart (2015)

2.3.7 Environmental context and resources

Within the environmental context and resources domain, *four* themes and *fourteen* associated sub-themes were identified:

- accessibility (encompassing *geographical immediacy of service, time taken to access care, opening hours, extensive and repetitive questioning, and information overload*)
- physical factors (encompassing *lack of privacy, and prescription cost*)
- conflicts of interest (encompassing *pharmaceutical companies, and website advertising*)
- limited professional roles (encompassing *inability to prescribe, in-access to medical records, inability to physically examine patients, inability to provide medical certificate and qualifications and experience*)

2.3.7.1 Accessibility

Services located more closely geographically to the individual were more likely to be utilised, indicating that convenience is a factor when deciding which health care service to use³⁷. Time taken to access care was identified across a range of resources including out-of-hours services, NHS Direct and the worldwide web. For example, whilst NHS Direct was valued for being accessible round the clock³⁸ the time taken to receive a call back was perceived as lengthy³⁹ and had led some people to bypass NHS Direct and attend A&E in order to receive faster care⁴⁰. Extensive and repetitive questioning was also reported to ‘make you more distressed’ though others had found the questioning reassuring⁴¹. By contrast, consultations with GPs were seen as more streamlined due to their knowledge gained in previous treatments:

“Well, he knows me inside out..... It saves me having to spend 5 hours trying to explain conditions going back 10 years” (Redsell et al. 2007, p176-177)

Similarly, whilst the internet was valued for being accessible around the clock and from almost any location³⁸ the time taken to log onto a computer and sort through large volumes of data led to

³⁷ Porteous et al. (2015)

³⁸ Neill et al. 2015

³⁹ Allen et al. 2002, Neill et al. 2015, O’Cathain et al. 2005

⁴⁰ O’Cathain et al. 2005

⁴¹ Neill et al. 2015, Redsell et al. 2007

information overload and uncertainty about which information to trust⁴², thereby heightening anxiety rather than diminishing it. It is noteworthy that with the exception of two studies⁴³, the accessibility theme was identified among studies that examined parents/carers views, suggesting perhaps that it may be more of an issue for them than for other demographic groups. This coincides with the belief that children are more vulnerable and therefore susceptible to health threats (as discussed above in the section on *beliefs about consequences*).

2.3.7.2 Physical factors

Two factors were found to reduce the use of pharmacies for minor ailments. The cost of over-the-counter medication⁴⁴ was a barrier to including patients who were eligible for free prescriptions⁴⁵ and *lack of privacy* to discuss health issues was identified as a barrier to community pharmacy⁴⁶. However, over 90 percent of pharmacies now have a private consultation room (Local Government Association 2013) and many have set up NHS prescription services that don't require payment if exempt from charges.

2.3.7.3 Conflicts of interest

Conflicts of interest were identified for pharmaceutical companies⁴⁷ and websites with advertising⁴⁸, due to the possible prioritisation of profit margins over patient care. Thus medicines and leaflets endorsed by pharmaceutical companies and websites with advertising⁴⁸ were mistrusted by some due to doubts about the integrity of the information, especially among older patients in one study⁴⁹.

2.3.7.4 Limited professional roles

Nurse and pharmacist referral was seen to legitimise GP and A&E attendances⁵⁰:

“Again they’re a sort of source of whether you should go to a doctor or not and more often than not they’ll say leave it a couple of days and if you’re still worried take them along.” (Allen et al. 2002, p466)

However, a separate visit, due to the inability of nurses and pharmacists to prescribe or fully treat the problem, was identified as a barrier to this self-care pathway⁵¹. The inability to complete a treatment cycle was also observed in the context of GPs sending patients with back pain to A&E and A&E sending the same patients back to the GP⁵²:

“Every time I go to my Dr’s, my Dr’s telling me to go to A&E and then A&E are telling me to go to my Dr’s” (Stafford et al. 2014, p69)

Similarly, another study reported that those who had previously attended A&E for back pain were more likely to attend again for subsequent episodes⁵³. Thus back pain may be particularly problematic for A&E, due to common referral patterns from GPs, reflecting perhaps an unwillingness or inability to provide treatment for this condition.

Decision-making based on incomplete information was linked to the possibility of misdiagnoses⁴⁶ and was cited as a reason for attending GP-led services⁵⁴. Decision-making in the absence of medical records was seen to generate a lower level of trust in the care provided by nurses and pharmacists, who do not usually have access to them. A preference for holistic treatment is reflected in a statement made by a participant prior to a consultation with a GP:

⁴² Allen et al. 2002, Jones et al. 2014

⁴³ O’Cathain et al. 2005, Stafford et al. 2014

⁴⁴ Lakhani 2012, Doyle (2013), Porteous et al. 2015

⁴⁵ Lakhani 2012

⁴⁶ Gidman and Cowley 2013, Lakhani 2012, Tucker and Stewart 2015

⁴⁷ Allen et al. 2002, Gidman and Cowley 2013, Lakhani 2012

⁴⁸ Neill et al. 2015

⁴⁹ Gidman and Cowley 2013

⁵⁰ Allen et al. 2002, Gidman and Cowley 2013, Lakhani 2012, O’Cathain et al. 2005, Tucker and Stewart 2015

⁵¹ Caldwell et al. (2007), Cantrill et al. 2006, Gidman and Cowley 2013, Lakhani 2012

⁵² Stafford et al. 2014

⁵³ Porteous et al. 2015

⁵⁴ Redsell et al. 2007

“She [GP] can see the background as well as the current problem. She knows I lift the wheelchair out of the back of the car for my wife because she’s disabled, so all that can come into the equation when she’s looking at my back” (Redsell et al. 2007, p177)

The absence of a physical examination was identified as a barrier to self-care, especially in the context of community pharmacy⁵⁵ and telephone triage services, such as NHS Direct⁵⁶. Similarly, a desire to be seen and physically examined was a reason cited for consulting with GPs⁵⁷ and urgent care services⁵⁸. Notably, the barrier of physical examination was not identified within the context of practice nursing (at a GP surgery) implying that face-to-face treatment with nurses may be more acceptable than telephone triage or community pharmacy, as the patient is both physically seen and assessed. This is consistent with the report that half of the participants in one study would favour a screening system where they would be seen initially by a practice nurse⁵⁹. Nonetheless, over 90% of community pharmacies now have private consultation rooms that permit physical examination, thus this finding may be due to the age of the studies (before these facilities were available) or it may indicate a lack of knowledge about this facility.

Pharmacists and nurses were seen as less qualified, skilled and experienced, relative to GPs, to manage symptoms perceived as potentially serious. This coincides with GPs higher professional status relative to nurses and pharmacists, in the UK and a preference for GP care, especially when symptoms are seen as potentially severe:

“A lot of people would prefer to hear it from the doctor because they’re trained properly that way . . . they’ve had so many years at university to learn this stuff . . .” (Gidman and Cowley 2013, p291)

In one study, older people expressed a stronger preference for GP care⁶⁰, perhaps indicating more resistance to culture change, having had more experience of (and therefore behavioural conditioning to) traditional GP care.

Thus while nurses and pharmacists were generally highly respected and valued, their inability to prescribe and complete the treatment cycle (e.g. provide a medical certificate), access medical records, and physically examine patients (for nurses in telephone triage contexts only) was associated with inefficient care seeking and a lower trust in the provision of care, especially when a health threat was perceived.

In terms of intervention suggestions, complementary to the suggestion for media delivered educational resources (discussed above in the knowledge/skills section), central websites with professional endorsement⁶¹ and better publicity for reputable websites was discussed. For example:

“I think if it was NHS backed you’d kind of have a bit more trust” (Jones et al. 2014, p4).

Additionally, better transfer between community pharmacies and GPs was recognised as an area for improvement, such as the sharing of patients’ health medical records⁶².

⁵⁵ Lakhani 2012, Milewa 2000

⁵⁶ Neill et al. 2015

⁵⁷ Lakhani 2012, McNulty et al. 2013

⁵⁸ Stafford et al. 2014

⁵⁹ Caldow et al. 2007, p42

⁶⁰ Gidman and Cowley 2013

⁶¹ Jones et al. 2014

⁶² Lakhani 2012

Table 2.8: Overview of the environmental context and resources domain

Theme	Sub-theme	Example quote	Studies
Inaccessibility	Geographical immediacy of service	<i>A number of factors that people said influenced their decision to self-care could be linked to community resources including geography (e.g. proximity to health services) (Porteous et al. 2015, p31)</i>	Porteous et al. (2015)
	Time taken to receive care	<i>I just automatically thought I'd ring this number and get an appointment with a doctor, but then I had to wait another hour for the nurse to phone you see [...] [My friend] actually asked her doctor if there's a number she can phone rather than go through all that, you see. But she said now she just goes to casualty with him, with her husband (O'Cathain et al. 2005, p1766)</i>	Allen et al. (2002), Jackson et al. (2005), Jones et al. (2014), Neill et al. (2015), O'Cathain et al. (2005), Porteous et al. (2015), Stafford et al. (2014), Tucker and Stewart (2015)
	Opening hours	<i>One problem reported by parents was finding a local pharmacist that was open out of hours for advice or for prescription medicines (Neill et al. 2015, p3051)</i>	Cantrill et al. (2006), Neill et al. (2015), Porteous et al. (2015), Stafford et al. (2014)
	Extensive and repetitive questioning	<i>...extensive questioning and found it reassuring; others found the questioning could 'make you more distressed' (Neill et al. 2015, p3049)</i>	Allen et al. (2002), Neill et al. (2015), Redsell et al. (2007)
	Information overload	<i>Although some members of all of the groups had accessed the internet for health information, there was some concern about the quality of the information available, and also the length of time it took to find the relevant information (Allen et al. 2002, p464)</i>	Allen et al. (2002), Jones et al. (2014)
Physical	Lack of privacy	<i>If it's done in a more private area, that would be better as I could then 'open up' But if other people were in the shop, I couldn't do that (Lakhani 2012, p303)</i>	Gidman and Cowley (2013), Lakhani (2012), Tucker and Stewart (2015)
	Cost of over-the-counter medicines	<i>If I need an emergency supply of (prescription only) medicine, this is expensive. My pharmacist charged me even though he knew I had them on prescription (Lakhani 2012, p302)</i>	Doyle (2013), Lakhani (2012), Porteous et al. (2015)
Conflicts of interest	Pharmaceutical companies	<i>... Surely when a chemist is doing blood-pressure checks. . . They're selling equipment or trying to sell equipment (Gidman and Cowley 2013, p292)</i>	Allen et al. (2002), Gidman and Cowley (2013), Lakhani (2012)
	Website advertising	<i>if it's got any advertising on it at all I come off it because I think they're going to try to plug me something that they're trying to sell, I'm like, no (Neill et al. 2015, p3052)</i>	Neill et al. (2015)

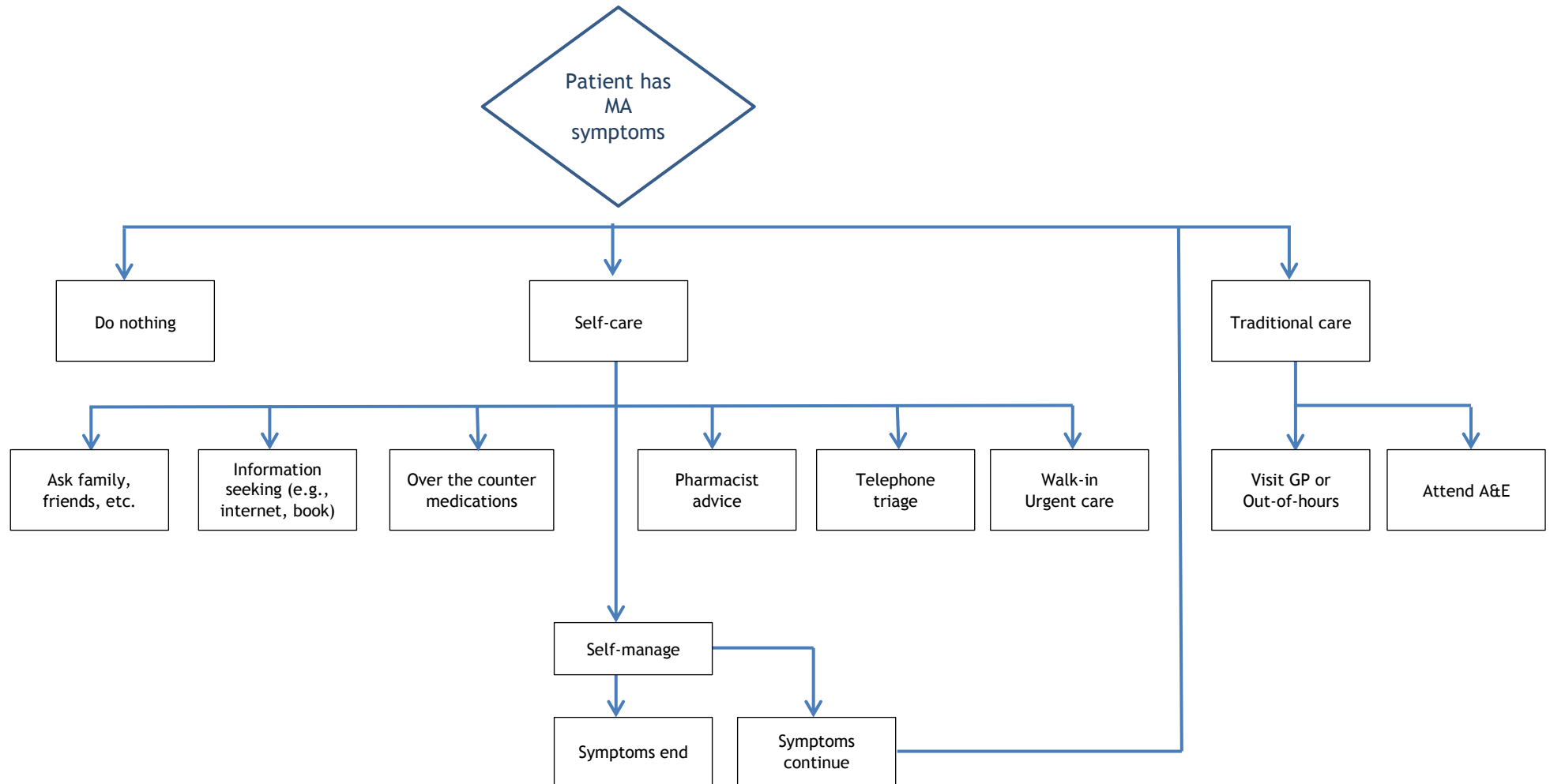
Limited roles	Inability to prescribe	<i>So she had to go back to the doctor to get it signed so, I don't know, it just seemed a bit of waste of time, you know what I mean?... A doctor would've just said, 'Oh yes, that's that, yes, you need these tablets. Here it is bye, bye'</i> (Redsell et al. 2007, p176)	Caldow et al. (2007), Cantrill et al. (2006) Gidman and Cowley (2013), Lakhani (2012)
	Expected or actual referral to traditional care	<i>Every time I go to my Dr's, my Dr's telling me to go to A&E and then A&E are telling me to go to my Dr's</i> (Stafford et al. 2014, p69)	Allen et al. (2002), Cabral et al. (2015), Cantrill et al. 2006, Gidman and Cowley 2013, Jackson et al. (2005), Lakhani 2012, Neill et al. 2015, O'Cathain et al. (2005), Porteous et al. (2015), Stafford et al. 2014, Tucker and Stewart (2015)
	Inability to access medical records	<i>The GP knows what we are suffering from - he has our records</i> (Lakhani 2012, p295)	Gidman and Cowley (2013), Lakhani (2012), Redsell et al. (2007), Tucker and Stewart (2015)
	Inability to provide medical certificate	<i>Sometimes patients consulted purely to access something that was otherwise unavailable to them (...a medical certificate)</i> (Cantrill et al. 2006, p163)	Cantrill et al. (2006)
	Absence of physical examination	<i>I don't think [pharmacists] would be able to know because they wouldn't look into a person's throat – they're just literally going by what the person says</i> (Milewa 2000, p471)	Jones et al. (2014), Lakhani (2012), McNulty et al. (2013), Milewa (2000), Neill et al. (2015), Stafford et al. (2014)
	Qualification and experience	<i>Most would rather see a GP for their child than any other member of the primary healthcare team</i> (Neill et al. 2015, p3049)	Caldow et al. (2007), Gidman and Cowley (2013), Jackson et al. (2005), Lakhani (2012), Neill et al. (2015), Redsell et al. (2007)

2.4 Decision-making pathways

The synthesis of results encompassed discussion of traditional forms of care (GP or out-of-hours, and A&E), in addition to self-care. Figure 2.1 depicts the decision-making pathways and actions

undertaken by service-users in the management of minor ailments as described in the studies. The results showed that participants usually reported engaging in self-care to begin with. However, a preference for traditional GP/A&E was influenced by six TDF domains and associated themes and sub-themes (see Table 2.2). There were few statements by participants and study authors that pointed to a predominance of particular themes. Their relative importance is thus considered in the overarching synthesis based on concordance of findings between the reviews. These findings are compared and contrasted in Chapter 0 with those of the surveys (Review 2, Chapter 3) and evaluations (Review 3, Chapter 4).

Figure 2.1: Decision-making pathways and actions undertaken by a service user in the management of minor ailments



3. Review 2: Survey synthesis - What are the factors that enhance or mitigate the decision to self-care for minor ailments?

3.1 Summary of evidence included in the survey synthesis

- We examined **13 surveys** (Amiel et al. 2014, Atenstaedt et al. 2015, Banks 2010, Chalder et al. 2007, Coleman et al. 2001, Hau et al. 2008, Hendry et al. 2005, Land and Meredith 2013, McNulty et al. 2013, Rajpar et al. 2000, Salisbury et al. 2002, Vohra 2006, Watson et al. 2015).
- Nine surveys were conducted in **England**, one in **Scotland**, one in **Wales**, one in **England and Wales**, and one in **England and Scotland**.
- The surveys included a total of 13,791 people.
- Demographics were not extensively reported. Where they were given, the surveys covered a good range of age (0 to 95 years) and balance of gender. Most participants were Caucasian, from a range of social classes, with one survey conducted in a socially deprived area of Birmingham.
- Quality was generally low, with only four studies achieving a medium rating and none high.
- The surveys assessed reasons for attendance at A&E or the emergency department (n=8), the patient's GP surgery or out-of-hours GP service (n=5), an urgent care centre or walk-in centre (n=3), a pharmacy (n=2), or general self-care (n=1).
- Eleven studies assessed minor ailments in general or a list of ailments, and two studies assessed specific ailments (eye problems and respiratory tract infections).
- The reported reasons for attendance were mapped onto seven domains of the TDF: knowledge/skills; memory, attention and decision-making; emotions; reinforcement; social influences; beliefs about consequences; and environmental context and resources.

3.2 Overview of each of the 13 included surveys

Table 3.1 provides an overview of each of the 13 studies; a more comprehensive table with details of participant characteristics is provided in Appendix 3.

Table 3.1: Characteristics of the 13 included surveys

Study	Population target	Minor Ailment	Focus	Sample size	Gender Female %
Amiel et al. (2014)	General population aged 18 years or older	No targeting	GP and urgent care/walk-in centre	649	59
Atenstaedt et al. (2015)	General population aged 16 or over	No targeting	A&E	806	43
Banks (2010)	General population aged 15 to 60 years	No targeting	GP and Self-care (general)	1,317	51
Chalder et al. (2007)	General population aged 16 or older	No targeting	A&E and urgent care/walk-in centre	704	NR
Coleman et al. (2001)	Adult attenders	No targeting	A&E	255	38
Hau et al. (2008)	General population	Eye ailments	A&E	560	48.1
Hendry et al. (2005)	Parents/carers of children of 13 years or younger	No targeting	A&E	465	45
Land and Meredith (2013)	General population	No targeting	A&E	485	49.7
McNulty et al. (2013)	General population aged 15 years or older	Respiratory tract infection	GP	1,767	NR
Rajpar et al. (2000)	General population	No targeting	A&E	54	55.9
Salisbury et al. (2002)	General population	No targeting	GP and urgent care/walk-in centre	6,229	56
Vohra (2006)	General population	17 minor ailments	Pharmacy	123	NR
Watson et al. (2015)	General population aged 18 years or older	List of ailments	A&E, GP and Pharmacy	377	59.4

3.3 Summary of the findings

- The three most common reasons for attending **A&E** with a minor ailment were anxiety (65%), past experience (63%) and the belief that it was the best place for the problem (61%). A single survey suggested that knowledge of alternative options, such as NHS Direct, was good (53%).
- A quarter or more of those attending **A&E**: made the decision alone, perceived their symptoms as serious, had tried and failed to self-care, expected to be referred or were

referred by their GP, and expected an X-ray. Single studies indicated that a quarter or more knew about walk-in centres and expected advice only.

- For those attending their **GP**, failed self-care (71%) and the expectation of a prescription (69%) were the most common reasons. A single study indicated that anxiety (61%) was common.
- Past experience, seriousness, advice from friends, family or acquaintances, convenience, continuity of care, confidence in their GP, and expecting advice only were selected by over a quarter of **GP** attenders. Single studies indicated that not considering alternatives, susceptibility of children, and wanting to see a doctor were moderately important.
- The most selected reason for attending **urgent care** was that it was quicker than a GP appointment (55%). Single studies indicated that anxiety (56%) and continuity of care (52%) were important.
- Over a quarter of **urgent care** attenders: attended for convenience, a shorter wait than A&E, convenient opening hours, and because they expected a prescription; but speed for urgent care may vary by location. Single studies indicated that seriousness and failed self-care were moderately important.
- Many patients attending **urgent care** (55%) thought that they were attending A&E (Chalder et al. 2007).
- Convenience (83%) and time to access care (59%) were most important to **pharmacy** attenders. A single study indicated that over a quarter of attenders did so due to past experience or not wanting to bother their GP.
- As there was only one small low-quality study of **self-care**, no quantitative synthesis was possible.
- This single study indicated that past experience (74%), not wanting to bother their GP (70%), convenient location (59%), time to access care (63%), and confidence in self-care (69%) were important to those who chose to self-care. Confidence in medications, cost, and not wanting to see the GP were moderately important.

Table 3.2 summarises the most and least often chosen reasons for attending each of the services. As there was only one study for self-care, the least chosen options were quite common.

Table 3.2: Most and least commonly selected reasons for attending each service

	Top 3 reasons	Bottom 3 reasons
A&E	Anxiety/worry (65% WM) Previous consultation or treatment (63% WM) Best place for problem (61% WM)	Physical examination - blood test (3% WM) Did not want to see GP (3% WM) Cost of over-the-counter medications (1% SS)
GP	Failed self-care (71% WM) Expected a prescription (69% WM) Anxiety/worry (61% SS)	Wanted medical certificate (6% SS) Contagious - prevent infection (5% SS) Referred by another service (2% SS)
Urgent care centre	Anxiety/worry (56% SS) Continuity of care (52% SS) Seriousness/threat/reassurance (44% SS)	Not registered with GP (5% WM) Second opinion (2% WM) Did not want to see GP (2% SS)
Pharmacy	Convenient location (83% WM) Time taken to access care (59% WM) Previous consultation/treatment (38% SS)	Did not want to see GP (11% SS) Continuity of care (9% SS) Advised by friends, family or acquaintances (2% SS)
Self-care	Previous consultation/treatment (74% SS) Did not want to bother GP (70% SS) Confident in self-care (69% SS)	Cost of over the counter medications (49% SS) Did not want to see GP (48% SS) Confidence in over the counter medications (39% SS)

SS = single survey, WM = weighted mean

Table 3.3 presents the results of the survey synthesis in which we pooled similar results from multiple surveys to calculate weighted mean (WM) percentages and reported single survey (SS) results, where data were available from one study only. A further table in appendix 15, provides the number and size of studies contributing to each WM, and where there was significant variation between means in a weighted score, this is indicated in the narrative. This summary reports all percentages that were over 50, and lists items that were supported by over a quarter, but under half of participants.

3.4 Summary of results by TDF domain

Table 3.3 shows the results for each TDF domain, and we provide a summary of the key findings in this section (3.4). As in section 0, this summary reports those percentages that were over 50, and lists items that were supported by over a quarter, but under half of participants. It also indicates the items that were selected least often. For brevity, environmental context and resources only reports those percentages that were over 50. A more detailed description on each theme is provided in section 3.5 for those who are particularly interested. Appendix 14 gives an illustrative quote, and shows the type of survey question used, for each construct. Appendix 15 shows the number of contributing studies and the total sample size, for each construct, by service used.

Knowledge/skills: A single study indicated that 53% of A&E attenders knew about NHS Direct. Most A&E attenders knew about alternative services (WM), and their GP availability (WM), but few knew about urgent care centres (SS) and a GP cooperative (SS).

Memory, attention and decision-making: Just over two-fifths of A&E attenders (WM) made the decision alone. Most people attended A&E (SS) and urgent care (WM) having considering alternatives, whereas approximately only three-fifths of GP attenders (SS) had considered alternative sources of care.

Emotions: Anxiety or worry appears to have been an important influence on attenders at A&E (65% WM), the GP (61% SS), and urgent care (56% SS).

Reinforcement: Past experience influenced the decision for A&E attenders (63% WM) and for self-carers (74% SS); it was also important for over a quarter of GP (WM) and pharmacy (SS) attenders, and about a fifth of urgent care attenders (WM).

Beliefs about consequences: Over a quarter of A&E attenders did so due to symptom severity (WMs), as for urgent care attenders (SSs). Over a quarter of GP attenders did so due to severity (WM), and the vulnerability of children (SS). Few attended their GP due to a long-term condition or to prevent infection (SS).

Social influences: Not wanting to bother the GP was important in deciding to self-care (70% SS), and for over a quarter of pharmacy visitors (SS). Over a quarter of people were advised by family, friends or acquaintances to attend their GP (WM). Few people attended A&E because they did not want to bother their GP (WM) and few went to the pharmacy because they were advised by friends, family or acquaintances (SS).

Environmental context and resources: The expectation of a prescription (69% WM) and the failure of self-care (71% WM) were popular reasons for visiting the GP, and believing that it was the best place for the problem was common for A&E attenders (61% WM). Convenient access was important for the Pharmacy (83% WM) and for self-care (59% SS), as was time to access care (Pharmacy, 59% WM; and self-care, 63% SS), and confidence in self-care (resources or abilities; 69% SS), while continuity of care was important to GP attenders (52% SS).

Table 3.3: Summary of the Survey Synthesis Results: Patients' reasons for service use or self-care behaviour

		Quantitative synthesis				Single-study evidence				
		A&E	GP	Urgent care / walk-in centre	Pharmacy	A&E	GP	Urgent care/walk-in centre	Pharmacy	Self-care
Construct		Weighted mean (%)				(%)				
Knowledge/skills										
Lack of knowledge	No knowledge of alternative services	19	-	-	-	-	-	-	-	-
	No knowledge of GP availability	13	-	-	-	-	-	-	-	-
	Knew about NHS Direct	-	-	-	-	53	-	-	-	-
	Knew about urgent care Centres	-	-	-	-	7	-	-	-	-
	Knew about walk-in centres	-	-	-	-	39	-	-	-	-
	Knew about GP cooperative	-	-	-	-	6	-	-	-	-
	Pharmacist can't give advice	-	-	-	-	-	20	-	-	-
	Confidence in over the counter medications	-	-	-	-	-	-	-	-	39
Memory, attention and decision-making										
Decision-making	Made decision alone	44	-	-	-	-	-	-	-	-
	Did not consider alternatives	-	-	6	-	14	39	-	-	-
Emotions										
Anxiety	Anxiety/worry	65	-	-	-	-	61	56	-	-
Reinforcement										
Past experience/behaviour	Previous treatment/consultations	63	26	21	-	-	-	-	38	74
Beliefs about consequences										
Severity of symptoms	Seriousness/threat/reassurance	27	40	-	-	-	-	44	-	-
Susceptibility to symptoms	Presence of long-term condition	-	-	-	-	-	11	-	-	-
	Children seen as vulnerable	-	-	-	-	-	48	-	-	-
	Contagious - prevent infection	-	-	-	-	-	5	-	-	-
Health threat	See anxiety/worry above	-	-	-	-	-	-	-	-	-
Social influences										

Social support	Advised by friends, family or acquaintances	24	36	10	-	-	-	-	2	-
Social norms	Did not want to bother GP	4	-	18	-	-	-	-	31	70
Environmental context and resources										
Access	Geographical immediacy of service	16	32	29	83	-	-	-	-	59
	Time taken to access care	16	16	26	59	-	-	-	-	63
	Convenient opening hours	15	-	33	-	-	12	-	-	-
	GP not available/could not contact	16	-	-	-	-	-	18	-	-
	Not registered with GP	4	-	5	-	-	-	-	-	-
	Better facilities/services	-	-	-	-	4	7	5	-	-
	Privacy for consultation	-	-	-	-	14	40	-	22	-
Environment	Cost of over the counter medications	-	19	-	-	1	-	-	15	49
Limited professional roles	Expected a prescription	-	69	39	-	-	-	-	-	-
	Expected referral by GP	25	-	-	-	-	-	-	-	-
	Expected hospital admission	7	-	-	-	-	-	-	-	-
	Referred by GP	26	-	-	-	-	-	18	-	-
	Referred by another service	-	-	13	-	4	2	-	-	-
	Wanted medical certificate	-	-	-	-	-	6	-	-	-
	Continuity of care	-	44	-	-	-	-	52	9	-
	Physical examination - Stitches	7	-	-	-	-	-	-	-	-
	Physical examination - Blood test	3	-	-	-	-	-	5	-	-
	Physical examination - X-ray	39	-	-	-	-	-	9	-	-
	Physical examination - Injection - tetanus	4	-	-	-	-	-	-	-	-
	Physical examination - Another test	-	-	-	-	19	-	-	-	-
Other	Best place for problem	61	-	10	-	-	20	-	-	-
	Failed self-care ⁶³	31	71	-	-	-	-	39	-	-

⁶³ failed self-care methods: Atenstaedt et al. (2015) found that of those who had sought advice before attending A&E, 72% had seen their GP, 14% had been to the Minor Injuries Unit, 12% had contacted NHS Direct, 10% had contacted the out-of-hours GP, and 3% had been to a pharmacist (some had tried more than

	Second opinion	8	-	2	-	-	-	-	19	-
	Confident in the Service being used	22	26	8	-	-	-	-	-	69
	Did not want to see GP	3	-	-	-	-	-	2 ⁶⁴	11	48
	Prefer to see a doctor not nurse	-	-	-	-	-	34	-	-	-
	Prefer to see nurse	-	-	-	-	-	-	10	-	-
	Expected advice on self-care	-	30	-	-	35	-	18	20	-

3.5 More detailed presentation by TDF domain

For easy reading, the references that support each theme are presented as footnotes in this section.

3.5.1 Knowledge/skills

Knowledge and skills were mainly assessed for A&E attenders only, with one study assessing GP attenders. Based on three studies, 19% of patients attended A&E because they were unaware of the alternatives⁶⁵, and 13% attended because they did not know if their GP was available⁶⁶. One study by Land and Meredith (2013) indicated that over half of A&E attenders were aware of NHS Direct (53%), and 39% were aware of walk-in centres, but Rajpar et al. (2000) found that only 6% were aware of a co-located GP Co-operative. Banks (2010) found that 20% of those attending their GP did not know that pharmacists could give advice, and 39% of those who self-cared did so because they had confidence in their over the counter medications.

3.5.2 Memory, attention and decision-making

A high proportion of A&E attenders (44%) made the decision to attend alone, without help⁶⁷; while very few people attended urgent care or a walk-in centre (6%) without considering the alternatives first⁶⁸. Similarly, in a single study⁶⁹ (14%), few people attended A&E without considered the alternatives, but in another study⁷⁰, whilst 69% of GP attenders had considered alternative sources of care, the remaining 39% had not, when making the decision to attend. This indicates that attending GP and A&E services is perhaps more of an automatic process, than for other services, particularly urgent care or walk-in centres.

3.5.3 Emotions

Anxiety or worry was a common reason for attending A&E, the GP, and urgent care suggesting that about two-thirds of attenders at each service were seeking emotional support or ways to assuage their concerns. Based on data from two small studies⁷¹ for A&E, 65% of attenders selected worry as

one).Amiel et al. (2014) found that 6% of Urgent Care attenders had seen their GP, 2% had seen a health professional, 12% had used the Internet, 6% had contacted NHS Direct, 12% had been to a pharmacist, and 1% had attended a walk-in centre.

⁶⁴ 16% of 441 were dissatisfied, but this influenced the decision for only 10% of these, so 7 of 441 = 2% attended because they were dissatisfied

⁶⁵ Atenstaedt et al. 2015, Coleman et al. 2001, Land and Meredith 2013

⁶⁶ Atenstaedt et al. 2015, Coleman et al. 2001, Rajpar et al. 2000

⁶⁷ Atenstaedt et al. 2015, Land and Meredith 2013

⁶⁸ Amiel et al. 2014, Chalder et al. 2007, Salisbury et al. 2002

⁶⁹ Chalder et al. 2007

⁷⁰ Salisbury et al. 2002

⁷¹ Hau et al. 2008, Hendry et al. 2005

a reason for attendance, while one study each assessed worry as a reason for GP (61%)⁷² and urgent care (56%)⁷³ attendance.

3.5.4 Reinforcement

Past experience of the service or treatment was particularly important to A&E attenders; almost two thirds (63%) of people attended because of their previous attendance⁷⁴. It was less important to GP attenders (26%)⁷⁵, and urgent care attenders (21%)⁷⁶. However, there was variation in the percentages between studies. For example, for urgent care, Amiel et al. (2014) measured the influence of a previous visit as 66%, while Salisbury et al. (2002) measured it at 18%. Salisbury et al. (2002) used a yes/no question about use within the previous four weeks, while Amiel et al. (2014) measured those scoring seven or more on a 10-point scale for a previous visit having influenced their decision to attend. The limit of four weeks for Salisbury et al. (2002) is likely to have reduced their rating. One small survey assessed the influence of previous attendance at the pharmacy on the decision to visit again, and this was important to 38% of pharmacy users⁷⁷. Another larger survey assessed the influence of previous self-care, in general, on the decision to self-care again, and this was important to 74% of self-carers⁷⁸.

3.5.5 Beliefs about consequences

Seriousness, threat or reassurance (thinking the minor condition was serious or had not improved) was selected by 27% of A&E attenders⁷⁹ and 40% of GP attenders⁸⁰, as a reason for attending. One study found that it was important for 44% of urgent care attenders⁸¹. As described in review 1, this theme of perceived threat overlaps with anxiety/worry in the emotions domain. In single studies, 11% of GP attenders selected susceptibility due to the presence of a long-term condition⁸², 48% selected the vulnerability of children⁷⁸ and 5% selected preventing the spread of infection⁸².

3.5.6 Social influences

Advice from friends, family or acquaintances (including the media)⁸³ influenced the decision to attend A&E for 24% of attenders⁸⁴, their GP for 36% of attenders⁸⁵, urgent care for 10% of attenders⁸⁶, and pharmacy for 2% of attenders⁸³. This shows that social support can fail by giving people with minor conditions the wrong advice to attend their GP or A&E. The social norm of not wanting to bother the GP with a minor condition does seem to be effective, except for a minority of A&E attenders (4%)⁸⁷, who gave this as a reason for attending, as did 18% of urgent care attenders⁸⁸. In single studies, this was given as a reason for visiting the pharmacy by 31% of participants⁸³, and for self-caring, using over the counter medications, without support from a GP or Nurse, by 70% of self-carers⁷⁸.

⁷² Banks 2010

⁷³ Amiel et al. 2014

⁷⁴ Coleman et al. 2001; 38%, Hendry et al. 2005; 85%; Watson et al. 2015; 16%

⁷⁵ McNulty et al. 2013; 9%, Salisbury et al. 2002; 27%, Watson et al. 2015; 32%

⁷⁶ Amiel et al. 2014; 66%, Salisbury et al. 2002; 18%

⁷⁷ Watson et al. 2015

⁷⁸ Banks 2010

⁷⁹ Coleman et al. 2001, Hendry et al. 2005, Land and Meredith 2013, Rajpar et al. 2000, Watson et al. 2015

⁸⁰ Banks 2010, McNulty et al. 2013

⁸¹ Amiel et al. 2014

⁸² McNulty et al. 2013

⁸³ Watson et al. 2015

⁸⁴ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Hendry et al. 2005, Watson et al. 2015

⁸⁵ Banks 2010, McNulty et al. 2013, Watson et al. 2015

⁸⁶ Amiel et al. 2014, Chalder et al. 2007

⁸⁷ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Land and Meredith 2013, Rajpar et al. 2000

⁸⁸ Chalder et al. 2007, Salisbury et al. 2002

3.5.7 Environmental context and resources

Convenience (in general or of the location) was not highly important to A&E attenders (16%)⁸⁹, GP attenders (32%)⁹⁰ and urgent care attenders (29%)⁹¹, but it was commonly selected by Pharmacy attenders (83%)⁹² and in a single study, slightly less so by self-carers (59%)⁷⁸. However, given the social norm to use health services appropriately, this may be underestimated for traditional health care services due to a social desirability bias. The time taken to access care was similarly not as important to A&E (16%)⁹³, GP (16%)⁹⁴, and urgent care (26%)⁹¹ attenders, as it was to Pharmacy users (59%)⁹⁵ and to self-carers (63%)⁷⁸. Although, for urgent care attenders speed compared with a GP appointment was more important (55%)⁹¹, and there was variation in the pharmacy percentages, with Watson et al. (2015) measuring speed compared with a GP appointment, and Vohra (2006) assessing whether the pharmacy saved time.

The convenience of the opening hours was not rated as important to many A&E attenders (which is unsurprising given that it's a 24 hour service; 15%)⁹⁶, but was important to about a third of urgent care attenders (33%)⁹⁷, while a single study found that they were not important to many GP attenders (12%)⁹⁸. The availability of their GP was an issue for only a few A&E attenders (16%)⁹⁹ and in a single study, a few urgent care attenders (18%)¹⁰⁰. Half of attenders in Rajpar et al. (2000) selected that they attended because their GP was not available, but this was a very small survey (54 people). Very few people attended A&E (4%)¹⁰¹ or urgent care (5%)¹⁰² because they were not registered with a GP. In single studies, very few attenders did so because of the better facilities or service at A&E (4%)¹⁰³, at their GP (7%)⁹⁸, or at urgent care (5%)⁹⁸. In Watson et al. (2015), privacy was important to more GP attenders (40%) than pharmacy visitors (22%) and A&E attenders (14%).

The cost of over-the-counter medications was important to 19% of those choosing to see their GP¹⁰⁴, and in single studies, 1% of those attending A&E¹⁰⁵, 15% of those visiting the pharmacy¹⁰⁵ and 49% of those who chose to self-care¹⁰⁶. Two studies each, found that 69% of GP attenders¹⁰⁷, and 39% of urgent care attenders¹⁰⁸ expected to receive a prescription. Three surveys¹⁰⁹ found that a quarter of A&E attenders did so because they thought that their GP would have sent them to A&E anyway, but only 7% expected to be admitted to hospital¹¹⁰. Just over a quarter (26%)¹¹¹ of A&E attendees were referred by their GP (presumably inappropriately), while a single study¹⁰⁰ showed that 18% of urgent care attenders were referred by their GP. Note that Hendry et al. (2005) reported the percentage of those who had seen a GP before attending (not necessarily referred by the GP) and this might explain why there was some variation in referral rates between surveys. Two surveys¹¹²

⁸⁹ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Hau et al. 2008, Hendry et al. 2005, Land and Meredith 2013, Watson et al. 2015

⁹⁰ Salisbury et al. 2002, Watson et al. 2015

⁹¹ Amiel et al. 2014, Chalder et al. 2007, Salisbury et al. 2002

⁹² Vohra 2006, Watson et al. 2015

⁹³ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Hau et al. 2008, Hendry et al. 2005, Land and Meredith 2013, Rajpar et al. 2000, Watson et al. 2015

⁹⁴ Salisbury et al. 2002, Watson et al. 2015

⁹⁵ Vohra 2006; 94%, Watson et al. 2015; 30%

⁹⁶ Chalder et al. 2007, Coleman et al. 2001, Hendry et al. 2005

⁹⁷ Chalder et al. 2007, Salisbury et al. 2002

⁹⁸ Salisbury et al. 2002

⁹⁹ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Hendry et al. 2005, Land and Meredith 2013, Rajpar et al. 2000

¹⁰⁰ Chalder et al. 2007

¹⁰¹ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Land and Meredith 2013

¹⁰² Amiel et al. 2014, Chalder et al. 2007, Salisbury et al. 2002

¹⁰³ Rajpar et al. 2000

¹⁰⁴ Banks 2010, Watson et al. 2015

¹⁰⁵ Watson et al. 2015

¹⁰⁶ Banks 2010

¹⁰⁷ McNulty et al. 2013, Salisbury et al. 2002

¹⁰⁸ Amiel et al. 2014, Salisbury et al. 2002

¹⁰⁹ Coleman et al. 2001, Hendry et al. 2005, Land and Meredith 2013

¹¹⁰ Atenstaedt et al. 2015, Coleman et al. 2001, Land and Meredith 2013

¹¹¹ Atenstaedt et al. 2015; 26%, Chalder et al. 2007; 8%, Hendry et al. 2005; 79%, Land and Meredith 2013; 12%

¹¹² Chalder et al. 2007; 79%, Salisbury et al. 2002; 9%

found that 13% of urgent care attenders were referred by another service, while single surveys indicated that 4% of A&E attenders¹¹³ and 2% of GP attenders⁹⁸ were referred by another service (presumably inappropriately). Referrals in Chalder et al. (2007) were directly recorded as patients who initially attended A&E and were directed to the co-located walk-in centre; over half of the walk-in-centre attendees (55%) thought that they were being treated in A&E, so did not realise that they had been referred, which could explain the variation in percentages.

One survey found that only 6% of people attended their GP because they needed a medical certificate¹¹⁴. Continuity of care was important to 44% of GP attenders¹¹⁵, but in a single survey it was important to more urgent care attenders (52%)⁹⁸. This survey's authors explained this as due to speed being more important than continuity of care.

The need for a physical examination or treatment was selected as a reason for attending A&E by a few people, generally. The most common expectation was an X-ray at A&E (39%)¹¹⁰, with stitches expected by 7% of attenders, a blood test by 3%, and a tetanus injection by 4%. A single study¹¹⁶ indicated that 5% of urgent care attenders expected to have a blood test and 9% expected an X-ray. Another survey¹¹⁷ indicated that 19% of A&E attenders expected an unspecified other test.

At A&E, 61% of attenders thought that they were in the best place for their problem¹¹⁸, while 10% of urgent care attenders thought that this was the best place¹¹⁹, and in a single survey¹²⁰, 20% of GP attenders thought that they were in the best place for their problem. The failure of self-care was a reason for attending among 31% of A&E attenders¹²¹ and 71% of GP attenders¹²², and in a single study, 39% of urgent care attenders¹¹⁶, suggesting that most GP attenders initially try to do the right thing, but lack the confidence to continue until the minor ailment resolves. A few people attended A&E (8%)¹²³ or urgent care (2%)¹¹⁹ because they wanted a second opinion. A few more pharmacy attenders wanted a second opinion (19%)¹²⁴. Confidence in the service being used was not high, except for general self-care. For A&E, 22% were confident in the service¹²⁵, for GP care, 26% were confident in the service provided¹²⁶, and for urgent care only 8% were confident¹²⁷, whereas in a single study, 69% of those who self-cared were confident in their own care¹²⁸.

Across two studies, 3% of those attending A&E did so because they did not want to see their GP¹²⁹, and in single studies, 2% of those attending urgent care did so because they were dissatisfied with their GP¹¹⁶, and 11% of pharmacy attenders¹²⁴ and 48% of those who self-cared¹²⁸ did not want to see their GP. A third of GP attenders (34%) preferred to see doctor¹²⁰, while 10% of urgent care attenders preferred to see a nurse¹²⁰. Advice on self-care was expected by 30% of those attending their GP¹³⁰, and in single studies, 35% of those attending A&E¹²⁴, 18% of those attending urgent care¹¹⁶, and 20% of those visiting the pharmacy¹²⁴.

¹¹³ Chalder et al. 2007; referred by NHS Direct

¹¹⁴ McNulty et al. 2013

¹¹⁵ Amiel et al. 2014, Banks 2010, Salisbury et al. 2002

¹¹⁶ Amiel et al. 2014

¹¹⁷ Land and Meredith 2013

¹¹⁸ Chalder et al. 2007, Hendry et al. 2005

¹¹⁹ Amiel et al. 2014, Chalder et al. 2007

¹²⁰ Salisbury et al. 2002

¹²¹ Coleman et al. 2001, Hendry et al. 2005, Watson et al. 2015

¹²² Banks 2010, Watson et al. 2015

¹²³ Atenstaedt et al. 2015, Chalder et al. 2007, Coleman et al. 2001, Hau et al. 2008, Hendry et al. 2005, Land and Meredith 2013, Rajpar et al. 2000, Watson et al. 2015

¹²⁴ Watson et al. 2015

¹²⁵ Atenstaedt et al. 2015, Coleman et al. 2001, Hendry et al. 2005

¹²⁶ Banks 2010, Salisbury et al. 2002

¹²⁷ Amiel et al. 2014, Salisbury et al. 2002

¹²⁸ Banks 2010

¹²⁹ Coleman et al. 2001, Watson et al. 2015

¹³⁰ McNulty et al. 2013, Watson et al. 2015

4. Review 3: Evaluations synthesis - What interventions or services are effective in promoting self-care for minor ailments?

4.1 Summary of evidence included in the evaluations synthesis

- Twenty-six evaluations were included in this synthesis.
- Sixteen evaluations were conducted in **England**, two in **Scotland**, one in **Wales**, and seven in a combination of these or the **UK** as a whole.
- Six intervention types were identified: education (n=13), NHS walk-in (n=4), telephone triage (n=5), practice nursing (n=3), GP antibiotic prescribing (n=3), and advanced paramedic roles (n=1).¹³¹
- Data were extracted for five outcomes: GP re/consultations (n=29)¹³²; out-of-hours re/consultations (n=9), A&E re/consultations (n=9)¹³³, symptom resolution (n=8) and cost (n=3).
- Thirteen studies targeted minor ailments in general or a list of ailments. Six studies were of cold or flu symptoms, two targeted back pain, two targeted eczema, and one study each targeted conjunctivitis, earache, and hay fever.
- Nineteen studies included the general population (three aged 16 years or older), four targeted parents or carers of young children, two targeted young people (12-18 years or students), and one assessed elderly patients.
- Twenty-two controlled studies were located including nine randomised controlled trials (RCTs), four cluster RCTs and nine non-RCTs. Four pre/post studies were also included.
- Demographics were not extensively reported. Fourteen studies reported the gender of participants, ranging from 30% to 72.6% female. Four studies reported ethnicity; one was evenly balanced and three had high proportions of ethnic minority patients. Social class was mixed in nine studies, with one study conducted in a deprived area (Butler et al. 2001).
- Nineteen studies were categorised as low in quality, seven as high.

4.2 Overview of the 26 included evaluations

Table 4.1 provides an overview of the included evaluations. A more comprehensive table with further details of participant characteristics is provided in Appendix 5.

¹³¹ Two studies examined both education and GP antibiotic prescribing (Everitt et al. 2006, Moore et al. 2009); one study examined both telephone triage and practice nursing (Richards et al. 2002). Nine community pharmacy evaluations were also located, but not synthesised, as Paudyal et al. (2013) provided a comprehensive synthesis of these. These community pharmacy papers are tabulated in Appendix 10 for reference

¹³² Two studies included two intervention arms; two studies sampled two population groups; three studies included two relevant measures of GP re/consultation

¹³³ One study included two population groups; one study included two relevant measures of A&E attendance.

Table 4.1: Overview of the 26 included evaluations

Study	Intervention	Population	Minor Ailment	Gender (% female)
Arain et al. (2014)	Walk-in centre	General population	General	NR
Butler et al. (2001)	Education and skills training	General population	Cough, sore throat, common cold, upper respiratory tract infection, tonsillitis, pharyngitis	NR
Chalder et al. (2003)	Walk-in centre	General population	General	NR
Chapman et al. (2002)	NHS Direct	General population	Respiratory illness	NR
Cox and Jones (2000)	Practice nurse	General population	Sore throat	66 (GP); 71 (Nurse)
Ersrer et al. (2013)	Education and skills training	Parents/carers of young children	Eczema	NR
Everitt et al. (2006)	Education and skills training + Antibiotics prescribing strategies	General population	Conjunctivitis	59 (no antibiotic); 57 (immediate); 56 (delayed)
Francis et al. (2009)	Education and skills training	Parents/carers of young children	Cough, earache, sore throat, respiratory tract infection, runny nose, fever, looks unwell	54.7 (intervention); 46.5 (control)
Hammersley et al. (2010)	Education/skills training (for health professionals)	Young adults 12 to 18 years	Seasonal allergic rhinitis (hay fever)	49.8 (intervention); 51.7 (control)
Heaney et al. (2001)	Education and skills training	General population	General	NR
Hsu et al. (2003)	Walk-in centre	General population	General	NR
Little et al. (2001a)	Education and skills training	General population	Back pain	57 (responders)
Little et al. (2001b)	Education and skills training	General population	General (42 minor ailments - not listed)	49 (booklet); 53 (summary); 50 (control)
Mason (2007)	Advanced Paramedic Roles	Elderly 60 plus	General (falls, cuts, nose bleeds, burns, foreign bodies in ear, nose, or throat)	72.6
Mason et al. (2013)	Education and skills training for	Parents/carers of young children	Eczema	NR
Moore et al. (2009)	Education and skills training + Antibiotics prescribing strategies	General population	lower respiratory tract infections	NR
Munro et al. (2005)	NHS Direct	General population	General	NR

Platts et al. (2005)	Education and skills training	General population	General (180 conditions covered)	72
Richards et al. (2002)	Nurse led Telephone Triage at GP practice	General population	General	60.6 (intervention); 61.1 (control)
Robbins et al. (2003)	Education and skills training	Parents/carers of young children, aged six weeks	General	Child gender 53.7 (intervention); 44.9 (control)
Roberts et al. (2002)	Education and skills training	General population	Back pain	37 (intervention); 32 (control)
Salisbury et al. (2007)	Walk-in centre	General population	General	NR
Shum et al. (2000)	Practice nurse in GP	General population	General (Listed in Table 1 of the paper)	60.3 (GP); 60.0 (nurse)
Turner et al. (2013)	NHS 111	General population	General (NHS 111 callers)	NR
Williamson et al. (2006)	Antibiotic prescribing practice	General population	Earache	41 (acute otitis media); 41 (glue ear)
Yardley et al. (2010)	Education and skills training	Young people aged 16 to 24 (targeted) Age range 18 to 79	Nasal congestion, cough, sore throat, common cold, influenza	72.3

Note: NR=not reported

4.3 What interventions or services are effective in promoting self-care for minor ailments?

We had planned to conduct meta-analysis, where feasible, but there were insufficient robust data for meta-analyses. Data were therefore synthesised narratively. Effect size estimates for health service utilisation (GP regular and out-of-hours, A&E) and symptoms were tabulated and coded in terms of direction (\uparrow = favourable, \downarrow = unfavourable, \rightarrow = no difference, - not measured) and statistical significance (+) at the $p < .05$ criterion. These findings are summarised in Table 4.2.

Overall, there was some evidence to suggest that delayed antibiotic prescribing, compared with immediate antibiotics, is beneficial in reducing GP re-consultations with 5 of 6 effects being in a positive direction (three obtaining statistical significance). There was also some evidence to suggest that advanced paramedic roles are effective in reducing A&E attendances among older people, though this intervention was evaluated in one study only. There was little evidence of beneficial effects on health service utilisation and symptom reduction for the other intervention types (education, telephone triage, practice nursing, and walk-in centres). The lack of consistency in the directions of the effect size estimates across the most robust (controlled) studies does not permit identification of trends, suggesting that these findings occurred by chance or under potential moderating influences. The specific study details and effect sizes are discussed further below in the narrative synthesis of findings.

Table 4.2: Total number of effect sizes (across studies) in each direction by type of outcome

		GP	Out-of-hours GP	A&E	Symptoms	GP	Out-of-hours GP	A&E	Symptoms
		Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]							
Intervention type	Direction of effect	Controlled studies				Non-controlled (pre/post) studies			
Education	→	1	1	-	-	-	-	-	-
	↑+	2	-	-	-	1	-	-	2
	↑	10	2	-	1	1	-	-	-
	↓+	1	-	-	-	-	-	-	-
	↓	12	-	-	2	-	-	-	-
Delayed antibiotic prescribing	→	-	-	-	-	-	-	-	-
	↑+	3	-	-	-	-	-	-	-
	↑	2	-	-	2	-	-	-	-
	↓+	1	-	-	-	-	-	-	-
	↓	-	-	-	-	-	-	-	-
NHS walk-in centres	→	-	-	-	-	-	-	-	-
	↑+	-	-	-	-	-	-	1	-
	↑	2	-	1	-	-	-	1	-
	↓+	-	-	1	-	-	-	-	-
	↓	1	2	2	-	-	-	-	-
Telephone triage	→	1	-	-	-	-	-	-	-
	↑+	-	-	-	-	-	1	-	-
	↑	1	-	1	-	-	-	-	-
	↓+	1	1	1	-	-	-	-	-
	↓	-	1	-	-	-	-	1	-
Practice nurse	→	-	-	-	-	-	-	-	-
	↑+	-	-	-	1	-	-	-	-
	↑	-	1	-	-	-	-	-	-
	↓+	-	-	-	-	-	-	-	-
	↓	3	-	1	-	-	-	-	-
	unclear	-	-	-	1	-	-	-	-
Advanced paramedic roles	→	-	-	-	-	-	-	-	-
	↑+	-	-	1	-	-	-	-	-
	↑	-	-	-	-	-	-	-	-
	↓+	-	-	-	-	-	-	-	-
	↓	-	-	-	-	-	-	-	-

→ = no difference;
 ↑+ = statistically significant favourable effect;
 ↑ = favourable effect that did not obtain statistical significance;
 ↓+ = statistically significant effect, but the direction was unfavourable;
 ↓ = the direction was neither beneficial nor statistically significant;
 - = No outcomes in this category were measured.

4.4 Narrative synthesis of findings

4.4.1 Education RCTs

Eleven randomised (eight studies) or cluster-randomised (three studies) controlled trials were included. Four RCTs evaluated educational interventions that targeted minor ailments in general and seven focused on specific ailments. Outcome assessments included GP re-/consultation (regular and out-of-hours) and symptom resolution, discussed further below.

4.4.1.1 GP re-/consultation

Five RCTs assessed GP consultations with follow-up periods that included six and eight weeks (Hammersley et al. 2010), six months (Robbins et al. 2003) to one year (Heaney et al. 2001, Little et al. 2001b and Platts et al. 2005). With the exception of Platts et al. (2005), who targeted service-users in general) and Hammersley et al. (2010); who targeted young adults 12 to 18 years), parents of children were recruited. Four of these five RCTs examined minor ailments in general, whereas Hammersley et al. (2010) targeted seasonal allergic rhinitis (hay fever).

Only one RCT reported a statistically significant beneficial effect (Little et al. 2001b). In this study, a no-intervention control group was compared with two kinds of patient information: an extensive booklet detailing the management of 42 conditions, and a two-page summary card focusing mainly on self-management of respiratory illness. Results showed that, compared with the control group, fewer patients in the booklet and summary card groups attended the GP for minor ailments frequently (twice or more) in the year following the intervention (odds ratio adjusted for baseline attendance and clustering at a practice level 0.81, 95% CI 0.67 to 0.99 for booklet and 0.83, 95% CI 0.72 to 0.96 for summary card). These favourable effects, between intervention and control groups, were not statistically significant for overall rates of GP consultations (for any condition; odds ratio adjusted for baseline attendance and clustering at a practice level 0.92, 95% CI 0.72 to 1.16 for booklet and; 0.99, 95% CI 0.80 to 1.23 for summary card).

Platts et al. (2005), reported that they found no statistically significant differences in annual consultation rates among participants allocated to one of two health books (either a descriptive resource covering over 180 conditions or a health book that included flowcharts to support decision-making) one year after the materials were distributed. However, data in their study Table III (that stratified the results by age, gender and study arm) showed that among male participants aged 60+, the annual mean consultation rates were higher in the NHS Direct book condition (7.62) than in the Healthwise book condition (5.55) and the no-book control (5.73) with this effect estimate obtaining statistical significance [$p = 0.033$ derived from the Kruskal-Wallis test], suggesting that the NHS Direct book actually increased attendance for minor ailments. Whilst there was no other statistically significant differences between the groups, there was evidence of favourable effects with fewer consultations among men aged 16 to 34 in the NHS Direct book (2.58) and Healthwise condition (2.89), compared with the no-book control (3.10), and for females aged 60+ (NHS Direct 7.32, Healthwise 6.33, and no book 7.41). However, the effect was in the opposite (unfavourable) direction for females aged 16 to 34, with the control condition having lower annual consultation rates (4.96) than either the NHS Direct (5.47) or Healthwise (5.30) book conditions. Similarly, men and women aged 35 to 59 had higher consultation rates with the interventions (NHS Direct book condition = 4.32 for males and 5.60 for females; Healthwise book condition = 4.24 for males and 5.40 for females) than with the control (4.11 and 5.06 for males and females). Combined, these findings suggest possible moderating effects with potentially beneficial effects for females over 60 and males aged 16 to 34. Nonetheless, the reliability of these effects is unclear given that estimates of variation were not reported and samples were small (n ranged from 43 to 70 for beneficial or favourable effects, and from 37 to 271 for unfavourable effects).

In two RCTs (Heaney et al. 2001, Hammersley et al. 2014), the (statistically non-significant) effect estimates were in a negative direction showing that there were more GP consultations in the intervention group than in the control. Specifically, Heaney et al. (2001) showed that receipt of an educational booklet had an unfavourable effect on overall GP attendance, and attendance for minor ailments, among two samples (mean difference between intervention and control adjusted for baseline = 0.14, 95% CI -0.18 to 0.45 overall, and 0.03, 95% CI -0.17 to 0.10 minor ailments only, in the general practice sample, and 0.22, 95% CI -0.31 to 0.75 overall, and 0.02, 95% CI -0.25 to

0.29 minor ailments only, in the out-of-hours sample). Similarly, in a study on seasonal allergic rhinitis (hay fever), Hammersley et al. (2010) showed unfavourable effects where general practice staff were randomised to a short, intensive workshop training them to enhance their patients' management of this condition, in comparison with a no-workshop control (difference in total consultations between intervention and control is 15 for any illness re-consultations and, 26 for rhinitis consultations only, six to eight weeks post intervention).

Finally, Robbins et al. (2003) found that compared with a no-treatment control, there were no differences in consultation rates for overall GP attendance (median = 2 for both education and control groups, IQR = 1, 4 GP, and 0, 4 control) six months after the booklets (Caring for Kids) and visits from the nurse were delivered.

Three RCTs that targeted lower respiratory tract infections included an assessment of GP re-consultation. Among these RCTs (1 cluster), follow-up periods ranged from two to eight weeks (for Francis et al. 2009, and Yardley et al. 2010) up to one year (Moore et al. 2009). Re-consultation in Moore et al. (2009) was therefore focused on a different episode of the same illness, whereas the other two studies, with shorter follow-up periods, were likely to capture the same episode that had led to the initial index consultation. With the exception of Yardley et al. (2010), all of the studies examined re-consultation with the GP following an index consultation with a nurse or GP; whereas Yardley et al. (2010) used a composite measure that encompassed consultations with the GP and other health services (mainly NHS Direct) following tailored health advice from an online service.

There were no statistically significant effects on re-consultation rates for the same illness (whether the same or a subsequent episode). However, Francis et al. (2009) showed favourable reduced re-consultation rates at two-week follow-up among GPs trained to use an interactive booklet during consultations with patients (and to provide it as a take-home resource), compared with treatment as usual (odds ratio = 0.75, 95% CI 0.41 to 1.38). Similarly, Yardley et al. (2010) found that participants randomised to tailored, online self-management advice for minor respiratory symptoms re-consulted fewer times than those in the control group (11 vs 21 participants) but perhaps due to the small sample size, the difference did not reach statistical significance ($p = .22$). By contrast, Moore et al. (2009) showed unfavourable non-statistically significant effects for an educational leaflet delivered by the GP during routine care. This leaflet increased re-attendance rates for coughs, compared with a control group, measured from one month to one year after the index consultation (adjusted rate ratio = 1.27, 95% CI 0.86 to 1.87, $p = 0.229$, NS).

4.4.1.2 GP out-of-hours consultation

Robbins et al. (2003) found that compared with a no-treatment control there were no statistically significant differences for acute out-of-hours GP attendances six months after the materials were delivered (median = 0 for both groups, IQR = 0, 1 intervention, and 0, 1.5 control). Nonetheless, Heaney et al. (2001) showed that receipt of an educational booklet led to a favourable direction of effect, albeit by a small reduction in out-of-hours consultations (type unspecified) among two samples at one year follow-up (mean difference between intervention and control adjusted for baseline = -0.02, 95% CI -0.06 to 0.01 for general practice, and -0.03, 95% CI -0.20 to 0.14 for out-of-hours sample).

4.4.1.3 Symptoms

The remaining three RCTs examined the impact of educational interventions on symptoms alone (Little et al. 2001a, Roberts et al. 2002, Everitt et al. 2006). Little et al. (2001a) and Roberts et al. (2002) examined back pain whereas Everitt et al. (2006) looked at conjunctivitis. The longest follow-up was one to three days for Everitt et al. (2006); three weeks for Little et al. (2001a); and one year for Roberts et al. (2002).

There were no statistically significant beneficial effects on the symptoms of backache (Roberts et al. 2002, Little et al. 2001a) and conjunctivitis (Everitt et al. 2006). Specifically, Roberts et al. (2002) reported an increase in pain, assessed using the Aberdeen Low Back Pain Scale among participants who were given an information leaflet, compared with a no-treatment control (mean difference = 2.9, 95% CI -4.2 to 10.0, $p = 0.363$). However, using the same back pain scale, Little et al. (2001a) reported a decrease in pain among those who were provided with an information booklet, compared with control at one week follow-up [mean difference = -3.8, 95% CI -7.7 to 0.1]. For conjunctivitis, Everitt et al. (2006) reported that a patient information leaflet marginally

increased the severity of symptoms assessed one to three days after consultation for conjunctivitis (mean difference between leaflet and non-leaflet conditions adjusted for antibiotic group and eye swab = 0.1, 95% CI -0.2 to 0.3, p = 0.6).

Table 4.3: Summary of findings for educational interventions examined in studies with controlled designs

Study	Intervention details	Study design	Ailment	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Everitt et al. (2006)	Leaflet	RCT	Conjunctivitis	Symptoms: 1 effect showing an unfavourable direction NS [↓]
Hammersley et al. (2010)	General practice staff management of seasonal allergic rhinitis	Cluster RCT	Seasonal allergic rhinitis (hay fever)	GP: 2 effects in an unfavourable direction NS [↓↓]
Heaney et al. (2001)	Booklet for parents 'What should I do' / Health Care Manual	Cluster RCT	General	GP: 4 effects in an unfavourable direction NS [↓↓↓↓] Out-of-hours GP: 2 effects in a favourable direction NS [↑↑]
Francis et al. (2009)	Leaflet + discussion with GP	Cluster RCT	Lower respiratory infections	GP: 1 effect in a favourable direction NS [↑]
Little et al. (2001a)	Back Home Information booklet	RCT	Back pain	Symptoms: 1 effect in a favourable direction NS [↑]
Little et al. (2001b)	Extensive booklet for parents 'What should I do'	RCT	General	GP: 1 effect in a favourable direction NS [↑]; 1 effect in a favourable direction + statistically sig [↑+]
	Brief summary card for parents focusing on respiratory illness			GP: 1 effect in a favourable direction NS [↑]; 1 effect in a favourable direction + statistically sig [↑+]
Moore et al. (2009)	Leaflet	RCT	Lower respiratory tract infections	GP: 1 effect in an unfavourable direction NS [↓]
Platts et al. (2005)	Healthwise Handbook covering over 180 conditions	RCT	General	GP: 3 effects in a favourable direction NS [↑↑↑]; 3 in an unfavourable direction but NS [↓↓↓]
	NHSd health booklet			GP: 3 effects in a favourable direction NS [↑↑↑]; 2 in an unfavourable direction NS [↓↓]; 1 in an unfavourable direction and statistically sig [↓+]
Robbins et al. (2003)	Health visitor + booklet (for parents)	RCT	General	GP: 1 effect showing no difference [→]; Out-of-hours GP: 1 effect showing no difference [→]
Roberts et al. (2002)	Back Home leaflet provided by GP during consultation	RCT	Back pain	Symptoms: 1 effect in an unfavourable direction NS [↓]
Yardley et al. (2010)	Internet doctor	RCT	Minor respiratory tract infections	GP: 1 effect in a favourable direction NS [↑]

4.4.2 Education pre/post studies

Two pre/post studies examined the influence of education on the symptoms of eczema (Ersser et al. 2013, Mason et al. 2013). Both assessed GP re-consultation for the same problem and symptom resolution, discussed further below.

4.4.2.1 GP re-/consultation

An educational support programme, for parents and carers, on the management of eczema had a statistically significant beneficial effect on the rates of GP consultations for eczema (Mason et al. 2013). Specifically, consultations fell on average by about one visit per child (mean change = -1.06, 95% CI -1.49 to -0.70; $p = 0.002$) during the 12-week study period whilst receiving the programme. Similarly, Ersser et al. (2013) reported a reduction in GP consultations among those who attended an education programme delivered by nurses in community-based group sessions (though these data were not tested statistically).

4.4.2.2 Symptoms

Both studies reported statistically significant beneficial effects of education for parents/carers in the management of children's eczema. Ersser et al. (2013) evaluated an education programme delivered by nurses in community-based group sessions. Results showed that disease severity (assessed using the Patient Orientated Eczema Measure - POEM) decreased post intervention (length of follow-up not reported); median of pre-post difference = 7.0, IQR 0.0 to 13.0, $p < 0.001$). Similarly, Mason et al. (2013) showed that an educational support programme provided for parents and carers (including an educational DVD, online daily diary and telephone helpline) had a beneficial effect on eczema symptoms (measured using the POEM) at 12-week follow-up while receiving the programme. Symptoms reduced on average by 5.38 (95% CI 4.36 to 6.41, $p = 0.001$), which was a 47% reduction from baseline.

Overall then, there is some weak evidence (from two observational studies) to suggest that education may be beneficial in the context of self-care for eczema. However, there is little certainty that education interventions for self-care are effective with few statistically significant results among those studies with the more robust study designs. The lack of consistency in the directions of the effect size estimates across the most robust studies does not permit identification of trends, suggesting that these findings occurred by chance or under the influence of potential moderating influences. The Platts et al. (2005) study indicates that age and gender may be relevant factors though there were insufficient data to permit exploration of these potential moderators among the included studies.

Table 4.4: Summary of findings for educational interventions examined in studies with pre/post designs

Author	Intervention details	Study design (size)	Ailment	Long est Follo w-up	Index consul tation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Ersser et al. (2013)	Nurse-led training (for parents) to help manage children's eczema	pre/post purposive sample (257 (41 patient records analysed))	Eczema	NR for symp toms	NA	GP: 1 effect in a favourable direction statistical significance not tested [↑] Symptoms: 1 effect in a favourable direction + statistically sig [↑+]
Mason et al. (2013)	Nurses-led telephone support (for parents) to manage children's eczema	pre/post purposive sample (136)	Eczema	12 week s	GP	GP: 1 effect in a favourable direction + statistically sig [↑+] Symptoms: 1 effect in a favourable direction + statistically sig [↑+]

4.4.3 Antibiotics prescribing strategy RCTs

Two RCTs examined the effectiveness of delayed antibiotic prescribing strategies; one in the context of conjunctivitis (Everitt et al. 2006; delay of three days) and the other for lower respiratory tract infections (Moore et al. 2009; delay of 10 days). Both included a measure of GP re-consultation for the patients randomised to a condition within the study. Everitt et al. (2006) assessed re-consultation at two weeks following the index consultation, whereas Moore et al. (2009) measured it from one month to one year (and was therefore more likely to capture new episodes relative to the shorter follow-up period). Everitt et al. (2006) additionally included a symptom outcome.

4.4.3.1 GP re-consultation

Beneficial effects were reported. Everitt et al. (2006) showed that re-attendance within two weeks after the index consultation was less in the delayed condition, compared with no antibiotics (odds ratio = 0.3, 95% CI 0.1 to 1.0), and whilst there was also a reduction reported between the immediate antibiotic and no antibiotic control groups, the difference did not reach the threshold for statistical significance (odds ratio = 0.7, 95% CI 0.3 to 1.6). In the immediate group, 99% used their prescription; in the delayed group, 53% used it; and in the no antibiotic group, 30% returned to their GP and used a prescription.

Moore et al. (2009) found that the prescribing strategy had a beneficial effect, but only among those who had been prescribed antibiotics in the previous two years. Specifically, the use of a delayed prescription strategy was associated with a 78% reduction in re-consultation rates (for lower respiratory tract infections) from one month to one year follow-up, compared with an immediate antibiotic strategy (adjusted incident rate ratio = 0.22, 95% CI 0.10 to 0.49, $p < 0.001$). There was also a 34% reduction in consultation rate in the no antibiotic group (compared with immediate) though this finding did not reach statistical significance (adjusted incident rate ratio = 0.66, 95% CI 0.30 to 1.44, $p = 0.295$). They reported that there was an 80% chance that the prescription would not be used in the delayed group.

4.4.3.2 Symptoms

Everitt et al. (2006) reported a modest (non-statistically significant) decrease in symptom severity (measured one to three days after index consultation) for delayed antibiotic prescribing vs no antibiotics (mean difference = -0.1, 95% CI -0.4 to 0.2, $p = 0.4$) and for immediate antibiotic group vs no antibiotics (mean difference = -0.2, 95% CI -0.5 to 0.1 $p = 0.2$, adjusted for patient information leaflet and eye swab).

4.4.4 Antibiotics prescribing strategy non-RCTs

One included non-RCT examined antibiotic prescribing strategies (Williamson et al. 2006). In this study, prescribing antibiotics versus no prescribing was evaluated at first consultation for children with middle ear disease (subcategorised as acute otitis media (AOM) or glue ear). A case-linked cohort analysis spanning a period of ten years (1991 to 2000) showed that prescribing antibiotics increased the risk of re-attendance for AOM (hazard ratio = 1.09, 95% CI 1.07 to 1.10) and reduced the risk of re-attendance for glue ear (hazard ratio = 0.92, 95% CI 0.88 to 0.96) after adjusting for age, sex, multiple deprivation index, ENT (ear, nose and throat) referral, and high prescribing practice. Re-attendance was least in those who were most economically disadvantaged (with index of multiple deprivation scores in the highest tertile) and highest in those with deprivation scores in the lowest -tertile for AOM (hazard ratio = 1.07, 95% CI 1.05 to 1.09) and glue ear (hazard ratio = 1.18, 95% CI 1.13 to 1.24). These findings suggest that the type of middle ear disease and socio-economic status moderate the effectiveness of prescribing strategies on GP-re-attendance.

Overall then, there is some robust evidence to suggest that delayed antibiotic prescribing is effective in reducing GP attendances. Further research is needed to clarify whether effectiveness is moderated by type of ailment and previous prescribing history.

Table 4.5: Summary of findings for antibiotic prescribing strategies examined in RCTs and non-RCTs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Everitt et al. (2006)	Antibiotics prescribing strategies (prescribed, delayed, control)	RCT (250)	Conjunctivitis	2 weeks	GP	GP: 1 effect in a favourable direction + statistically sig [$\uparrow+$] ¹³⁴ ; 1 effect in a favourable direction NS [\uparrow] ¹³⁵ Symptoms: 2 effects in a favourable direction NS [$\uparrow\uparrow$] ^{136, 137}
Moore et al. (2009)	Antibiotics prescribing strategies (prescribed, delayed, control)	RCT (807)	Lower respiratory tract infections	1 month to 1 year	GP	GP: 1 effect in a favourable direction + statistically sig [$\uparrow+$] ¹³⁸ ; 1 effect in a favourable direction NS [\uparrow] ¹³⁹
Williams et al. (2006)	Antibiotics prescribing strategies (prescribed vs delayed)	Non-RCT (322,108 consultations for AOM and 63,808 for glue ear)	Middle ear disease	10 years (1991 to 2000)	GP	GP: 1 effect in a unfavourable direction + statistically sig [$\downarrow+$] ¹⁴⁰
						GP: 1 effect in a favourable direction + statistically sig [$\uparrow+$] ¹⁴¹

4.4.5 NHS walk-in centres non-RCTs

There were no RCTs evaluating this intervention type. Three controlled before-and-after studies examined the effectiveness of NHS walk-in centres (Hsu et al. 2003, Salisbury et al. 2007, Chalder et al. 2003) with intervention periods ranging from six months (Hsu et al. 2003, Salisbury et al. 2007) to one year (Chalder et al. 2003). All three controlled studies compared towns where NHS walk-in services had been implemented, versus control towns that did not have NHS walk-in services. All of the studies looked at consultations for minor ailments in general (rather than targeted ailments) and utilised routine data. Salisbury et al. (2007) additionally assessed self-reported re-consultation data for the same minor ailment, among a random sample of patients. Outcome assessments included GP re-/consultation (regular and out-of-hours); and A&E re-/consultation, discussed further below. There were symptom assessments within this intervention type.

4.4.5.1 GP consultations

There was little evidence of statistically significant beneficial effects. Nonetheless, comparing towns with and without walk-in centres, both Hsu et al. (2003) and Chalder et al. (2003) reported findings in a favourable direction (-0.02 fewer *daily* emergency consultations per 1,000 patients in intervention vs control, 95% CI -0.75 to 0.71, Hsu et al. 2003, and 19.8 fewer *monthly* attendances

¹³⁴ Delayed vs control (no antibiotics)

¹³⁵ Prescribed vs control (no antibiotics)

¹³⁶ Delayed vs control (no antibiotics)

¹³⁷ Prescribed vs control (no antibiotics)

¹³⁸ Delayed vs prescribed (among those prescribed antibiotics in the past two years)

¹³⁹ No antibiotic vs prescribed (among those prescribed antibiotics in the past two years)

¹⁴⁰ Glue ear sample

¹⁴¹ Acute otitis media (AOM) sample

per 1,000 in intervention vs control, 95% CI -53.3 to 13.8, Chalder et al. 2003). By contrast, however, Salisbury et al. (2007) reported unfavourable (albeit not statistically significant) effects with self-reported re-consultations (about the same problem four weeks after initial consultation) higher among participants in the intervention (86, 60.5%) than in the control (96, 56.3%; $p = 0.72$).

4.4.5.2 GP out-of-hours consultations

There were no statistically significant effects. Both Hsu et al. (2003) and Chalder et al. (2003) reported an unfavourable direction of effect, with those in the intervention consulting more than the control group (in comparison with intervention sites, control practices had 0.07 fewer *daily* out-of-hours consultations per 1,000 patients, 95% CI -0.06 to 0.19, Hsu et al. 2003, and 0.38 fewer *monthly* attendances per 1,000 patients, 95% CI -0.26 to 1.02, Chalder et al. 2003).

4.4.5.3 A&E attendances

There was little evidence of beneficial effects. In one study, there was a statistically significant increase of 10% in attendance rates at A&E in towns where NHS walk-in centres had been introduced, compared with control towns (Hsu et al. 2003; adjusted rate ratio 1.10, 95% CI 1.00 to 1.21). This unfavourable effect was replicated in the study by Salisbury et al. (2007) for consultation of any ailment (difference in change per month between intervention and control groups = 542, 95% CI -347 to 1,431, $p = 0.23$) and re-consultation (about the same problem) among a sample that had consulted at intervention ($n = 26$, 15.9%) and control ($n = 22$, 13.1%) sites ($p=0.53$). By contrast, in the study by Chalder et al. 2003, favourable albeit non statistically significant effects were reported (difference in change per month between groups = -175 per 1,000 patients, 95% CI -387 to 36, $p=0.11$, Chalder et al. 2003).

4.4.6 NHS walk-in centres pre/post studies

Only one pre/post study (Arain et al. 2014) was located. In this study, there was a statistically significant reduction in adult daytime GP-type attendances at A&E, one year after opening of the GP-led walk-in centre (8.3%, 95% CI 1% to 16%, $p=0.03$), compared with one year before. However, estimated effects for children's A&E attendances, whilst in the same favourable direction (14.9% reduction) did not obtain statistical significance (95% CI -37.8% to 7.9%, $p = 0.19$).

Overall, then, there is little certainty that NHS walk-in centres reduce health service utilisation among the most robust study designs. The lack of consistency in directions of effect size estimates across the most robust studies does not permit identification of trends suggesting that these findings occurred by chance or under potential moderating influences. There was no evidence to determine the impact of walk-in centres on symptom resolution.

Table 4.6: Summary of findings for NHS walk-in centre evaluations examined in controlled study designs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Chalder et al. (2003)	Nurse-led service for MA	Non-RCT (20 EDs, 40 GPs and 14 out-of-hours services)	General	1 year	NA	GP: 1 effect in a favourable direction NS [↑] Out-of-hours GP: 1 effect in an unfavourable direction NS [↓] A&E: 1 effect in a favourable direction NS [↑]

Hsu et al. (2003)	Nurse-led service for MA	Non-RCT (8,369)	General	6 months	NA	GP:1 effect in a favourable direction NS [↑] Out-of-hours GP visits: 1 effect in an unfavourable direction [↓] A&E: 1 effect in an unfavourable direction and statistically sig [↓+]
Salisbury et al. (2007)	Nurse-led service for MA	Non-RCT (6,400)	General	4 weeks (GP); 6 months (A&E)	Walk-in centre or ED	GP:1 effect in an unfavourable direction NS [↓] A&E: 2 effects in an unfavourable direction NS [↓↓]

Table 4.7: Summary of findings for NHS walk-in centre evaluations examined in pre/post study designs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Ara in et al. (2014)	Nurse-led service for MA	pre/post Observational (historical baseline) N=529	General	1 year	NA	A&E:1 effect in a favourable direction + statistically sig [↑+] ¹⁴² ; 1 effect in a favourable direction NS [↑] ¹⁴³

4.4.7 Telephone triage non-RCTs

There were no RCTs within this intervention type. Three (non-randomised) controlled studies (Turner et al. 2013, Chapman et al. 2002, Richards et al. 2002) were located that evaluated NHS 111 (Turner et al. 2013), its predecessor NHS Direct (Chapman et al. 2002) and bespoke GP practice-based telephone triage (Richards et al. 2002). With the exception of Chapman et al. (2002), who focused on respiratory consultations, the studies looked at minor ailments in general. Follow-up was one month for Richards et al. (2002), and one year for Turner et al. (2013) and Chapman et al. (2002). It was assumed that Richards et al. (2002) focused on re-consultation, given the short follow-up period, whereas the other two studies examined consultation rates more generally.

4.4.7.1 GP consultations

There were no beneficial effects reported for GP re-/consultations. Chapman et al. (2002) reported no beneficial effects on the rates of respiratory GP consultations in England and Wales, across groups with different levels of NHS Direct coverage (statistics and effect sizes not reported). Richards et al. (2002) reported unfavourable effects showing that participants in the nurse-led triage system returned for more practice-based care, compared with those in routine GP treatment (mean difference = 0.32, 95% CI 0.22 to 0.41, p=0.001).

4.4.7.2 GP out-of-hours consultations

Turner et al. (2013) reported unfavourable effects with 2.5% extra attendances (for any ailment) per month among NHS 111 pilot sites, compared with control sites (95% CI -3.5 to 8.5, NS) for a composite measure (that comprised attendances at GP out-of-hours, minor injury units, and walk-in

¹⁴² Adults

¹⁴³ Children

and urgent care centres). Similarly, Richards et al. (2002) reported that participants in a nurse-led triage system used out-of-hours practice care more often than those in routine GP care (mean difference = 0.04, 95% CI 0.01 to 0.07, p=0.005) one month after the index consultation.

4.4.7.3 A&E attendances

Turner et al. (2013) reported a modest favourable effect showing that implementation of NHS 111 led to -0.1% fewer A&E attendances per month in NHS 111 pilot sites, compared with control sites (95% CI -3.8 to 3.7), though this result did not obtain statistical significance. By contrast, Richards et al. (2002) reported that participants assigned to a nurse-led practice-based telephone triage system used more emergency care one month after the index consultation, compared with those receiving routine GP care (mean difference: 0.023, 95% CI 0.015 to 0.032, p<0.001).

Table 4.8: Telephone triage evaluations examined in controlled study designs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Chapman et al. 2002	NHS Direct - nurse led	Non-RCT (population statistics)	Respiratory illness	1 year	NA	GP: 1 effect in a favourable direction [\uparrow] ¹⁴⁴ ; 1 effect no difference in effect size estimate [\rightarrow] ¹⁴⁵
Richards et al. (2002)	Bespoke nurse led telephone triage	Non-RCT (4,685)	General	1 month	Nurse or GP	GP: 1 effect in an unfavourable direction + statistically sig [\downarrow +] Out-of-hours GP visits: 1 effect in an unfavourable direction + statistically sig [\downarrow +] A&E: 1 effect in an unfavourable direction + statistically sig [\downarrow +]
Turner et al. (2013)	NHS 111 trained non-clinical call handlers	Non-RCT (277,163 calls)	General	1 year	NA	Out-of-hours visits: 1 effect in an unfavourable direction NS [\downarrow] ¹⁴⁶ A&E: 1 effect in a favourable direction [\uparrow]

Table 4.9: Telephone triage evaluations examined in pre/post study designs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Munro et al. (2005)	NHS Direct	pre/post Observational (historical baseline) (104 GP co-ops, 75 ambulance, 170 EDs, 60,123,065 patient contacts)	General	3 years	NA	Out-of-hours GP visits: 1 effect in a favourable direction statistically sig [\uparrow +] A&E: 1 effect in an unfavourable direction [\downarrow]

¹⁴⁴ Part cover

¹⁴⁵ Full cover (direction not reported)

¹⁴⁶ GP out-of-hours, minor injuries unit, walk-in centre and urgent care centre

4.4.8 Telephone triage pre/post studies

One non-controlled study (Munro et al. 2005) was located that explored trends over a period of three years following implementation of successive waves of NHS Direct. Following the implementation of NHS Direct in England and Wales, results showed a statistically significant reduction in calls to out-of-hours general practice (% change -8.7, 95% CI -10.0 to -7.5), but a negligible unfavourable change in trend for demand at emergency departments (% change 0.60, 95% CI 0.06 to 1.1).

Overall then, there is little robust evidence for the effectiveness of telephone triage on health service utilisation. The lack of consistency in directions of effect size estimates across the most robust studies does not permit identification of trends suggesting that these findings occurred by chance or under potential moderating influences. There was no evidence to determine the impact of walk-in centres on symptom resolution.

4.4.9 Practice nurse RCT

Only one RCT (Shum et al. 2000) assessed the impact of a minor illness service led by practice nurses (within a general practice context). Patients were randomly assigned to treatment by either a specially trained nurse or a GP and outcomes were measured two weeks after the index consultation. There were no statistically significant differences between the groups on any of the health service utilisation outcomes. GP re-consultations (for the same problem) were in an unfavourable direction with more consultations/calls in the nurse group (20.4%/0.9%) versus the GP group (18.2%/1.8%; $p=0.340$ and 0.218 for re/consultations and calls). Nonetheless, there were fewer GP out-of-hours calls among the nurse (0.9%) versus the GP group (1.8%, NS) and A&E attendances were marginally higher in the nurse group versus the GP group (2.1% vs 2%, $p>0.999$). For symptoms a statistically insignificant odds ratio of 1.2 (95% confidence interval 0.8 to 1.8) was reported, though the direction of this effect was unclear.

4.4.10 Practice nurse non-RCT

Two non-randomised controlled studies were included (Butler et al. 2001, Cox and Jones 2000). Butler et al. (2001) was focused on people with upper respiratory tract infections, whereas Cox and Jones (2000) targeted the management of sore throats. Both assessed re-consultation at general practice though it was unclear whether re-consultation was with a nurse and/or GP. Cox and Jones (2000) additionally assessed symptoms, discussed below.

4.4.10.1 GP re-consultations

Unfavourable effects were reported. Butler et al. (2001) reported that in the two weeks following the index consultation, 16.9% of those seeing the nurse and 10.0% of those seeing the GP consulted again for the same problem (upper respiratory tract infection), though this finding was not statistically significant ($p=0.91$). Similarly, Cox and Jones (2000) reported that 3% in the GP group vs 5% in the nurse group re-consulted within five to seven days (rate difference = -0.021 , 95% CI -0.069 to 0.019, $p=0.288$).

4.4.10.2 Symptoms

Cox and Jones (2000) reported that patients consulting with the practice nurse stated that their sore throat settled more quickly than those consulting with the GP (median number of days = 4 for nurse and 5 for GP, $p=0.016$).

Overall then, there is little robust evidence for the effectiveness of practice-based nursing on health service utilisation or symptoms with the majority of effect size estimates being in an unfavourable direction.

Table 4.10: Practice nurse evaluations examined in controlled study designs

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Butler et al. (2001)	Nurse led service for MA	Non-RCT (366 (343 analysed))	Upper respiratory tract infection	2 weeks	Nurse or GP	GP: 1 effect in an unfavourable direction NS [↓]
Cox and Jones (2000)	Nurse led service for MA	Non-RCT (435 enrolled (392 at follow-up))	Sore throat	28 days (symptoms); 5-7 days (GP)	Nurse or GP	GP: 1 effect in an unfavourable direction NS [↓] Symptoms: 1 effect in a favourable direction statistically sig [↑+]
Shum et al. (2000)	Nurse led service for MA	RCT (1,815)	General	2 weeks	Nurse or GP	GP: 1 effect in an unfavourable direction [↓] Out-of-hours GP: 1 effect in a favourable direction [↑] A&E: 1 effect in an unfavourable direction NS [↓] Symptoms: 1 effect direction unclear

4.4.11 Advanced paramedic roles

Only one (cluster) RCT (Mason 2007) examined the impact of advanced paramedic roles. In this study, paramedics trained to assess and treat older people in the community after a minor injury or illness, such as wounds and falls, were compared with the routine paramedic service. Beneficial effects were reported with fewer attendances at A&E in the intervention versus the control groups (relative risk = 0.72, 95% CI 0.68 to 0.75). This finding suggests that advanced roles for paramedics can be effective, for older patients with minor injury or illness, compared with the usual transfer by ambulance for treatment in the emergency department.

Table 4.11 Advanced paramedic roles examined in controlled study design

Author	Intervention details	Study design (size)	Ailment	Longest Follow-up	Index consultation	Total number of effect sizes, across studies, in each direction by outcome type [GP, out-of-hours GP, A&E and symptoms]
Mason (2007)	Advanced paramedic roles	Cluster RCT (3,018)	General	12 weeks	NA	A&E: 1 effect in a favourable direction + statistically sig [↑+]

4.4.12 Cost or cost-effectiveness of interventions to improve self-care for minor ailments

Three studies provided cost or cost-effectiveness data (Mason et al. 2013, Richards et al. 2002, Salisbury et al. 2007). Across all three studies, no statistically significant effects were reported. Two studies employed a non-RCT design (Richards et al. 2002, Salisbury et al. 2007) whereas one was a pre/post study (Mason et al. 2013).

Richards et al. (2002) found no statistically significant difference in costs for nurse telephone triage of requests for same-day appointments (4,685 patients). Costs were assessed for 12 weeks spread over 18 months, in York; the year was not reported. GP savings were balanced by increased nurse, out-of-hours and A&E costs.

Salisbury et al. (2007) found no difference in the costs of care by NHS walk-in centres across the UK, compared with A&E. For January to March 2005, compared with January to March 2004, the cost per patient increased by £6.22 at eight intervention sites, and £8.28 at eight control sites - showing no difference in the change in NHS cost per patient, based on 6,400 patient records.

In a pre/post study that assessed education and support for childhood eczema, Mason et al. (2013) found that over 12 weeks, their education and support programme for childhood eczema was cost neutral for the NHS, at 2011 prices. GP visits fell, but emollient use increased (increasing costs a little). This was based on 136 children in the UK.

4.5 Summary

Overall then, there is some evidence to suggest that antibiotic prescribing strategies and advanced paramedic roles are beneficial in reducing GP re-consultations and A&E attendances, respectively. There is little evidence of beneficial effects on health service utilisation and symptom reduction for the other intervention types (education, telephone triage, practice nursing, and walk-in centres).

5. Review 4: Overarching synthesis - How can we best promote behaviour change for self-care of minor ailments?

The aim of the overarching synthesis is to draw together the findings from the reviews in the previous chapters. From each review, the findings were cross referenced using the TDF as an organisational framework. Fifty-eight studies were synthesised: 20 interview studies, 13 surveys and 26 evaluations¹⁴⁷. Study and demographic information, and references, are reported in the previous reviews 1 to 3.

5.1 Summary of the findings

Seven TDF domains were identified as relevant: Knowledge/skills; Memory, attention and decision-making; Emotions; Reinforcement; Beliefs about consequences; Social influences and Environmental context and resources.

The following themes and sub-themes within these TDF domains were identified as most important based on concordance across both the views and surveys, where at least a quarter of survey participants identified the theme as important for one or more of the help-seeking behaviours [including traditional GP and A&E care, and self-care such as community pharmacy, NHS walk-in centres, urgent care, telephone help lines (e.g. NHS Direct), and specialist nurse practitioners roles]. Themes were also included where a quarter or more of survey participants rated them as influential, although they did not emerge in the interview studies (italicised in Table 5.1 below).

Table 5.1: Summary of most important themes identified in the interviews and surveys

Overarching theme	Sub-themes
Knowledge/skills	
Lack of knowledge ¹⁴⁸	Management of symptoms/ Gauging symptom severity, Self-care resources
Memory, attention and decision-making	
<i>Decision-making</i>	<i>Made decision alone, Did not consider alternatives</i>
Emotions	
Anxiety	Perceived health threat/negative health consequences
Reinforcement	
Past experience/behaviour	Previous treatment/consultations
Beliefs about consequences	
Severity of symptoms	Persistence, impact on day to day life, painful, unfamiliar, unspecified ¹⁴⁹
Susceptibility to symptoms	Children seen as vulnerable
Social influences	
Social support	Informal advice from friends, family or acquaintances as first port of call
Environmental context and resources	
Access	Geographical immediacy of service, Time taken to access care, Opening hours.

¹⁴⁷ One study McNulty et al. (2013) was included in both the interview and the survey synthesis.

¹⁴⁸ Knowledge of symptom management was included, despite not being assessed in the surveys and the lack of evidence for educational interventions (Chapter 0), as we suspect that knowledge/skill in symptom management and service provision is a necessary first step, but in order to be effective, it must be supplemented with the other influences shown to be relevant.

¹⁴⁹ Facets not specified in surveys and in some qualitative interview studies.

Environment	Lack of privacy for consultation, Cost of over the counter medicines ¹⁵⁰ , Expected or actual referral
Limited roles	Capacity to prescribe, Capacity to physically examine, <i>Continuity of care</i>
Miscellaneous	
Other	<i>Best place, Failed self-care, Prefer to see doctor</i> , Expected advice only

The remaining subthemes were either identified in the interview studies alone (Table 5.2), had fewer than a quarter of survey participants identify them as relevant, or they were already sufficiently active in supporting self-care (Table 5.3). This is not to say that models of self-care should necessarily overlook these themes. For example, they may not have been salient for researchers developing the surveys or easily measurable. What's more, small effect sizes may be of practical importance to self-care if they explain variation in self-care behaviours over and above the other factors. Without modelling studies that compare the relative importance of themes it is difficult to establish which of them are most important.

Table 5.2: Themes Identified in interview studies (review 1) only

Theme	Sub-theme
Beliefs about consequences	
Susceptibility	Previous related illness, previous family illness and conditions
Social influences	
Social norms	Parental responsibility to do the right thing, appropriate help seeking
Environmental context and resources	
Access	Repetitive and extensive questioning, information overload
Conflicts of interest	Pharmaceutical companies, websites with advertising
Limited roles	(In)access to medical records, qualifications and experience

Table 5.3: Themes with fewer than a quarter of survey participants identifying them as influential in decision-making, and/or already sufficiently active in supporting self-care

Theme	Sub-theme
Beliefs about consequences	
Susceptibility	Presence of a long term condition, contagion
Environmental context and resources	
Access	GP not available/ could not contact, Not registered with GP, Better facilities/services
Limited professional roles	Expected or actual referral, provision of medical certificate
Miscellaneous	
Other	Second opinion, Did not want to bother GP, Did not want to see GP, Wanted to see nurse, Confident in service/self-care

Of the interventions, beneficial effects were identified for antibiotic prescribing strategies and advanced paramedic roles. It is assumed that the antibiotic prescribing strategies worked to weaken the association between minor symptoms and the need for GP treatment and was therefore mapped onto the reinforcement TDF domain. This finding corresponds to the findings in reviews 1 and 2 that illustrated how previous prescriptions and treatment can reinforce help-seeking from traditional health care sources, such as the GP or A&E, in addition to self-care. The advanced paramedic roles intervention was mapped onto the environmental context and resources domains

¹⁵⁰ We included cost as, although less than a quarter of participants cited it as influential in their decision to seek traditional GP/A&E care, the qualitative review indicated that its effects on self-care may be moderated by socio-economic status.

(since it is a service), however, there were no relevant findings from reviews 1 and 2 that related to it.

5.2 Overarching synthesis findings: behavioural analysis by TDF domain

5.2.1 Knowledge/skill

Knowledge was identified in all three reviews, though the findings were mixed across reviews. Whilst the interview data implied that both symptom management and service knowledge are important prerequisites to self-care, there were few survey or evaluation data to support these findings. Symptom management was not measured in the survey data and the weighted percentage of participants reporting no knowledge of alternative health care resources and GP availability was fairly low (19% and 13% of A&E attendees) especially since underreporting is likely, given the strong social norm to use health care services appropriately. All of the included robust evaluations, by contrast, targeted symptom management, with only two interventions that additionally targeted service knowledge. Of these, across outcomes, 15 effect size estimates were in a beneficial direction (two were statistically significant), no difference was evident for two and the remaining 15 were in an unfavourable direction (though none of these obtained statistical significance). These mixed findings suggest that they occurred by chance or that moderators were influencing the effectiveness of the interventions.

These findings coincide with those in the field of behaviour change more generally, which show how knowledge alone is usually insufficient to change behaviour especially when other barriers to behaviour change are operating (Abraham et al. 2016), as is the case for self-care (as indicated by the relevance of the other TDF domains). Thus, it seems likely that whilst knowledge of symptom management is a necessary first step to the promotion of self-care, effective interventions will need to address the multitude of influences that underpin the decision to self-care. Insufficient data did not permit exploration of whether the moderators identified in review 1 (including number of children, age of children and socio-economic status) were associated with the direction of the effects.

It's interesting to note, however, that of the 11 included RCTs' on educational interventions (Review 3, Chapter 0), seven were delivered during consultation with a GP or nurse, two via post, one over the internet and one combined postal delivery and a home visit from a specialist nurse. Two were explicitly tailored, three included an opportunity for discussion (which may or may not have involved tailoring), whereas the rest did not involve tailoring. It's noteworthy that few of the existing educational interventions met the preferred format criteria identified in the review of interview studies that emphasised a need for a range of formats including face-to-face education with peers, health visitors, schools/nurseries, and other formats, such as media, mobile phones and the internet. Whilst most of the included interventions were delivered face-to-face, none encompassed media or community-based elements, such as peer-group interaction. Notably, with the exception of Yardley et al. (2010), who reported triage practice, none of the studies reported the inclusion of skills training, which highlights a fairly didactic approach to education. There was no association between these delivery characteristics and the direction of the effects.

5.2.2 Memory, attention and decision-making

This domain was located in the survey studies only (five studies). Results showed that a weighted mean of 44% made the decision to attend A&E alone. Similarly, data from a single (non-pooled) survey reported that 39% of those attending the GP and 14% of those attending A&E did not consider alternatives. Fewer attendees at the urgent care centre/walk-in centre did not consider alternatives (WM 6%). These findings indicate that attending GP and A&E services is more of an automatic decision, than for other services, particularly urgent care or walk-in centres.

5.2.3 Emotions

Anxiety or worry associated with the fear of negative health consequences was identified as an important factor in both the interview and survey reviews. It emerged as important in nine of the 20 interview studies, and almost two thirds of participants in the surveys reported it as a reason for attending A&E (WM 65%). Pooled data were not available for other services though data from single studies showed that this finding was replicated for GP (61%) and urgent care centre/walk-in centre (56%) attenders. These interview and survey data combined, therefore, provide compelling evidence for the importance of helping service-users to manage their anxiety in the decision to self-care. It is perhaps surprising, then, that no evaluations were located that directly targeted service-user anxiety.

5.2.4 Reinforcement

Previous treatment was measured in all three reviews. In the qualitative review, it was suggested that previous prescriptions can reinforce the need for a consultation with a GP, and that those who had attended A&E in the past were more likely to attend again, especially for back pain. Additionally, it was shown that previous experiences of inappropriate care seeking was reported to have led patients to better understand when support from health professionals is necessary and therefore influenced the decision to self-care. Data from the surveys indicated that past experience of the service or treatment was important to A&E attenders (WM 63%; contributing studies varied 38%, 85%, 16%), and fairly important to pharmacy attenders (SS 38%); the ailment that they attended with was not reported. Re-attendance was less commonly reported for GP (WM 26%) and urgent care centre/walk-in centre (WM 21%) and was highest at 74% among self-carers (treatment unspecified).

Consistent with the qualitative review, the included evaluations examined GP antibiotic prescribing strategies and showed effect size estimates mostly in a beneficial direction with 3/5 that obtained statistical significance for GP re-consultations. Only one effect size estimate was in an unfavourable direction for the same outcome. Specifically, one RCT (Everitt et al. 2006) reported that a delayed prescribing strategy led to fewer GP re-attendances than those in an immediate antibiotic group (odds ratio = 0.3, 95% CI 0.1 to 1.0) at two-week follow-up, whereas another RCT (Moore et al. 2009) observed the same effect, but only among those who had been prescribed antibiotics in the past (adjusted IRR = 0.22, 95% CI 0.10 to 0.49, $p < 0.001$ at one-year follow-up). In a controlled non-RCT, Williamson et al. (2006) showed that prescribing antibiotics (vs no prescription) reduced GP re-attendance for glue ear (HR = 0.92; 95% CI 0.88 to 0.96), but increased re-attendance for acute otitis media (hazard ratio = 1.09, 95% CI 1.07 to 1.10). In the same study, there was some evidence to suggest that re-attendance was moderated by economic status, with those most disadvantaged being least likely to re-attend. Collectively then, these findings provide good evidence for the impact of past behaviour on inappropriate care seeking and for the efficacy of delayed antibiotic prescribing in reducing inappropriate GP consultations. The evidence also suggests the existence of moderators, including having received antibiotics in the past, minor ailment and economic status. There were no interventions that targeted reinforcement within an A&E setting, thus the extent to which behavioural reinforcement strategies can be utilised in other healthcare settings remains to be clarified.

5.2.5 Beliefs about consequences

In the interview studies, severity was identified as a barrier to self-care, which was supported by the survey data showing that seriousness, threat or reassurance was selected by 27% of A&E attenders and 40% of GP attenders, as a reason for attending. The importance of severity coincides with the findings in the knowledge/skill domain (above) that highlighted the relevance of education and skills training in the area of symptom severity/management.

In terms of susceptibility, whilst measured and discussed (less frequently than severity), the facets identified most commonly in the qualitative literature were those assessed in the (single) surveys as a reason for attending the GP, with 48% of attenders recording children seen as vulnerable and 11% citing the presence of a long-term condition. These findings across reviews indicate, therefore, that children being perceived as vulnerable is the dominant facet of susceptibility. However, given the

lack of robust survey data and the absence of evaluation data, these findings must be interpreted with caution.

5.2.6 Social influences

Informal social support (from friends, family and acquaintances) was identified as relevant in both the interview and survey reviews, yet no evaluation studies were located. The data from the interview review were mixed, showing that whilst social support can provide a useful alternative to traditional GP/A&E care, it can also legitimise inappropriate GP attendances. Data from the surveys supported the latter finding in showing that among GP attendees, a weighted mean of 36% reported being advised to attend informally e.g. by friends. Notably, fewer people reported attending A&E (WM 24%), urgent care centre/walk-in centre (WM 10%) and the pharmacy (SS 2%) for this reason. The number of those who sought social support, and therefore did not consult health care services, was not captured in these survey data. Future research is therefore needed to untangle the potentially important role of informal support on self-care for minor ailments, especially given the common occurrence of this theme in the interview review (12 studies) and the mixed findings that emerged from these studies. For example, the skill, knowledge and experience of the person providing support may modify the extent to which the advice is helpful for the promotion of self-care.

Across both interview and survey reviews it was reported that people were generally aware of the social norm to use healthcare services appropriately. For example, in single surveys, 70% of participants who self-cared (treatment unspecified) and 31% of those who visited the pharmacy reported that they did not want to bother their GP. This coincides with the data from the interview studies, showing that the social norm to use healthcare services appropriately is generally strongly supported. However, parental responsibility to do the right thing, especially when a health threat is perceived, was shown to conflict with the norm of using health services appropriately. This overlaps with the child as vulnerable construct (in the beliefs about consequences domain) and thereby emphasises that parents are potentially a unique target group who may particularly benefit from tailored interventions.

5.2.7 Environmental context and resources

Issues surrounding access to healthcare services were cited as relevant in both the interview and survey reviews and, of these, three facets were identified in both the interview and survey studies, including geographical proximity to the service, time taken to access care and convenient opening hours. Geographical proximity was discussed generally in the interview review (one study) without reference to particular services. By contrast, the results from the surveys showed that access was most commonly reported as a reason for pharmacy attendance (WM 83%) and general self-care (SS 59%), with it being a less common reason for attendance at A&E (WM 16%), GP (WM 32%) and urgent care centre/walk-in centre (WM 29%). A similar pattern of results was reported for time taken to access care with it being cited more commonly as a reason for attending the pharmacy (WM 59%) or self-caring generally (SS 63%) and less commonly as a reason for attendance at A&E (WM 16%), GP (WM 16%) and urgent care centre/walk-in centre (WM 26%). Convenient opening hours were cited more commonly for urgent care centre/walk-in centre (WM 33) than for A&E (WM 15%) and GP (SS 12%). These survey results indicate that pharmacy, urgent care centre/walk-in centre and self-care are viewed as comparatively easier to access than both GP and A&E services, which is consistent with the aim of encouraging self-management of minor ailments. Nonetheless, most of the interview studies that examined access issues, sampled parents/carers views, suggesting that access may be more important to carers than for other demographic groups. This coincides with the belief that children are more vulnerable and therefore susceptible to health threats (above).

The findings from the interview studies suggested that access to telephone triage services, such as NHS Direct and GP out-of-hours care was slow and, in one study, this led people to bypass NHS Direct in order to receive faster care at A&E. Repetitive and extensive questioning was also identified a barrier to telephone triage in the interview studies. The findings from three evaluation studies, reporting effect sizes mostly in an unfavourable direction or no differences between intervention and control (5/7), support these qualitative findings, showing little evidence of

beneficial effects for telephone triage services (including NHS Direct, NHS 111 and a bespoke service).

Information overload was identified as a barrier to accessing information on the worldwide web in the interview studies. However, there were no survey data in this area, suggesting an important gap in the literature. One included pilot study evaluated an online website providing tailored advice on self-management of minor respiratory symptoms (Yardley et al. 2010, see knowledge and skills section, above). Whilst the findings showed that participants randomised to the online intervention consulted their doctor or other health care services less than those in the control group (11 vs 21 participants), perhaps due to the small sample size, this difference did not reach statistical significance ($p = .22$).

Three access issues were identified in the survey data, but not in the other reviews, including the availability of the GP, problems with GP registration and better facilities/services. GP unavailability was cited as a reason for attending A&E (WM 16%) and urgent care centre/walk-in centre (SS 18%). Fewer people reported attending A&E (WM 4%) and urgent care centre/walk-in centre (WM 5%) because they were not registered with a GP, though this finding may be underestimated as vulnerable groups, known to have problems with registration (such as the homeless), were not represented in these data. Better facilities/services was rarely cited as a reason for attending A&E (SS 4%); GP (SS 7%) and urgent care centre/walk-in centre (SS 5%).

The combined results across studies therefore indicate that access is generally not a barrier to community pharmacy, walk-in centre and other unspecified self-care, and is therefore sufficiently active in supporting self-care. However, evidence from the interview studies suggests that access may be an issue for telephone triage services, such as NHS Direct/111 and the internet.

The cost of over-the-counter medicines was identified as a barrier to self-care in three interview studies and as a reason for attending the GP (WM 19%), A&E (SS 1%), or pharmacy (SS 15%), and for self-caring (SS 49%) in the surveys. In the qualitative review, the cost of over-the-counter medication was a barrier among those patients who were eligible for free prescriptions. These findings indicate that cost may be an issue for some groups, such as those exempt from prescription charges in areas where there are no pharmacy based NHS prescription services, but less so for others, especially as non-prescription drugs may in many cases be cheaper than those provided on prescription. Lack of privacy was identified as a barrier to accessing community pharmacy in three interview studies and was cited as a reason for attending A&E (14%), GP (40%) and pharmacy (22%) in a single survey. There were no interventions located that targeted cost or privacy issues.

Conflicts of interest were identified in the interview data with respect to pharmaceutical companies, and websites with advertising, but were not investigated in the survey data, suggesting a research gap in the literature. One interview study implied that this might be more problematic for older people, who are more conditioned to traditional styles of healthcare.

The perceived need for a prescription, and referral to GP care (from services, such as community pharmacy or telephone triage), were seen as barriers to self-care in both the interview and survey studies. For example, a weighted mean of 69% of participants reported needing a prescription as the reason for attending the GP, and six interview studies reported the same problem. Needing a medical certificate was also identified as a reason for visiting the GP among the small number (6%) of attendees in a (single) survey.

Data from the qualitative review showed that whilst some people saw referral to the GP as a barrier to self-care, others thought that it legitimised seeing a doctor. In the context of GP care, the expectation of referral was not assessed in the surveys though a single study reported that 2% of participants had been referred to the GP by another (unspecified) service. Among A&E attendees, pooled survey data showed that 25% expected referral by their GP, or 26% were referred by their GP, and 7% expected hospital admission.

(In)Access to medical records was identified as a barrier to community pharmacy in three interview studies, but perhaps surprisingly, was not measured in the surveys, highlighting another gap in the literature. Nonetheless, continuity of care, which may have encompassed access to medical records (though this could not be verified), was cited as a reason among 44% (WM) of GP attendees. By

comparison, single-study data showed that 52% attended urgent care centre/walk-in centre and only 9% attended the pharmacy for the same reason. Thus, continuity of care seems to be an important determinant among GP and urgent care centre/walk-in centre attenders, but not for those who attended the pharmacy.

Data from the qualitative review indicates that people have a strong preference for being seen and physically examined and therefore prefer to see a GP. Similarly, in the survey data, a perceived need for a physical examination or test was identified commonly as a reason for attending A&E, with X-rays being the most frequently cited reason (WM 39%) followed by stitches, (WM 7%), injection (WM 4%) and blood test (WM 3%). Whilst these findings are consistent with the qualitative review, they are not directly comparable due to the different foci of the interview (GP attendances) and survey (A&E attendances) research. Surprisingly then, there was little evidence of beneficial effects among self-care services that involved physical examination and assessment (with 6/9 effect sizes in an unfavourable direction for NHS walk-in centres and 5/7 in an unfavourable direction for practice-based nursing).

5.2.8 Miscellaneous

Many participants reported that failed self-care was a reason for attending GP (WM 71%), A&E (WM 31%) and urgent care centre/walk-in centre (SS 39%); and although the particular features of failed self-care were not reported, it seems likely that severity or unmanageability were factors. Relatedly, the qualitative review found a general preference for GP care when the illness was perceived as serious (14/20 studies). However, a single survey reported that only 34% of participants reported attending the GP as they wanted to see a doctor (not a nurse), and 20% agreed that it was the best place for their problem. By comparison, 61% (WM) of participants attending A&E reported that it was the best place for their problem, whereas only 10% (WM) attending urgent care centre/walk-in centre reported the same. Interestingly, nearly half of the self-carers in a single study did not want to see a doctor, perhaps because they knew how to effectively manage their symptoms. However, only 22% (WM) of participants were confident in A&E and even fewer were confident in urgent care centre/walk-in centre (WM 8%) suggesting low confidence in health services more generally or perhaps that confidence was not seen as the reason for attendance.

Advanced paramedic roles were not discussed in the interview or survey literature. However, one (cluster) RCT (Mason 2007) examined the effectiveness of paramedics trained to assess and treat older people in the community after a minor injury or illness. Beneficial effects were reported with fewer attendances at the emergency department in the intervention versus the control (relative risk 0.72, 95% CI 0.68 to 0.75). This finding suggests that advanced roles for paramedics can be effective, especially for older patients with minor injury or illness, compared with the usual transfer by ambulance for treatment in A&E.

Table 5.4 summarises these findings organised by TDF domain.

Table 5.4: Summary of the overarching synthesis

		Interview Review 1	Surveys Review 2		Evaluations Review 3	
High order theme	Barriers/facilitators	(n of studies) ¹⁵¹	Weighted % mean	% from single studies	Intervention focus (n of studies) ¹⁵²	Total number of effect sizes (across studies) by direction ¹⁵³ and type of outcome
Knowledge/skill						
Lack of knowledge/skill	Management of symptoms	✓ (8)	✗	✗	Education/knowledge	GP: ↑+ (2) ↑ (10) ↓ (12) ↓+(1) → (1) Out of hours GP: ↑ (2) → (1) Symptoms: ↑ (1) ↓ (2)
	Self-care resources	✓ (5)	Reason for attending A&E: Lack of knowledge of alternative resources (19%); did not know if GP available (13%)	Reason for attending A&E: Knew about NHS Direct (53%); urgent care centre (7%); walk-in centres (39%) and GP co-operative (6%). attending GP: Did not know that pharmacist could give advice (20%). self-caring: Confidence in over the counter medications (39%)		
Memory, attention and decision-making						
Decision-making	Made decision alone	✗	Reason for attending: A&E (44%)	✗	✗	✗
	Did not consider	✗	Reason for	Reason for attending:	✗	✗

¹⁵¹ ✓ = relevant findings present; ✗ = no relevant findings

¹⁵² note that only data from controlled studies are synthesised as the 4 non controlled studies did not cover any new intervention types

¹⁵³ → = no difference in effect size estimate; ↑+ = statistically significant favourable effect; ↑ = favourable effect that did not obtain statistical significance; ↓+ statistically significant effect but the direction was not favourable; ↓ the direction was neither favourable nor statistically significant

	alternatives		attending: Urgent care centre/ walk-in centre (6%)	A&E (14%); GP (39%)		
Emotions						
Negative emotions	Anxiety/worry	✓ (9)	Reason for attending: A&E (65%)	Reason for attending: GP (61%); Urgent care centre/ walk-in centre (56%)	*	*
Reinforcement						
Past experience/behaviour	Previous treatment/consultations	✓ (10)	Reason for attending: GP (26%); A&E (63%); Urgent care centre/ walk-in centre (21%)	Reason for: visiting Pharmacy (38%); self-caring (74%)	Antibiotic prescribing strategies	GP: ↑+ (3) ↑ (2) ↓+ (1) Symptoms: ↑ (2)
Beliefs about consequences						
Severity of symptoms	Persistence	✓ (8)	Reason for attending: GP (40%); A&E (27%) (facet unspecified)	Reason for attending: Urgent care centre/ walk-in (44%) (facet unspecified)	*	*
	Impact on day to day life	✓ (7)				
	Pain/severity/uncertainty	✓ (3)				
	Unfamiliar	✓ (4)				
	Unspecified	✓ (2)	*	*		
Susceptibility to symptoms	Presence of long term condition	✓ (3)	*	Reason for attending: GP (11%)		
	Previous related illness	✓ (2)	*	*		
	Previous family illness and conditions (heredity)	✓ (2)	*	*		
	Children seen as vulnerable	✓ (3)	*	Reason for attending: GP (48%)		

	Contagion	*	*	Reason for attending: GP (5%)		
Health threat	Fear of negative health consequences	✓ (9)	See anxiety/worry above	See anxiety/worry above		
Social influences						
Social support	Informal advice from friends, family or acquaintance	✓ (12)	Reason for attending: A&E (24%); GP (36%); Urgent care centre/walk-in centre (10%)	Reason for attending: Pharmacy (2%)	*	*
Social norms	Parental responsibility to do right thing	✓ (3)	*	*		
	Appropriate use of health care services	✓ (9)	*	*		
	Did not want to bother GP	*	Reason for attending: A&E (4%); Urgent care centre/walk-in centre (18%)	Reason for: visiting Pharmacy (31%); self-caring (70%)		GP: ↑ (2) ↓ (1) Out-of-hours GP: ↓ (2) A&E: ↑ (1) ↓+ (1) ↓ (2)
Environmental context and resources						
Access	Geographical immediacy of service	✓ (1)	Reason for attending: A&E (16%); GP (32%); Urgent care centre/walk-in centre (29%); Pharmacy (83%)	Reason for: self-caring (59%)	Service: NHS walk-in Service: Telephone triage	GP: ↑ (2) ↓ (1) Out-of-hours GP: ↓ (2) A&E: ↑ (1) ↓ (1) GP: ↑ (1) ↓+ (1) → (1)

	Time taken to access care	✓ (8)	Reason for attending: A&E (16%); GP (16%); Urgent care centre/ walk-in centre (26%); Pharmacy (59%)	Reason for: self-caring (63%)	<p>Service: Practice nurse</p> <p>Service: Advanced paramedic roles)</p>	<p>Out-of-hours services¹⁵⁴:</p> <p>↓+ (1)</p> <p>↓ (1)</p> <p>A&E:</p> <p>↑ (1)</p> <p>↓+ (1)</p> <p>GP:</p> <p>↓ (3)</p> <p>Out-of-hours GP:</p> <p>↑ (1)</p> <p>A&E:</p> <p>↓ (1)</p> <p>Symptoms:</p> <p>↑+ (1)</p> <p>unclear(1)</p> <p>A&E:</p> <p>↑+ (1)</p>
	Convenient opening hours	✓ (4)	Reason for attending: A&E (15%); Urgent care centre/ walk-in centre (33%)	Reason for attending: GP (12%)		
	GP not available/ could not contact	✗	Reason for attending: A&E (16%)	Reason for attending: Urgent care centre/ walk-in centre (18%)		
	Not registered with GP	✗	Reason for attending: A&E (4%); Urgent care centre/ walk-in centre (5%)	✗		
	Repetitive and extensive questioning	✓ (3)	✗	✗		
	Information overload [worldwide web]	✓ (2)	✗	✗		
	Better facilities/services	✗	✗	Reason for attending: A&E (4%); GP (7%); Urgent care		

¹⁵⁴ Out-of-hours GP, minor injuries unit, walk-in centre or urgent care centre

				centre/walk-in centre (5%)		
Environment	Lack of privacy for consultation	✓ (3)	✗	Reason for attending: A&E (14%); GP (40%); Pharmacy (22%)		
	Cost of over the counter medicines	✓ (3)	Reason for attending: GP (19%)	Reason for attending: A&E (1%); Pharmacy (15%); self-caring (49%)		
Conflicts of interest	Pharmaceutical companies	✓ (3)	✗	✗		
	Websites with advertising	✓ (1)	✗	✗		
limited roles	Capacity to prescribe/treat	✓ (4)	Reason for attending: GP (69%); Urgent care centre/walk-in centre (39%)	✗	✗	
	Expected or actual referral	✓ (11)	Reason for attending: A&E: expected referral by GP (25%); Referred by GP (26%); expected hospital admission (7%); Urgent care centre/walk-in centre: referred by another	Reason for attending: A&E referral from another (unspecified) service (4%); GP referred by another (unspecified) service (2%); Urgent care centre/walk-in centre referral from GP (18%)		

			(unspecified) service (13%)			
	Medical certificate	✓ (1)	✖	Reason for attending: GP medical certificate (6%)		
	(In)access medical records	✓ (4)	✖	✖		
	Continuity of care	✖	Reason for attending: GP (44%)	Reason for attending: Urgent care centre/walk-in centre (52%); pharmacy (9%)		
	Capacity to physical examine (pharmacist only)	✓ (6)	Reason for attending: A&E: Stitches (7%); Blood test (3%); X-ray (39%); injection (4%)	Reason for attending: A&E: Other test (unspecified) (19%); Urgent care centre/walk-in centre: blood test (5%); X-ray (9%)		
	Qualification and experience	✓ (6)	✖	✖		
Miscellaneous						
Other	Best place	✖	Reason for attending: A&E (61%); Urgent care centre/walk-in centre (10%)	Reason for attending: GP (20%)	✖	✖
	Failed self-care	✖	Reason for attending: A&E (31%); GP (71%)	Reason for attending: Urgent care centre/walk-in centre (39%)		
	Second opinion	✖	Reason for	Reason for visiting:		

			attending: A&E (8%); Urgent care centre/walk-in centre (2%)	Pharmacy (19%)		
	Confident in service/self-care	*	Reason for attending: A&E (22%); GP (26%); Urgent care centre/walk-in centre (8%)	Reason for self-caring (69%)		
	Did not want to see GP, or Prefer to see GP (for GP)	*	Reason for attending: A&E (3%)	Reason for attending: GP (34%, prefer to see GP); Urgent care centre/walk-in centre (2%); Pharmacy (11%); Self-care (48%)		
	Wanted to see nurse	*	*	Reason for attending Urgent care centre/walk-in centre (10%)		
	Expected advice only	*	Reason for attending GP (30%)	Reason for attending: A&E (35%); Urgent care centre/walk-in centre (18%); Pharmacy (20%)		

5.3 Overarching synthesis findings: behavioural analysis by COM-B

In light of the few interventions that directly targeted the identified precursors to self-care in the next stage, we consider the most relevant TDF domains and associated themes and sub-themes (see Table 5.1) in relation to the COM-B components and suggest possible intervention strategies to promote self-care. In this model, for behaviour to occur, individuals must have capability, opportunity and motivation. Capability can be physical or psychological, and represents an individual's ability to carry out a behaviour. Motivation can be reflective or automatic and

characterises the brain processes that drive behaviour. Opportunity reflects physical and social environmental factors that enable behaviour.

Figure 5.1 shows the most relevant TDF domains and associated themes and sub-themes; all six components of the COM-B model are relevant to self-care¹⁵⁵.

Having identified which domains within COM-B need to change to bring about more self-care behaviour, the candidate intervention functions and possible behaviour change techniques (BCTs) were considered, based on those incorporated into the BCW, which provides a basis for identifying which intervention strategies are most likely to be effective [see Figure 5.2].

¹⁵⁵ The miscellaneous factors (including best place, failed self-care and expected advice only) were not mapped onto the COM-B model as it was unclear where they should go.

Figure 5.1: COM-B model of behaviour change, with TDF domains mapped

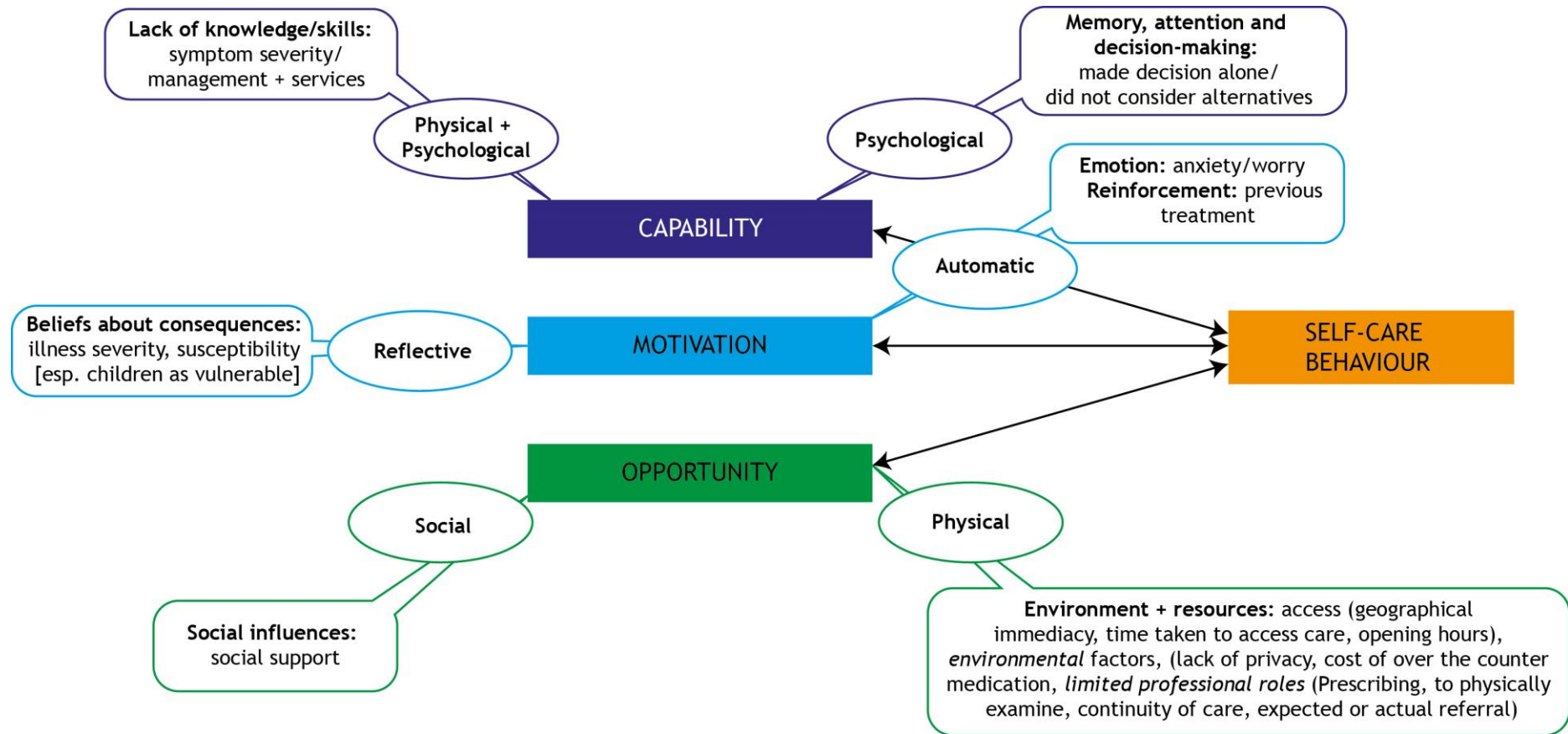


Figure 5.2 COM-B components and possible intervention strategies (Michie et al. 2011)

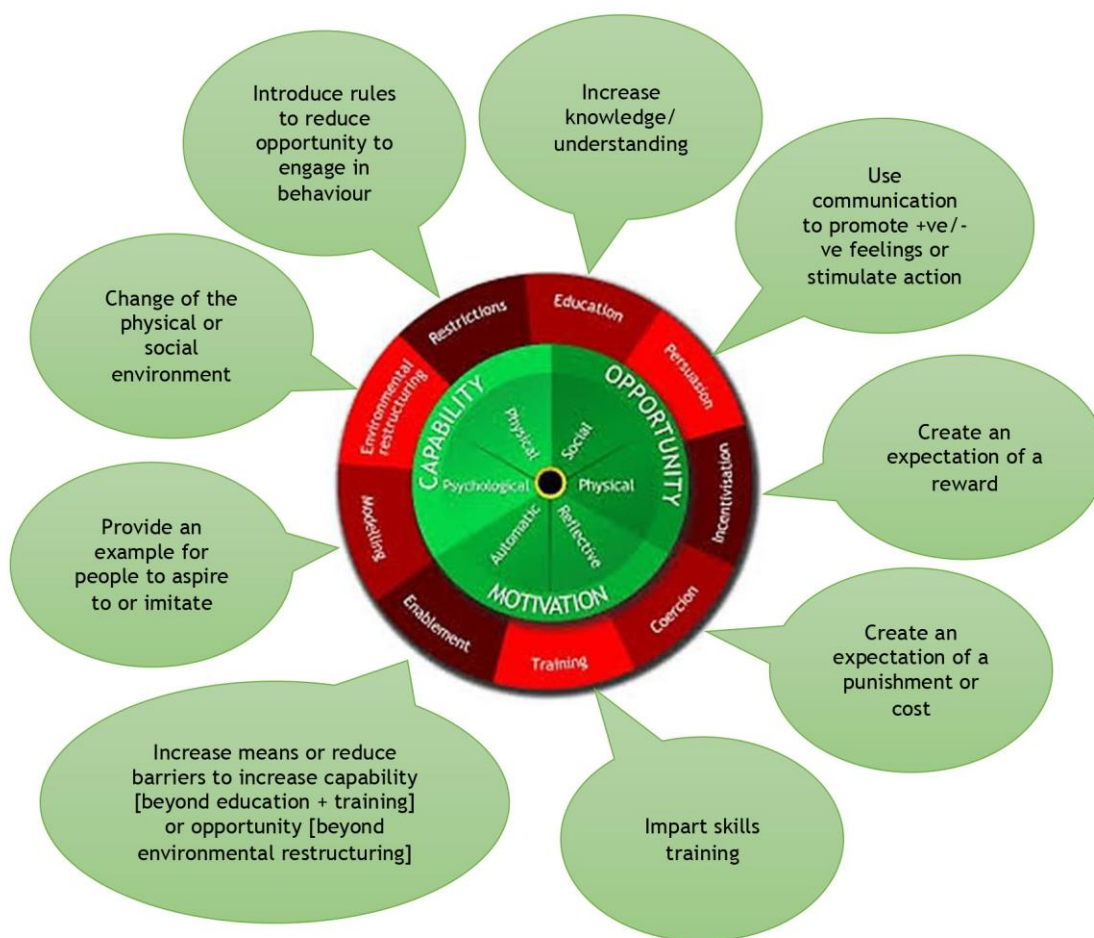


Table 5.5 shows the selected intervention functions mapped onto the COM-B domains. Table 5.6 summarises the main barriers to self-care (identified in the behavioural analysis above), according to the COM-B domains, and the potentially relevant intervention functions, behavioural change techniques and strategy examples. These findings are then presented narratively organised by COM-B domain.

Table 5.5: Selected intervention functions mapped onto the COM-B model

	Education	Persuasion	Incentivisation	Pressure	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical capability					x				
Psychological capability	x				x				x
Automatic motivation		x	x	x					
Reflective motivation	x	x							
Physical opportunity					x		x		
Social opportunity							x		x

Note: blue shading represents relevant intervention functions whereas the x represents those functions that were selected as relevant for self-care behaviour

Table 5.6: Main barriers to self-care, with possible interventions and techniques

Higher order theme	Barriers	COM-B	Intervention function	Behaviour Change Technique	Strategy example
Knowledge/skill					
Lack of knowledge/skill	Symptom severity/management	Psychological and Physical capability	Training/Education	Demonstration of the behaviour/Instruction on how to perform the behaviour/Feedback on behaviour/Behavioural rehearsal/practice	Educate/train service users (especially parents with one child and those with a lower socio-economic status) to identify warning symptoms, self-manage and alleviate symptoms, and identify when appropriate to contact GP/A&E.
Memory, attention and decision-making					
	Made decision alone, Did not consider alternatives	Psychological capability	Enablement	Adding object to environment, Action planning/Goal setting/Problem solving	<i>Enable</i> service users to seek professional, social or practical support (e.g., community pharmacy, internet support, telephone triage) as first port of call for their minor ailments. For example, through the use of decision support tools that prompt consideration of the range of self-care strategies.
Emotions					
Negative emotion	Anxiety/worry	Automatic motivation	Persuasion/Incentivisation/Pressure ¹⁵⁶	Reduce negative Emotions/Problem solving/coping strategies Social reward Anticipated regret Incompatible beliefs	<i>Persuade</i> service-user from being overwhelmed by anxiety (e.g. enable service-users to identify anxiety triggers that drive the urge to attend GP/A&E and develop strategies for managing them). <i>Incentivise</i> service-user by congratulating the person each time that they self-care appropriately. <i>Pressure</i> service-user and health professionals to assess the degree of regret they will feel if they inappropriately use/refer to use health services. <i>Pressure</i> service-user by drawing attention to overuse of GP and A&E services and self-identification as an appropriate user of health care services
Reinforcement					
Past behaviour	Previous treatment	Automatic	Pressure	Remove access to the reward/Feedback	<i>Pressure</i> service-user by refusing or delaying prescriptions (to reduce

¹⁵⁶ Pressure is referred to as Coercion in the BCW; this has been changed throughout this report, due to the possible perceived negative connotations of coercion.

ur/exp erience	ent/co nsultati on	motivati on		ack about the behaviour	association between symptoms and need for prescription). <i>Pressure</i> service-user by giving feedback about the appropriateness of their care-seeking behaviour.
Beliefs about Consequences					
Severit y of sympto ms	Persist ence, Impact on day to day life, Painful , Unfami liar, unspeci fied	Reflect ive motivati on	Educati on/Per suasion	Verbal persuasion about capability/Info rmation about social/enviro nmental and health consequences Credible source	<i>Persuade/educate</i> service-user to be responsible for their own health and well-being in the first instance e.g., through provision of normative information that GP/A&E should be utilised for the management of serious health conditions only. <i>Persuade/educate</i> service-user by telling them how much each consultation costs. <i>Persuade</i> service-users that pharmacists and nurses opinions are trustworthy. Enhance <i>persuasion</i> using a credible source (e.g. high status professional).
Suscept ibility	Childre n as vulnera ble	Reflexi ve motivati on	See severit y above	See severity above	See severity above
Health threat	Fear of negativ e conseq uences	Reflexi ve and Automa tic motivati on	See anxiety /worry and severit y above	See anxiety/worry and severity above	See anxiety/worry and severity above
Social influences					
Social support	Informa l advice from friends, family and others as first port of call	Social opport unity	Environ mental restruc turing/ Enable ment	Behaviour substitution/S ocial /practical support Add object environment	<i>Enable</i> service-users to substitute visiting the GP /A&E with seeking appropriate social/practical support from friends, family, acquaintances and other health professionals. <i>Enable</i> service-user to self-care through the provision of reassurance that self-care is appropriate. <i>Restructure the environment/enable</i> service-users to self-care through provision of links to credible sources of support (e.g. websites, forums, telephone triage).
Environmental context and resources					
Access/ conveni ence	Geogra phical immedi acy, Time taken to access care/in formati	Physica l opport unity	Trainin g/ Restrict ion/ Environ mental restruc turing/ Enable ment	Restructure the environment/ Add objects to the environment	<i>Restructure the environment</i> to make it comparatively easier to access self- care services/resources (vs GP/A&E) especially in context of telephone triage e.g., development and use of more streamlined decision support tools. <i>Restructure the environment</i> to provide a specialist transport service

	on, opening hours				<p>that can help patients who are otherwise unable to travel to health care services.</p> <p><i>Restructure the environment</i> to extend opening hours of self-care services and offer patients greater access in the evenings and at weekends.</p> <p><i>Restructure the environment</i> to publicise reputable online websites/apps using professional endorsement.</p> <p><i>Restructure the environment</i> to educate service users on 24-hour pharmacy access, the benefits of Internet information, and NHS phone services - available 24 hours.</p>
Environmental factors	Cost of over-the-counter medicines	Physical opportunity	Environmental restructuring	Restructure the environment	<i>Restructure the environment</i> to make prescription medication more readily available at self-care services such as community pharmacy
Limited professional roles	Capacity to prescribe /continuity in care/expected or actual referral		Training/ Environmental restructuring	Restructure the physical environment	<p><i>Train</i> more nurse and pharmacy health professionals with full prescribing rights.</p> <p><i>Environmental restructuring</i> to enable better collaboration between health professionals such as the pharmacist and GP.</p> <p><i>Environmental restructuring</i> to provide health professionals with full read and write access to GP records.</p> <p><i>Environmental restructuring</i> to provide patients with online access to summary information of their GP records.</p>
	Capacity to physically examine				<i>Restructure the environment</i> to promote self-examination.

5.4 Presentation of findings by COM-B domain

5.4.1 Capability (psychological and physical)

According to the BCW improved *psychological capability* can be achieved through interventions that target two TDF domains: knowledge/skills and decision-making. In terms of the knowledge/skills domain, education about the ways to self-care is recommended. For example, improving service-users' knowledge and understanding of how to identify and diagnose symptoms correctly, including how to distinguish between minor and more severe symptoms; how to self-manage and alleviate symptoms and when it is appropriate to contact GP/A&E services (BCT instruction on how to perform the behaviour). In terms of the memory, attention and decision-making domain, the

enablement and environmental restructuring intervention functions were identified as potentially relevant. For example, enabling service-users to stop and think before visiting the GP/A&E through provision of support tools that prompt consideration of the range of self-care strategies (BCTs adding object to environment, action planning, goal setting, and problem solving). Like psychological capability, *physical capability* can be achieved through interventions that target the knowledge/skills domain; however for physical capability, emphasis is placed on skill development, rather than on acquisition of knowledge or theory. For example, interventions that involve behavioural practice/rehearsal, in the context of self-diagnosis and symptom management (BCTs demonstration of the behaviour, instruction on how to perform the behaviour, feedback on the behaviour, and behavioural rehearsal/practice).

5.4.2 Motivation (*automatic and reflective*)

Automatic motivation can be achieved through targeting the emotion and reinforcement TDF domains. Suggested strategies for managing anxiety span a range of intervention functions, including persuasion, pressure (coercion) and incentivisation. For the persuasion function, suggested strategies include problem solving, e.g. supporting the service-user to identify anxiety as an urge to attend GP/A&E, and strategies to manage such urges (BCTs problem solving, reduce negative emotions). One strategy was mapped onto the incentivisation function and involves congratulating the service-user each time that they self-care appropriately (BCT social reward). Two pressure strategies were included, one that involves prompting service-users and health professionals to assess the degree of regret they will feel if they inappropriately use/refer to GP/A&E (BCT anticipated regret) and a second that involves drawing attention to the overuse of GP/A&E and self-identification as an appropriate user of health services (BCT incompatible beliefs). In terms of the reinforcement domain, three pressure strategies were identified, including the refusal or delay in issuing of prescription medication and the provision of feedback about the inappropriateness of service use (BCTs remove access to the reward, and feedback about the behaviour). The extent to which these pressure methods are acceptable to people, remains to be clarified.

Reflective motivation can be achieved through targeting the beliefs about consequences domain. In relation to perceptions of severity, included suggestions map onto the persuasion and educational intervention functions. In addition to improving knowledge of symptom severity and anxiety management (as outlined above), education and persuasion to encourage service-users to be responsible for their own health is suggested e.g. through provision of information about the consequences of self-care (or failure thereof) on the individual and society, such as providing information on how much each consultation costs (BCTs information about social/environmental/health consequences, credible source, and verbal persuasion about capability). Persuasion was also suggested to help strengthen beliefs that the opinions of pharmacists and nurses are trustworthy.

5.4.3 Opportunity (*social and physical*)

Social opportunity can be achieved by focusing on the constructs identified within the social influences domain. Suggested strategies map onto the enablement intervention function and include provision of reassurance that self-care is appropriate; e.g. social support provided by community pharmacist to enable self-care and provision of links to credible sources of support (e.g. websites, forums, and telephone triage) (BCTs social/practical support, behavioural substitution, and add object to the environment).

Physical opportunity can be achieved by targeting the constructs identified within the environmental context and resources domain, and the environmental restructuring intervention function was identified as most relevant. For example, it is suggested that interventions make it easier to access self-care services than GP/A&E care, and provide/publicise reputable online websites/apps. To help with cost issues, it is suggested that free prescription medication be made more readily available at self-care services, such as community pharmacy. In terms of professional roles, several suggestions are made, including training more nurses and pharmacists with full prescribing rights, improving infrastructure to support better collaboration between health professionals (such as pharmacists and GPs), providing more nurses and pharmacists with access to

patients' GP records, providing more patients with online access to their GP records, and providing a specialist transport service that can help patients who are otherwise unable to travel to health care services (such as pharmacy) or providing pharmacy delivery services that consult at home.

6. Conclusions

The aim of this research project was to explore how to influence people to self-care for minor ailments. The review took a broad focus on the interventions and services for people with minor ailments. Four interconnected reviews were conducted that spanned the last 16 years of research (2000-2015) and included a total of 58 UK-based studies.

Reviews 1 and 2 explored service-users attitudes towards and experiences of self-care for minor ailments; Review 1 (see Chapter 0) focused on qualitative interview data, whereas Review 2 (see Chapter 0) examined quantitative survey data. **Review 3** synthesised the effectiveness of behavioural interventions or services for minor ailments (see Chapter 0). These three reviews 1 to 3 were then brought together in an overarching synthesis (**Review 4**, see Chapter 0).

Consistent with repeated calls for a theoretical approach to behaviour change, the TDF (Cane et al. 2012) was used to characterise the potential theoretical drivers of self-care behaviour (Reviews 1, 2 and 4), and based on these findings, the BCW (Michie et al. 2011) was used to identify intervention strategies that could be useful in promoting self-care for minor ailments (Review 4). In this final chapter, we summarise the main findings, consider the strengths and limitations, and present recommendations for further research.

6.1 Summary of findings

Consistent with previous research (Porteous et al. 2006), the evidence shows that people are generally willing to self-care for their minor ailments. However, self-care is compromised due to seven TDF domains (or influences) identified as relevant across reviews: Knowledge/skills; Memory, attention and decision-making; Emotions; Reinforcement; Beliefs about consequences; Social influences; and Environmental context and resources. These influences spanned all domains of the COM-B model of behaviour change (including physical and psychological capability, automatic and reflective motivation, and physical and social opportunity), and provide potentially useful targets for behaviour change.

Few interventions were effective (Review 3). One study on advanced paramedic roles (Mason 2007) and three on GP antibiotic prescribing strategies (Everitt et al. 2006, Moore et al. 2009, Williamson et al. 2006) reported beneficial effects in reducing health service utilisation (discussed below).

The results from Reviews 1 and 2 and their synthesis (Review 4) help to clarify why there were few beneficial effects in the evaluation studies (Review 3). Based on the synthesis of finding across reviews, the following themes and sub-themes were identified as most important based on concordance across the views and surveys, where at least a quarter or more of survey participants identified the theme as important for one or more of the help-seeking behaviours [including traditional GP and A&E services, or self-care, such as community pharmacy, NHS walk-in centres, telephone help lines, and specialist nurse-practitioner roles]. Themes were also included where a quarter or more of survey participants rated them as influential, even though they did not emerge in the interview studies (italicised).

- Knowledge of services and management of symptoms (knowledge/skill)
- Decision-making (*made decision alone, did not consider alternatives*) (memory, attention and decision-making)
- Anxiety management/health threat (emotions/beliefs about consequences)
- Previous treatment/consultation (reinforcement)
- Perceptions of illness severity (beliefs about consequences)
- Perceptions of illness susceptibility (especially children seen as vulnerable) (beliefs about consequences)
- Social support (social influences)
- Environment (lack of privacy for consultation, cost of over-the-counter medications) (environmental context and resources)
- Limited roles (related to prescribing, capacity to physically examine, expected or actual referral, continuity of care) (environmental context and resources)

- *Miscellaneous* (best place, failed self-care, expected advice only)

Knowledge/skills factors were included because, despite the lack of evidence for educational interventions (Review 3), we suspect that knowledge and skills in symptom management and service provision are a necessary first step that will need to be supplemented with these other influences. There was also some evidence of potential moderating influences identified in the qualitative review, showing that parents with more children, older children and higher socio-economic status (SES) were better informed on how to manage symptoms.

Potential moderator effects were also identified in the qualitative review for cost of over-the-counter medications (with cost being more of an issue for those lower in socio-economic status) and perceptions of illness severity (with parents/carers of young children being more vulnerable).

In relation to social support, data from the qualitative review were mixed, showing that whilst social support can provide a useful alternative to traditional GP/A&E care it can also legitimise inappropriate GP attendances. Thus the particular contexts, in which informal social support is beneficial, require clarification.

The following influences were identified as important in the qualitative interview synthesis but were not directly measured in the survey data suggesting a research gap in the survey and evaluations literature:

- Susceptibility due to a long-term condition, previous related illness/family conditions and contagion (beliefs about consequences domain)
- Social norms (parental responsibility to do the right thing, appropriate help seeking) (social influences)
- Access (Repetitive and extensive questioning, information overload) (environmental context and resources)
- Conflicts of interest (pharmaceutical companies, websites with advertising) (environmental context and resources)
- Limited roles (in-access to medical records, qualifications and experience) (environmental context and resources)

With few exceptions (knowledge/skill in symptom management/service provision, and habitual responses based on previous treatment/consultation), none of the included evaluations targeted these influences either separately or in combination.

Three evaluations that examined GP antibiotic prescribing strategies reported a reduction in GP re-consultations (Everitt et al. 2006, Moore et al. 2009, Williamson et al. 2006). However, potential moderators were identified, including having received antibiotics in the past (Moore et al. 2009), type of minor ailment (with effects for glue ear, but not for acute otitis media, Williamson et al. 2006) and socio-economic status (with less effectiveness among more affluent groups, Williamson et al. 2006).

Only one other evaluation (Review 3) was effective in reducing health service utilisation. In this study, advanced paramedic roles were examined among older service-users, compared with the usual ambulance transfer to A&E, and a reduction in attendances at A&E was shown (Mason 2007).

Across the evaluation studies (Review 3), only three reported on cost-effectiveness, and no significant cost benefits were found for telephone triage (Richards et al. 2002), NHS walk-in centres (Salisbury et al. 2007), and education and support for childhood eczema (Mason et al. 2013).

Overall, there was some evidence to suggest that antibiotic prescribing strategies and advanced paramedic roles are beneficial in reducing health service utilisation. However, no associated cost-effectiveness studies were located. Perhaps surprisingly, there was little evidence of beneficial effects on health-service utilisation and symptom reduction for the other intervention types (education, telephone triage, practice nursing, and walk-in centres). Given their failure to target one or more of the influences that underpin the decision to self-care, this is perhaps not surprising.

These findings indicate that Interventions should target a multitude of influences that underpin decision-making for self-care, and that educational interventions on their own are unlikely to be effective.

6.2 Strengths

Each review responded to a research gap and as far as we are aware, this is the first systematic review on self-care for minor ailments that synthesises the findings from a range of study types. The combination of qualitative, survey and evaluations research provides a more comprehensive analysis than each method alone and, therefore, a robust and contextualised evidence base for policy development. The broad focus on self-care interventions and services based in the UK, and the involvement of key stakeholders, further helped to ensure its relevance for the UK policy context. These methods were enhanced by a comprehensive search to identify relevant studies and a theoretical approach to synthesis, which not only provided a framework to assist in identifying barriers and enablers to self-care, but also allowed these behaviours to be linked to potentially successful intervention strategies. The use of the TDF provided a clear structure and permitted comparison across reviews. In addition, it provided a solid, theoretical foundation for future empirical testing, helping to provide longevity to the research in a fast-moving field and potential generalisability to other similar behavioural contexts.

6.3 Limitations

Whilst the TDF provided a clear structure it was sometimes challenging to map themes (Review 1) and measures (Review 2) onto the domains, especially when more than one domain was relevant, highlighting the lack of independence between domains. The TDF method also required considerable time and resources and involved interpretation and inference. Further empirical work is therefore required to check whether the constructs regarded as ‘key’ actually do predict self-care behaviour, especially since the examination of beliefs (in Reviews 1, 2 and 4) was restricted to the attitudes and experiences of service-users. In addition, whilst exploring the interrelationships between the TDF domains was outside the scope of the review, we acknowledge that treating these domains as discrete entities does not permit an in-depth, nuanced examination of self-care for minor ailments. This is evident of the recursive relationship between environmental and resource factors and individual perceptions and behaviour in the decision to self-care. Thus, greater consideration of the interrelationships between theoretical domains may be warranted.

Whilst there was a good range of views in terms of gender and age, few studies reported information on socio-economic status and there were few data from minority-ethnic service-users. The majority of interview studies included contained mostly descriptive qualitative analysis, despite being coded as of reasonable quality according to quality appraisal criteria. Similarly, all but one survey study employed solely descriptive statistics, with overall quality being generally low, and only four studies achieving a medium rating and none high. Few survey measures were developed using a rigorous psychometric process and the absence of standardised measures meant that we had to develop our own classification system, which necessarily involved some inference, making theoretical integration challenging. However, the limitations of the interview and survey research are in part mitigated by the multi-method approach used in the review, particularly where the evidence across study types corroborates each other.

Similarly whilst most of the evaluations (Review 3) included a control group, many included studies (19) were judged to have a high potential for bias. Of the three antibiotic studies showing beneficial effects, two were rated as at a low risk of bias. However, because of the range of included interventions and the heterogeneity of methods, no meta-analysis was conducted as planned. Consequently, artefact variance, such as sampling and measurement errors, could not be accounted for. In addition, the lack of full economic evaluation limits the strength of the evidence regarding the cost implications, though the value of such information remains unclear, especially where there is little evidence of effectiveness in the intervention studies. Notably, few studies reported data on the resolution of symptoms.

The breadth and range of intervention/services posed a challenge for analysis and interpretation, especially in the overarching synthesis (Review 4). For example, there was more of a focus on A&E

(seven studies) in the surveys, whereas only one interview study examined urgent care, including A&E and the evaluations focused predominately on information and knowledge (13 studies). Given the different foci of the included studies (that spanned a range of services), it was not possible to determine the perceived importance using frequency as an indicator in the interview studies and the threshold of 25% used to determine the relevance of themes in the survey data was arbitrary. Whilst broad the breadth and range of interventions/services did not encompass the use of informal and open setting resources for managing minor ailments (such as the use of health food shops and lay remedies) and only one included study evaluated an online intervention. This highlights a paucity of research in these important areas, especially digital technology, as this is becoming more sophisticated and was highlighted in the interview studies as being a relevant medium for supporting the self-care of minor ailments.

Like the TDF, application of the BCW requires subjectivity and inference. Further empirical work is therefore required to check whether the links between theoretical assessment and behaviour change techniques (Review 4) are valid.

Finally, whilst steps were taken to reduce the possibility of publication bias (e.g. searching of relevant websites), we cannot be certain if and to what extent publication bias was a problem for these data.

6.4 Recommendations

Having reported the results of the three reviews and their synthesis, some recommendations for policy and practice are presented. The low quality of the included studies, and the challenges of synthesising data from studies with various methods, mean that these recommendations can only be tentative. The suggestions are:

- Interventions should target a multitude of potentially modifiable influences that underpin decision-making for self-care; educational interventions on their own are unlikely to be effective. This suggests a need to consider co-ordinated approaches to interventions that span the individual, social and environmental pre-cursors to care-seeking behaviours.
- A range of interventions [see Table 5.6], based on the behavioural analysis, could be implemented and tested for effectiveness in practice.
- Existing effective behaviour-change interventions should continue to be supported, including issuing back-up (delayed) antibiotic prescriptions for minor conditions.

6.5 Implications for further research

- Collaborative research between key stakeholders to ensure the relevance and utility of evidence
- Empirical work to check whether the constructs regarded as ‘key’ actually do predict self-care behaviour
- Empirical work to explore the interrelationships between the TDF domains within the context of self-care of minor ailments
- Empirical work to establish the effectiveness of the suggested (Table 5.6) intervention strategies
- Empirical work to establish whether there are valid links between the key theoretical constructs and recommended behaviour change techniques
- Empirical work to establish the context in which social support is beneficial for self-care for minor ailments
- Empirical work to test a range of mediums (e.g. digital applications, television, worldwide web, community settings) and providers (e.g. peers, health visitors, and schools or nurseries) to deliver health information to ensure accessibility including those from different social strata and those unable to read and write

- Empirical work to identify gold-standard measures assessing aspects related to self-care to facilitate comparison across studies and future reviews
- Findings suggest that a range of potential moderators could be researched alongside survey and intervention evaluations given their importance across reviews. These include:
 - Population target: parents/carers of young children, older people
 - Socio-economic status
 - Minor ailment
 - Age and number of children
 - Previous treatment
- Empirical work to evaluate the relevance of digital-based interventions, including mobile phones and the internet given the paucity of research in these areas
- Empirical work to evaluate the relevance of informal and open setting resources for self-care of minor ailments given the paucity of research in these areas
- Empirical work to evaluate the relevance of digital-based interventions, including mobile phones and the internet for self-care of minor ailments given the paucity of research in these areas
- Empirical work to evaluate delivery formats for self-care interventions, including peer-group interaction, community settings and provider types
- Empirical work to evaluate the relevance of these review findings for ethnic minorities and other population groups who were under-represented in these data e.g. vulnerable groups, such as the homeless
- Evidence synthesis on the attitudes of those responsible for delivering interventions, such as pharmacists, nurses and GPs, would be beneficial given that their attitudes can operate as barriers or facilitators to the implementation and effectiveness of these interventions.

7. Detailed methods

This section provides a detailed account of the methods used to conduct this review.

7.1 Overview & research questions

The systematic review comprised four interconnecting pieces of research:

1. **Interviews (Review 1):** UK research reporting people's perspectives, experiences and beliefs about their involvement in self and professional care
2. **Surveys (Review 2):** UK survey research on peoples' reasons for engaging in self and professional care
3. **Evaluations (Review 3):** UK self-care interventions and services
4. **Overarching synthesis (Review 4):** the findings from reviews 1-3 were brought together in an overarching synthesis

Each review addressed particular research questions (RQ) as outlined below:

- **RQ 1.** What are the factors that enhance or mitigate the decision to self-care for minor ailments? (Reviews 1 & 2)
- **RQ 2.** Are self-care interventions for minor ailments effective in reducing health service utilisation (GP and A&E attendances) symptom resolution and cost outcomes? (Review 3)
- **RQ 3.** How can we best promote behaviour change for self-care of minor ailments? (Review 4)

7.2 Search strategy

7.2.1 Electronic database search

The search was undertaken in two stages. Initially a database search was run with the aim of finding studies on the prevalence of general practitioner and accident and emergency consultations relating to minor ailments within the UK. This was to gauge whether the most common ailments that put pressure on the health systems, in different population groups, could be identified. This process informed decisions on which specific minor ailments to search for in the second stage. For this first stage, three databases were searched: Medline (EBSCO), Health Management Information Consortium, and British Nursing Index. The search strategy combined the concepts: minor ailments; prevalence; and UK. Searches were restricted to 2010 onwards, so that the data were up-to-date and therefore relevant. A number of alternative words for each concept was used to search the title, abstract and controlled vocabulary indexing fields within each database.

Out of 173 references identified, one study was identified of relevance, and this was a small study based in North East Scotland (Fielding et al. 2015). In the absence of finding other appropriate information, we decided to draw on the list of conditions compiled by Pillay et al. (2010) to define specific minor ailments (Table 7.1) and inform searches in the second stage. Pillay and colleagues devised their list on a pragmatic basis, based on those conditions concurrently included in existing minor ailment schemes, or a condition for which marketed self-medications were available over the counter.

For the second stage, a search strategy aiming to balance sensitivity with precision was developed for the research questions. Seventeen databases focussing on health, social sciences and economics were searched during September 2015: British Nursing Index (HDAS); CINAHL (EBSCO); Cochrane Central Register of Controlled Trials (CENTRAL); Database of Abstracts of Reviews of Effects (DARE) (Cochrane Library); EconLit; EMBASE (OVID); Health Management Information Consortium (OVID);

Health Technology Assessment database (Cochrane Library); MEDLINE (OVID); NHS EED (Cochrane Library); PsycINFO (OVID); PubMed (NLM) brief search; PubMed not Medline, Medline in Process (EBSCO); Social Science Citation Index (Web of Science); UK clinical trials portfolio database; and ASSIA and Sociological Abstracts (ProQuest). Searches were restricted to from 2000 onwards and the Medline strategy used is provided in Appendix 7. The other database strategies were based upon the Medline strategy, except for the UK clinical trials portfolio database, which was searched with brief keywords.

Designing the search strategy involved several iterations of running test searches and screening to understand the range of research literature that could contribute to each research question and to guide decisions as to how these might be captured from the database searches. This was particularly important for structuring each question into concepts for searching, exploring the range of terminology used for self-care, and clarifying the inclusion criteria for each question. For each research question several concepts were developed in order to structure the search. These are detailed in Appendix 7. Synonyms and alternative words for each concept were developed for searching the title, abstract and controlled vocabulary indexing fields within each database. Text mining was used to determine both useful and undesirable search terms and phrases, and helped to refine the search strategy further.

Table 7.1: List of minor ailments used to inform the search strategy

Skin and scalp Eczema + Dermatitis Psoriasis Acne Athlete’s foot Fungal nail infections Nappy rash Cradle cap Dandruff Head lice Insect bites and stings Verrucas and warts Urinary/ Gynaecological Thrush Cystitis Allergy /Hay Fever Hay fever Nasal congestion	Pain Headache Dysmenorrhoea Migraine Muscular Earache Back pain Sprains + Strains Bowel Constipation Diarrhoea Haemorrhoids Threadworm Stomach Heartburn and indigestion Infantile colic (0-2yrs)	Eye, Ear + Mouth Conjunctivitis Cold sores Mouth ulcers Oral thrush Gingivitis Teething Cough Cold + Flu Colds Flu Coughs Sore throat Other Travel sickness
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Table reproduced from Pillay et al. (2010)

7.2.2 Supplemental search strategies

Backward (searching the references of included articles) and forward (searching articles citing included articles, using Web of Knowledge) searches were conducted (by CK) to locate further primary articles of potential relevance. The reference lists of relevant reviews, identified during the electronic search, were also screened to locate further primary articles of potential relevance. In addition, CK searched topic-relevant websites including: Self Care Forum; UK self-management; patient information forum; and mobile active (listed with links in

Appendix 8).

7.3 Inclusion and exclusion criteria

The screening of potentially relevant articles was carried out in two stages: at stage 1, predefined criteria were applied to titles and abstracts; and at stage 2, these criteria were applied to the screening of full-text articles. The criteria are detailed in Table 7.2.

Titles and abstracts returned by the search strategy were exported into EPPI-Reviewer and independently screened by two of three researchers (MR, KS, KH) using the predefined criteria specified in Table 7.2. Pilot screening was initially conducted to ensure that the screening tool was being applied consistently across reviewers (obtaining inter-rater agreement over 0.90%). All disagreements were resolved by discussion between these researchers. Where it was not possible to decide on exclusion of a paper based on the information in the title and abstract, the full text was retrieved. These same criteria were applied by the same three researchers to screen the full texts independently for inclusion or exclusion. Where full-text papers were not easily retrievable (locally or from The British Library), the authors were contacted.

Table 7.2: Study inclusion criteria

Criteria	Specification
Interviews (review 1); surveys (review 2) and evaluations (review 3)	
Language	English language only
Country	UK only
Study type	Interview, surveys and evaluations
Date	2000 onwards
Population	Service user (no other restriction)
Minor ailment	Those specified by Pillay et al. 2010 (see Table 7.1)
Interviews (review 1) and surveys (review 2) only	
Focus	Decision to self-care or use GP/A&E services
Evaluations (review 3) only	
Intervention	Self-care service or non-pharmacological intervention to promote self-care
Date	Electronic applications restricted to 2008
Outcomes	Health service utilisation, symptoms resolution, cost
Study design	RCT, non-RCT, observational pre/post studies
Control	No limits

The results of the search process are detailed in Appendix 9.

7.4 Number of studies included

Figure Appendix 9.1, in Appendix 9, summarises the search process. After the removal of duplicates, a total of 12,160 records were screened at title and abstract stage and a total of 301 potentially relevant articles were identified for which full texts were required. A total of 58 papers met our full-text screening criteria and were included in the synthesis: interview studies (20); surveys (13) and evaluations (26)¹⁵⁷. Nine community pharmacy evaluations were also located, but not synthesised, as Paudyal et al. (2013) provided a comprehensive synthesis of these. These community pharmacy papers are tabulated in Appendix 10 for reference.

7.5 Quality assessment, data extraction and synthesis (Interviews, Review 1)

7.5.1 Quality assessment

¹⁵⁷ One study McNulty et al. (2013) was included in both the interview and the survey synthesis

There is a lack of consensus among researchers about how to measure quality in qualitative research (Garside 2014); therefore, we were cautious about excluding papers on the basis of quality. Nonetheless, to ensure a basic level of quality, papers were excluded if they:

- a) Did not provide a clear description of the methods used for data collection and analysis
- b) Contained only minimal or ‘thin’ data pertinent to the review question

Included papers were quality appraised using criteria adapted from the Critical Appraisal Skills Programme (Critical Appraisal Skills Programme (CASP) 2014). This included seven questions that assessed clarity of the question, sampling strategy, data collection, data analysis, credibility, breadth and depth of findings, and ethics. Questions were assigned a response of ‘yes’, ‘no’ or ‘can’t tell’ for each paper independently by two reviewers (MR and CK) and disagreements were resolved through discussion by these reviewers.

Box 7.1: Quality appraisal questions for the interviews

1. Is the question clearly formulated?
2. Was the sampling strategy clearly defined and justified?
3. Were the data collected in a way that addressed the research issue?
4. Was the data analysis sufficiently rigorous?
5. Are the results credible?
6. Do the results cover a sufficient range of issues and convey richness and complexity in synthesis (e.g. variation explained, meanings illuminated, data have been transformed/analysed)?
7. Have ethical issues been addressed and confidentiality respected?

The appraisals were used to raise awareness about a range of relevant factors for each paper rather than to exclude papers. The results of the quality assessment are presented in Appendix 11.

7.5.2 Data extraction and synthesis

Data about the determinants of self-care (or the failure to do so) and potential intervention strategies were extracted and analysed in three stages. In the first stage (Stage 1) of the analysis, the included papers were carefully read in order for the reviewers to familiarise themselves with the studies and their findings. This process began in the screening phase and continued through data extraction and analysis.

In the second stage, a framework synthesis was adopted using the 14 theoretical domains identified in the TDF (listed in Table 7.3) as an a priori framework (Cane et al. 2012). This included coding raw data, such as participant quotations, and authors’ descriptions of the results, on a line-by-line basis. To ensure consistency in coding, two researchers (MR and CK) independently coded papers until inter-rater reliability was greater than 90%; the remaining papers were coded independently by MR and CK.

In the third stage of analysis, thematic synthesis within the domains was conducted to add contextual interpretation and classification of themes and sub-themes. Analysis was an interactive process that involved the researchers revisiting the data before arriving at the final themes.

We also extracted study, demographic and methodological information (See Appendix 1 and Appendix 2 for details) and, where relevant and possible, themes were examined to see if they were influenced by different contextual factors, such as age, ethnicity or gender.

Table 7.3: The domains of the Theoretical Domains Framework

TDF domain	Description
Knowledge	An awareness of the existence of something
Skills	An ability or proficiency acquired through practice

Social/professional role and identity	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting
Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use
Optimism	The confidence that things will happen for the best, or that desired goals will be attained
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation
Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus
Intentions	A conscious decision to perform a behaviour or a resolve to act in a certain way
Goals	Mental representation of outcomes or end states that an individual wants to achieve
Memory, attention and decision processes	The ability to retain information, focus selectively on aspects of the environment, and choose between two or more alternatives
Environmental context and resources	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour
Social influences	Those interpersonal processes that can cause an individual to change their thoughts, feelings, or behaviours
Emotion	A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event
Behavioural regulation	Anything aimed at managing or changing objectively observed or measured actions

Note: Table reproduced from Phillips et al. (2015).

7.6 Quality assessment, data extraction and synthesis (Surveys, Review 2)

7.6.1 Quality assessment

Quality appraisal of the surveys was carried out in two stages. In the first stage, three questions were used to appraise each paper to ensure a basic level of quality:

- a) Have the methods used for data collection been described in enough detail?
- b) Does the research include data mostly pertinent to the review question?
- c) Is the sample size greater than 200?

If one of the answers to questions 1 and 2 was 'no', the paper was excluded to ensure that potentially fatally flawed and low-relevance studies were excluded. If the answer to question 3 was 'yes' and we had good coverage of the focal health services, then the paper was excluded, otherwise the study was included (Rajpar et al. 2000, Vohra 2006).

Included papers were quality appraised using criteria adapted from the Critical Appraisal Skills Programme (Critical Appraisal Skills Programme (CASP) 2014). This included six questions that assessed the sampling strategy, data collection, data analysis, and follow-up (see Box 7.2). Questions were assigned a response of 'yes', or 'no/not reported' for each paper. Quality appraisal decisions were made independently by two reviewers (MR and CK), and disagreements were resolved through discussion between these reviewers. An overall rating of low, medium or high was assigned to each paper, along with a relevance rating of low, medium or high.

The appraisals were used to raise awareness about a range of relevant factors for each paper rather than to exclude papers as there was little variation in quality between studies, with papers generally being of low quality (n=7). The results of the quality assessment are presented in Appendix 12.

Box 7.2 Quality appraisal questions for surveys

1. Was the sample representative of the population under study?
2. Were the measures reliable and valid?
3. Was the response rate 60% or higher?
4. Were confounding variables controlled?
5. Were appropriate statistical methods used?
6. Was there sufficient follow-up?

7.6.2 Data extraction

A data extraction form was developed to record the relevant information for each study. This included the service under consideration (or outcome), the measures encompassing the reason for using a health service and corresponding relevant statistical information. To ensure consistency in coding, two coders (MR and CK) independently extracted the information from each paper until inter-rater reliability was greater than 90% and disagreements were resolved through discussion between these reviewers. The remaining data were extracted by CK. Study, demographic and methodological information were also extracted (See Appendix 3 and Appendix 4 for details).

7.6.2.1 Outcomes assessed

Determinants of four health services were extracted: attendance at Accident and Emergency (A&E), GP, urgent care, and Pharmacy (see Glossary for definitions and sources). A&E included Emergency Departments and Casualty as these are defined, by the NHS, as providing the same service. Urgent care included urgent care centres, Minor Injuries Units and walk-in centres as they are all recommended for the treatment of minor illnesses or injuries. GP services included GP out-of-hours care, and Pharmacy services and self-care were analysed separately.

7.6.2.2 Antecedents assessed

The measures used to assess participants reasons for attending a health service were extracted including the label of the measure (named or bespoke), the scale (multiple choice, dichotomous, Likert), a short description of the belief or construct, and the corresponding health service (or outcome, see Appendix 14 for details).

7.6.2.3 Statistical information

Statistical information for each measure/outcome combination was extracted including percentages of participants who agreed with a statement, actual numbers of participants and total number of responders. Where data, such as the total number of participants, were missing, they were calculated using information contained within the report. Measures were reverse scored where necessary to align responses with other items.

All data were extracted into Excel spreadsheets and organised separately for each outcome or service. We also extracted study, demographic and methodological information. (See Appendix 3 and Appendix 4 for details).

7.6.3 Synthesis

In the first stage (Stage 1), a framework synthesis was adopted using the 14 theoretical domains identified in the TDF (listed in Table 7.3) as an a priori framework (Cane et al. 2012). This included mapping the measures used to assess peoples' reasons for attending each health service onto the relevant TDF domain. To ensure consistency in coding, two researchers (MR and CK) independently coded papers until inter-rater reliability exceeded 90%; then CK coded the remaining papers.

In the second stage of analysis, thematic synthesis of the measures within the domains was conducted. This involved reading and rereading descriptions of the measures and items located in the primary papers and other online resources, and grouping them into constructs or sub-facets of constructs. As with the qualitative synthesis, analysis was an iterative process that involved the researchers revisiting the data many times before arriving at the final classification of themes. In the third stage, where feasible, data for each distinct construct were pooled across studies into pooled weighted mean percentages. This was accomplished by applying a study-size factor to the percentage reported in each study. The study-size factor was the size of the study sample, for each construct, divided by the total sample size of all studies that contributed to the pooled analysis for that construct. This weighting ensures that the contribution of each study reflected its size, with larger studies accounting for more of the mean percentage than smaller studies.

Where there was more than one measure per construct for a given outcome within a single study, the most relevant item was chosen based on the degree of overlap with the items from the other studies that assessed the same construct. In the few cases where the items were equally relevant (n=8), the middle value was selected (n=2) or the lower of two values (n=6). This avoids double-counting (and biasing the results). Where the items were from distinct populations (e.g. in Hau et al. 2008, patients with four different conditions were included), the responses and populations were summed, and the percentages calculated.

In the fourth and final stage, the weighted percentages were summed to create the pooled weighted mean percentage, and discussed narratively by theoretical domain and health service. Where a construct was reported in one study only and could therefore not be pooled into a weighted mean, single-study data were reported and discussed narratively. All calculations were completed within Excel spreadsheets. Where relevant and possible, themes were examined to see if they were influenced by different contextual factors, such as age, ethnicity or gender.

7.7 Quality assessment, data extraction and synthesis (Evaluations, Review 3)

7.7.1 Quality assessment

The included full-text studies were rated for their methodological rigour and quality using a tool based on the Cochrane Risk of Bias Assessment tool (Higgins et al. 2011). To enable comparison across both randomised and non-randomised designs, elements of the ROBINS-I tool for non-randomised designs (see Sterne et al. 2016, Box 7.3) were incorporated. Two reviewers (KS and GB) independently rated each study and results were compared, with any disagreements reconciled through discussion. The appraisals were used to evaluate study quality and not to exclude papers.

To generate an overall rating (low, moderate or high risk of bias) for each paper, two questions were examined: is the study sound and is the research design appropriate? Table 7.4 details the criteria for each question (where it deviates from the guidance given in the Cochrane Risk of Bias tool) and it shows how the overall rating for each study was derived. The results of the quality assessment are presented in Appendix 13.

Box 7.3: Quality appraisal questions for evaluations

1. **Was sequence generation random?** (Non-random designs were coded as at high risk of bias)
2. **Was allocation concealment of randomisation reported?** (pre/post observational studies were coded as being at high risk of bias)
3. **Was there baseline equivalence?** (unclear if insufficient evidence e.g. a full table of participant characteristics for each group was not reported)
4. **Was there blinding of participants and researchers?** (In relation to those who received the intervention or the control)
5. **Was there blinding of outcome assessment?** (knowledge of whether data came from intervention or control)
6. **Was there incomplete outcome data?** (acceptably low if <20% overall and <10% difference between groups. Studies which adjusted for imbalances in attrition in the analysis were also considered as at low risk of bias)
7. **Selective reporting** (were all important benefits and harms were measured, and were all the reported measures assessed?)
8. **Were there any other risks to bias?** (use of validated tools and inter- or intra-rater reliability was assessed)

Table 7.4: Overall rating of risk of bias

Risk of bias criterion	Effectiveness Synthesis
Is the study sound?	A study was rated as sound if: <ol style="list-style-type: none"> i. The two comparators (intervention and control group) were equivalent ii. There was no evidence of selective reporting bias iii. There was no evidence of a substantial amount of attrition from the study or differential rates of attrition between the two groups (cluster RCTs, RCTs and non-RCTs only)
Is the research design appropriate?	Research designs were rated as: <ul style="list-style-type: none"> • Gold Standard - RCT • Highly appropriate - non-RCT • Moderately appropriate -pre/post observational study
What is the overall risk of bias?	<p>Low risk of bias = Sound studies employing gold standard or highly appropriate research design</p> <p>Moderate risk of bias = Sound studies employing moderately appropriate research design</p> <p>High risk of bias = Any study that is not sound</p>

7.7.2 Data extraction

A data extraction form was developed and piloted to record relevant study and participant characteristics, outcome assessments and associated statistical information for each evaluation that met the inclusion criteria. Once inter-rater agreement was sufficient (at least 90%), data were extracted by one reviewer and checked by another reviewer (shared between MR and CK). Where more than one measure was reported per outcome the most relevant was selected based on comparability with others in the same intervention and study type. For each relevant outcome, effect size estimates were extracted (by MR and checked by CK) for the treatment and control groups, where available. Where necessary, authors were contacted to obtain effect size information. The details of study and participant characteristics are provided in Appendix 5.

7.7.3 Synthesis

We had planned to conduct meta-analysis, where feasible, but there were insufficiently robust data for meta-analyses. Data were therefore synthesised narratively by intervention, study design and outcome type.

7.8 Overarching synthesis (Review 4)

7.8.1 Synthesis

Findings from each review (Reviews 1 to 3) were cross-referenced using the TDF as an organisational framework. The resulting matrix was used to juxtapose barriers, facilitators and implied recommendations from the qualitative interview studies (Review 1, Chapter 0) and survey (Review 2, Chapter 0) reviews against the evaluations (Review 3, Chapter 0). The extent to which the interventions matched the implied recommendations (of Reviews 1 and 2) was analysed, alongside an analysis of whether or not interventions meeting such recommendations proved to be more effective.

These findings were discussed narratively and organised by the relevant TDF domain.

In the next stage, the TDF domains were considered in relation to the COM-B model of behaviour change (Michie et al. 2011). In this model, for behaviour to occur individuals must have capability, opportunity and motivation. Capability can be physical or psychological, and represents an individual's ability to carry out a behaviour. Motivation can be reflective or automatic and characterises the brain processes that drive behaviour. Opportunity reflects physical and social environmental factors that enable behaviour. Having identified which domains within COM-B need to change to bring about more self-care behaviour, candidate intervention functions and possible behaviour change techniques (BCTs) to deliver these were considered, based on those incorporated into the BCW, which provides a basis for identifying which intervention strategies are most likely to be effective.

7.9 Stakeholder involvement

Stakeholder involvement has been an important aspect of this project, from the early planning stages through to analysis and write up of the study findings. Stakeholders (comprising practice- and policy-level representatives) provided feedback on the study protocol and helped to inform the scope of the research topics and research questions. We adopted a two-stage review process. In the first stage, we searched for literature broadly to inform a map of the literature using key characteristics of the studies which was used to refine the scope and priority research areas in collaboration with the stakeholders. Due to the heterogeneity of interventions and services identified in the literature, it was decided to conduct a broad review of self-care of minor ailments. Results of the review were then presented to the key stakeholders (n = 5) comprising practice- and policy-level representatives, who met face-to face to review the findings and, in particular, to discuss the suggested intervention strategies emerging from the research. These discussions informed the selection of the most relevant and feasible intervention strategies. For example, the stakeholders highlighted that a key NHS priority is to flag the role of pharmacists in managing self-care and reduce the number of people going to GP/A&E unnecessarily. We therefore emphasised strategies that targeted community pharmacy. The stakeholders also highlighted where we had suggested inappropriate, outdated strategies (such as providing private consultation rooms in community pharmacy, as over 90% of pharmacies already have this facility), which were subsequently removed in a revised version of the report.

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Appendices

Appendix 1: Details of the 20 included qualitative interview studies

Study	Minor ailment	Population (number of service-user participants)	Setting	Socio-economic Status	Living arrangements	Other
Allen et al. (2002)	No targeting	Type: parents/carers of young children (29) Age: NR Women: (29, 100%) Ethnicity: White (29, 100%) Children: more than one (25/29, 86%)	England, Nottingham (rural + urban)	SES: mixed [PNR] Occupational status: mixed [PNR] Income: NR Education: NR Free prescriptions: Yes (all children)	Shared living (100%) Married (100%) Housing status: owner (25/29, 86%), not (4/29, 14%)	NR
Cabral et al. (2015)	Respiratory tract infections	Type: parents/carers of young children (60) Age (years): <25 (8/60, 13%); 25-34 (22/60, 37%); 35-44 (19/60, 32%); 45+ (11/60, 18%) Women: (58/60, 97%) Ethnicity: mainly White British [PNR] Children: one (25/60, 42%), two (29/60, 48%), three (6/60, 10%)	England, South West (rural + urban)	SES of parents' neighbourhood: 1 (most deprived, 16); 2 (11); 3 (13); 4 (6); 5 (most affluent, 14) Occupational status: NR Income: NR Education: left school <16yrs (4/60, 7%); schooling to 16yrs (17/60, 28%); schooling to 18yrs (12/60, 20%); graduate degree (10/60; 17%); postgraduate degree (17/60, 28%) Free prescriptions: Yes (all children)	NR	Age of youngest child (years): <2 (21/60, 35%); 2-4 (16/60, 27%); >4 (23/60, 38%)

Caldow et al. (2007)	No targeting	Type: general population (48) Age (years): 18-73 Women: (32/48, 67%) Ethnicity: NR Children: NR	Scotland (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Cantrill et al. (2006)	No targeting	Type: general population (19) Age (years): 20-69 (mean 44) Women: (13/19, 68%) Ethnicity: mixed [PNR] Children: NR	England, West Midlands (NR)	SES: mixed [PNR] Occupational status: employed (10/19, 53%); retired (3/19, 16%); unemployed (3/19, 16%); housewife (2/19, 11%); student (1/19, 5%) Income: NR Education: none (9/19, 47%); O-Level/GCSE (7/19, 37%); nursing qualification (2/19, 11%); A-Level (1/19, 5%) Free prescriptions: eligible (8/19, 42%)	NR	NR
Doyle (2013)	No targeting	Type: parents/carers of young children (823 posts, 34 discussions) Age (years): NR Women: (98% of users) Ethnicity: Mainly White (94% of users) Children: NR	UK (95% of users), mainly the south-east (rural + urban)	SES: NR Occupational status: NR Income: <£20,000pa (10% of users) Education: degree or higher (75% of users) Free prescriptions: NR	Shared living (94% of users) Married (94% of users, or living with partner) Housing status: NR	Most Mumsnet users (63%) were between 31 and 40 years old; most had children under six years old
Everitt et al. (2003)	Conjunctivitis	Type: general population (25) Age (years): 13-90 Women: (22/25, 88%)	England, Hampshire and Wiltshire (rural + urban)	SES: mixed [PNR] Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	Parents: (11/25, 44%) Teenage: (1/25, 4%) Consulted: GP (12/25, 48%); Practice Nurse (13/25, 52%)

		Ethnicity: White (25, 100%) Children: NR				
Gidman and Cowley (2013)	No targeting	Type: general population (26) Age (years): 18-94 (mean 51.69) Women: (17/26, 65%) Ethnicity: British (22/26, 85%); African (4/26, 15%) Children: NR	Scotland (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR (8/26, 31% children)	NR	Two groups were mothers aged 18 to 40 Two groups were aged 52 to 94 years One group was men aged 21 to 63
Houston (2000)	No targeting	Type: parents/carers of young children (29) Age (years): NR Women: mainly [PNR] Ethnicity: NR Children: NR	England, Haywards Heath (semi-rural)	SES: NR (affluent area) Occupational status: professional (11/29, 38%); non-prof or unemployed (12/29, 41%); not stated (6/29, 21%) Income: NR Education: NR Free prescriptions: Yes (all children)	Shared living: two-parent families (23/29, 79%) Married: NR Housing status: NR	Children under 10 years old
Jackson et al. (2005)	No targeting	Type: general population (23) Age (years): 28-70 Women: (13/23, 57%) Ethnicity: White (20/23, 87%); other (3/23, 13%) Children: NR	England, Loughborough (NR)	SES: NR Occupational status: employed (15/23, 65%); caring for family (6/23, 26%); self-employed (2/23, 9%) Income: NR Education: NR Free prescriptions: NR (8/23, 35% children)	NR	Used the walk-in-centre before: (>50%) Sought help: on a weekday (17/23, 74%); at the weekend (6/23, 26%)
Jones et al. (2014)	No targeting	Type: parents/carers of young children (27) Age (years): <20 (1/27, 4%); 20-29	England, Midlands (NR)	SES: NR Occupational status: NR Income: NR Education: NR	Shared living single-parent (5/27, 19%); two-parent (18/27, 67%); more than two adults (4/27, 15%)	Children under 5 years old

		(5/27, 19%); 30-39 (16/27, 59%); 40-49 (5/27, 19%) Women: (24/27, 89%) Ethnicity: travelling families (6/27, 22%); Asian British (11/27, 41%); White British (10/27, 37%) Children: 1 child (6); 2 (8); 3 (5); 4+ (6); NR (2)		Free prescriptions: Yes (all children)	Married: NR Housing status: NR	
Lakhani (2012)	No targeting	Type: ethnic minority - South Asian (55) Age (years): 28-90 Women: (23/55, 42%) Ethnicity: Hindu (17/55, 31%); Sikh (19/55, 35%); Muslim (19/55, 35%) Children: NR	England, Leicester (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	Shared living single adult (8/55, 15%); more than one (46/55, 84%); not reported (1/55, 2%) Married (48/55, 87%) Housing status: NR	Lived in UK: more than 20 years (35/55, 64%); more than 10 years (18/55, 33%); more than 5 years (2/55, 4%)
Leydon et al. (2009)	Urinary tract infections	Type: adults (20) Age (years): 21-64 (median 40) Women: (20, 100%) Ethnicity: NR Children: NR	England, Berkshire (Reading), Wiltshire (Salisbury), Hampshire (Romsey, Portsmouth, Waterlooville, Havant), and Dorset (Dorchester) (NR)	SES: NR Occupational status: NR Income: NR Education: average age leaving education 17.6 years Free prescriptions: NR	Shared living: NR Married: (13/20, 65%) Housing status: NR	Past cystitis (88%) Number of other medical problems (3.0 average) Severity of symptoms (3.5 average) Consulted GP and received delayed antibiotics (100%)

McNulty et al. (2013)	Respiratory tract infection	Type: general population (17) Age (years): NR Women: (10/17, 59%) Ethnicity: White (16/17, 94%), South Asian (1/17, 6%) Children: NR	England, NR (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Milewa (2000)	No targeting	Type: general population (85) Age (years): 18-24 (2.4%); 25-44 (40.5%); 45-64 (39.3%); 65-74 (13.1%); 75-84 (3.6%); 85+ (1.2%) Women: (52/85, 61.2%; one NR) Ethnicity: NR Children: NR	England, Greenleigh (Southern) (NR)	SES: NR Occupational status: NR Income: NR Education: no qualifications (16/85, 18.8%); school leaving (16 years, 28/85, 32.9%); further education (18 years, 19/85, 22.4%); degree/higher degree (13/85, 15.3 %); NR (9/85, 11%) Free prescriptions: NR	Shared living: NR Married: NR Housing status: owner/mortgage (75/85, 88.2%)	Car ownership (72/85, 84.7%)
Neill et al. (2015)	No targeting	Type: parents/carers of young children (27) Age (years): <30 (6/27, 22%); 30-39 (16/27, 59%); 40-49 (5/27, 19%) Women: (24/27, 89%) Ethnicity: Gypsy/Travelling families (6/27, 22%); South Asian (11/27, 41%); White British (10/27, 37%)	England, East Midlands (NR)	SES: mixed [PNR] Occupational status: working full time (9/27, 33%); part-time (6/27, 22%); unemployed/studying (3/27, 11%); home childcare (9/27, 33%) Income: NR Education: university (15/27, 56%); college (2/27, 7%); school (2/27, 7%); NVQ Level 2 (2/27, 7%); None (4/27, 15%); NR (2/27, 7%) Free prescriptions: Yes (all children)	Shared living: NR Married: (24/27, 89%) Housing status: NR	Access to the internet at home: White British families (100%); most South Asian families; and the exception for Gypsy/Travelling families [PNR]

		Children: mainly one or two (range 1 to 9) [PNR]				
O’Cathain et al. (2005)	No targeting	Type: general population (53) Age (years): 18-29 (8/53, 15%); 30-49 (30/53, 57%); 50-65 (10/53, 19%); 65+ (5/53, 9%) Women: (41/53, 77%) Ethnicity: White (51/53, 96%), Other (2/53, 4%) Children: NR	England, London and another unspecified NHS Direct site (rural + urban)	SES: NR Occupational status: NR Income: NR Education: degree (17/53, 32%); A level/further education (12/53, 23%); GCSE (14/53, 26%); no qualifications (10/53, 19%) Free prescriptions: NR	NR	NR
Porteous et al. (2015)	No targeting	Type: general population (24) Age (years): 30-39 (3/24, 13%); 40-49 (2/24, 8%); 50-59 (7/24, 29%); 60-69 (8/24, 33%); 70+ (4/24, 17%) Women: (16/24, 67%) Ethnicity: NR Children: NR	Scotland NR (NR)	SES: NR Occupational status: NR Income: NR Education: less than O-grade (5/24, 21%); O-grade or better (15/24, 63%); NR (4/24, 17%) Free prescriptions: (14/24, 58%)	NR	Analgesic use in the 2 weeks prior to completing the Medicines Study: none (4/24, 17%); over-the-counter only (5/24, 21%); prescription only (6/24, 25%); both prescription and over-the-counter (9/24, 38%)
Redsell et al. (2007)	No targeting	Type: general population (28) Age (years): 21-77 (60+: 4/28, 14%) Women: (11/28, 39%) Ethnicity: NR Children: NR	England, NR (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR

Stafford et al. (2014)	Back pain	Type: general population (11) Age (years): 18+ Women: NR Ethnicity: NR Children: NR	England, NR (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Tucker and Stewart (2015)	Dermatitis	Type: general population (25); parents/carers of young children (11/25, 44%) Age (years): 21-84 Women: (20/25, 80%) Ethnicity: NR Children: NR	England, South Humber PCT (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR (11/25, 44% children)	NR	NR

PNR = proportions not reported, NR = not reported, PCT = Primary Care Trust

Appendix 2: Methods of interview studies

Study	Aims	Design	Recruitment	Frequency of use (GP/A&E)
Allen et al. (2002)	Information and knowledge	Sampling: purposive Data collection: focus groups Analysis: thematic	Playgroups (attempted GP but failed)	NR
Cabral et al. (2015)	Reasons for consulting GP	Sampling: purposive Data collection: focus groups and interviews Analysis: thematic	Unclear	GP visits for youngest child (per year) [SR]: 1-3 (28/60, 47%), 4-6 (15/60, 25%), 7-12 (9/60, 15%), >12 (8/60, 13%)
Caldow et al. (2007)	Views on the practice nurse	Sampling: purposive Data collection: interviews Analysis: content analysis	GP practice	Frequent, occasional and non-attenders at general practices
Cantrill et al. (2006)	Reasons for consulting GP	Sampling: purposive Data collection: interviews Analysis: content analysis (with constant comparison)	GP practice	NR
Doyle (2013)	Views on online peer support (self-care)	Sampling: convenience Data collection: online forum Analysis: thematic	None - analysis of public conversations on Mumsnet	NR
Everitt et al. (2003)	Information and knowledge	Sampling: grounded theory-guided Data collection: interviews Analysis: grounded theory (constant comparison)	GP practice	NR
Gidman and Cowley (2013)	Views on the pharmacy	Sampling: purposive Data collection: focus groups Analysis: thematic	A regional pensioners' forum, a senior forum, a Young Women's Christian Association learning group, a mothers' group, and an IT interest group at a further education college	NR
Houston (2000)	Reasons for using GP out-of-hours services	Sampling: purposive Data collection: interviews Analysis: framework synthesis	GP practice - out-of-hours users and health-visitor records	Use of out-of-hours service: frequent (10/29, 34%), once (11/29, 38%), none (8/29, 28%)
Jackson et al. (2005)	Reasons for using NHS walk-in Centres	Sampling: purposive Data collection: interviews Analysis: constant comparison	Walk-in centre/minor injury unit	NR

Jones et al. (2014)	Information and knowledge	Sampling: purposive (maximum variation) Data collection: focus groups and interviews Analysis: grounded theory (constant comparison)	A community facilitator, a community centre, two children's centres, and a private nursery	NR
Lakhani (2012)	Reasons why people self-care	Sampling: opportunistic and purposive with snowballing Data collection: focus groups Analysis: grounded theory and framework analysis	Community centres - one Hindu, one Sikh, and one Muslim	NR
Leydon et al. (2009)	Reasons for consulting GP	Sampling: convenience Data collection: interviews Analysis: thematic (modified analytic induction)	GP practice	NR
McNulty et al. (2013)	Reasons for consulting GP	Sampling: convenience Data collection: interviews Analysis: thematic	Pharmacy	NR
Milewa (2000)	Information and knowledge	Sampling: purposive Data collection: interviews Analysis: unclear	Electoral roll	NR
Neill et al. (2015)	Views on the pharmacy	Sampling: purposive (maximum variation) Data collection: focus groups and interviews Analysis: grounded theory (constant comparison)	Unclear	NR
O'Cathain et al. (2005)	Reasons for using NHS Direct	Sampling: purposive Data collection: interviews Analysis: thematic	Callers to NHS Direct	NR
Porteous et al. (2015)	Reasons why people self-care	Sampling: purposive Data collection: interviews Analysis: thematic and framework analysis	Responders to a survey on the use of non-prescribed analgesics in Scotland	Analgesic use in past two weeks: none (4/24, 17%), over the counter (5/24, 21%), prescription (6/24, 25%), prescription and over the counter (9/24, 38%)
Redsell et al. (2007)	Views of the practice nurse	Sampling: convenience Data collection: interviews Analysis: constant comparison	GP practice	NR

Stafford et al. (2014)	Views of A&E, walk-in-centre and out-of-hours GP	Sampling: purposive and theory-guided Data collection: interviews Analysis: grounded theory	A&E and walk-in-centre out-of-hours service	NR
Tucker and Stewart (2015)	Views on the pharmacy	Sampling: convenience Data collection: interviews Analysis: framework analysis	Through pharmacy	NR

SR = self-reported, IT = information technology, NR=not reported

Appendix 3: Characteristics of the 13 surveys

Study	Minor ailment	Population (number of participants)	Setting	Socio-economic status	Living Arrangements	Other
Amiel et al. (2014)	No targeting	Type: general population (649) Age (years): 18-84 (median 29; mean 35) Women: (59%) Ethnicity: White (72%) Children: NR	England, London Borough of Hammersmith and Fulham (urban)	SES: NR Occupational status: employed (65%); retired (6%) Income: NR Education: left at 16 or younger (11%); going to school, college or university (17%) Free prescriptions: NR	NR	UK resident (75%) Long-term illness or disability that limited daily activities or work (90/638, 14%)
Atenstaedt et al. (2015)	No targeting	Type: general population (806) Age (years): 16+ (16-29: 27%; >75: 4%) Women: (43%) Ethnicity: NR (18/806 Welsh-speaking) Children: NR	Wales, North Wales (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Banks (2010)	42 minor ailments (listed in paper)	Type: general population (1,317) Age (years): 15-60 Women: (51%) Ethnicity: NR Children: NR	England and Wales, NR (rural + urban)	SES: ABC1 (50%); C2DE (50%) Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Chalder et al. (2007)	No targeting	Type: general population (704) Age (years): 16+ Women: NR	England, London Borough of	SES: NR Occupational status: NR Income: NR Education: NR	NR	NR

		Ethnicity: NR Children: NR	Hammersmith and Fulham (urban)	Free prescriptions: NR		
Coleman et al. (2001)	No targeting	Type: adults (255) Age (years): <35 (57%; mean 34) Women: (38%) Ethnicity: NR Children: NR	England, Sheffield (urban)	SES: NR Occupational status: employed (184/255, 72%) Income: NR Education: NR Free prescriptions: NR	NR	Of those deemed suitable for treatment elsewhere (not A&E): 53% were <35 years old, 33% women, 69% employed
Hau et al. (2008)	Conjunctivitis	Type: general population (560) Age (years): 1-90 (median 35) Women: (269/560, 48.1%) Ethnicity: NR Children: NR	England, Moorfields Eye Hospital (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Hendry et al. (2005)	No targeting	Type: parents/carers of young children (465) Age (years): NR Women: (210/465, 45%) Ethnicity: NR Children: one (127/465, 27%); two (199/465, 43%); three+ (139/465, 30%)	Scotland, Edinburgh (urban)	SES: mixed [PNR] Occupational status: NR Income: NR Education: left full time education by 16 years (254/465, 55%) Free prescriptions: Yes (all children)	Shared living: married or living with partner (369/465, 80%); single parent (93/465, 20%) Marital status: NR Housing: NR	NR

Land and Meredith (2013)	No targeting	Type: general population (485) Age (years): 0-95 (median 28; mean 32; SD 18.25) Women: (241/485, 50%) Ethnicity: NR Children: NR	England, NR (but appears to have been Birmingham) (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
McNulty et al. (2013)	Respiratory tract infection	Type: general population (1,767) Age (years): 15+ Women: NR Ethnicity: NR Children: NR	England, NR (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Rajpar et al. (2000)	No targeting	Type: general population (54 A&E attenders) Age (years): (mean 27.9, 95% CI 10.4 to 45.4) Women: (28/54, 52%) Ethnicity: White (33/54, 61%), Asian (10/54, 19%), Black (11/54, 20%) Children: NR	England, West Birmingham (urban)	SES: NR (a socially deprived area) Occupational status: employed (13/54), unemployed (21/54), student/retired (20/54) Income: NR Education: NR Free prescriptions: NR	NR	NR
Salisbury et al. (2002)	No targeting	Type: general population (6,229) Age (years): median walk-in-centre (29); GP (32) Women: walk-in-centre (2,093/3,865, 54.3%); GP (1,398/2,373, 58.9%) Ethnicity: White - walk-in-centre (3,324/3,816, 87.1%); GP (1,994/2,348, 84.9%) Children: NR	England, All walk-in-centres @ March 2001 (NR)	SES: NR Occupational status: NR Income: NR Education: past 18 years - walk-in-centre (847/3,314, 24.7%); GP (382/1,993, 18.9%) Free prescriptions: NR	Shared living: NR Marital status: NR Housing: Owner - walk-in-centre (2,096/3,806, 55.1%); GP (1,253/2,335, 53.7%)	NR

Vohra (2006)	17 minor ailments (not listed)	Type: general population (123) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, Chorley and South Ribble PCT (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Watson et al. (2015)	Back pain, heartburn and indigestion, nasal congestion, constipation, cough (URTI), sprains and strains (musculoskeletal pain), sore throat, diarrhoea, common cold, influenza, muscular pain, eye discomfort	Type: general population (377) Age (years): (mean 48.3, SD 17.8, n=370) Women: (221/372, 59.4%) Ethnicity: British (351/370, 94.9%), other EU (11/370, 3.0%), non-EU (8/370, 2.2%) Children: NR	England and Scotland, Norwich and Aberdeen 25-mile radii (rural + urban)	SES: mixed [PNR] Occupational status: employed full-time (225/372, 60.5%), retired (82/372, 22.0%), other (65/372, 17.5%) Income: NR Education: NR Free prescriptions: No (82/160, 51.2%), Yes (78/160, 48.8%)	Shared living: no (75/369, 20.3%), yes (294/369, 79.7%) Married: or living with partner (229/372, 61.6%), single (90/372, 24.2%), divorced/separated/widowed (53/372, 14.2%) Housing status: NR	NR

NR = not reported, PNR = proportions not reported; PCT = Primary Care Trust

Appendix 4: Surveys methods

Study	Outcome	Design	Recruitment	Frequency of use (A&E/GP)	Study measures
Amiel et al. (2014)	Reasons for attending GP or Urgent care centre/walk-in centre	Design: cross-sectional Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	Urgent care centre: Patients aged 18 years or over, triaged, by a GP, with a 'minor illness'	Consults with GP in past year: 1 (106/465, 23%); 3-4 (211/465, 46%) Previously visited the Urgent care centre: (299/634, 47%)	Did not consider alternatives; Anxiety/worry; Past experience - previous visit; Seriousness/threat/reassurance; Failed self-care; Advised by friends, family or acquaintance; Geographical immediacy of service; Time taken to access care; Not registered with GP; Expected a prescription; Continuity of care; Physically examine - Expected blood test, Expected X-ray; Best place for problem; Second opinion; Confident in service/self-care; Did not want to see GP; Expected advice only
Atenstaedt et al. (2015)	Reasons for attending A&E	Design: cross-sectional Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics (with effect sizes)	A&E: Patients arriving at ED triaged into green (standard) or blue (non-urgent). Exclusions were incapacity through alcohol or drugs, those in emotional distress (e.g. severe pain), age <16 years and written referrals from their GP	NR	Lack of knowledge of alternative services; Did not know if GP available; Made decision alone; Advised by friends, family or acquaintance; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; GP not available/could not contact; Not registered with GP; Expected hospital admission; Referred by GP; Physically examine - Expected stitches, Expected blood test, Expected X-ray, Expected injection - tetanus; Second opinion; Confident in service/self-care

Banks (2010)	Reasons for contacting GP or choosing to self-care	Design: retrospective Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	National online survey: quotas applied to gender, decade of age and UK region to ensure a nationally representative sample	NR	Pharmacist can't give advice; Confidence in medications; Anxiety/worry; Past experience - successful self-care; Seriousness/threat/reassurance; Children seen as vulnerable; Failed self-care (this illness); Advised by friends, family or acquaintance; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; Cost of over the counter medications; Continuity of care; Confident in GP; Confident in self-care; Confident in pharmacist
Chalder et al. (2007)	Reasons for attending A&E or Urgent care centre/walk-in centre	Design: cross-sectional Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	A&E: Patients admitted to hospital, and patients <16 years old, were excluded	NR	Did not consider alternatives; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; Convenient opening hours; GP not available/could not contact; Not registered with GP; Referred by GP; Referred by someone else; Referred by another service; Best place for problem; Second opinion
Coleman et al. (2001)	Reasons for attending A&E	Design: cross-sectional Sampling: systematic Data collection: self-completed questionnaire Analysis: descriptive statistics	A&E: Two lowest priority for treatment; "green", classified broadly as "new illnesses or injuries which are non-urgent", and "yellow", "injuries or long-standing problems where advice could have been sought elsewhere". Participants who were incapable (through alcohol or drugs) of completing a questionnaire, and those referred to A&E by letter from their GP, were excluded	Attended A&E before: (84, 38%)	Lack of knowledge of alternative services; Did not know GP availability; Past experience - previous treatment/consultation; Seriousness/threat/reassurance; Failed self-care; Advised by friends, family or acquaintance; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; Convenient opening hours; GP not available/could not contact; Not registered with GP; Expected referral by GP; Expected hospital admission; Referred by another (unspecified) service; Physically examine - Expected stitches, Expected blood test, Expected X-ray, Expected injection - tetanus; Second opinion; Confident in service/self-care; Did not want to see GP

Hau et al. (2008)	Reasons for attending A&E	Design: cross-sectional Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	A&E: No exclusions reported	Attended A&E before: (263, 46.9%); first attendance (297, 53.1%)	Anxiety/worry; Geographical immediacy of service; Time taken to access care; Second opinion
Hendry et al. (2005)	Reasons for attending A&E	Design: prospective Sampling: systematic Data collection: self-completed questionnaire Analysis: descriptive statistics	A&E: No exclusions reported	Attended A&E before: (396, 85%); number of times in past 12 months: 0 (134, 34%), 1 (147, 37%), 2 (51, 13%), >2 (64, 16%)	Anxiety/worry; Past experience - previous treatment/consultation; Seriousness/threat/reassurance; Failed self-care; Geographical immediacy of service; Time taken to access care; Convenient opening hours; GP not available/could not contact; Expected referral by GP; Referred by GP; Best place for problem; Second opinion; Confidence in service/self-care
Land and Meredith (2013)	Reasons for attending A&E	Design: cross-sectional Sampling: convenience Data collection: self-completed or interview questionnaire Analysis: descriptive statistics	A&E: Patients directed to the joint minor injury/ urgent care centre those who appeared vulnerable or intoxicated were not approached	NR	Lack of knowledge of alternative services; Knew about NHS Direct; Knew about Urgent Care Centres; Knew about walk-in centres; Made decision alone; Seriousness/threat/reassurance; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; GP not available/could not contact; Not registered with GP; Expected referral by GP; Referred by GP; Expected hospital admission; Physically examine - Expected stitches, Expected blood test, Expected X-ray, Expected injection - tetanus, Expected other test; Second opinion

McNulty et al. (2013)	Reasons for contacting GP	Design: cross-sectional Sampling: multi-stage (random areas, quotas) Data collection: interview questionnaire Analysis: descriptive statistics	National survey: Random areas selected from each local authority; interviewers were given age and sex quotas for each area. Interviewers went door-to-door inviting the person who answered (>15 years old) to participate. Households were visited throughout the week; during the day, evenings, and weekends.	Contacted GP: (197/1,000 adults with recent RTI symptoms, 19.7%, 95% CI 16.8 to 22.9%)	Past experience - previous treatment/consultation; Seriousness/threat/reassurance; Presence of a long-term condition; Contagion; Advised by friends, family or acquaintance; Capacity to prescribe/treat; Expected medical certificate; Expected advice only
Rajpar et al. (2000)	Reasons for attending A&E	Design: cross-sectional Sampling: convenience (quotas) Data collection: interview questionnaire Analysis: descriptive statistics	A&E: patients with primary care problems (defined as patients with non-emergency problems that could be managed in an average local GP surgery and triaged not to require treatment within two hours) were recruited	Not reported	Did not know GP availability; Knew about the GP cooperative; Seriousness/threat/reassurance; Did not want to bother GP; Time taken to access care; GP not available/could not contact; Better facilities/services; Second opinion
Salisbury et al. (2002)	Reasons for attending GP or urgent care centre/walk-in centre	Design: cross-sectional Sampling: random (sessions) Data collection: self-completed questionnaire Analysis: inferential statistics	GP and walk-in centre: Consecutive visitors to walk-in centres or general practices, during randomly selected half-day sessions, were invited to participate, if attending on a same-day basis. Parents or carers completed the questionnaire for those unable to do so themselves. Unaccompanied children <16 years old were excluded	NR	Did not consider alternatives; Past experience - previous treatment/consultation; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; Convenient opening hours; Not registered with GP; Better facilities/services; Expected a prescription; Referred by another (unspecified) service; Continuity of care; Best place for problem; Confident in service/self-care; Did not want to see GP; Wanted to see nurse

Vohra (2006)	Reasons for visiting pharmacy	Design: retrospective Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	Pharmacy: From 3,642 copies of consultation forms returned to the Trust, 303 forms (8.6 per cent) indicated consent	NR	Geographical immediacy of service; Time taken to access care; Did not want to see GP
Watson et al. (2015)	Reasons for attending A&E, GP or pharmacy	Design: cross-sectional Sampling: convenience Data collection: self-completed questionnaire Analysis: descriptive statistics	A&E, GP and Pharmacy: Patients were excluded if they were collecting prescription items or purchasing treatment for the future management of minor ailments	NR	Past experience - previous treatment/consultation; Seriousness/threat/reassurance; Failed self-care; Advised by friends, family or acquaintance; Did not want to bother GP; Geographical immediacy of service; Time taken to access care; Privacy; Cost of over the counter medications; Second opinion; Did not want to see GP; Expected advice only

RTI = respiratory tract infection, NR = not reported

Appendix 5: Details of the 26 evaluation studies

Study	Minor Ailment	Population (number of service-user participants)	Setting	Socio-economic status	Living Arrangements	Other
Arain et al. (2014)	No targeting	Type: general population (monthly attendance between 1,500 and 3,000 for two years) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, Sheffield (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	No major differences in age, gender and time of attending, between the two datasets
Butler et al. (2001)	Cough, sore throat, common cold, URTI, tonsillitis, pharyngitis	Type: general population (343) Age (years): nurse (median 21.84, IQR 4.93±45.37); GP (median 39.91, IQR 16.32±62.27) <15: nurse (44%); GP (21%) Women: NR Ethnicity: NR (a large proportion of ethnic minority patients) Children: NR	Wales, Cardiff (urban)	SES: The area had a Townsend deprivation score of 3.9, making it one of the more deprived practice areas Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	No statistically significant difference in gender between the two groups
Chalder et al. (2003)	No targeting	Type: general population (20 EDs, 40 GPs, 14 out-of-hours) Age (years): NR Women: NR Ethnicity: NR Children: NR	England and Wales, 10 representative walk-in centres (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR

Chapman et al. (2002)	Influenza and respiratory illness	Type: general population (population statistics) Age (years): NR Women: NR Ethnicity: NR Children: NR	England and Wales, NR (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	The age distribution was similar in the three groups and similar to that of the national population
Cox and Jones (2000)	Sore throat	Type: general population (392) Age (years): 2+ (mean - GP 28.3; nurse 22.5) Women: GP (66%); nurse (71%) Ethnicity: NR Children: NR	England, Petersfield (semi-rural)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Ersser et al. (2013)	Dermatitis (eczema)	Type: parents/carers of young children (41) Age (years): NR Women: NR Ethnicity: White (27%), non-White (35%), not stated (38%) Children: NR	England, Lambeth, London (urban)	SES: mixed [PNR] Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (all children)	NR	Child age (years): <2 (20), 2-6 (12), >6 (9)
Everitt et al. (2006)	Conjunctivitis	Type: general population (250) Age (years): 1+ (mean - no antibiotic 27.2, SD 27.6; immediate 27.2, SD 25.1; delayed 28.2 SD 25.9) Women: no antibiotic (55/94, 59%); immediate (59/104, 57%); delayed (61/109, 56%) Ethnicity: NR Children: NR	England, Hampshire, Wiltshire and Dorset (rural + urban)	SES: Deprivation score - mean (SD), median (range): no antibiotic 14.4 (11.6), 10.8 (1.5-44.7); immediate 12.6 (10.2), 8.5 (1.9-46.3); delayed 13.1 (8.7), 10.7 (1.5-45.2) Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR

Francis et al. (2009)	Cough, earache, sore throat, common cold (RTI), runny nose, fever, looks unwell	Type: parents/carers of young children (528) Age (years): 0.5-14 (mean - intervention 5.1, SD 3.9; control 5.3, SD 3.8) Women: intervention (54.7%); control (46.5%) Ethnicity: NR Children: NR	England and Wales, NR (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (all children)	NR	NR
Hammersley et al. (2014)	Hay fever (seasonal allergic rhinitis)	Type: young adults (341; 246 analysed) Age (years): 12-18 (mean - intervention 15, SD 1.85; control 15, SD 1.91) Women: intervention (111/223, 49.8%); control (61/118, 51.7%) Ethnicity: NR Children: NR	England and Scotland, Lothian; South of Tyne and Wear; North of Tyne; County Durham; North Yorkshire and York; and Leeds (NR)	SES: IMD mean - intervention 21.5, control 21.7; SIMD mean - intervention 2.48, control 2.47 Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (all children)	NR	NR
Heaney et al. (2001)	No targeting	Type: general population (9,408) Age (years): 1+ Women: NR Ethnicity: NR Children: NR	Scotland, Lothian (NR)	SES: mixed [PNR] Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Hsu et al. (2003)	No targeting	Type: general population (8,369) Age (years): NR [PSR] Women: NR Ethnicity: NR Children: NR	England, Loughborough and Market Harborough (NR)	SES: NR [PSR] Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Little et al. (2001a)	Back pain	Type: general population (311) Age (years): 16-80 (mean 46) Women: (57%)	England, NR (seems to be Southampton) (NR)	SES: NR Occupational status: in employment (69%) Income: NR	Shared living: Married/living as married - control 30 (86%) booklet 31 (71%) exercise	Paid employment - control (34, 69%), booklet (40, 71%),

		Ethnicity: NR Children: NR		Education: years of full-time education since age 10 (mean 6.5) Free prescriptions: NR	30 (75%) both 38 (81%) Married: NR Housing status: NR	exercise (35, 69%), both (37, 64%) Manual employment - control (12, 25%), booklet (19, 34%), exercise (9, 18%), both (19, 33%) Years in full-time education since age 10 - control (6.2, 1.8%), booklet (6.7, 2.7%), exercise (7.1, 2.9%), both (6.3, 1.7%)
Little et al. (2001b)	42 minor ailments (not listed)	Type: general population (4,002) Age (years): 0-80 (mean booklet 37, SD 20; summary 37, SD 20; control 38, SD 20) Women: booklet (487, 49%); summary (514, 53%); control (493, 50%) Ethnicity: NR Children: NR	England, Southampton and surrounding area (rural + urban)	SES: NR Occupational status: median (IQR) - non-manual - booklet 0.50 (0.30 to 0.66), summary 0.50 (0.29 to 0.66), control 0.52 (0.31 to 0.67); retired - booklet 0.21 (0.10 to 0.35), summary 0.21 (0.10 to 0.33), control 0.22 (0.11 to 0.34); economically inactive - booklet 0.10 (0.03 to 0.21), summary 0.10 (0.04 to 0.22), control 0.10 (0.04 to 0.21) Income: NR Education: NR Free prescriptions: NR	NR	NR

Mason (2007)	No targeting (included falls, cuts, and burns)	Type: elderly (3,018) Age (years): 60+ (mean 82.55, SD 8.32) Women: (2,192/3,018, 72.6%) Ethnicity: NR Children: NR	England, Sheffield (urban)	SES: NR Occupational status: NR (likely to be retired) Income: NR Education: NR Free prescriptions: NR	NR	NR
Mason et al. (2013)	Dermatitis (eczema)	Type: parents/carers of young children (136) Age (years): NR Women: mixed [PNR] Ethnicity: Caucasian (50%); non-Caucasian (50%) Children: NR	UK NR (online and telephone) (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (all children)	NR	Child age (years): 3mths to 6 years
Moore et al. (2009)	Cough, common cold (LRTI)	Type: general population (807) Age (years): 3+ <16 (136); 16-60 (538); >60 (133) Women: NR Ethnicity: NR Children: NR	England, Wessex (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Munro et al. (2005)	No targeting	Type: general population (>60 million patient contacts) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, Wales and Scotland (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	GP coops (104); ambulance (75); EDs (170)
Platts et al. (2005)	180 minor ailments (not listed in paper)	Type: general population (1,967) Age (years): 16-19 (57), 20-29 (289), 30-39 (485), 40-49 (458), 50-59 (329), 60-69 (169), 70-79 (134), 80-89 (43), 90+ (3)	England, St Albans (NR)	SES: non-manual social class (86%) Occupational status: mixed [PNR] Income: NR Education: A-level or beyond (73%) Free prescriptions: NR	NR	A prosperous, well-educated, high employment population

		Women: (1,420/1,967, 72%) Ethnicity: NR Children: NR				
Richards et al. (2002)	No targeting	Type: general population (4,685) Age (years): 0-4 (799/4,685, 17.1%); 5-16 (533/4,685, 11.4%); 17-24 (372/4,685, 7.9%); 25-44 (1,203/4,685, 25.7%); 45-64 (677/4,685, 14.5%); 65-74 (431/4,685, 9.2%); >75 (670/4,685, 14.3%) Women: (2,844/4,685, 60.7%) Ethnicity: NR Children: NR	England, York (urban)	SES: NR Occupational status: mixed [PNR] Income: NR Education: NR Free prescriptions: NR	NR	The practice population had a slightly poorer standardised mortality ratio, higher unemployment, and more pensionable residents than the regional average
Robbins et al. (2003)	No targeting	Type: parents/carers of young children (103) Age (years): NR Women: NR (100%) Ethnicity: NR Children: NR	Scotland, A small town (rural)	SES: DEPCAT1 (18/103, 24.1%), DEPCAT2 (16/103, 15.5%), DEPCAT3 (13/103, 12.6%), DEPCAT4 (16/103, 15.5%), DEPCAT5 9 (16/103, 15.5%), DEPCAT6 (14/103, 13.6%), DEPCAT7 (10/103, 9.7%) Occupational status: mother working (28/103, 27.2%) Income: NR Education: left education <16 years (12/103, 11.7%) Free prescriptions: Yes (all children)	Shared living: NR Married: married (64/103, 62.1%), single (6/103, 5.8%), unmarried partner (33/103, 32.0%) Housing status: own (66/103, 64.1%), council (18/103, 17.5%), rented (13/103, 12.6%), Royal Air Force (6/103, 5.8%)	Children aged 6 weeks (100%), female (51/103, 49.5%)

Roberts et al. (2002)	Back pain	Type: general population (64) Age (years): 16-60 (intervention 16-58 mean 39.2 +-10.9, control 22-56 mean 39.3 +-9.7, one NR) Women: (22/63, 35%) Ethnicity: NR Children: NR	England, Southampton and New Forest (rural + urban)	SES: I (3/62, 5%), II (7/62, 11%), III (25/62, 40%), IV (20/62, 32%), V (6/62, 10%), unclassifiable (1/62, 2%) Occupational status: employed (52/63, 83%), manual (35/62, 56%) Income: NR Education: O-level/CSE/GCSE or lower (47/63, 75%) Free prescriptions: NR	NR	NR
Salisbury et al. (2007)	No targeting	Type: general population (6,400) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, NR (NR)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Shum et al. (2000)	No targeting	Type: general population (1,815) Age (years): 1+ (median GP 29.1 IQR 9.7-44.9, nurse 26.0 IQR 9.0-41.7) Women: (1,090/1,813, 60%) Ethnicity: NR Children: NR	England, South East London and Kent (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Turner et al. (2013)	No targeting	Type: general population (277,163 calls) Age (years): NR Women: NR Ethnicity: mixed [PNR] Children: NR	England, Durham and Darlington, Nottingham, Luton, Lincolnshire North Tyneside, Leicester, and Norfolk (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR

Williamson et al. (2006)	Earache (AOM and glue ear)	Type: general population (385,916 cases) Age (years): <2 (54,492), 2+ (250,263) Women: (158,509, 41%) Ethnicity: NR Children: NR	UK (rural + urban)	SES: deprivation low (101,287), medium (100,828), high (102,640) Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	NR
Yardley et al. (2010)	Nasal congestion, cough, sore throat, common cold, influenza	Type: young people (714) Age (years): 18-79 <25 (440/709, 62.1%) Women: (516/714, 72.3%) Ethnicity: NR Children: NR	UK (NR)	SES: NR Occupational status: NR (targeted students) Income: NR Education: completing or completed a university degree (651/714, 91.2%) Free prescriptions: NR	NR	NR

IQR = interquartile range, EDs = emergency departments, GPs = general practitioners, SD = standard deviation, IMD = The 2004 Index of Multiple Deprivation for English practices, SIMD = Scottish Index of Multiple Deprivation, PSR = population statistics reported, LRTI = lower respiratory tract infection, AOM = acute otitis media, NR = not reported

Appendix 6: Evaluations methods

Study	Aims	Outcomes	Design	Recruitment	Frequency of use (GP/A&E)
Arain et al. (2014)	Intervention: walk-in-centre Provider: nurse Delivery: face-to-face Decision-making: independent	A&E consultations (adult and children's) Walk-in-centre	Design: controlled Type: historical Last measure: year before and year after opening	NA hospital records analysed	NA
Butler et al. (2001)	Intervention: education/skills training for patients Provider: nurse Delivery: face-to-face Decision-making: independent	GP consultations	Design: controlled Type: usual treatment and historical Last measure: year before and year after consultation with nurse	Practice nurse at GP surgery	NR
Chalder et al. (2003)	Intervention: walk-in-centre Provider: nurse Delivery: face-to-face Decision-making: independent	GP consultations (regular and out-of-hours) A&E consultations	Design: controlled Type: usual treatment and historical Last measure: year before and year after opening	NA consultation rates	NR
Chapman et al. (2002)	Intervention: NHS Direct Provider: nurse Delivery: telephone Decision-making: independent	GP consultations	Design: controlled Type: usual treatment and historical Last measure: four years	NA population statistics, reported by GPs	NR
Cox and Jones (2000)	Intervention: minor illness service Provider: nurse Delivery: face-to-face Decision-making: independent or directed ¹⁵⁸	GP consultations (Subjective) Symptom reduction (Recovery, analgesia, and satisfaction)	Design: controlled Type: usual treatment Last measure: five to seven days (28 days if not fully recovered)	Practice nurse at GP surgery	NR

¹⁵⁸ Patients either chose to see the nurse or the GP or were directed by the receptionist, depending on who was available

Ersser et al. (2013)	Intervention: education/skills training for patients Provider: nurse Delivery: face-to-face Decision-making: independent	GP consultations Symptom reduction (QoL - subjective)	Design: controlled Type: historical Last measure: eight months before and eight months after	Referred by GP	Visits per patient (range 0-13) in 8 months before intervention; 6+ (11), 5 or fewer (30)
Everitt et al. (2006)	Intervention: education/skills training for patients, and prescribing strategies Provider: GP Delivery: face-to-face and leaflet Decision-making: directed	GP consultations (subjective) Symptom reduction	Design: randomised controlled Type: usual treatment Last measure: one year	GP consultation	NR
Francis et al. (2009)	Intervention: education/skills training for patients Provider: GP Delivery: face-to-face and leaflet Decision-making: shared	GP consultations (and antibiotic prescriptions)	Design: cluster randomised controlled Type: usual treatment Last measure: two weeks	GP consultation	NR
Hammersley et al. (2014)	Intervention: education/skills training for GP Provider: researchers and Education for Health Delivery: one-day training Decision-making: shared	GP consultations (and prescriptions) Symptom reduction (QoL)	Design: cluster randomised controlled Type: no training (written guidance) Last measure: six weeks to one year	Letter from GP	NR
Heaney et al. (2001)	Intervention: education/skills training for patients Provider: What Should I Do? booklet Delivery: postal Decision-making: independent	GP consultations (and other primary care health service use, recorded in GP notes)	Design: randomised controlled Type: usual treatment Last measure: one year	Community Health Index (CHI), and out-of-hours services	Out-of-hours sample: frequent users CHI sample: NR
Hsu et al. (2003)	Intervention: walk-in-centre Provider: nurse Delivery: face-to-face Decision-making: independent	GP consultations A&E consultations	Design: controlled Type: usual treatment and historical Last measure: two years	NA population statistics	NR

Little et al. (2001a)	Intervention: education/skills training for patients Provider: GP Delivery: booklet and face-to-face Decision-making: shared	Symptom reduction	Design: randomised controlled Type: usual treatment Last measure: three weeks	GP consultation	Mean GP visits for back pain in last year: control (1.8, SD 2.7), booklet (1.2, SD 1.2), exercise (1.1, SD 1.4), both (1.6, SD 3.1)
Little et al. (2001b)	Intervention: education/skills training for patients Provider: leaflet endorsed by GP Delivery: postal Decision-making: independent	GP consultations	Design: randomised controlled Type: placebo (surgery access times leaflet) Last measure: year before and year after	GP Practice lists	Consulting in past year for: acute respiratory conditions (>1) book (189, 19%), summary (224, 23%), control (213, 22%); minor illness (>2) book (255, 26%), summary (289, 30%), control (272, 28%); any condition (>5) book (279, 28%), summary (279, 29%), control (299, 30%)
Mason (2007)	Intervention: paramedic treatment on scene Provider: specialist paramedics Delivery: face-to-face Decision-making: directed	A&E consultations	Design: cluster randomised controlled Type: usual treatment Last measure: 28 days	999 callers	NR
Mason et al. (2013)	Intervention: education/skills training for patients Provider: DVD and specialist nurses Delivery: postal with telephone support Decision-making: independent	GP consultations (subjective) Cost effectiveness Symptom reduction	Design: controlled Type: historical Last measure: 12 weeks before and 12 weeks after	Email from "Bounty" database	NR
Moore et al. (2009)	Intervention: education/skills training for patients, and prescribing strategies Provider: GP leaflet Delivery: face-to-face	GP consultations	Design: randomised controlled Type: usual treatment Last measure: one year	GP consultation	NR

	Decision-making: independent				
Munro et al. (2005)	Intervention: NHS Direct Provider: nurse Delivery: telephone Decision-making: independent	GP consultations A&E consultations	Design: controlled Type: historical Last measure: four years	NA statistics from services	NR
Platts et al. (2005)	Intervention: education/skills training for patients Provider: GP Delivery: booklets and face- to-face Decision-making: independent	GP consultations	Design: randomised controlled Type: usual treatment Last measure: one year	GP consultation	NR
Richards et al. (2002)	Intervention: triage Provider: nurse Delivery: telephone Decision-making: directed	GP consultations Cost-effectiveness (costs)	Design: controlled (interrupted time series) Type: historical Last measure: one year	Requests for same- day GP appointment	NR
Robbins et al. (2003)	Intervention: education/skills training for patients Provider: health visitor Delivery: booklet and face-to- face Decision-making: shared	GP consultations (routine or out-of- hours)	Design: randomised controlled Type: usual treatment Last measure: seven months	Health visitor	NR
Roberts et al. (2002)	Intervention: education/skills training for patients Provider: GP Delivery: leaflet and face-to- face Decision-making: shared	Symptom reduction	Design: cluster randomised controlled Type: usual treatment Last measure: one year	GP consultation	NR
Salisbury et al. (2007)	Intervention: walk-in-centre Provider: nurse Delivery: face-to-face Decision-making: directed	GP consultations (subjective) A&E consultations (subjective) Walk-in-centre	Design: controlled Type: usual treatment and historical Last measure: 15 months	NA anonymised A&E patient records	NR

		Cost-effectiveness (cost per patient)			
Shum et al. (2000)	Intervention: minor illness service Provider: nurse Delivery: face-to-face Decision-making: directed	GP consultations (out-of-hours and return - subjective) A&E consultations (subjective) Symptom reduction	Design: randomised controlled Type: usual treatment Last measure: single measure	Requests for same-day GP appointment	Consultations in past year: mean GP (4.9, SD 3.85), nurse (4.6, SD 3.54)
Turner et al. (2013)	Intervention: NHS 111 Provider: nurse Delivery: telephone Decision-making: shared	GP consultations (out-of-hours) A&E consultations	Design: controlled Type: usual treatment and historical Last measure: two years before and one after	NA attendance statistics	NA
Williamson et al. (2006)	Intervention: antibiotic prescribing practice Provider: GP Delivery: face-to-face Decision-making: independent	GP consultations	Design: controlled Type: usual treatment Last measure: 10 years (1991 to 2000)	NA routinely collected statistics from GPs	NA
Yardley et al. (2010)	Intervention: education/skills training for patients Provider: Internet Doctor Delivery: interactive website Decision-making: shared	GP consultations	Design: randomised controlled Type: placebo (static webpage) Last measure: four weeks	Researchers emailed advert via university departments, posters and online ads	NR

QoL = quality of life, CHI = Community Health Index, NA = not applicable, NR = not reported

Appendix 7: Search strategy

The research questions were structured by the following concepts in for searching the bibliographic databases. Synonyms and alternative words for each concept were developed for searching the title, abstract and controlled vocabulary indexing fields within each database.

Question 1: What are the factors that enhance or mitigate the decision to self-care for minor ailments?

- Population/condition: Minor ailments; named minor ailments
- Phenomena of interest: Self-care; help-seeking behaviours; self-care support services; utilising general practice or utilising urgent care
- Country: UK
- Date limits: 2000-2015

Question 2a: Are self-care interventions for minor ailments effective in reducing symptoms, consultations, and cost outcomes?

- Population/condition: Minor ailments, or named minor ailments
- Interventions: Self-care support services; self-care and evaluations (including service evaluations)
- Date limits: 2000-2015 [Apps; online services limited 2008 -2015)

Medline strategy

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present>

Date: (first run 15/9/15, corrected 21/10/15)

Minor ailments

- 1 "common ailment?".ti,ab. (268)
- 2 (Minor adj2 (ailment? or health or malad* or condition or conditions or illness or illnesses or sickness or sicknesses or sprain or sprains or symptom or symptoms or "medical problem*" or "medical condition*")).ti,ab. (2730)
- 3 ((Minor adj2 (problems) and (health or sickness or ailment?)).ti,ab. (173)
- 4 (Minor adj2 (strain? or sprain? or sprained)).ti,ab. (259)
- 5 ((Minor adj2 (conditions) and (health or sickness or ailment?)).ti,ab. (57)
- 6 ((Minor adj2 (complaints) and (health or sickness or ailment?)).ti,ab. (56)
- 7 ("Common health" adj2 (complaints? or ailment?)).ti,ab. (40)
- 8 ("non urgent health" adj2 (complaints or "health problem?")).ti,ab. (10)
- 9 ("non emergency" adj2 (complaints or "health problem?")).ti,ab. (2)
- 10 (mild adj2 (ailment or ailments or "acute illness*" or "medical problem" or "medical problems" or "medical condition" or "medical conditions" or sickness* or illness* or "health problem?")).ti,ab. (813)
- 11 ("Self-limiting" adj2 ("acute illness" or "acute illnesses" or condition or conditions or "medical problem" or "medical problems" or "medical condition" or "medical conditions" or problem or problems or diagnosis or diagnoses or sickness* or illness* or symptoms or ailment* or illness* or "health problem?")).ti,ab. (748)
- 12 ((mild or minor or "self limiting" or "non urgent" or "non emergency") adj1 (infection or infections)).ti,ab. (1062)
- 13 (Nonurgent adj2 ("acute illness*" or condition or conditions or "medical problem" or "medical problems" or "medical condition" or "medical conditions" or problem or problems or diagnosis or diagnoses or sickness* or illness* or symptoms or ailment? or illness or illnesses or "health problem?")).ti,ab. (87)
- 14 (Nonemergency adj2 ("acute illness*" or condition or conditions or "medical problem" or "health problem?" or "medical problems" or "medical condition" or "medical conditions" or problem or problems or diagnosis or diagnoses or sickness* or illness* or symptoms or ailment? or illness*)).ti,ab. (31)

15 ("Non urgent" adj2 ("acute illness*" or condition? or "medical problem" or "medical problems" or "medical condition" or "medical conditions" or problem or problems or diagnosis or diagnoses or sickness or sicknesses or illness or symptoms or ailment? or illnesses or "health problem?").ti,ab. (95)

16 ("Non emergency" adj2 ("acute illness*" or condition or conditions or "medical problem" or "medical problems" or "medical condition" or "medical conditions" or problem or problems or diagnosis or diagnoses or sickness* or illness* or symptoms or ailment* or illness* or "health problem?").ti,ab. (24)

Named minor ailments

17 ((Urinary or Gynaecological or stomach or digestion or digestive or indigestion or bowel or gastric or allergy or eye or ear or mouth or nasal or scalp or skin or respiratory) adj2 (Minor or mild or ailment? or "non urgent" or "self-limiting" or "non emergency").ti,ab. (4161)

18 ((Migraine* or "Muscular pain" or "muscle soreness" or "muscle tenderness" or "Musculoskeletal Pain" or myalgia or "muscle pain" or "back pain") not (chronic adj1 (Migraine* or "Muscular pain" or "muscle soreness" or "muscle tenderness" or "Musculoskeletal Pain" or myalgia or "muscle pain" or "back pain"))).ti,ab. (68888)

19 ((Sprain? or Strain?) adj5 (Minor or mild or ailment? or "non urgent" or "self-limiting" or "non emergency" or common or pain or injur*).ti,ab. (8725)

20 (dermatiti* or Eczema* or dandruff or scurf or "skin problem?" or "skin complaint?" or Psorias* or Acne or "Athlete* foot" or tinea or ringworm or dermatophytos* or epidermophytos* or "Fungal nail" or "diaper rash" or "Nappy rash" or "diaper rashes" or "Nappy rashes" or "Cradle Cap" or "Head lice?" or pediculus or nits or "head louse" or "body lice?" or "body louse?" or Insect bites or "Insect stings" or "bites and stings" or Verrucas or warts or Conjunctivitis* or "Cold sores" or "Fever blister?" or "herpes simplex" or "herpes labialis" or "Mouth ulcers" or "oral ulcer" or "Oral thrush" or Candidia* or Gingivitis or Teething or "Tooth Eruption" or Colds or Catarrh* or "Acute Coryza" or "common cold" or Flu or Grippe or Influenza or Coughs or cough or "Sore throat" or Pharyngitis or "Hay fever" or Pollinosis or "Pollen allergy" or Pollinosis or Rhinitis or "seasonal allerg*" or "seasonally allerg*" or Nasal or Heartburn or Pyrosis or indigestion or Dyspepsia or colic or colicky or "Colonic Inertia" or Constipation or Dyschezia or Diarr* or Haemorrhoids or Hemorrhoids or Threadworm? or Pinworm? or Enterobius or "Oxyuris vermicularis" or Thrush or Cystitis or "vaginal discharge" or "Dysmenorrhoea?" or "period pain" or "painful period?" or "menstrual pain?" or "painful menstruation" or Earache or otalgia or lumbago or "Travel sick*" or sea sick* or car sick* or air sick* or motion sick* or seasick* or carsick* or airsick* or "altitude sick*).ti,ab. (542163)

21 (Inflamat*adj2 skin or "inflamed skin" or "pityriasis capitis" or "seborrhea sicca" or ("Skin lesion?" or "Skin disease?" or "Skin condition?" or "skin complaint") not "chronic skin") or ((Nail or Toenail or fingernail) adj2 (fungous or fungi or Fungus or fungal)) or ("diaper dermatitis" or Pediculosis or lousiness or (insect? adj2 wound?) or "insect bite" or "insect sting" or "Bite and sting" or Verruca? or wart? or "Madras eye?" or "pink eye?" or "pinkeye?" or (eye adj2 inflamm*) or "cold sore" or "Oral herpes" or "Canker sore" or Canker or "Fever blister" or "Oral lesion?" or "Oral sore?" or "Oral boil?" or ulcer or "skin ulcer?" or "oral ulcers?" or odontiasis or "common cold" or coughing or "Sore throat?" or "allergic rhinitis" or "allergic coryza" or "rose cold" or "rose fever" or acidosis or dyspepsy or "acid reflux" or "gastroesophageal reflux" or "gaseous stomach" or cardialgia or backflow or "stomach upset" or "upset stomach" or costiveness or dysentery or "loose stool?" or (loose* adj2 bowel?) or "holiday tummy" or piles or "Enterobius vermicularis" or Headaches? or cephalalgia or encephalalgia or encephalodynia or "Menstrual cramp?" or "Period pain?" or "Painful period?" or Earache? or "Ear infection?" or otodynia).ti,ab. (158987)

22 (Migraine* or "Muscular pain" or "muscle soreness" or "muscle tenderness" or "Musculoskeletal Pain" or myalgia or "muscle pain" or "back pain").ti,ab. not (chronic adj1 (Migraine* or "Muscular pain" or "muscle soreness" or "muscle tenderness" or "Musculoskeletal Pain" or myalgia or "muscle pain" or "back pain")).ti,ab.) (68159)

23 (("back sprain" or backache or "back ache" or "back strain" or "back trouble" or "back twinge" or "back discomfort" or "back problem?" or "back condition?" or "back complaint?") not "chronic back").ti,ab. (3467)

24 headache?.ti,ab. not ("chronic headache?".ti,ab. or chronic pain/) (63312)

25 exp Conjunctivitis/ or exp colic/ or exp dermatitis/ or exp Tinea/ or exp Candidiasis/ or exp Cystitis/ or exp vaginal discharge/ (154942)

26 Acne/ or Psoriasis/ or dandruff/ or Dermatitis, Seborrheic/ or Diaper Rash/ or pediculus/ or INSECT BITES/ or STINGS/ or "BITES and STINGS"/ or Warts/ or conjunctivitis/ or HERPES LABIALIS/ or oral ulcer/ or Gingivitis/ or Tooth Eruption/ or common cold/ or influenza, human/ or cough/ or

Pharyngitis/ or Rhinitis, Allergic, Seasonal/ or Nasal Obstruction/ or Heartburn/ or Dyspepsia/ or Constipation/ or Diarrhea/ or Hemorrhoids/ or Enterobius/ or Cough/ (223251)

27 Dysmenorrhoea/ or Earache/ or motion sickness/ or "Sprains and Strains"/ (6789)

28 (Migraine Disorders/ or back pain/ or low back pain/ or Musculoskeletal Pain/ or myalgia/ or not chronic pain/ (53184)

Excluding vaccinations, immunisations and disease outbreaks

29 (vaccin* or immunis* or immuniz*).ti. (161660)

30 Disease Outbreaks/ (67579)

31 (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28) not (29 or 30) (889461)

Self-care or help-seeking behaviours

32 self care/ (25967)

33 self medication/ (4211)

34 Self Administration/ (10208)

35 ("treat at home" or "treating at home" or "treated at home").ti,ab. (528)

36 ("self care" or "self caring").ti,ab. (11796)

37 ("self manage" or "self management" or "self managed").ti,ab. (10741)

38 ("self help" or "self helping").ti,ab. (5009)

39 "self medicat*".ti,ab. (3108)

40 ("self administer*" not ("self administered report?" or "self administered survey?" or "self administered questionnaire?")).ti,ab. (12478)

41 ("self prescrib*" or "self prescription*").ti,ab. (332)

42 Consumer health information/ (2278)

43 ("Help seeking" or "Care seeking" or "treatment seeking" or "seek care" or "seek help" or "seeking care" or "advice seeking" or "seek advice" or "Information seeking" or "Information sources" or "seek information" or (seeking adj1 information)).ti,ab. (17394)

44 (("first step" or "first point" or "first contact" or "first access" or "initial point" or "initial access" or "initial contact" or "initial step") adj2 (care or advice or treatment or help or assist* or consult*)).ti,ab. (522)

45 ((management or managing or manage) adj1 (ailment? or sickness* or illness* or symptom? or condition?)).ti,ab. (4806)

46 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 (90521)

Self care support services

47 Answering Services/ (32)

48 After-Hours Care/ (1204)

49 ((community or local or supermarket? or "pretravel health" or "travel health" or service? or care or prescrib* or supervis* or advice or advis* or consult*) adj2 pharmac*).ti,ab. (12239)

50 ("safety netting" or "health visiting" or "NHS 111" or "NHS Direct" or "NHS Choice?" or "after hour?" or "out of hour?" or "telephone support*" or "telephone service?" or "advice line" or "telephone advice" or "remote consult*" or "advice service?" or "advisory service?").ti,ab. (5103)

51 (Pharmacist* adj2 prescription*).ti,ab. (122)

52 ((pharmacy or pharmacist) adj2 (scheme? or clinic?)).ti,ab. (237)

53 ("24 hour?" adj2 (service? or advice or scheme or clinic? or consult* or advis* or information or help* or assist*)).ti,ab. (483)

54 ("walkin" or "walkins" or "walk in" or "walk ins" or "out of hour?" or "after hours" or "helpline?" or "help line?" or "hotline?" or "call centre?" or "call center?" or "self care campaign").ti,ab. (6128)

55 Remote Consultation/ (3873)

56 Telemedicine/ and (Information dissemination/ or Delivery of Health Care/ or Disease management/ or Physician-Patient Relations/) (1377)

57 Telemedicine/ut (620)

58 Hotlines/ (2376)

59 Pharmacies/ (4192)

60 Pharmacy Services/ (4523)

61 "health information service?".ti,ab. (172)

62 (symptom adj1 (checker* or checking)).ti,ab. (14)

63 ((App or Apps or mHealth or "mobile health" or ehealth or telehealth or "mobile application?" or ipad or Iphone or ios or android or blackberry or handset or handheld or "electronic device?" or "mobile phone?" or phone application? or "smartphone?" or "smart phone?" or mobile device? or "Mobile technology" or "mobile electronic?") adj3 (support* or service? or advice or scheme? or clinic? or consult* or advis* or help or assist* or feedback)).ti,ab. (1548)

- 64 ((online or web or internet or website) adj3 (support* or service? or advice or scheme? or clinic? or consult* or advis* or help or assist* or feedback)).ti,ab. (6889)
- 65 ((ailment? or "minor illness*" or "non urgent" or "non emergency") adj5 (clinic? or service? or unit? or scheme? or initiative? or program* or consult* or campaign? or intervention? or initiative?)).ti,ab. (248)
- 66 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 (43224)
- Self care and evaluations (including service evaluations)**
- 67 ("health care utilisation" or "health care utilization" or "healthcare utilisation" or "healthcare utilization").ti,ab. (6845)
- 68 ("scheduled primary care" or "GP led" or "primary care patient?" or "scheduled service?" or "GP consult*" or "GP clinic?" or "GP service?" or "GP supervised" or ("general practice" adj1 (setting? or clinic* or surger* or appointment? or centre? or center? or consult* or service? or patients or supervised)) or ("family practice" adj1 (setting? or clinic* or surger* or appointment? or centre? or center? or consult* or service? or patients or supervised)) or ("primary care" adj1 (practice? or physician? or setting? or clinic* or surger* or appointment? or centre? or center? or consult* or service? or patients)) or (GP adj1 (setting? or clinic* or surger* or appointment? or centre? or center? or consult* or patients or service?)) or "general practices" or "general practitioner?" or "in general practice" or "emergency service?" or "accident and emergency" or "emergency department?" or "urgent care" or ambulance or "999").ti,ab. (165324)
- 69 (attend* or access* or "service use" or utilis* or utiliz* or usage or "use of" or "care use" or admission* or admitted or visit* or appointment*).ti,ab. (3072693)
- 70 68 and 69 (76496)
- 71 Patient Acceptance of Health Care/ or "Health Services Needs and Demand"/ or "health services misuse"/ or health services accessibility/ (129043)
- 72 Delivery of Health Care/ec or Delivery of Health Care/sn or Delivery of Health Care/og or Delivery of Health Care/ut (26128)
- 73 General practice/ec or General practice/sn or General practice/og or General practice/ut (1463)
- 74 Family practice/ec or Family practice/sn or Family practice/og or Family practice/ut (11109)
- 75 Primary Health care/ec or Primary Health care/sn or Primary Health care/og or Primary Health care/ut or Emergency Medical Services/ec or Emergency Service, Hospital/ec or Emergency Treatment/ec or Emergency Medical Services/sn or Emergency Service, Hospital/sn or Emergency Treatment/sn or Emergency Medical Services/og or Emergency Service, Hospital/og or Emergency Treatment/og or Emergency Medical Services/ut or Emergency Service, Hospital/ut or Emergency Treatment/ut (51097)
- 76 71 or 72 or 73 or 74 or 75 (204105)
- 77 70 or 76 (261193)
- UK focus**
- 78 United Kingdom/ or London/ or Great Britain/ or England/ (298969)
- 79 great britain/ or exp channel islands/ or northern ireland/ or scotland/ or hebrides/ or wales/ (241443)
- 80 (England not "New England").ti,ab,in. (80601)
- 81 ("English adult?" or "English population?" or "English longitudinal" or "English town?" or "English count*" or "English city" or "English cities" or "English health").ti,ab. (1037)
- 82 ("United Kingdom" or "U.K." or (UK not "Informa UK Ltd")).ti,ab,in. (997099)
- 83 (Britain or GB).ti,ab,in. (26336)
- 84 (British not ("British Columbia" or "British Psychological Association")).ti,ab. or (British not "British Columbia").in. (36732)
- 85 (London not ("new london" or "Ontario" or "springer-Verlag London")).ti,ab,in. (322761)
- 86 (York not "new york").ti,ab,in. (19193)
- 87 (Birmingham not Alabama).ti,ab,in. (41787)
- 88 (Leeds or (Glasgow not "Glasgow coma") or Sheffield or Bradford or Edinburgh or Liverpool or Manchester or Bristol or Wakefield or Cardiff or Coventry or Nottingham or Leicester or Sunderland or Belfast or Newcastle or Brighton or Hull or Plymouth or Stoke or Wolverhampton or Derby or Swansea or Southampton or Salford or Aberdeen or Westminster or Portsmouth or York or Peterborough or Dundee or Lancaster or Oxford or Newport or Preston or "St Albans" or Norwich or Chester or Cambridge or Salisbury or Exeter or Gloucester or Lisburn or Chichester or Winchester or Londonderry or Carlisle or Worcester or Durham or Lincoln or Hereford or Armagh or Inverness or

Stirling or Reading or Dudley or Northampton or Luton or "Milton Keynes" or Bournemouth or Southend or Swindon or Huddersfield or Poole or Middlesbrough).ti,ab,in. (1344810)

89 (Antrim or Armagh or "County Down" or Fermanagh or Londonderry or Tyrone or Coleraine or Omagh or Ulster or Belfast or Gwent or Bridgend or Caerphilly or Cardiff or Carmarthenshire or Ceredigion or Conwy or Denbighshire or Flintshire or Gwynedd or Anglesey or "Merthyr Tydfil" or Monmouthshire or NEATH or "port Talbot" or Newport or Pembrokeshire or Rhondda or Swansea or Torfaen or Glamorgan or Wrexham or "Abertawe Bro Morgannwg" or "Aneurin Bevan" or "Betsi Cadwaladr" or "Cwm Taf" or "Hywel Dda" or Powys or Barry or Cwmbran or Llanelli or Ponypridd).ti,ab,in. (67010)

90 (Bath or Wells or Wight).in. or ("South Holland" or Albans or Aldershot or Ashfield or Barking or Barnet or Barnsley or Bedfordshire or Bexley or Birkenhead or Blackburn or Blackpool or Bolton or Bournemouth or Bradford or Brent or Bridgend or Brighton or Bristol or Bromley or Bromwich or Buckinghamshire or Burnley or Camberwell or Cambridge or Cambridgeshire or Camden or Canterbury or Carlisle or Chelsea or Chelsea or Cheshire or Chester or Chichester or Cleveland or Colchester or Cornwall or Coventry or Crawley or Croydon or Cumbria or Dagenham or Dartford or Derby or Derbyshire or Devon or Doncaster or Dorset or Dudley or Durham or Ealing or Ealing or Eastbourne or Ely or Enfield or Essex or Exeter or Farnborough or Fulham or Furness or Galloway or Gateshead or Gloucester or Gloucestershire or Gravesham or Greenwich or Grimsby or Guildford or Hackney or Hamlets or Hammersmith or Hampshire or Haringey or Haringey or Harrow or Hartlepool or Harwell or Hastings or Havering or Helens or Hereford or Hertfordshire or Highland or Hillingdon or Hounslow or Hounslow or Hove or Huddersfield or Hull or Humber or Ipswich or Islington or Kensington or Kent or Kingston or Kirklees or Knowsley or Lambeth or Lancashire or Lancaster or Leeds or Leicester or Leicestershire or Lewisham or Lichfield or Lincoln or Lincolnshire or Liverpool or Loughborough or Luton or Lynn or Manchester or Mansfield or Merseyside or Merton or Middlesbrough or Midlands or Milton Keynes or Newcastle or Newham or Norfolk or Northampton or Northamptonshire or Northumberland or Norwich or Nottingham or Nottinghamshire or Oadby or Oldham or Oxford or Oxfordshire or Peterborough or Plymouth or Poole or Portsmouth or Preston or Redbridge or Redcar or Richmond or Ripon or Rochdale or Rotherham or Rushmoor or Salford or Salisbury or Sandwell or Scarborough or Scilly or Sheffield or Shropshire or Slough or Solihull or Somerset or Southampton or Southend or Southwark or Staffordshire or Stockport or Stockton or Stoke or Suffolk or Sunderland or Surrey or Sussex or Sutton or Swindon or Teesside or Telford or Thurrock or "Tower Hamlets" or Truro or Tyne or Tyneside or Wakefield or Walsall or Waltham or Wandsworth or Warrington or Warwickshire or Watford or Westminster or Wigan or Wigston or Wiltshire or Winchester or Wirral or Woking or Wolverhampton or Worcester or Worcestershire or Worthing or Yorkshire).ti,ab,in. (1028967)

91 ("NHS Trust?" or "NHS Health board?" or "NHS Commission*" or "NHS Service?").ti,ab. (2306)

92 (Scotland or Scottish or Welsh or "Northern Ireland" or "Northern Irish" or (Wales not New South Wales)).ti,ab,in. (108347)

93 (Scottish or Aberdeenshire or Angus or Argyll or Bute or Comhairle or Clackmannanshire or Dumfries or Galloway or Dundee or Ayrshire or Dunbartonshire or Edinburgh or Renfrewshire or Falkirk or Fife or Glasgow or Highland or Inverclyde or Midlothian or Moray or Lanarkshire or Orkney or Perth or Kinross or Shetland or Stirling or "Dunbartonshire" or Lothian or "Fort William" or Paisley or Kilbride or Livingston or Hamilton or Cumbernauld or Dunfermline or Dysart or Ayr or Kilmarnock or "Forth Valley" or Grampian or Clyde or Tayside or "Western Isles").ti,ab,in. (215642)

94 (Aintree or Airedale or Ashford or Barking or Havering or Redbridge or Barnsley or "Barts Health" or Basildon or Thurrock or Bedford or Blackpool or Bolton or Bradford or Brighton or Burton or Calderdale or Chesterfield or Colchester or Chester or Durham or Darlington or Croydon or Dartford or Gravesham or Derby or Doncaster or Bassetlaw or Dorset or Hertfordshire or Cheshire or Kent or Lancashire or Sussex or Epsom or "St Helier" or Frimley or Gateshead or Gloucestershire or Hampshire or Harrogate or Hinchingsbrooke or Homerton or Hull or Yorkshire or Ipswich or Kettering or Lancashire or Lewisham or Greenwich or Liverpool or Luton or Dunstable or Maidstone or "Tunbridge Wells" or Medway or Essex or Norfolk or Norwich or Cumbria or Middlesex or Tees or Hartlepool or Northampton or Devon or Lincolnshire or Goole or Northumbria or Nottingham or Oxford or Papworth or Pennine or Peterborough or Stamford or Plymouth or Poole or Portsmouth or Sidcup or Berkshire or Brompton or Harefield or Cornwall or Exeter or Surrey or Salford or Salisbury or Sandwell or Sheffield or "Sherwood Forest" or Shrewsbury or Telford or Southport or Ormskirk or "St Helens" or Knowsley or Stockport or Tameside or Taunton or Somerset or Dudley or Hillingdon or Newcastle or "King's Lynn" or Rotherham or Wolverhampton or Morecambe or Midlands or Walsall or Warrington or Halton or Hertfordshire or Middlesex or Suffolk or Wroughtington or Leigh or "Wye Valley" or Yeovil).ti,ab,in. (551567)

95 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 (2400696)

96 31 and (46 or 66 or 77) and 95 (3273)

Evaluations (including service evaluations)

97 (Intervention? or effectiveness or evaluation? or evaluate or evaluating or "pilot study" or performance or "pilot studies" or feasibility or service? or scheme? or initiative? or project? or program* or campaign? or intervention? or pilot or piloting).ti,ab. (3825413)

98 ("pilot study" or "pilot studies" or "feasibility study" or "feasibility studies" or (multicent* adj1 studies) or ("multi cent*" adj1 studies) or (multicent* adj1 study) or ("multi cent*" adj1 study)).ti,ab. (103817)

99 Program Evaluation/ or Pilot projects/ or Organizational Case Studies/ or exp "Outcome and Process Assessment (Health Care)"/ or Evaluation Studies as Topic/ or Health Services Research/ or Comparative Effectiveness Research/ or Follow-Up Studies/ or Feasibility Studies/ or "Outcome Assessment (Health Care)"/ (1499765)

100 ("program evaluation" or "pilot schemes" or "Outcome evaluation" or "multicenter study").pt. (197731)

101 97 or 98 or 99 or 100 (4819121)

Apps or online services

102 internet/ or online systems/ or telemedicine/ or mobile applications/ (73629)

103 (App or Apps or mHealth or "mobile health" or ehealth or telehealth or "mobile application?" or ipad or Iphone or ios or android or blackberry or "electronic device?" or "mobile phone?" or phone application? or "smartphone?" or "smart phone?" or mobile device? or "Mobile technology" or "mobile electronic?" or "portable electronic" or "portable software").ti,ab. (31598)

104 ((online or web or internet or website) adj5 (interact* or diary or journaling or journalling or feedback or check* or tailor* or individual* or personal or handset or handheld or mobile)).ti,ab. (7393)

105 31 and (103 or 104 or 102) (1736)

RQ1

106 limit 96 to yr="2000 -Current" (2498)

RQ2-apps

107 limit 105 to yr="2008 -Current" (1196)

108 31 and 66 (1427)

109 31 and 46 and 101 (2650)

110 108 or 109 (3920)

RQ2-all other types of evaluations

111 limit 110 to yr="2000 -Current" (3116)

112 106 or 107 or 111 (5945)

113 exp animals/ not (exp animals/ and (humans/ or humans.sh.)) (4137563)

114 112 not 113 (5871)

RQs1,2,3 (after removing duplicates and animal studies)

115 remove duplicates from 114 (5684)

Appendix 8: Websites searched

- <http://www.selfcareforum.org/resources/research-resources/> [accessed 1.2.16]
- <http://selfmanagementuk.org/> [accessed 1.2.16]
- <http://www.pifonline.org.uk/news/page/5/> [accessed 1.2.16]
- <http://www.mobileactive.org/> [accessed 1.2.16]

Appendix 9: Results of the search¹⁵⁹

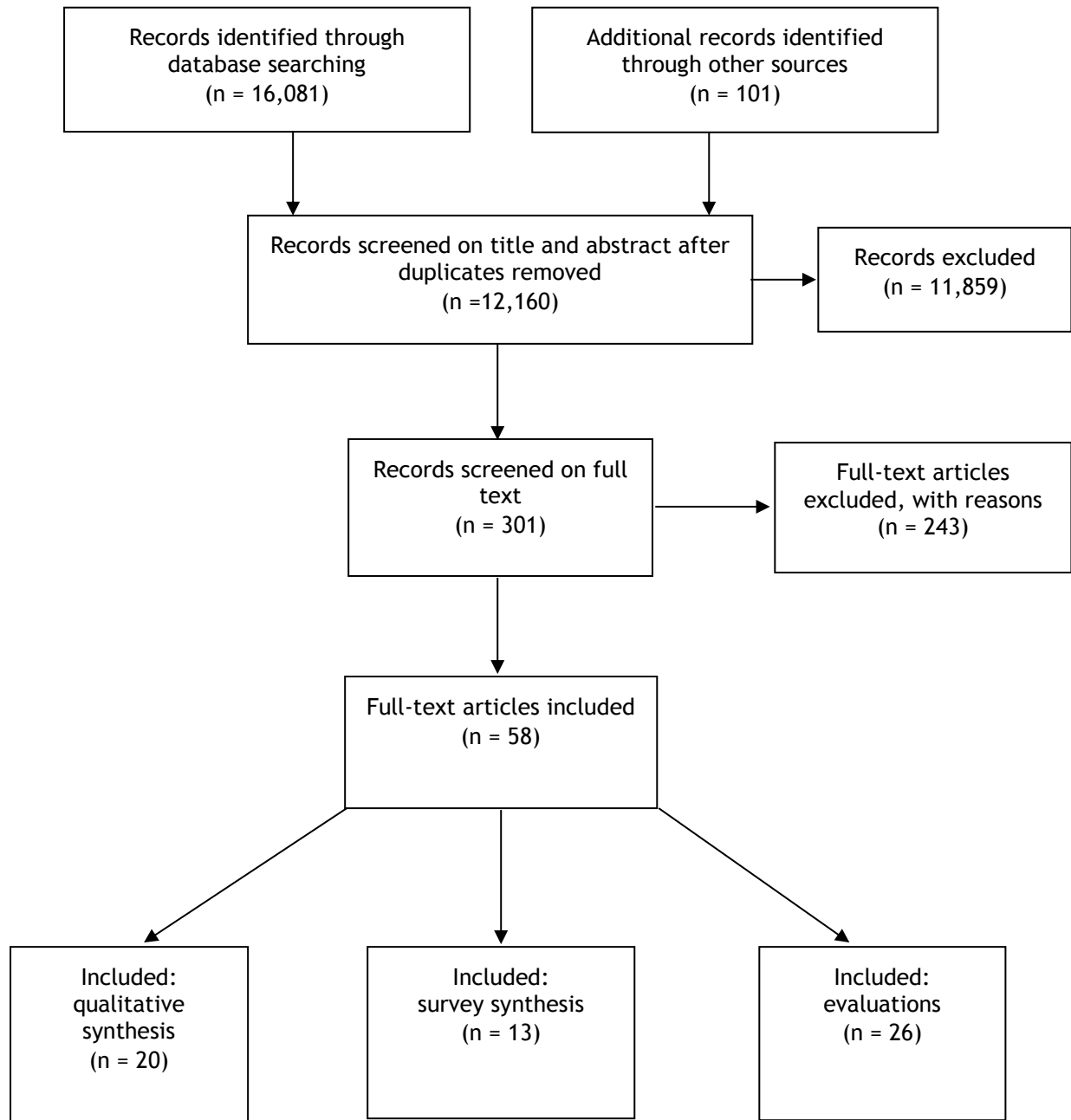


Figure Appendix 9.1: Search process and study selection

¹⁵⁹ One study McNulty et al. (2013) was included in both the interview and the survey synthesis

Appendix 10: Details of the nine included community pharmacy evaluations

Study	Minor ailment	Population (number of service-user participants)	Setting	Socio-economic Status	Living arrangements	Methods
Baqir et al. (2011)	Targeted (details NR) included head lice, pain and cough	Type: general population (396) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, Newcastle, North Tyneside and Northumberland (rural + urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	Outcomes: cost savings Control: NA Last measure: NA Recruitment: Pharmacy Freq of use: NA
Blenkinsopp et al. (2009)	Targeted (details NR)	Type: parents/carers of young children (83 + controls) Age (years): NR Women: 100% Ethnicity: NR Children: age 3 months to 12 years	England, Erewash PCT (NR)	SES: NR Occupational status: mixed [PNR] Income: NR Education: NR Free prescriptions: 100% (all children)	Shared living: NR Married: NR Housing status: mixed [PNR]	Outcomes: GP consultations Control: usual treatment Last measure: NR Recruitment: NA GP records Freq of use: NR
Bojke et al. (2004)	Heartburn and indigestion, nasal congestion, constipation, cough, headache, earache, sore throat, diarrhoea, hay fever, common cold (URTI), thrush, head	Type: general population (1,113) Age (years): 0.5-94 (mean 22.4, SD 19.5, median 16) Women: 61% Children: NR	England, Liverpool (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: NR	NR	Outcomes: GP (total and MA), nurse, and pharmacist consultations Control: historical Last measure: 16 weeks before, 26 after, compared with same 42 weeks of previous year Recruitment: GP callers

	lice, temperature					Freq of use: consultations in previous year (mean 4.76, SD 4.28, median 4, range 0-43)
Parmentier et al. (2004)	Targeted (listed in paper)	Type: general population (184) Age (years): max. 69 (mean 26.9; <5: 11.5%) Women: NR Ethnicity: refugees 100% (Kosova/Albania, Middle East, sub-Saharan Africa) Children: NR	England, South London (urban)	SES: low Occupational status: unemployed Income: NR Education: NR Free prescriptions: Yes (all refugees)	NR	Outcomes: GP and A&E consultations (both subjective) Control: NA Last measure: NA Recruitment: refugee support services, receptionists, etc. Freq of use: NR
Philips et al. (2001)	Head lice	Type: general population (5,710) Age (years): NR Women: NR Ethnicity: NR Children: 4,383/5,710, 77%; age 0-16 years (mean 7.4, SD 3.5)	England, Nottingham City West (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: mixed (77% children)	NR	Outcomes: GP consultations, cost-effectiveness Control: historical Last measure: NA Recruitment: pharmacy Freq of use: NA
Pumtong et al. (2011)	constipation (Jun 06), earache, conjunctivitis (Nov 05), sore throat, diarrhoea (Jan 05), haemorrhoids (Jan 05), cystitis	Type: general population (40,000 consultations) Age (years): NR Women: NR Ethnicity: NR Children: NR	England, Nottingham (urban)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (aimed at those entitled to free prescriptions)	NR	Outcomes: GP consultations (prescriptions), pharmacy consultations Control: historical Last measure: three years Recruitment: pharmacy

	(Jun 06), thrush (Jan 05), insect bites (Jun 06), athletes foot (Jan 05), threadworm (Jan 05), head lice, teething, warts (Jun 06), verrucae (Jun 06), fever, toothache					Freq of use: NR
Schafheutle et al. (2003)	Targeted (details NR) included head lice, pain and cough	Type: general population (1,435 consultations) Age (years): <16 (59%), 60+ (13%) Women: NR Ethnicity: NR Children: NR	Scotland, east coast and south-west (rural)	SES: NR Occupational status: NR Income: NR Education: NR Free prescriptions: Yes (all)	NR	Outcomes: GP consultations (total and MA), cost-effectiveness Control: historical Last measure: 3mths before, compared with year after Recruitment: NA (GP statistics) Freq of use: NA
Watson et al. (2015)	Back pain, heartburn and indigestion, nasal congestion, constipation, cough (URTI), sprains and strains (musculoskeletal pain), sore throat, diarrhoea, common cold,	Type: general population (377) Age (years): (mean 48.3, SD 17.8, missing 7) Women: (221/372, 59.4%) Ethnicity: British (351/370, 94.9%), other EU (11/370, 3.0%), non-EU (8/370, 2.2%) Children: NR	England and Scotland, Norwich and Aberdeen 25-mile radii (rural + urban)	SES: mixed [PNR] Occupational status: employed full-time (225/372, 60.5%), retired (82/372, 22.0%), other (65/372, 17.5%) Income: NR Education: NR Free prescriptions: No (82/160, 51.2%),	Shared living: no (75/369, 20.3%), yes (294/369, 79.7%) Married: or living with partner (229/372, 61.6%), single (90/372, 24.2%), divorced/separated/widowed (53/372, 14.2%) Housing status: NR	Outcomes: cost-effectiveness, symptom reduction Control: usual treatment Last measure: two weeks Recruitment: A&E, GP and pharmacy Freq of use: NR

	influenza, muscular pain, eye discomfort			Yes (78/160, 48.8%)		
Working in Partnership Programme and PAGB (2006)	Targeted (details NR)	Type: parents carers of young children (210) Age (years): intervention (mean 33.33, SD 5.44, median 33), control (mean 33.49, SD 5.77, median 34) Women: 100% Ethnicity: mainly White [PNR] Children: NR	England, Ilkeston and Long Eaton (NR)	SES: NR Occupational status: employed full-time intervention (20.48%), control (22.11%); part-time intervention (43.37%), control (49.47%); full-time parent intervention (48.19%), control (31.58%) Income: NR Education: NR Free prescriptions: Yes (all children)	Shared living: NR Married: NR Housing status: Own property (% of parents) intervention (71.08%) control (71.58%)	Outcomes: GP and nurse consultations, prescriptions from GP and Pharmacy Control: usual treatment and historical Last measure: year before compared with year after Recruitment: GP letter Freq of use: NR

NR = not reported

Appendix 11: Interviews quality appraisal

Study	Sample size	Clear Research Question	Sampling Strategy	Data collection	Analysis sufficient rigorous	Credibility of results	Breadth and Depth of findings	Ethical considerations + confidentiality	Overall rating
Allen et al. (2002)	29	Yes	Yes	Yes	Yes	Yes	Yes	Unsure	High
Cabral et al. (2015)	60	Yes	Yes	Yes	Yes	Yes	Yes	Unsure	High
Caldow et al. (2007)	48	Yes	Yes	Yes	No	Yes	Yes	No	High
Cantrill et al. (2006)	19	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Doyle (2013)	34 discussions	Yes	Unsure	Yes	Unsure	Yes	Yes	No	Medium
Everitt et al. (2003)	25	Yes	Yes	Yes	Unsure	Yes	Yes	Yes	High
Gidman and Cowley (2013)	26	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Houston (2000)	29	Yes	Yes	No	Unsure	Unsure	Yes	No	Medium
Jackson et al. (2005)	23	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Jones et al. (2014)	27	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Lakhani (2012)	55	Yes	Yes	Yes	Yes	Yes	Yes	Yes	High

Leydon et al. (2009)	20	Yes	Unsure	Yes	Yes	Yes	Yes	No	High
McNulty et al. (2013)	17	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Milewa (2000)	85	Yes	Yes	Unsure	No	Yes	Unsure	No	Medium
Neill et al. (2015)	27	Yes	Unsure	Yes	Yes	Yes	Yes	No	High
O'Cathain et al. (2005)	60	Yes	Yes	Yes	Yes	Yes	Yes	No	High
Porteous et al. (2015)	24	Yes	Yes	Yes	Unsure	Yes	Yes	No	High
Redsell et al. (2007)	28	Yes	No	Yes	Yes	Yes	Yes	No	High
Stafford et al. (2014)	11	Yes	Unsure	Unsure	Yes	Unsure	Yes	No	Medium
Tucker and Stewart (2015)	25	Yes	No	Yes	Yes	Yes	Yes	No	High

Appendix 12: Survey quality appraisal

Study	Sample size	Study design	Appropriate sampling method	Reliable and valid measure - independent variable	Reliable and valid measure - dependent variable	Response rate 60% or higher	Controlled for confounding	Appropriate statistical methods	Sufficient follow-up	Overall rating*	Relevance
Amiel et al. (2014)	649	Cross-sectional	No/not reported	No/not reported	Yes	No (58.3%)	No/not reported	Yes	No	Low	High
Atenstaedt et al. (2015)	806	Cross-sectional	Yes	No/not reported	Yes	Yes (67%)	No/not reported	Yes	No	Medium	High
Banks (2010)	1,317	Cross-sectional	No/not reported	No/not reported	No/not reported	Yes (100%)	No/not reported	Yes	No	Low	Medium
Chalder et al. (2007)	704	Cross-sectional	Yes	No/not reported	Yes	No (36.1%)	No/not reported	Yes	No	Low	High
Coleman et al. (2001)	255	Cross-sectional	Yes	No/not reported	Yes	Yes (96%)	No/not reported	Yes	No	Medium	High
Hau et al. (2008)	560	Cross-sectional	No/not reported	No/not reported	Yes	Yes (67.2%)	No/not reported	Yes	No	Low	High
Hendry et al. (2005)	465	Cross-sectional	Yes	No/not reported	Yes	Yes (100%)	No/not reported	Yes	No	Medium	High
Land and Meredith (2013)	485	Cross-sectional	No/not reported	No/not reported	Yes	Yes (80.7%)	No/not reported	Yes	No	Low	High
McNulty et al. (2013)	1,767	Cross-sectional	Yes	No/not reported	Yes	No/not reported	No/not reported	Yes	No	Low	High
Rajpar et al. (2000)	54	Cross-sectional	No/not reported	No/not reported	Yes	No/not reported	No/not reported	Yes	No	Low	High

Salisbury et al. (2002)	6,229	Cross-sectional	No/not reported	Yes	No/not reported	Yes (82%)	Yes	Yes	No	Medium	High
Vohra (2006)	123	Retro-spective	No/not reported	No/not reported	Yes	No (40%)	No/not reported	Yes	No	Low	Medium
Watson et al. (2015)	377	Cross-sectional	No/not reported	No/not reported	Yes	Yes (100%)	No/not reported	Yes	No	Low	High

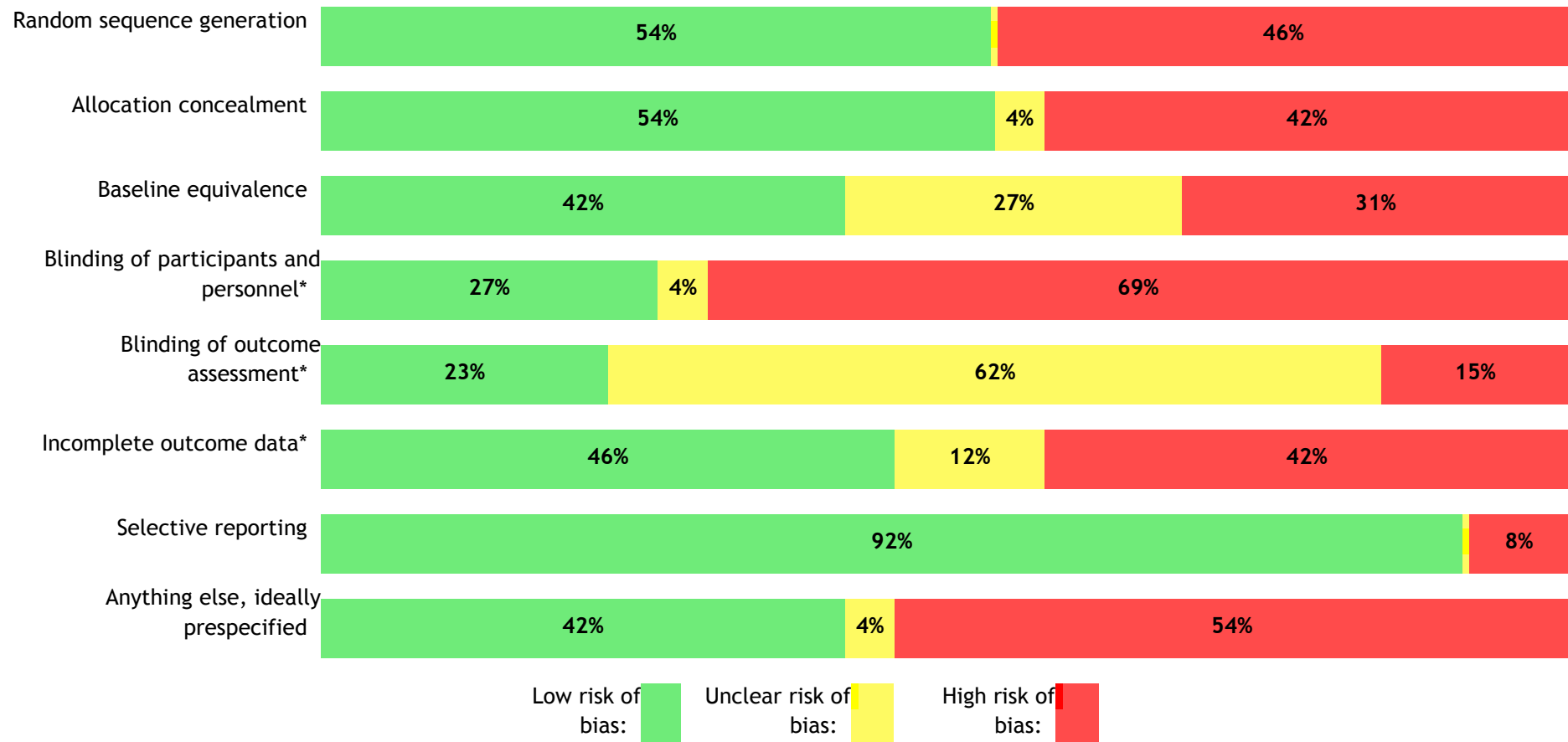
* Low = 0 to 2, Medium = 3 to 4, High = 5 to 6; "Reliable and valid measure" coded as yes if independent and dependent variables are rated Yes.

Appendix 13: Evaluations quality appraisal

Study	Design	Random sequence generation	Allocation concealment	Baseline equivalence	Blinding participants / personnel*	Blinding of outcome assessment *	Incomplete outcome data*	Selective reporting	Other (Reliability/ validity of measures)	Overall risk of bias
Arain et al. (2014)	HCS	-	+	?	-	?	-	+	-	High
Butler et al. (2001)	Observation	-	-	-	-	?	+	+	-	High
Chalder et al. (2003)	Non-RCT	-	-	?	+	?	-	+	-	High
Chapman et al. (2002)	Non-RCT	-	+	-	+	?	+	+	-	High
Cox and Jones (2000)	Non-RCT	-	-	-	-	-	+	+	-	High
Ersser et al. (2013)	Observation	-	-	?	-	?	-	+	-	High
Everitt et al. (2006)	RCT	+	+	+	-	?	+	+	-	Low
Francis et al. (2009)	Cluster RCT	+	+	+	-	+	+	+	-	Low
Hammersley et al. (2014)	Cluster RCT	+	-	?	-	+	+	+	-	High
Heaney et al. (2001)	Cluster RCT	+	+	-	+	?	-	-	-	High
Hsu et al. (2003)	Non-RCT	-	-	-	-	?	?	+	-	High
Little et al. (2001a)	RCT	+	+	?	-	-	-	-	+	High

Little et al. (2001b)	RCT	+	?	+	+	+	-	+	+	High
Mason (2007)	Cluster RCT	+	+	+	-	?	-	+	-	High
Mason et al. (2013)	Observation	-	-	?	-	?	?	+	-	High
Moore et al. (2009)	RCT	+	+	+	-	-	+	+	-	Low
Munro et al. (2005)	HCS	-	-	-	+	?	-	+	-	High
Platts et al. (2005)	RCT	+	+	+	-	?	+	+	-	Low
Richards et al. (2002)	Non-RCT	-	-	+	-	?	-	+	+	High
Robbins et al. (2003)	RCT	+	+	+	-	+	+	+	+	Low
Roberts et al. (2002)	RCT	+	+	+	-	+	-	+	+	High
Salisbury et al. (2007)	Non-RCT	-	-	+	-	?	+	+	-	Low
Shum et al. (2000)	RCT	+	+	+	-	-	+	+	-	Low
Turner et al. (2013)	Non-RCT	+	-	-	?	?	?	+	?	High
Williamson et al. (2006)	Non-RCT	-	+	?	+	?	+	+	-	High
Yardley et al. (2010)	RCT	+	+	-	+	+	-	+	+	High

Note: Observation studies were given an overall rating of high risk of bias based on the design (regardless of the other criteria)



Should there be no yellow line on 'random sequence generation' and 'selective reporting' ?

Appendix 14: Type of question used in each survey providing data for each construct

Construct	Illustrative quote	Amiel et al. (2014)	Atens taedt et al. (2015)	Banks (2010) ¹⁶⁰	Chalder et al. (2007)	Coleman et al. (2001)	Hau et al. (2008)	Hendry et al. (2005)	Land and Meredith (2013)	McNulty et al. (2013)	Rajpar et al. (2000)	Salisbury et al. (2002)	Vohra (2006)	Watson et al. (2015)
Knowledge/skill														
No knowledge of alternative services	“I am not aware of any other services” (Coleman et al. 2001, p483)		x (NR Di)			x (BS MC)			x (NR)					
No knowledge of GP availability	“I don’t know if my GP is available” (Coleman et al. 2001, p483)		x (NR MC)			x (BS MC)					x (NR)			
Knew about NHS Direct	“Knowledge of other services available” (Land and Meredith 2013, p39)								x (NR)					
Knew about Urgent Care Centres	“Knowledge of other services available” (Land and Meredith 2013, p39)								x (NR)					
Knew about walk-in centres	“Knowledge of other services available” (Land and Meredith 2013, p39)								x (NR)					
Knew about GP cooperative	“Do you know about the GP cooperative upstairs?” (Rajpar et al. 2000, p19)										x (NR)			

¹⁶⁰ Percentages estimated from graphs

Pharmacist can't give advice	"Pharmacist can't provide advice" (Banks 2010, p7)			x (BS Li)										
Confidence in over the counter medications	"Non-Rx medicine is just as effective" (Banks 2010, p7)			x (BS Li)										
Memory, attention and decision														
Made decision alone	"made the decision to attend ED themselves" (Atenstaedt et al. 2015, p371)		x (NR MC)						x (NR)					
Did not consider alternatives	"didn't think about going anywhere else" (Chalder et al. 2007, p9)	x (BS MC)			x (BS MC)							x (BS MC)		
Emotions														
Anxiety/Worry	"Great concern" (Hau et al. 2008, p742)	x (BS Li)		x (BS Li)			x (NR MC)	x (BS Li)						
Reinforcement														
Past experience - previous treatment/consultation	"a previous visit strongly influenced their decision to return" (Amiel et al. 2014, pe74)	x (BS Li)		x (BS Li)		x (BS MC)		x (BS MC)		x (OP NR)		x (BS Di)		x (TSC NR)
Beliefs about consequences														
Seriousness/ threat/ reassurance	"symptoms had not improved after several days" (McNulty et al. 2013, pe432)	x (BS Li)		x (BS Li)		x (BS MC)		x (BS Li)	x (NR)	x (OP NR)	x (NR MC)			x (TSC NR)

Presence of a long-term condition	“Other health problem” (McNulty et al. 2013, pe432)									x (OP NR)				
Children seen as vulnerable	“Always visit GP nurse with young child” (Banks 2010, p7)			x (BS Li)										
Contagious - prevent infection	“Worried will infect others who may get very ill” (McNulty et al. 2013, pe432)									x (OP NR)				
Social influences														
Advised by friends, family or acquaintance	“sent there by someone else” (Chalder et al. 2007, p9)	x (BS MC)	x (NR MC)	x (BS Li)	x (BS MC)	x (BS MC)			x (BS MC)		x (OP NR)			x (TSC NR)
Did not want to bother GP	“Didn’t want to bother doctor” (Salisbury et al. 2002, p557)		x (NR MC)	x (BS Li)	x (BS MC)	x (BS MC)				x (NR)		x (NR MC)	x (BS MC)	x (TSC NR)
Environmental context and resources														
Geographical immediacy of service	“It is easier to see the pharmacist than it is to see the GP” (Vohra 2006, p755)	x (BS MC)	x (NR MC)	x (BS Li)	x (BS MC)	x (BS MC)	x (NR MC)	x (BS MC)	x (NR)			x (BS MC)	x (BS MC)	x (TSC NR)
Time taken to access care	“I thought I would be seen more quickly here” (Land and Meredith 2013, p38)	x (BS MC)	x (NR MC)	x (BS Li)	x (BS MC)	x (BS MC)	x (NR MC)	x (BS MC)	x (NR)		x (NR MC)	x (BS MC)	x (BS MC)	x (TSC NR)
Convenient opening hours	“A&E more convenient because of working hours” (Hendry et al. 2005, p631)				x (BS MC)	x (BS MC)		x (BS MC)				x (BS MC)		

GP not available/could not contact	"My GP was not available" (Coleman et al. 2001, p483)		x (NR MC)		x (BS MC)	x (BS MC)		x (BS MC)	x (NR)		x (NR MC)			
Not registered with GP	"I don't have a GP" (Land and Meredith 2013, p38)	x (BS MC)	x (NR MC)		x (BS MC)	x (BS MC)			x (NR)			x (BS MC)		
Better facilities/ services	"Perceived that facilities and investigations better at A&E" (Rajpar et al. 2000, p19)										x (NR MC)	x (BS MC)		
Privacy	"I could discuss my illness with 'staff' in private" (Watson et al. 2015, p12)													X (TSC NR)
Cost of over the counter medications	"Its cheaper to get a Rx than buy non-Rx medicine" (Banks 2010, p7)			x (BS Li)										x (TSC NR)
Expected a prescription	"Expectations of visit ... Prescription medication" (Amiel et al. 2014, pe74)	x (BS MC)								x (OP NR)		x (BS NR)		
Expected referral by GP	"GP would have referred child to A&E anyway" (Hendry et al. 2005, p631)					x (BS MC)		x (BS MC)	x (NR)					
Expected hospital admission	"thought they might be admitted" (Land and Meredith 2013, p39)		x (NR MC)			x (BS MC)			x (NR)					
Referred by GP	"sent there by my GP" (Chalder et al. 2007, p9)		x (NR MC)		x (BS MC)			x (BS MC)	x (NR)					

Referred by another service	“Sent by casualty, minor injuries unit, GP or walk-in centre” (Salisbury et al. 2002, p557)				x (BS MC)							x (BS MC)		
Expected medical certificate	“a sick/fit note for work” (McNulty et al. 2013, pe432)									x (OP NR)				
Continuity of care	“Want to keep good relationship with GP” (Banks 2010, p7)	x (BS Li)		x (BS Li)								x (BS MC)		
Physical examination - Stitches	“I thought it needed stitches” (Coleman et al. 2001, p483)		x (NR MC)			x (BS MC)				x (NR)				
Physical examination - Blood test	“Expectations of visit ... Blood test” (Amiel et al. 2014, pe74)	x (BS MC)	x (NR MC)			x (BS MC)				x (NR)				
Physical examination - X-ray	“Thought might need radiograph” (Atenstaedt et al. 2015, p371)	x (BS MC)	x (NR MC)			x (BS MC)				x (NR)				
Physical examination - Injection - tetanus	“Perceived need for tests or treatment ... tetanus injection” (Land and Meredith 2013, p39)		x (NR MC)			x (BS MC)				x (NR)				
Physical examination - Another test	“Expectations of visit ... Other” (Land and Meredith 2013, p39)									x (NR)				
Best place for problem	“best place for my particular problem” (Chalder et al. 2007, p9)	x (BS MC)			x (BS MC)			x (BS MC)				x (BS MC)		

Failed self-care	“I previously consulted pharmacy about illness, but it is not better” (Watson et al. 2015, p12)			x (BS Li)		x (BS MC)		x (BS MC)						x (TSC NR)
Second opinion	“Second opinion” (Hau et al. 2008, p742)	x (BS MC)	x (NR MC)		x (BS MC)	x (BS MC)	x (NR MC)	x (BS MC)	x (NR)		x (NR MC)			x (TSC NR)
Confidence in the Service being used	“More confidence in advice/treatment” (Salisbury et al. 2002, p557)	x (BS MC)	x (NR MC)	x (BS Li)		x (BS MC)		x (BS MC)				x (BS MC)		
Did not want to see GP	“I didn’t want to see my GP” (Coleman et al. 2001, p483)	x (BS MC/di)				x (BS MC)							x (BS MC)	x (TSC NR)
Prefer to see a doctor not nurse	“Wanted to see a doctor not a nurse” (Salisbury et al. 2002, p557)											x (BS MC)		
Prefer to see nurse	“Wanted to see nurse rather than doctor” (Salisbury et al. 2002, p557)											x (BS MC)		
Expected advice only	“I needed information about illness from ‘staff’ at ‘site’” (Watson et al. 2015, p12)	x (BS MC)									x (OP NR)			x (TSC NR)

BS = Bespoke, Di = Dichotomous, Li = Likert Scale, MC = Multiple Choice, NR = Not reported, OP = Opinion Poll, TSC = Triggers for Seeking Care

Appendix 15: Sample sizes and number of studies contributing to each construct by service

		Quantitative synthesis				Single-study evidence				
		A&E	GP	Urgent care centre/walk-in-centre	Pharmacy	A&E	GP	Urgent care centre/walk-in-centre	Pharmacy	Self-care
	Construct	Weighted mean (%)				k=1 (%)				
	Knowledge/skills									
Lack of knowledge/skill	No knowledge of alternative services	19 n = 1,546 k = 3	-	-	-	-	-	-	-	-
	No knowledge of GP availability	13 n = 1,002 k = 3	-	-	-	-	-	-	-	-
	Knew about NHS Direct	-	-	-	-	53 n = 485	-	-	-	-
	Knew about Urgent Care Centres	-	-	-	-	7 n = 485	-	-	-	-
	Knew about walk-in centres	-	-	-	-	39 n = 485	-	-	-	-
	Knew about GP cooperative	-	-	-	-	6 n = 54	-	-	-	-
	Pharmacist can't give advice	-	-	-	-	-	20 n = 1,317	-	-	-
	Confidence in over the counter medications	-	-	-	-	-	-	-	-	39 n = 1,317
	Memory, attention and decision-making									
Decision-making	Made decision alone	44 n = 1,291 k = 2	-	-	-	-	-	-	-	-
	Did not consider alternatives	-	-	6 n = 4,455 k = 3	-	14 n = 260	39 n = 2,299	-	-	-

	Emotions									
Negative emotion	Anxiety/Worry	65 n = 628 k = 2	-	-	-	-	61 n = 1,317	56 n = 624	-	-
	Reinforcement									
Past experience/behaviour	Previous treatment/consultation	63 n = 801 k = 3	26 n = 2,628 k = 3	21 n = 4,042 k = 2	-	-	-	-	38 n = 134	74 n = 1,317
	Beliefs about consequences									
Severity of symptoms	Seriousness/threat/reassurance	27 n = 1,340 k = 5	40 n = 1,517 k = 2	-	-	-	-	44 n = 621	-	-
Susceptibility to symptoms	Presence of long-term condition	-	-	-	-	-	11 n = 200	-	-	-
	Children seen as vulnerable	-	-	-	-	-	48 n = 1,317	-	-	-
	Contagious - prevent infection	-	-	-	-	-	5 n = 200	-	-	-
Health threat	See anxiety/worry above	-	-	-	-	-	-	-	-	-
	Social influences									
Social support	Advised by friends, family or acquaintances	24 n = 1,646 k = 5	36 n = 1,679 k = 3	10 n = 678 k = 2	-	-	-	-	2 n = 134	-
Social norms	Did not want to bother GP	4 n = 1,493 k = 5	-	18 n = 3,832 k = 2	-	-	-	-	31 n = 134	70 n = 1,317
	Environmental context and resources									
Access	Geographical immediacy of service	16 n = 2,283 k = 7	32 n = 2,461 k = 2	29 n = 4,455 k = 3	83 n = 256 k = 2	-	-	-	-	59 n = 1,317
	Shorter time to access care	16 n = 2,202 k = 8	16 n = 2,461 k = 2	26 n = 4,455 k = 3	59 n = 246 k = 2	-	-	-	-	63 n = 1,317
	Convenient opening hours	15 n = 759	-	33 n = 3,832	-	-	12 n = 2,299	-	-	-

		k = 3		k = 2						
	GP not available/could not contact	16 n = 1,737 k = 6	-	-	-	-	-	18 n = 55	-	-
	Not registered with GP	4 n = 1,439 k = 4	-	5 n = 4,455 k = 3	-	-	-	-	-	-
	Better facilities/services	-	-	-	-	4 n = 54	7 n = 2,299	5 n = 3,777	-	-
	Privacy	-	-	-	-	14 n = 81	40 n = 162	-	22 n = 134	-
Environment	Cost of over the counter medications	-	19 n = 1,479 k = 2	-	-	1 n = 81	-	-	15 n = 134	49 n = 1,317
Limited professional roles	Expected a prescription	-	69 n = 2,486 k = 2	39 n = 4,366 k = 2	-	-	-	-	-	-
	Expected referral by GP	25 n = 984 k = 3	-	-	-	-	-	-	-	-
	Expected hospital admission	7 n = 1,179 k = 3	-	-	-	-	-	-	-	-
	Referred by GP	26 n = 1,772 k = 4	-	-	-	-	-	18 n = 55	-	-
	Referred by another service	-	-	13 n = 3,997 k = 2	-	4 n = 260	2 n = 2,299	-	-	-
	Wanted medical certificate	-	-	-	-	-	6 n = 200	-	-	-
	Continuity of care	-	44 n = 4,055 k = 3	-	-	-	-	52 n = 3,772	9 n = 117	-
	Physical examination - Stitches	7 n = 1,179 k = 3	-	-	-	-	-	-	-	-

	Physical examination - Blood test	3 n = 1,179 k = 3	-	-	-	-	-	5 n = 620	-	-
	Physical examination - X-ray	39 n = 1,179 k = 3	-	-	-	-	-	9 n = 620	-	-
	Physical examination - Injection - tetanus	4 n = 1,179 k = 3	-	-	-	-	-	-	-	-
	Physical examination - Another test	-	-	-	-	19 n = 485	-	-	-	-
Other	Best place for problem	61 n = 504 k = 2	-	10 n = 678 k = 2	-	-	20 n = 2,299	-	-	-
	Failed self-care	31 n = 673 k = 3	71 n = 1,479 k = 2	-	-	-	-	39 n = 617	-	-
	Second opinion	8 n = 1,958 k = 8	-	2 n = 678 k = 2	-	-	-	-	19 n = 134	-
	Confident in the Service being used	22 n = 1,159 k = 3	26 n = 3,616 k = 2	8 n = 4,400 k = 2	-	-	-	-	-	69 n = 1,317
	Did not want to see GP	3 n = 336 k = 2	-	-	-	-	-	2* n = 441	11 n = 134	48 n = 1,317
	Prefer to see a doctor not nurse	-	-	-	-	-	34 n = 2,299	-	-	-
	Prefer to see nurse	-	-	-	-	-	-	10 n = 3,777	-	-
	Expected advice on self-care	-	30 n = 362 k = 2	-	-	35 n = 81	-	18 n = 620	20 n = 134	-

k = number of studies, n = total number of participants, * calculated

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