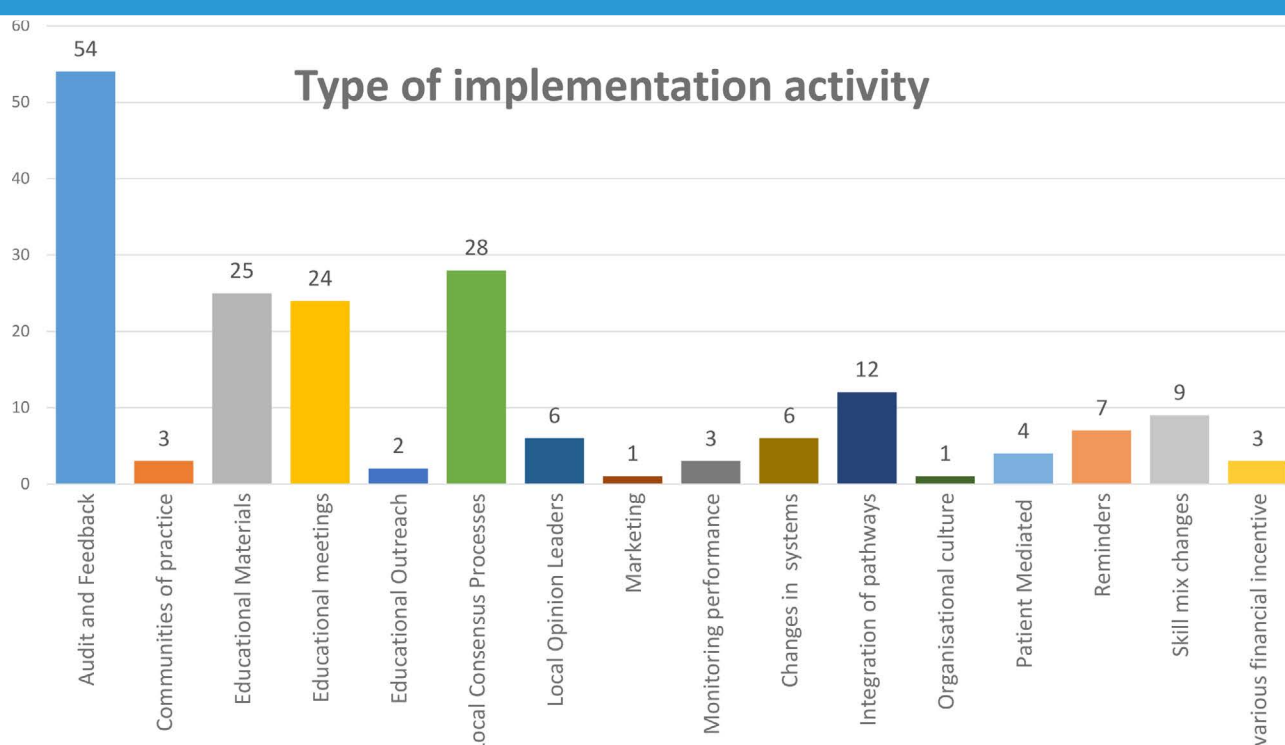




A scoping review characterising the activities and landscape around implementing NICE guidance



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Conflicts of interest

There were no conflicts of interest in the writing of this report.

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Executive Summary

Rationale

Clinical, public health and social care guidance provide evidence-based recommendations on how professionals and commissioners working within these fields should care for patients, service users and the wider public. Evidence-based clinical guidance aims to reduce variation in practice and improve levels of patient and service user care, while at the same time allowing clinical freedom for individual practitioners (Keenan and Abraham, 2014). The guidance produced by the National Institute for Health and Care Excellence (NICE) are not mandatory, although NICE does set out a business case in terms of the clinical and cost-effectiveness for implementation. Implementation in this sense, signifies the active planned processes that take place to enable guidance-based best practice to become routinely embedded within day-to-day activity (Whitby and Royce, 2014).

There is growing recognition that getting evidence to influence and change practice is a complex undertaking. Local variation in epidemiological and social needs, as well as the supporting structures, may mean that different aims are prioritised and guidance may need to be interpreted and tailored accordingly. Despite a growth in the evidence base in this area, there remain gaps in understanding which types of implementation strategies are most effective for which types of guidance, for which audiences and in which circumstances.

Approach

This executive summary reports on the results of a scoping review of published literature characterising the processes, activities and implementation interventions that aim to embed NICE guidance within decision-making and practice, with a focus on national level activity. The scoping review was supplemented by targeted web searching (see main report of details of methods and strengths and limitations). The scoping review provides a review of published evidence from intervention and observational studies, whereas the web searches aim to characterise a broader range of interventions and activities, many of which have not been researched or evaluated. This scoping review differs from previous evidence reviews for NICE (for example Robertson and Jochelson, 2006), through focussing on the implementation of NICE guidance specifically, although we refer to the broader literature to contextualise some of our findings.

Summary of findings

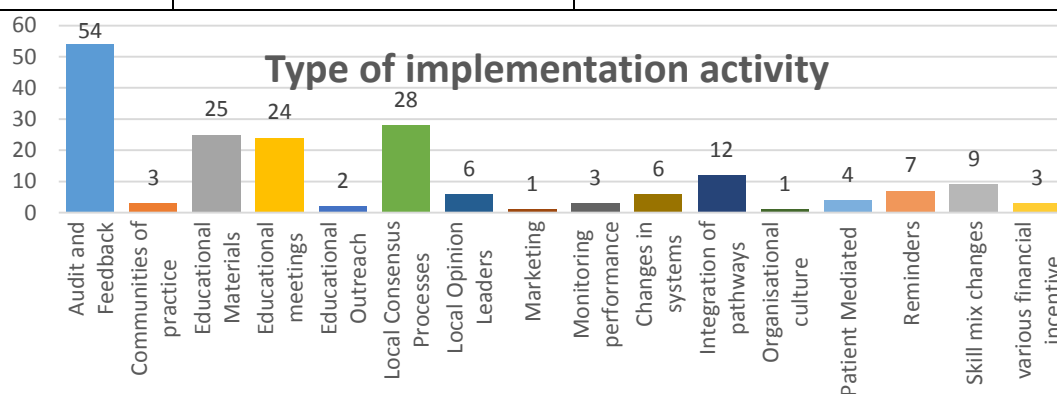
We screened over 4,300 records and identified 87 research studies (both observational and intervention studies) that were focussed on the implementation of NICE guidance in practice and meeting our inclusion criteria. To ensure that broader learning around guidance implementation was not missed, further searching of systematic reviews (particularly those published by the Cochrane Effective Practice and Organisation of Care (EPOC) review groups) also took place¹. We also undertook detailed and systematic web searching among almost sixty national organisations.

¹ No additional trials or interventions focussed specifically on the implementation of NICE guidance were uncovered through these.

Headline trends on the literature on implementing NICE guidance

Studies examining national strategies or processes were in the minority, accounting for 21% of the 87 studies identified. In contrast studies that examined local practices and implementation interventions were much more common with 37% of studies examining implementation within single institutions. Venous thromboembolism and mental health guidance are the most frequent foci of studies aiming to understand and improve implementation processes.

	Headline trends from previous reviews of (all) guidance implementation	Trends from the current study on NICE specific literature and web searching of key stakeholders
Overall body of evidence	Large literature but comparatively few evaluated interventions and high quality RCTs	Several activities being undertaken. Comparatively few evaluated interventions and high quality RCTs. Much activity in promotion/embedding among key stakeholders. Active implementation measures most likely to include audit and feedback.
Clinical guidance	Volume of studies focussed on the implementation of clinical guidance	Volume of studies focussed on the implementation of clinical guidance
Public Health guidance	Few studies uncovered	Few studies uncovered
Social Care guidance	Few studies uncovered	Few studies uncovered
Scale and national level vs local level implementation initiatives	Scale not addressed explicitly in implementation literature. Tension discussed in the literature between national imperatives and local tailoring. Elements of freedom and flexibility suggest local approach more appropriate for many modes.	Greater volume of activity recorded locally than nationally. Some implementation activities may be better suited to national approach e.g. e-learning, accreditation and creating national communities of best practice. Other approaches may be less feasible.



Frequently occurring implementation modes

	Headline trends from previous reviews of (all) guidance implementation	Comments on NICE specific literature and web searching of key stakeholders
Audit and Feedback	Frequently deployed in implementation literature and often found to be effective.	Well represented and took place nationally, regionally and locally. Studies not reporting feedback mechanisms excluded as reporting compliance/uptake trends only. Often used in combination with other methods. Less than a third (16/54 studies) provide theoretical basis for audit model or subsequent quality improvement actions. 32/42 studies with information on impact suggest improvements across all indicators of interest. Web searches found that supporting and conducting audit and feedback was the most frequent form of bespoke (intervening) initiative that national stakeholders were undertaking.
Educational Materials	Most frequently deployed in the literature. Lack of clarity on impact but thought to be less impactful than more intense educational modes.	One of the most frequently deployed methods. Feasible across local to national scales. This confirmed in supplementary web searching. However, impact on implementation is poorly understood as often deployed alongside other modes.
Educational meetings	Frequently deployed in the literature. Thought to be more impactful than less intense educational modes.	Frequently deployed as a means of implementing NICE guidance. Often used alongside audit and feedback and little to distinguish feedback meetings and educational meetings following audit. Impact of educational meetings unclear, although do form part of successful multicomponent interventions. Nationally, educational meetings tend to take place alongside national audits.
Consensus Processes (incl. pro-forma)	Empirical uncertainty as whether consensus processes are impactful although theory to support consensus process as effective	Frequently deployed in studies on implementing NICE guidance. Disproportionately fewer examples of consensus processes occurring nationally than locally, but examples of consensus processes occurring in the translation of guidance to reflect clinical episodes happening at a national level.

Activities being undertaken by national stakeholders

Awareness raising: Publicising, disseminating, endorsing guidance	Many national stakeholders profiled engaged in these activities. Includes endorsements of NICE guidance through statements and letters, expert commentaries, publicising, and signposting of guidance. May have an impact on implementation, helping to embed the guidance in professional culture, publically demonstrating support and providing an explanation of how the guidance with national professional priorities, and helping to add methodological credence to the guidance themselves, particularly when the endorsement is published in journal articles.
Bespoke (intervening) implementation activities	In addition to audit and feedback (above), several national stakeholders undertook initiatives that aimed to implement NICE guidance through patient information and education.
Embedding in the organisation's broader initiatives	Organisations were undertaking a diverse set of activities; NICE guidance found to be embedded in professional regulation arrangements and service regulation arrangements across organisations.

Potential green shoots for national/local deployment

	Headline trends from previous reviews of (all) guidance implementation	Comments on NICE specific literature*
Communities of practice	Not a large literature examining effectiveness but suggestive of positive impact on guidance implementation	<p>Few studies uncovered, although promising impact and processes observed. Can be considered a scalable method of implementation: national communities of best practice were created in different ways across the studies including through introducing an accreditation system, through developing online fora supported by less frequent face-to-face encounters, and through more purposive means through enabling low level implementers to learn from organisations with high levels of implementation.</p> <p>National level initiatives have the potential to create large scale communities of practice and improvement networks, as well as to spur the development of more localised initiatives. Strategic Clinical Networks, Academic Health Science Networks, NIHR Collaborations for Leadership in Applied Health Research and Care, and several of the Royal Colleges (notably the Royal College of Psychiatrists) actively engaged in activities that were essentially mobilising communities of practice aimed at improving patient care, with implementation of NICE guidance an underlying theme.</p>
Educational Outreach Visits/Meetings**	Highly impactful but can be costly	Self-defined educational outreach meetings rarely implemented but promising results from two studies on NICE guidance. Unlikely to be suitable as a nationally directed standardised mode of activity but local activities could be supported nationally e.g. through facilitating partnership working.
Integration (or changes) of services/pathways (as intervention)	Few studies uncovered	Development of 'Improving Access to Psychological Therapies' taken as an intervention involving the integration (or changes) of services/pathways to implement NICE guidance; this is a national programme supported by the allocation of sufficient resources including for training and delivery, a roll out plan, and the development of a stepped care model. IAPT provides valuable learning for large scale and well-funded projects aimed at increasing implementation, and particularly those that necessitate cooperation across agencies.
Organisational culture	Rarely encountered in the literature. Recent systematic review uncovered no studies.	We classified one study as aiming to change organisational culture through an accreditation programme; reported promising results with regards to processes observed in implementation.

**see caveats in main report around defining educational outreach

A cross-cutting theme was that national level activities provided a catalyst for improved organisational management processes facilitating the implementation of guidance. National level activities could also stimulate conversations to occur between clinical staff and managers that may not ordinarily occur.

Research recommendations

There is no failsafe mechanism or activity around implementation of guidance, and while there exists a large body of literature in this arena, there remain a number of gaps in the literature, which are translated here into the key research priorities below.

Research Question 1	How do we stimulate leaders, managers and commissioners to engage with guidance implementation?
Potential Method	Survey of membership organisations aiming to establish levels of awareness, knowledge, acceptance and supportive behaviours in the implementation of NICE guidance. This focus could also help to engage national stakeholders currently not active in this field.
Rationale	Corporate commitment is linked to many key implementation markers and where it is lacking, implementation will not be very far advanced (Mears et al., 2008). Despite the importance of management and leadership, there is little focus on this aspect in the literature.

Research Question 2	How does the process of implementing NICE guidance affect systems of delivering care to patients/service users?
Potential Method	Aiming to establish the range of stakeholders involved in implementing NICE guidance within organisations. Organisational case studies incorporating documentary research, including examinations of internal policy documents and strategies, and repeated interviews with different stakeholders over a period of implementing NICE guidance.
Rationale	There is a need for further research into how the implementation of guidance impacts upon systems and individual actors within those systems. Such an approach should build upon some of the qualitative studies included in this review, for example (Llewellyn et al., 2014), and extend these findings to develop theories of how guidance implementation is both an activity conducted by individuals and the systems and contexts in which they operate.

Research Question 3	What value could extending accreditation (for organisations and/or practitioners) to cover implementation bring?
Potential Method	Potential methods could include a scoping review focussed on different forms of accreditation which are linked to guidance, and the benefits and challenges of administering accreditation systems, with further stakeholder interviews on the feasibility, the ethics and the rationale for such a system.
Rationale	One study provided some indicative evidence on the benefits that accreditation could bring in increasing implementation and in raising levels of patient care. NICE already supports an accreditation system for the production of guidance by other organisations; this research could explore the feasibility of extending this process.

Research Question 4	Do practitioner-led and externally-led implementation activities have different impacts on guidance implementation - exploring the impacts of communities of practice compared to educational outreach meetings.
Potential Method	A cluster (e.g. CCG, Trust or Local Authority) randomised controlled trial to establish effectiveness and comparative effectiveness (compared to control conditions). An RCT is a particularly valuable approach in implementation research as across the body of evidence as a whole, selection effects are likely to have considerable impact. Alongside the RCT, a process evaluation should be conducted examining implementation and adjunct processes.
Rationale	Both educational outreach meetings and communities of practice were deemed to be effective strategies. However, it is unclear whether a more prescriptive model, as is the case for educational outreach meetings, is more effective than a more organic and practitioner-led model.

Research Question 5	What are the impacts of e-learning on levels of guidance implementation?
Potential Method	A cluster (e.g. CCG, Trust or Local Authority) randomised controlled trial to establish effectiveness. Such a trial could be conducted across a variety of settings to understand whether e-learning is a more suitable option in some settings, for example social care settings, than others. As was the case above, a process evaluation should be conducted alongside an RCT to help to identify facilitators and barriers to effectiveness and implementation.
Rationale	E-learning was viewed as easily implementable at a national level. However, there was a dearth of research exploring changes in implementation behaviour directly. The interest in e-learning follows its relatively low cost to implement and its potential to be developed across the suite of NICE guidance.

Research Question 6	What are the characteristics of audit and feedback that are associated with increased guidance implementation across clinical, public health and social care settings?
Method	This research would aim to build on the tentative findings in the current scoping review through conducting a focussed systematic review with a broader focus than on NICE guidance alone (in order to better capture trends in public health and social care)
Rationale	This activity would build on the findings of the current review through including a sub question exploring whether the absence of theory and rationale in audit and feedback equate to a lower impact on implementation. There is a need to understand how audit and feedback improve levels of implementation outside clinical settings and establish impact mechanisms.

Research Question 7	What is the impact of NICE's own implementation activities?
Method	Methods would be appropriate to the type of implementation activity being evaluated. For example, a cluster randomised trial might be carried out to evaluate the impact of new implementation tools which have not yet been disseminated (as described above for e-learning); and for the external support given by the Field team and the Adoption team (as described above for externally led support) which could be considered forms of 'educational outreach'. These would be accompanied by a longitudinal qualitative research study assessing mechanisms of change and the acceptability and accessibility of these activities.
Rationale	This reflects the gap in published evaluations of NICE's own implementation resources and tools.

1. Introduction and aims

Clinical, public health and social care guidelines provide evidence-based recommendations on how professionals and commissioners working within these fields should care for patients, service users and the wider public. Evidence-based clinical guidance aims to reduce variation in practice and standardise levels of patient and service user care, while at the same time allowing clinical freedom for individual practitioners (Keenan and Abraham, 2014). The guidelines produced by the National Institute for Health and Care Excellence (NICE) are not mandatory, although NICE does set out a business case in terms of the clinical effectiveness and cost-effectiveness for adoption; in the case of Technology Appraisals guidance there is a statutory duty to make treatments available to eligible patients while the implementation of NICE quality standards can be linked with incentives and payment frameworks.

This review mainly focusses on NICE guidelines, as opposed to other guidance and quality standards that NICE produces, and maps out activity around implementation. The focus on guidelines is due to the volume of research literature on the implementation of guidelines relative to research literature on other forms of NICE guidance (see Appendix 5 for a description of different forms of guidance produced by NICE). While the integration of evidence-based best practice within routine health and social care may ostensibly appear to be a logical conclusion of the guidance production process, a number of other factors may serve to interrupt this process. The guidance itself may be difficult to implement (Spyridonidis and Calnan, 2010) and a high number of complex recommendations to implement within guidance can lead to a 'paralysis of analysis' marked by confusion and dissipation of effort (Hutchinson et al., 2003, Davies, 1998). Summarising 'key priorities for implementation', as is practice across several NICE guidelines, may assist in mitigating this possibility, although a single clinical episode could potentially involve several different guidelines and consequently a number of 'key priorities'. Current advice produced by NICE recommends that practitioners should take into account a number of different sources in deciding on treatment options including guidance produced by other agencies and individuals' preferences and choices.

Implementation in this sense, signifies the active planned processes that take place to enable guidance-based best practice to become routinely embedded within day-to-day activity (Whitby and Royce, 2014). This extends beyond simple passive means of disseminating guidance to more active engagement and implementation strategies. Measuring the effectiveness of guidance implementation interventions is conceptually challenging. For example separating where good practice that mirrors guideline recommendations has developed as a prerequisite of effective clinical service, as opposed to guideline implementation, can be difficult to establish (Mears et al., 2008); while both states may lead to the same outcome of better patient care, understanding this distinction in mechanisms is important in order to establish effective implementation strategies.

Overall, there is growing recognition across disciplines that getting evidence to influence and change practice is a complex undertaking. The process of guidance implementation may therefore deviate from the linear and structured process of guidance production. While implementation is supported by NICE through a number of activities including those of a small implementation field team and the production of implementation tools, within

the field of clinical guidance more broadly there remains a recognised tension between national policy imperatives and priorities and the ability to successfully support implementation whilst responding to local prioritisation and fostering innovation (Kitson et al., 2008). Local variation in epidemiological and social needs, as well as the supporting structures, may mean that different aims are prioritised and guidance may need to be interpreted and tailored accordingly.

Despite a growth in the evidence base in this area, there remain gaps in understanding which types of implementation interventions are most effective for which types of guidance, for which audiences and in which circumstances. While some in this arena may recognise that effective guidance implementation requires systems based changes (Kitson et al., 2008), this may not be borne out in the design of studies conducted by trialists. Furthermore, there is a need to further understand the landscape (activities, trends and stakeholders) around guidance implementation and the interaction between national structures, initiatives and support, and local level implementation and innovation. To this end, this scoping review aims to address the following points in box 1 which involve characterising activities that aim to implement NICE guidance into practice, with a focus on national level activity². To address these points, this report primarily reports on the results of a scoping review and web searching to address the following aims:

- a. Characterisation of the landscape relating to the implementation of NICE guidance.
- b. Exploration of implementation interventions and description of their effectiveness as shown in research evaluations, with a focus on national level activities
- c. Description of implementation activities undertaken by some of the main national stakeholders (including a number of regional/ local improvement/ knowledge exchange networks supported by national organisations) in England
- d. Analysis of key literature and description of enablers and key lessons for NICE
- e. Formation of research recommendations

Additionally, based on conversations resulting from interim findings from the scoping review:

- f. Exploration of audit-based implementation activity (as described in the literature)
- g. Exploration of implementation activity involving changes in leadership activity

This scoping review differs from previous evidence reviews for NICE (for example Robertson and Jochelson, 2006), through focussing on the implementation of NICE guidance specifically, although we refer to the broader implementation literature to contextualise some of our findings.

² In the scoping review, national level studies usually refer to the population being studied (i.e. nationally representative or taking place in non-contiguous areas); however, a small number of studies also represent research on defined national level initiatives but were assessed on a smaller geographic level, although this type of study was deemed to provide evidence of a national level initiatives. In contrast, although the web searches were focussed on national stakeholders, they often reported on regional or local activity.

Box 1: Underlying questions of the scoping review

A. What is the national landscape relating to implementation and what are the potential roles that NICE could have both directly and indirectly through engagement with other organisations? To include recent digital initiatives such as ‘learning healthcare systems’ and connected health cities.

B. A review of the existing key literature in the relevant fields, including those produced by EPOC. Summarise the key lessons messages and identify the specific messages for NICE as an organisation. For example what are the enablers? Not just focussing on behavioural aspects.

C. What research/activity needs to be undertaken to further this field. Identify potential research questions and methodology. This could be at the macro level e.g. cluster randomisation or surveys undertaken by professional societies on decision support systems.

2. Methods

This report employs two main methods to address the aims described in section 1. The first involves conducting a scoping review of the research literature. The second involves targeted web searching of national stakeholders (including a number of regional/ local improvement/ knowledge exchange networks supported at a national level). The scoping review provides research evidence about implementation activities; whereas the web searches can potentially characterise a broader range of activities.

In addition, further discussions have been conducted with relevant stakeholders to add depth to the findings. This section provides a detailed description of the methods employed in this report.

2.1 Scoping review - Aims and focus

The overarching aim of the scoping review is to provide a broad summary of strategies and interventions that serve to increase the uptake of NICE guidance in decision-making and practice. This means that we look primarily at implementation interventions that are focussed on practitioners or commissioners and the environments and organisations in which they work, as opposed to more patient-aimed methods. It also means that we hone in on those studies that describe how guidance is being implemented, as opposed to those studies that focus solely on (perceived or actual) enablers or barriers to implementation.

Previous studies found that levels of uptake of NICE clinical guidelines by medical practitioners varies across different clinical specialisms (which is also apparent in the data included in NICE's uptake database³), but that this may be an artefact of professional support and involvement in the development of guidance, the strength of the evidence base, the (additional) costs involved in implementation, and the level of communication between professionals in implementing guidance (for example Sheldon et al., 2004). Reviews of evidence on guideline implementation interventions in this area (not specific to NICE guidance) concluded that there was an imperfect evidence base around the effectiveness of strategies to increase rates of uptake and implementation of (clinical) guidance (Grimshaw et al., 2005), and efforts have been underway since then to strengthen theory and methods in this arena (French et al., 2012, Hoomans et al., 2007). Some of these have been led by the Cochrane Effective Practice and Organisation of Care (EPOC) Group. In addition to providing a narrative account of the evidence, the scoping review provides NICE with:

- (i) a map of the available evidence, which can be used in later activities to identify the main organisations engaging with and producing research literature and expert commentaries; and
- (ii) an indication of gaps in the research evidence that could be addressed through further research

Caveats to our methods are outlined in the concluding section including that this report presents the findings of a rapid scoping review of the literature which did not include formal quality assessment of the included studies.

³ See www.nice.org.uk/about/what-we-do/into-practice/measuring-the-uptake-of-nice-guidance

Box 2: Aims of the scoping review

Main aim (supplied by NICE): A review of the existing key literature in the relevant fields, including those produced by EPOC. Summarise the key lessons messages and identify the specific messages for NICE as an organisation. For example what are the enablers? Not just focussing on behavioural aspects.

Supporting question 1: Which facilitators and barriers are identified in the literature around implementing (NICE) guidance in decision-making in clinical practice, public health and social care? [Facilitators may include initiatives and organisations]

Supporting question 2: What is the evidence around the effectiveness of interventions/initiatives aimed at increasing the uptake of guidance in decision-making in clinical practice, public health and social care, including interventions reviewed by EPOC?

2.2 Scoping review - Identifying evidence

2.2.1 Search methods

Three methods were primarily employed to search for relevant literature for the scoping review:

1. A structured search of academic and grey bibliographic databases to locate mainly primary research
2. A structured search of specialist systematic review databases to locate systematic reviews (Cochrane Database of Systematic Reviews and DoPHER)
3. Unstructured or manual searches of other sources (NHS Evidence, King's Fund, Google Scholar, Google). These are sources where it is not possible to implement complex search strings.

Some additional sources were also identified through the web searches (see later details).

For identifying literature from academic/grey literature databases, we developed a search strategy that mainly targeted primary research. This was composed of four main elements:

1. Terms reflecting the purpose/challenge
2. Terms reflecting the proposed types of implementation approaches (see above)
3. Terms reflecting the proposed focus of interventions (guidance/guidelines)
4. Terms reflecting the scope (NICE, SCIE and National Collaborating Centres)

An example of the full syntax used is presented in Appendix 1 to this report (implemented through PubMed, and adapted for other databases).

In identifying primary research we searched the following databases:

1. Social Policy and Practice: UK focussed; includes much grey literature, and draws upon five of the UK's leading bibliographic collections of social policy and practice including Social Care Online

2. PubMed: More than 25 million citations for biomedical literature from MEDLINE, life science journals, and online books
3. Scopus: The largest abstract and citation database of peer-reviewed multidisciplinary literature: scientific journals, books and conference proceedings
4. HMIC (Health Management Information Consortium): A compilation of literature data from two sources, the Department of Health's Library and Information Services and King's Fund Information and Library Service

In identifying systematic reviews we searched the following databases:

1. Database of Promoting Health Effectiveness Reviews (DoPHER). DoPHER is developed and maintained by the EPPI-Centre and covers systematic and non-systematic reviews of effectiveness in health promotion and public health worldwide.
2. Cochrane Database of Systematic Reviews (CDSR). The CDSR includes all Cochrane Reviews (and protocols) prepared by Cochrane Review Groups in The Cochrane Collaboration. We are particularly interested in reviews conducted within the Effective Practice and Organisation of Care (EPOC) Group and the Qualitative & Implementation Methods Group.

All searches were conducted in March 2016.

2.2.2 Selection of evidence

Evidence was screened on the basis of title and abstract according to the criteria in box 3. The exclusion criteria were disaggregated into detailed categories to allow us to return to particular excluded categories of interest at a later point in the review. To trial the systematic screening process, a pilot round of screening was conducted on a random selection of 52 document titles and abstracts. These documents were double-screened by two reviewers. A reconciliation meeting was held to discuss disagreements and suggest changes to the inclusion criteria. Following another round of pilot screening (once sufficient agreement had been reached (90%)), reviewers independently screened all remaining titles and abstracts. Any disagreements or queries were discussed. The same procedure was undertaken in full text screening using the same criteria (box 3), with reviewers screening full texts independently after a sufficient level of interrater agreement had been met at a pilot stage.

Despite our review criteria only including studies which were about NICE guidance to keep the review manageable within the tight timeframe in which this research took place, an unexpectedly high number of records were retrieved and included (see results section). This may reflect the inclusive parameters around inclusion we had for study design, where any study design that reported on empirical evidence of the process or outcomes of implementing a change in practice (implementation intervention) to increase guidance uptake was included.

Box 3: Exclusion criteria used for scoping review

Exclusion criteria

- EXCLUDE 1 - Duplicate
- EXCLUDE 2 - Published before 1999
- EXCLUDE 3 - Study is not in English
- EXCLUDE 4 - Study is based outside UK
- EXCLUDE 5 - Study is clearly historical (pre-1999)

Study is clearly historical (pre-1999) - i.e. published recently but referring to historical past

- EXCLUDE 6 - Study is news item or other e.g protocol, book review
- EXCLUDE 7 - Study describes the process of developing guidance only

Study does not explicitly consider implementation of guidance in an applied way but is limited to considering development process

- EXCLUDE 8 - Study not focussed on (any) guidance

Study is not (ostensibly) focussed on aspects of 'guidance' except, perhaps, the need for guidance/standardisation in practice

- EXCLUDE 9 - Study not focussed on NICE guidance

Study is not focussed on the implementation of NICE guidance including (for example): clinical guidelines; public health guidelines; social care guidelines.

- EXCLUDE 10 - not focused on implementation of guidance in decision-making

Study is not focused on the implementation of guidance in decision-making or the evaluation of supporting mechanisms/initiatives. Study does not cover the active implementation of guidance in decision-making (including commissioning, budgetary, strategy, policy-setting, clinical, or treatment option decisions) and does not evaluate changes in organisational practice/systems/initiatives to support implementation.

- EXCLUDE 11 - guidance or explanation of guidance

Guidance or explanation - not implementation

- EXCLUDE 12 - identifies headline uptake trends or compliance trends

Study identifies uptake trends only

- EXCLUDE 13 - Study identifies barriers and facilitators only

Study focussed on examining/identifying barriers and facilitators of implementation but not on modifying these

- EXCLUDE 14 - critique of guidance or guidance production process

Study represents a critique of guidance or the way in which guidance was produced

- EXCLUDE 15 - letter/editorial in a peer review journal

Study is a letter/editorial only in a peer review journal

- EXCLUDE 16 - expert commentary or essay

Study is an expert commentary piece (not empirical research/evaluation/case study etc.) but is otherwise useful for providing context

- INCLUDE on title & abstract

Include based on title and abstract. Need to retrieve full report for full text screening

2.3 Scoping review - Extracting and categorising evidence

For each study, the following information was extracted:

- Area of focus (clinical/ public health/ social care)
- The topic/ medical speciality of the NICE guidance being implemented
- Geography/ scale (local, regional and national)
- Type of implementation intervention or implementation approach being researched
- Outcomes and Processes/Mechanisms

In categorising the type of implementation intervention/approach, we drew upon the Cochrane EPOC (Effective Practice and Organisation of Care) taxonomies of interventions to classify different intervention types. These are based on the 'implementation strategies' section of a 2015 revision that was issued by the group (EPOC, 2015). We also

found it necessary to supplement the 2015 version with some categories that had previously featured in a 2002 version of the taxonomy (see box 4 below). During the keywording, we used more stringent definitions of a few of the categories than the broader 2015 EPOC category descriptions, for example for ‘continuous quality improvement’ and ‘tailored interventions’, and we comment on this in the rest of the report in the section where it applies.

Additional fields were extracted as necessary to address specific questions arising in the remainder of the review.

Box 4: Modified Effective Practice and Organisation of Care (EPOC) Taxonomy applied to NICE guidance implementation interventions

- **2015 criteria - targeted healthcare at organisations**
 - **Organisational Culture**
- **2015 criteria - targeted at workers **Note the distinction between level targeted (worker vs organisation) is defined by EPOC***
 - **Audit and Feedback:** A summary of health workers’ performance over a specified period of time, given to them in a written, electronic or verbal format. The summary may include recommendations for clinical action.
 - **Clinical incident reporting:** System for reporting critical incidents,
 - **Monitoring performance in delivery:** Monitoring of health services by individuals or healthcare organisations, for example by comparing with an external standard.
 - **Communities of practice:** Groups of people with a common interest who deepen their knowledge and expertise in this area by interacting on an ongoing basis. **Note: On a national level this might include a group of people communicating online and offering support. Communities of practice may also involve groups working together or offering support towards meeting a particular professional or community standard.*
 - **Continuous quality improvement:** An iterative process to review and improve care that includes involvement of healthcare teams, analysis of a process or system, a structured process improvement method or problem solving approach, and use of data analysis to assess changes. **Note here in a departure from EPOC we applied a more stringent criteria around the use of real world and real time data. This is because of difficulty we experienced in operationalising the definition above*
 - **Educational Games**
 - **Educational Materials**
 - **Educational meetings:** Courses, workshops, conferences or other educational meetings
 - **Educational Outreach Visits:** Personal visits by a trained person to health workers in their own settings, to provide information with the aim of changing practice.
 - **Inter-professional education:** Continuing education for health professionals that involves more than one profession in joint, interactive learning
 - **Consensus Processes:** Formal or informal consensus processes, for example agreeing a clinical protocol to manage a patient group, adapting a guideline for a local/regional health system or promoting the implementation of guidelines.
 - **Opinion Leaders:** The identification and use of identifiable opinion leaders to promote good clinical practice.
 - **Managerial Supervision:** Routine supervision visits by health staff.

- **Patient Mediated Interventions:** The use of patients, for example by providing patient outcomes, to change professional practice
- **Public release of performance data:** Informing the public about healthcare providers by the release of performance data in written or electronic form.
- **Reminders**
- **Routine PROMS**
- **Tailored interventions** **Note we define tailored interventions as those involving a high degree of in-depth research being conducted a priori within the same organisation before an implementation activity was conducted*
- **2002 - usually targeted at healthcare organisations**
 - Integration of services/pathways (as intervention for implementation)
 - Skill mix changes (as intervention for implementation not as guidance): changes in numbers, types or qualifications of staff
 - Changes in medical systems/equipment (as intervention for implementation of guidance not guidance itself)
 - Various forms of financial incentives (org level)
- **2002 - usually targeted at workers**
 - **Marketing:** Use of personal interviewing, group discussion ('focus groups'), or a survey of targeted providers to identify barriers to change and subsequent design of an intervention that addresses identified barriers.
 - **Mass media**
 - **Various forms of financial incentives**

2.4 Strategy and aims for web searching

Our aim was to identify national stakeholder organisations and implementation/ knowledge exchange networks which form a key part of the 'national implementation landscape' for NICE. To do this we compiled a long list of 249 national organisations in England working within clinical health, public health or social care; and additionally a number of regional/ local improvement/ knowledge exchange networks⁴ supported at national level. Most stakeholder organisations were selected on the basis that they would be expected to exert influence across the range of NICE's work. However, registered stakeholders for the development and implementation of individual NICE guidance and quality standards are often specific to a disease, clinical speciality or patient/ service user group, for example cardiology, diabetes, dementia, older people, looked after children or autism. We selected a few of each of these types of organisations to include in our list. Therefore from our long list we selected 53 organisations/ networks⁵ in total, some of which were intended to be exemplars for that particular type of organisation (especially in the case of Royal Colleges, professional regulators, voluntary organisations and specialty-specific learned societies). To compile the stakeholder list, the sources we used included:

⁴ The regional/ local networks which we included are the Strategic Clinical Networks, Academic Health Science Networks, Clinical Audit/ Effectiveness Networks, and NIHR Collaborations for Leadership in Applied Health Research and Care.

⁵ Counting all the networks of one type (e.g. Strategic Clinical Networks) as one 'organisation' because we searched the national 'umbrella' website for the regional/ local networks and a small selection of the individual regional/ local websites.

- The NICE and National Collaborating Centre websites, in particular members of the Implementation Collaborative and other NICE stakeholder reference groups/ standing committees
- Lists of national clinical, public health, local authority and social care organisations available from the websites of the Department of Health and the Social Care Institute for Excellence, and through Google searches
- Expert commentaries accessed through the bibliographic searches for the scoping review

Our list classified organisations into the following categories:

- Public bodies
- Professional bodies (including professional regulators)
- Corporate sector
- Policy and research sector
- Trade unions
- Voluntary organisations (service delivery, policy and research) e.g. the British Heart Foundation
- Speciality-specific professional bodies/ learned societies e.g. the British Cardiac Society.

2.4.1 Carrying out the web searches

The web searches were carried out in April and May 2016. We searched the website of each stakeholder organisation, using the search terms (i) NICE and (ii) “National Institute for Health and Care Excellence”. We also searched the NICE website for the name of the stakeholder organisation/ network. Where websites yielded few results, did not have a functional search engine⁶, or were not sensitive to the quotes in the second search term (name of NICE in full), we also carried out a Google search.

We restricted the time per stakeholder organisation/ network to forty minutes. Where all the search results could not be examined in this time, and we were able to restrict the search or order the search results by date, we:

- looked just at the results for 2015 and 2016
- prioritised the search with the abbreviated form NICE (which most organisations used in their documents and web copy).

The number of search results would have been influenced by the organisation’s policy for website content, and the efficiency/ sensitivity of the website search engine, as well as the extent of its stakeholder role in relation to the implementation of NICE guidance.

2.5 Data extraction from web searching

We looked at NICE’s statements in its 2014 manual and other key documents in relation to implementation goals when engaging with stakeholder organisations. Four themes emerged, which we used to code the implementation activities of organisations (box 5).

⁶ There were a small number of websites where it was not possible to access all the pages of search results and/or most of the links from search items to documents to obtain more detail.

Box 5: Coding template for implementation activities carried out by national organisations

Publicising/ disseminating/ endorsing guidance/ quality standards	“..can use their networks and influence to publicise guidance, and encourage and support its implementation locally and nationally” ⁷
Including/ embedding/ interpreting guidance/ quality standards in the organisation’s broader initiatives	<p>“Embed NICE guidelines and quality standards into their initiatives, standards or guidance or regulatory frameworks”⁸</p> <p>“NICE works with these organisations to establish how our guidance and quality standards fit in with the existing frameworks and reinforce the work other organisations are already doing”⁹</p> <p>“including important messages from NICE guidance in their leaflets and other materials for the public...encouraging NICE recommendations to be included in contracts to deliver local services”¹⁰</p>
DISCRETE INITIATIVES AND IMPLEMENTATION INTERVENTIONS FOCUSED ON NICE GUIDANCE	
Bespoke initiatives to support or critique implementation of NICE guidance/ quality standard where there was no substantial NICE involvement (according to online information)	“helping to interpret how guidance should be adapted to their local area and population...conducting surveys to find out whether NICE guidance is being followed, and using the findings to push for improvements...working with local authorities, NHS organisations and other community advocates helping put NICE recommendations into practice locally” ¹¹
Joint initiatives with NICE / formally endorsed or accredited by NICE, including educational materials	“Education and learning tools or activities, commissioning support, including audit, measurement and benchmarking tools, and other support resources could be identified or produced with external partners.... Resources to support guideline implementation can be formally endorsed by NICE if they are accurately informed by NICE content” ¹²

⁷ *Contributing to public health guidance - a guide for the public* (2013) <https://www.nice.org.uk/media/default/About/NICE-Communities/Public-involvement/Developing-NICE-guidance/Factsheet-5-contribute-to-developing-public-health-guidance.pdf>

⁸ *The remit of NICE Social Care Guidelines* on <https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/NICE-guidelines/social-care-guidelines/Social%20Care%20Guidelines%20Remit.pdf>

⁹ *Social care guidance and standards and the quality landscape* (NICE website. May 2016) on <https://www.nice.org.uk/about/nice-communities/social-care/social-care-guidance-and-standards-and-the-quality-landscape>

¹⁰ *Contributing to public health guidance - a guide for the public* (2013) <https://www.nice.org.uk/media/default/About/NICE-Communities/Public-involvement/Developing-NICE-guidance/Factsheet-5-contribute-to-developing-public-health-guidance.pdf>

¹¹ *Contributing to public health guidance - a guide for the public* (2013) <https://www.nice.org.uk/media/default/About/NICE-Communities/Public-involvement/Developing-NICE-guidance/Factsheet-5-contribute-to-developing-public-health-guidance.pdf>

¹² *Developing NICE guidelines: NICE manual* (2014) on <https://www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf>

3. Part A: Characterisation of the landscape relating to the implementation of NICE guidance based on published studies

Chapter summary

- **Body of evidence:** A large and heterogeneous literature focusses on NICE guidance and levels of uptake. However, comparatively few of these studies examine processes of implementation, or evaluate interventions aimed at increasing implementation, which is our focus in the scoping review. There are, however, clusters of activity in terms of, firstly, research and other literature that seeks to identify barriers and facilitators to implementing NICE guidance; secondly commentaries and critiques of NICE guidance and its expected impact (i.e. which are not research studies); as well as, thirdly, research studies and audits that aim to capture headline trends around uptake of NICE recommendations.
- **Peaks and troughs:** Significant gaps were identified in terms of studies that examined the implementation of NICE social care guidelines¹³, and far fewer studies examined the implementation of public health guidelines compared to clinical guidance. Studies examining national activities or processes were in the minority, accounting for 21% of the 87 papers identified. These national-level studies are described in detail in Part B of this report. In contrast studies that examined and evaluated local practices were much more common, with 37% of studies examining implementation within single institutions. Venous thromboembolism and mental health guidelines are the most frequent foci of studies aiming to understand and improve implementation processes.
- **Common strategies:** The majority of evaluated interventions involved audit and feedback (62%); and were followed in frequency by educational meetings (28%), the production of educational materials (29%) and/or the development of consensus processes such as the introduction of standardised pro-forma for patient care (32%). There were overlaps in usage and most interventions used a combination of methods.
- **Evidence gaps:** The effectiveness of some modes of implementation activity in raising levels of NICE guidance implementation have not been tested; these included educational games, continuous quality improvement, inter-professional

¹³ NICE has produced social care guidelines since April 2013; they are now part of NICE's unified guidelines across clinical areas, public health and social care. Before then, NICE produced joint guidelines with the Social Care Institute for Excellence, for example relating to dementia, looked after children and autism.

education, managerial supervision, public release of performance data, routine reporting of patient reported outcome measures, mass media, tailored interventions and financial incentives aimed at individuals.

- **Green shoots:** Studies that aim to implement changes in organisational culture are rarely conducted. However, one study evaluated an organisational accreditation model that led to improvements in communication, feelings of empowerment in negotiating for additional resources, a clearer direction for practice, and (internal) recognition of good practice. Communities of practice rarely feature within the published literature on the implementation of NICE guidance, although the small number of studies that do feature communities of practice as components appear to show promising results (there are more frequent examples from the website searching although these are much less likely to be evaluated).

Identification and providing support for the role of an opinion leader is suggested to be an effective guideline implementation method in the broader (non-NICE) literature, although this is a comparatively rarely used approach in evaluating the implementation of NICE guidance among the studies identified.

- **A range of reminders:** Reminders and decision support tools were generally found to be effective in the broader implementation literature. In those studies focussed on the implementation of NICE guidance, most studies suggested that reminders, ranging from the more complex reminders embedded in electronic health records to more rudimentary forms, were effective in changing practice. One study examined 'recommendation reminders' issued by NICE (now hosted on the do not do database) and found that these had a negligible impact on practice.
- **Audit and feedback:** This was the most frequently documented implementation activity in the scoping review, featuring in 54 studies (62%). Almost half of audit studies (twenty-four studies) were conducted at a local level in a single institution. Most studies used poor audit performance as a catalyst for implementing NICE guidance and using implementation interventions. Such a model could mean that changes in practice following the release of guidance may be a protracted and organic process and contingent on first stimulating and supporting local audit and feedback activities. Most studies that included audit and feedback activities did not include a rationale for subsequent quality

improvement activities. Furthermore, there were indications that those studies that did not provide a rationale were also less likely to report positive improvements across some or all indicators of interest.

- **Educational outreach and consensus:** In the broader (non-NICE) literature, educational outreach meetings appear to be effective vehicles for increasing the implementation of guidelines. Two studies that used (self-defined) educational outreach to increase levels of implementation of NICE guidelines both achieved significant changes. Given the effectiveness of this mode of activity, we expected to observe more studies employing educational outreach in the scoping review than was actually the case. Consensus processes were frequently encountered in this scoping review (e.g. through developing new pro forma for patient care), although there is little available evidence in the wider (non-NICE) literature on their effectiveness in raising levels of uptake of guidelines.
- **Limitations:** A concern around the sharing of best practice could mean that it will continue to be difficult to identify 'do not do' implementation activities, as these are likely to go unreported.

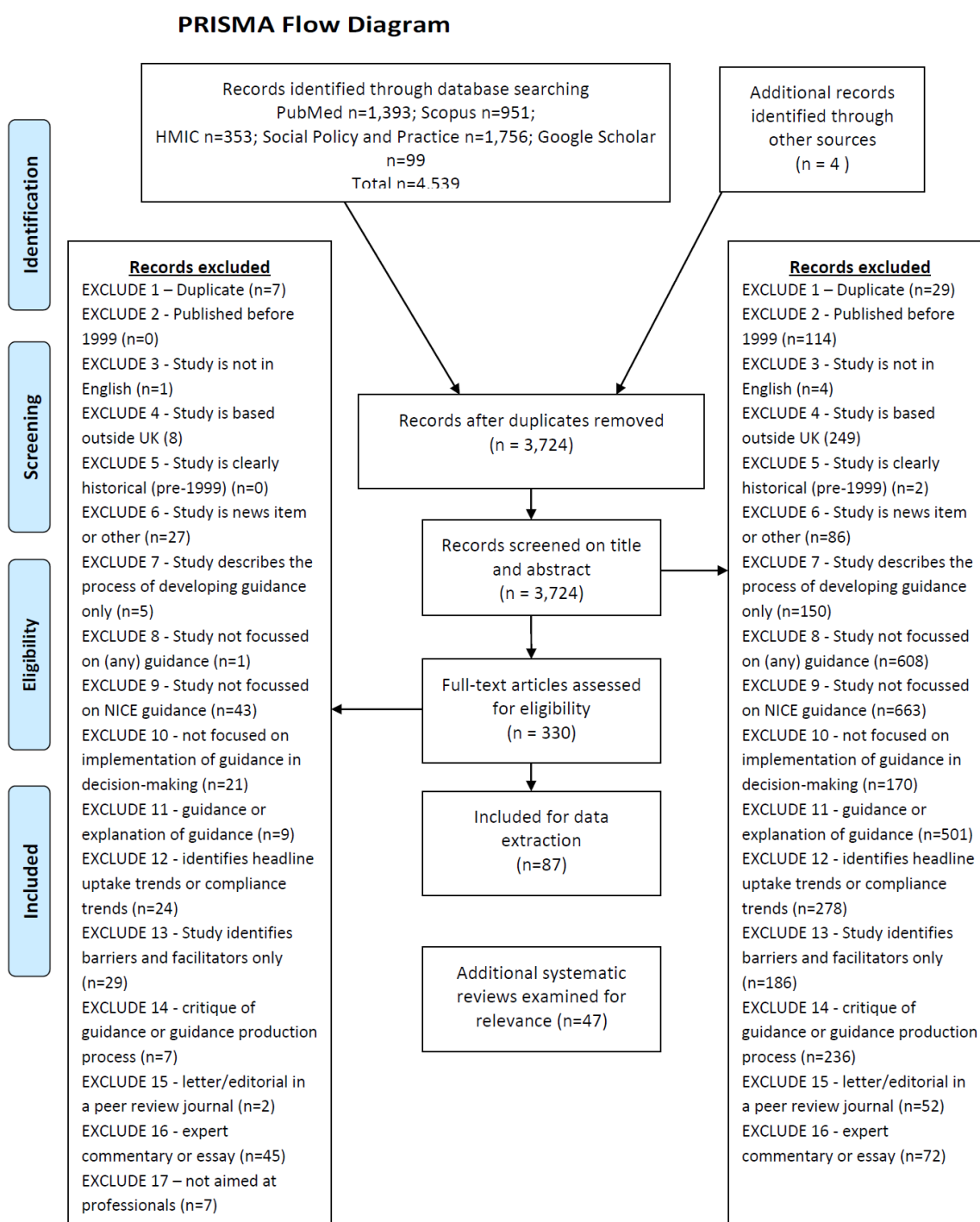
3.1 Number and flow of studies through the review

After the search strategy was implemented, 4,539 records were retrieved, the majority through PubMed and Social Policy and Practice. This was a much higher total than had been expected at the outset of the review despite the limit on including studies that were focussed on the implementation of NICE guidance. Over three hundred records were screened on the basis of full text to examine their eligibility, with 86 records found to be focussed on the implementation of NICE guidance in practice/ decision-making and meeting our inclusion criteria (see Figure 1). To ensure that broader learning around guidance implementation was not missed, further searching of systematic reviews (particularly those published by the Cochrane EPOC review groups) also took place¹⁴.

Notable exclusions included a large body of studies that were excluded on the basis that they were focussed on reporting headline uptake trends only. These studies mainly consisted of audit studies that did not describe any feedback system or any subsequent interventions to raise levels of uptake of guidance. Similarly, several studies were focussed on barriers and facilitators to implementing NICE and other guidance, including suggestions for interventions which might overcome barriers, although these studies did not describe any steps taken to overcome barriers or capitalise on facilitators. They also did not describe barriers and facilitators to implementing interventions focussed on improving levels of the uptake of guidance.

¹⁴ No additional trials or interventions focussed specifically on the implementation of NICE guidance were uncovered through these.

Figure 1: Flow of studies through the review



3.2 Characteristics of studies: scale and health/care area

The majority of implementation interventions were classified as taking place to increase the uptake of clinical guidelines (81 studies; 93%) with the remainder taking place to increase uptake of public health guidelines (6 studies; 7%). No published studies were discovered that sought to increase uptake of social care guidelines produced by NICE since

2013, although there was a study relating to joint NICE/ SCIE guidance on dementia (Singh et al., 2013), and some studies with a clinical or public health focus incorporated some social care aspects. The included studies represented a mixture of studies that reported on prospective interventions (trials), or that described (using research methods) how interventions had been devised and were being implemented (case studies), or that sought to retrospectively understand which measures and interventions were associated with increased implementation of guidance in practice (observational). In terms of the area of focus, there were clusters of activity around implementing guidance on venous thromboembolism (VTE and DVT; 12 studies), mental health (15 studies), cancer (6 studies), and respiratory medicine (4 studies) (see figure 2).

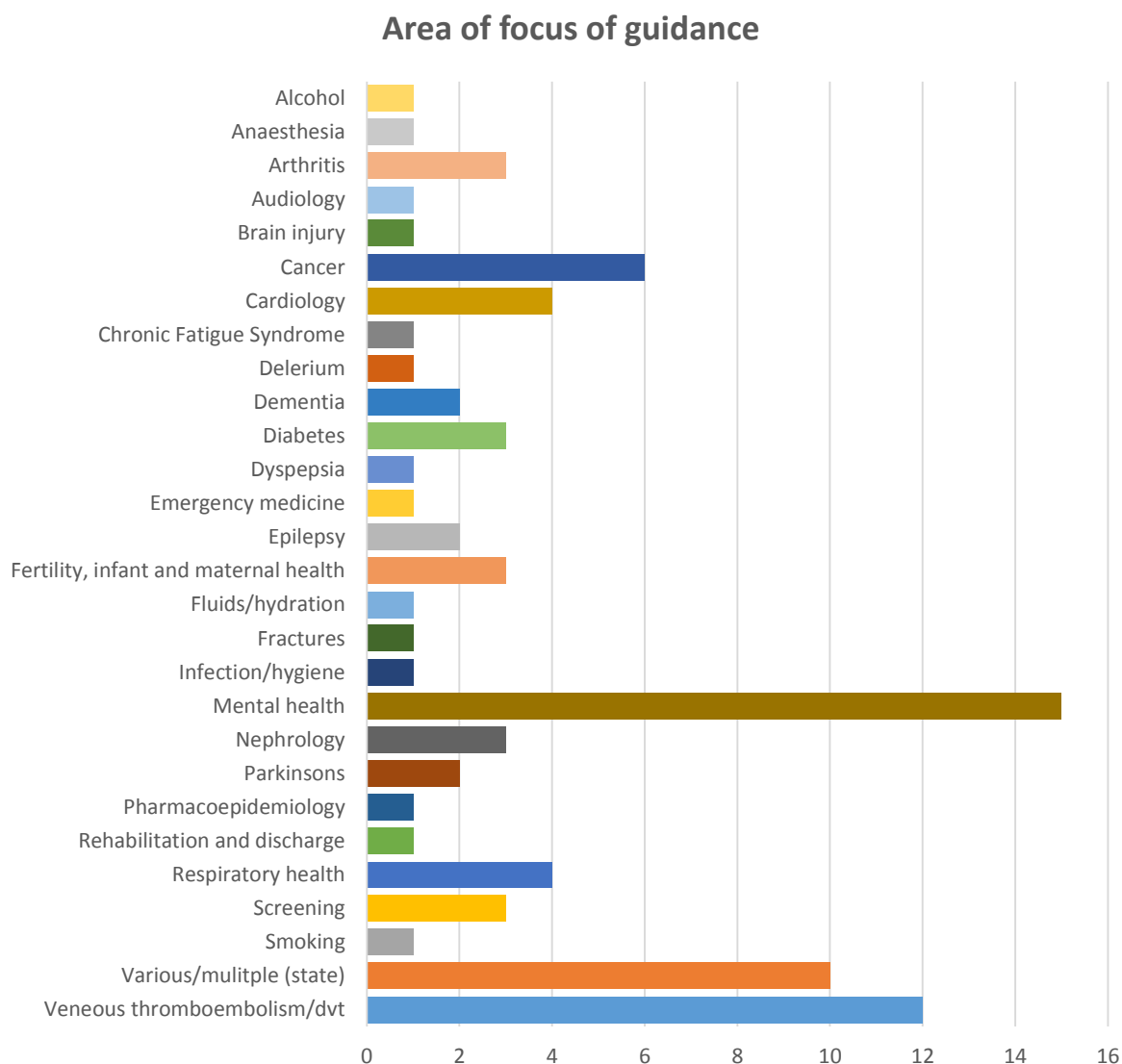


Figure 2: Area of focus for guidance implementation

Over a third of studies (37%) took place within single institutions, usually single hospitals, while a further quarter of studies (29%) took place across multiple sites within a single Trust area or Clinical Commissioning Group area. The remaining studies took place across whole regions (14%) or took place at a national level¹⁵ (21%).

¹⁵ The small number of studies taking place in non-contiguous areas are also included as national.

3.3 Characteristics of studies: which form do guidance implementation activities take?

Over two-thirds (70%) of studies only employed interventions defined by the Cochrane EPOC group as being aimed at individuals or workers; the remainder incorporated elements of interventions aimed at both organisations and at individuals or workers. No study was classified as being aimed at organisations alone. The majority of implementation activities involved audit and feedback (62%); these were often (although not always) accompanied by educational meetings (29%), the production of educational materials (28%) and/or the development of consensus processes such as the introduction of standardised pro-forma for patient care (32%).

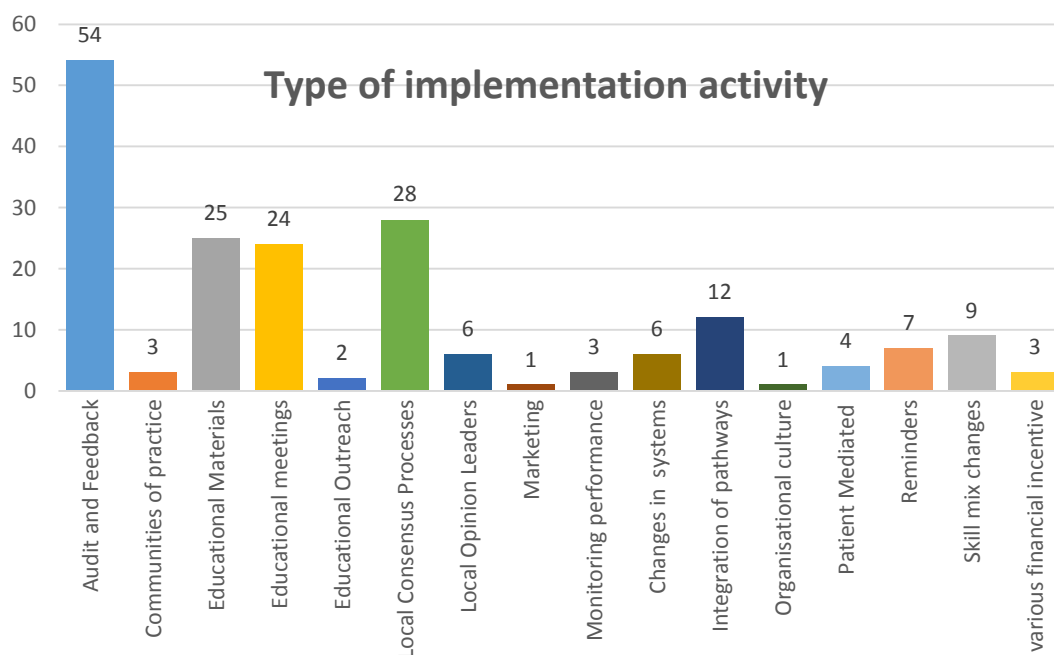


Figure 3: Type of implementation activity

Three quarters of implementation studies (76%) included multiple components of interventions as included in the EPOC taxonomy, while 21 studies (24%) relied on one component (although this in itself may have consisted of several related activities); this split is almost identical to the proportion reported in earlier systematic reviews of (non-NICE specific) guideline implementation interventions (Grimshaw et al., 2005). Multicomponent studies are reported in the broader (non-NICE) literature to be more effective among both clinical staff (Prior et al., 2008) as well as among allied health professionals (Hakkennes and Dodd, 2008); however, the international evidence around the number and combination of components is more limited.

Table 1: Implementation intervention type by scale

	EPOC Category	All studies	%	Regional/ national	%	Local	%
Targeted at individuals/ workers	Audit and Feedback	54	62.0%	15	50.0%	39	68.4%
	Monitoring performance in delivery	3	3.4%	1	3.3%	2	3.5%
	Communities of practice	3	3.4%	3	10.0%	0	0.0%
	Educational Materials	25	28.7%	7	23.3%	18	31.6%
	Educational meetings	24	27.6%	5	16.7%	19	33.3%
	Educational Outreach Visits	2	2.3%	0	0.0%	2	3.5%
	Consensus Processes (inc pro-forma)	28	32.2%	7	23.3%	21	36.8%
	Opinion Leaders	6	6.9%	4	13.3%	2	3.5%
	Patient Mediated Interventions	4	4.6%	2	6.7%	2	3.5%
	Reminders	7	8.0%	3	10.0%	4	7.0%
	Tailored interventions	0	0.0%	0	0.0%	0	0.0%
	Marketing	1	1.1%	0	0.0%	1	1.8%
Targeted at organisations	Skill mix changes	9	10.3%	2	6.7%	7	12.3%
	Changes in medical systems/equipment	6	6.9%	1	3.3%	5	8.8%
	Integration (or changes) of services/pathways (as intervention)	12	13.8%	5	16.7%	7	12.3%
	Financial incentives (org level)	3	3.4%	3	10.0%	0	0.0%
	Organisational culture	1	1.1%	1	3.3%	0	0.0%
	Total number of studies	87		30		57	

There were few notable differences between the patterns of implementation activity that took place on a national or regional scale compared to those that took place within ‘local’ areas, defined as those taking place/evaluated within single unit institutions, multiple institutions within the same area (e.g. Primary Care Trust or Mental Health Trust), or whole areas¹⁶. One interesting feature was that forming ‘communities of practice’, as a method, was employed only in larger studies taking place at regional or national level. Strategies involving the identification of opinion leaders also appeared more frequently in larger scale studies than smaller scale studies. Financial incentives had only been observed in larger areas, and had been directed at organisations rather than individuals. Educational meetings and audit and feedback were both implementation strategies that had been tested in larger and smaller geographic areas, but were disproportionately represented among studies taking place in smaller areas; this was also the case for educational materials and consensus processes.

3.4 Are the peaks and troughs in the map of literature on activities supporting the implementation of NICE guidance expected?

3.4.1 ‘Troughs’ in activity

Eighty-seven research studies were identified that focussed on interventions or processes for implementing NICE guidance at local, regional or national levels, and these form a map

¹⁶ Where the evidence is sourced from a limited number of institutions about the impact of a defined national level implementation programme or intervention, this is treated as offering evidence about a national intervention.

of the evaluated landscape. As has been noted by others about this field, evidence on the effectiveness of different types of interventions to aid the implementation of clinical guidance is heterogeneous in method and focus, and often inconsistent in findings (Prior et al., 2008). Nevertheless, some modes of intervention that might be expected to feature were underrepresented. The map showed that none of the studies included in the map primarily relied on the following strategies: educational games, continuous quality improvement, inter-professional education, managerial supervision, public release of performance data, routine reporting of patient reported outcome measures, mass media, and financial incentives aimed at individuals¹⁷. There may be several underlying reasons for this. One key reason may be the implementation intervention categories themselves (derived from the EPOC classification) and some of the challenges in operationalising these within the set of studies as discrete categories. For example, in the case of ‘continuous quality improvement’, this could in many ways be viewed as an underlying feature of any quality improvement study employing the Plan Do Study Act (PDSA) quality improvement cycles (Taylor et al., 2014). Similarly, ‘managerial supervision’ as a category might be expected to apply any intervention where an oversight group for a quality improvement project is put together. However, for the purposes of this report, we imposed more stringent definitions than in the broad EPOC category descriptions. We interpreted ‘continuous quality improvement’ as signifying the capacity to measure implementation in ‘real time’; and ‘managerial supervision’ as processes of direct ‘line’ supervision; these were not processes that were main components of any of the included studies. We interpreted ‘tailored interventions’ as requiring use of multiple methods of primary research to identify determinants of practice (barriers/ facilitators). Therefore, while coding and interpretation may contribute to the underrepresentation of some categories, the modes of increasing implementation of guidance listed above generally remain untested for NICE guidance. The distribution of studies in our map according to intervention method resembles the distribution of studies found in a systematic review conducted over a decade ago of implementation interventions (not specific to NICE) (Grimshaw et al., 2005, Grimshaw et al., 2004). Given that all but two of the studies included in our map were published after 2004, we could infer from the initial findings that those intervention modes that were determined to have inconclusive evidence because of a low number of studies may again have the same drawback in the current pool of NICE guidance-specific studies.

For some of these intervention modes, evidence of their efficacy and effectiveness in the wider literature is generally not conclusive or robust enough to consider the gaps in the map of NICE-specific studies as omissions in practice. Educational games, for example, are thought to improve the performance of health professionals through improving their skills, knowledge and attitudes; however a recent systematic review was unable to draw conclusions as to their efficacy in improving patient outcomes due to the paucity of evidence (Akl et al., 2013). In addition, another systematic review of reviews suggested that didactic modes of education did not have a positive impact on levels of uptake of clinical guidelines (Prior et al., 2008). Similarly, few studies find mass media to be an effective strategy for increasing implementation in of itself, although mass media interventions may still have a role alongside other intervention modes. In particular, those aspects of guidance that require behaviour change on the part of patients or the public in addition to practitioners may be more amenable to change through mass media

¹⁷ Note interventions coded as educational outreach visits were recorded as educational meetings as it while it was easy to establish where the training was delivered (in the vast majority it was delivered onsite), it was not easy to establish who was delivering the training.

interventions, although these forms are not the focus of the current study (Grimshaw et al., 2004).

Related to mass media, few studies were classified as using marketing as a strategy to increase the implementation of NICE guidance. This is despite some indications that marketing interventions can lead to significantly increased levels of guidance implementation in some studies, with Medves and colleagues (2010) review finding that 14 out of 18 studies employing marketing interventions reporting significant increases in adherence. One study that was classified as using marketing in the current review was Ince and colleagues' (2015) study on whether simplifying NICE schizophrenia guidelines through using plain English led to improvements in implementation. The redesigned guidelines were based on input from interviews with staff members before being trialled. Using an RCT design, the trialists found that there was no significant or consistent direction of effect resulting from the intervention and the authors concluded that multi-component interventions involving changes to organisational culture were necessary to achieve change (Ince et al., 2015).

However, a recent systematic review on interventions that aimed to change organisational culture to improve healthcare performance, including guideline implementation and adherence, found no studies had been conducted that met the inclusion criteria (Parmelli et al., 2011). This is despite a strong theoretical basis that states that changing an organisation's culture through its beliefs, values, norms of behaviour, routines, traditions and sense-making could lead to long-lasting change in practice including levels of guideline implementation (Parmelli et al., 2011). Among the studies identified in the current review, one was classified as aiming to change organisational culture. This was through a national accreditation programme which encouraged organisational change through providing a clearer organisational focus on driving quality improvement and making quality improvement integral to organisational culture. The Accreditation for Acute Inpatient Mental Health Services (AIMS) programme aimed to improve standards in inpatient mental health, including uptake of NICE guidance, and was developed by the Royal College of Psychiatrists' Research and Training Unit (CRTU) (Baskind et al., 2010). Baskind and colleagues (2010) focus on a sample of inpatient wards that initially failed to achieve accreditation, but subsequently went on to do so, finding that improvements in communication, feelings of empowerment in negotiating for additional resources, a clearer direction for practice, and (internal) recognition of good practice were all viewed as important processes in achieving accreditation status (and thereby implementation of guidance). Testament of AIMS being a reflection of a change in organisational culture came in reports of wards making additional improvements to practice beyond those contained in the guidelines. Many other interventions included in this review could be described as changing elements of organisational culture. For example, Somers et al. (2005) present the Sheffield Model of quality improvement, which could in itself present as an example of changing organisational culture. However, Baskind and colleagues' study suggests the impact of the intervention was observed across different tiers of the organisation from practitioner to non-clinical leadership, suggesting that the intervention did indeed change organisational culture.

No studies were identified as employing interprofessional education as a means of improving levels of implementation of NICE guidance. More broadly, reviews of the impact of inter-professional education provide only moderate evidence of improvement in terms of guidance uptake and authors tend to conclude that interprofessional education 'may' lead to changes in guideline adherence (Reeves et al., 2013, Medves et al., 2010). Interprofessional education may become a more important means of ensuring that NICE

guidance is followed, particularly where treatment pathways begin to span historic divides between social care and clinical health. A similar pattern was found in terms of the public release of performance data with no studies identified as using this as a mode of implementation; beyond NICE guidance, evidence on the impact of the public release of performance data on quality improvement, including guidance uptake, is lacking (Ketelaar et al., 2011). Nevertheless, the public release of performance data may be an important component in terms of a broader implementation ecosystem; for example through the public release of audit data or the sharing of ranked data among practitioners; and may be worth further investigation, particularly in light of the increase in sources and appetite for using real-world data (Kneale et al., unpublished). The map of NICE guidance implementation activity contained no evaluated studies considering the role of managerial supervision or the routine reporting of patient reported outcome measures, and these were also lacking in the wider review literature. Clearly patient perspectives and factors around managerial supervision and more broadly organisational leadership will influence levels of NICE guidance uptake and implementation, but the current literature is largely devoid of formal assessments of the impact of both of these intervention modes.

3.4.2 Communities of practice

Communities of practice were a component in three included studies. This can be considered an unexpectedly low number given the body of evidence supporting their utility in improving levels of guidance adherence, and also that networks featured substantially in the results from the web searches (see section 4.2). A key difference between conventional teams and communities of practice are the absence of hierarchical structures, and the presence of more collegial relationships, which can be conducive for spanning boundaries between management and clinicians, and can lead to both parties assuming a greater understanding of both clinical and management roles. Communities of practice have been associated with the development and spread of innovation in healthcare (Greenhalgh et al., 2004); in the context of NICE guidance they may form innovative responses towards interpretation and implementation of guidance. An example of such a model being used intra-organisationally to implement practice improvement (albeit not specifically the implementation of NICE guidance) can be found in Kilbride and colleagues' (2011) study, which describes the successful formation of a community of practice in facilitating the reorganisation of stroke care services in one unit. Regional networks or communities of practice were also named as a potential enabler for the implementation of NICE guidance in a recent survey of clinicians working in interventional procedures, particularly in light of the 'scarce resource of the NICE implementation team' (Lowson et al., 2015, p5). Reviews that have included literature beyond the UK have found that communities of practice are usually formed to exchange knowledge and improve clinical outcomes, which could include the implementation of clinical guidelines (Ranmuthugala et al., 2011). However, just one study within Ranmuthugala and colleagues' review included a partial focus on uptake of clinical guidelines; the review authors note that the formation of communities of practice for active improvement of clinical outcomes is a more recent development (Ranmuthugala et al., 2011).

One (UK) study exploring how communities of practice can facilitate guideline implementation (not NICE-specific) found that while criteria relating to uptake through individual actions improved, the results were not replicated at an organisational level (Tolson et al., 2008); this finding could suggest that communities of practice may be more effective when they include multidisciplinary members from across different tiers of management (including from across organisations). A separate systematic review of guideline implementation by nursing staff (not specific to NICE guidance) identified

forming a community of practice as being one of five essential components of normalising new clinical guidelines into practice (alongside: having activities that can be interpreted and made workable; clearly differentiating new guidelines from current practice; enabling new guidelines to be associated with collective improvement in knowledge; ensuring new guidelines minimise disruptions to behaviour norms) (May et al., 2014). The broader (non-NICE) literature therefore suggests that communities of practice may hold promise as a means of implementing guidance, and embody implementation principles of offering direct support, being pragmatically feasible, contextually adaptable, and open to continuous evaluation (Fung-Kee-Fung et al., 2008), but have been rarely utilised in practice.

The current review uncovered three studies that developed regional or national communities of practice in order to promote uptake of NICE guidance. The Chronic Kidney Disease (CKD) Collaborative was established by the Collaboration for Leadership in Applied Health Research (CLAHRC) in Greater Manchester and involved 19 GP Practices who formed networks involving general practitioners, practice managers, nurses and people with kidney disease (CLAHRC CKD Collaborative, 2010). Improvement teams of three members (a GP, a nurse and a practice manager) from each of the participating practices were formed and were supported by a group of experts in primary care, CKD and quality improvement. The theory of change for the intervention drew upon the Breakthrough Series from the Institute of Healthcare Improvement in the USA (see Kilo, 1998), and involved two main principles: (i) collaboration for shared learning; and (ii) continuous monitoring, regular audits, and adaptive implementation through PDSA cycles. One key aim of the intervention was “to halve the gap between recorded and expected prevalence and to ensure that 75% of all patients [without exception] have blood pressures managed to the NICE recommended targets (140/90 for those without proteinuria and 130/80 for those with proteinuria).” (CLAHRC CKD Collaborative, 2010). Within less than a year, the number of patients who had their blood pressure managed to NICE recommended targets increased from 34% to 74%. Similar improvements were observed across a range of indicators. A second study reported on the development of a community of practice through the development of the Insulin Pump Network. This was a national level initiative (see Table 2) and employed two strategies to develop the community: (i) the development of a website and online forum, and (ii) the formation of network meetings to strengthen network ties and promote discussion (Hammond, 2013). Here the study represented a process evaluation (or case study), and while the authors did not present outcomes on measures of guidance uptake, the challenges raised (and resolved) through the creation of the network help to illustrate the value of a community of practice approach in relation to the implementation of NICE guidance. These challenges raised and overcome included: (i) development of benchmarking around staffing; (ii) support in developing a tariff system; (iii) further development of e-learning for broader healthcare staff (e.g. emergency ward staff); (iv) development of standardised pathways (to pump therapy); (v) support in developing out-of-hours services; (vi) improved (localised) guidance over criteria for provision of continuous glucose monitoring; (vii) identification of reference or best practice centres for further sharing of best practice (Hammond, 2013). The third study to have formed a ‘community of practice’ took place across the Sheffield area in order to help to translate guidance on Cox II-selective inhibitors for osteoarthritis and rheumatoid arthritis into a locally implementable format and to maintain this community of practice through a programme of audits. Complete results were not available to the study authors when they reported this progress, although initial indications were that uptake rates had improved by over 20% in six months (Griffiths et al., 2005).

Communities of practice rarely feature within the published literature on the implementation of NICE guidance, although the small number of studies that do feature communities of practice as components appear to show promising results. While study quality and establishing causality are drawbacks to these studies, taken with the broader literature that supports their development as theoretically effective and adaptable, the evidence could suggest that this is an omission in the literature map that is worthy of further investigation.

3.4.3 Opinion leaders

Six papers documented 'opinion leaders' as being modes of implementation employed in studies (although two reported on the same study). In describing the model of NICE guidance implementation developed in Sheffield, the study authors note that identification of leadership roles was an essential first step towards the implementation of new guidance (Somers et al., 2005). Similarly, in Bateman and colleagues' (2013) observational study of NICE venous thromboembolism guidance across four hospitals links the identification of opinion leaders with successful implementation. In one hospital, where the level of implementation was highest and the hospital was awarded 'exemplar status', the opinion leader in question was a senior haematologist and across all hospitals, the dedicated implementation champion was a senior role and was a consultant or clinical manager. Positive changes were observed across most domains across the four hospitals (10/12), although a multicomponent approach to implementation was taken in all hospitals, and therefore separating the impact of the 'implementation champion' on the outcomes is challenging (Bateman et al., 2013). Cotton's (2013) study also describes the process of identifying 'passionate and experienced champions' to aid in the implementation of NICE guidance on critical care, and while not reporting on outcomes directly in terms of guideline uptake or patient outcomes, does provide an indication of some of the pragmatic hurdles to implementation that this approach can overcome. Patton and O'Hara's (2013) national level study finds that the identification of 'alcohol champions' in a screening programme taking place in an Emergency Department is associated with an increase in implementation of recommendations within NICE guidance. Finally, two linked observational studies on the national implementation of NICE guidelines around workforce health (Preece et al., 2012, Royal College of Physicians, 2011) offered a different perspective and focussed on the role of leadership at board level and interaction with staff. The results show that although staff health and wellbeing was supported through the nomination of a board member to champion issues in workplace health, this did not necessarily equate to this being a frequent issue or regular standing item discussed at board level (Royal College of Physicians, 2011). In addition, those trusts that did not frequently discuss staff health and wellbeing at board level were also less likely to involve and consult with staff on these issues (Preece et al., 2012). The results of these studies emphasise that nomination or identification of an 'opinion leader' does not always equate to meaningful implementation of guidance, but may be more likely to achieve change in tandem with other components, albeit based on a small evidence base.

In contrast, evidence relating to non-NICE guidance suggest that the use of opinion leaders is generally favourable to achieving increased guidance implementation. A (2008) review of systematic reviews found that opinion leaders did promote behavioural change and guideline adherence, with one systematic review included finding improvements of up to 39%, and a further review finding that intervention groups employing opinion leaders in trials were 10 per cent more likely to be compliant with guidance recommendations. While the proposed mechanism of effect is by information transfer through social influence (Prior et al., 2008), opinion leaders are likely to play a more active and responsive role in

helping to overcome implementation difficulties. A more recent review focussed on guideline uptake for musculoskeletal conditions also provided evidence that opinion leaders could be effective modes of increasing implementation, finding that ‘educationally influential’ leaders may result in guideline-consistent GP behaviour (Tzortziou et al., 2008). Finally, the most recent Cochrane EPOC review focussed on opinion leaders found that their use as a mode of implementation intervention was associated with a 12% absolute increase in uptake of guidelines (Flodgren et al., 2011b). However, details of the characteristics and exact roles of an ‘opinion leader’ were not clear from studies.

Overall, while a number of guidance implementation interventions have employed opinion leaders in the broader literature, their use in evaluation studies focussed on implementing NICE guidance (i.e. within our scoping review) appears to be less frequent than might be expected, particularly given their apparent effectiveness more widely.

3.4.4 Tailored interventions

Some of the studies discovered were activities that were currently underway or protocols (which are not included in the 78 but are recorded in the text here). An example was an NIHR-funded study into the implementation of NICE guidance around weight management for people who are overweight and obese (Krause et al., 2014). This study planned to apply an established model of ‘tailored interventions for chronic diseases’ (TCID) (Wensing et al., 2011) to support the implementation of NICE guidance in primary care. Designing the tailored intervention involved identifying determinants of implementation of guidance in primary care, with the final tailored intervention design including a practice-based interactive session delivered to primary care teams, ongoing implementation support, and the development of a support network (Krause et al., 2014). A broader systematic review of the TCID model found that with regards to uptake of health care practice (not exclusively focussed on guidelines), and in climates of moderate uptake at baseline, that implementation of a TCID intervention was associated with an additional 10 more patients receiving recommended practice per 100 patient encounters (95% CI: 6-14 patients) (Baker et al., 2015).

The defining feature of the TCID studies that were included in Baker’s review (and of the overall model) is that determinants of practice - those barriers, practices and cultures that prevent full implementation of optimal healthcare practice - were identified through multiple methods of primary research prospectively. The review excluded those studies where determinants of practice were inferred solely on the basis of a gap analysis following an audit, and also excluded studies of educational interventions designed to improve knowledge only (Baker et al., 2015). In this sense interventions that followed a TCID model were more likely to include multicomponent interventions where different components were tailored to address specific defined determinants of practice (Baker et al., 2015, Krause et al., 2014), recognising that several strategies (or intervention components) are needed to change one determinant. Despite a promising basis for TCID as a method of improving practice, the effects in existing reviews (not specific to NICE guidance) are found to be variable, mainly positive, but mostly small to moderate (Ivers et al., 2012, Baker et al., 2015). Although many of the interventions included in our map would include some element of tailoring and preliminary research, no completed study could be described as having employed multiple methods of primary research prospectively, and therefore we did not classify any scoping review studies as ‘tailored interventions’. However, several of the studies that were screened during the course of the review (which were excluded) could be described as undertaking the preliminary work necessary for undertaking a tailored intervention, through identifying the facilitators and

barriers to implementation. For example, this included Sinfield and colleagues' (2013) study which convened groups of Primary Care Providers to discuss barriers and facilitators to guideline implementation and develop solutions.

3.4.5 Reminders

We might expect to see more studies employing reminders as their mode of intervention than were identified in our map, given that reminders were one of the most common forms of intervention found in previous systematic reviews of the broader literature on guidance implementation (Grimshaw et al., 2004, Grimshaw et al., 2005). This is also partially confirmed in the results of the website searching where additional studies employing reminders, many of which are in the process of being conducted, were identified (for example the Anticoagulant Programme East London (APEL) intervention; see table 5). Furthermore, reminder and decision support systems have consistently resulted in significant practice improvements in a review of reviews (not specific to NICE guidance), with computer-delivered reminders found to have a slightly greater effect than paper-based reminders (Prior et al., 2008). A more recent systematic review focussed on musculoskeletal conditions found continuity in these findings specifically in relation to guideline adherence for osteoporosis medication (Tzortziou et al., 2008).

Among the seven NICE-specific studies identified as using reminders in this current review, two used computer based methods and five paper or other methods. Both studies employing computer based methods reported significant improvements in practice, although only one specifically in terms of increasing the uptake of NICE guidance. Downs and colleagues conducted a cluster RCT among GP practices exploring the impact of three intervention methods (national scale) - computerised decision support, practice-based workshops, and a training module delivered on a CD - on improving dementia diagnosis rates and improving diagnosis rates and management according to NICE criteria. Both computerised decision support and practice based workshops positively impacted upon the diagnosis rates, but did not enable practitioners to reach improved levels of uptake of NICE guidance. In exploring these discordant results, Downs and colleagues were unable to rule out potential measurement error and the reliance on medical records to capture evidence of practice (Downs et al., 2006). A later study examining uptake of guidance for vitamin D prescriptions for long-term users of anti-epileptic drugs found that the use of computer messages on prescriptions was effective in increasing uptake, but particularly when computer messages followed receipt of written recommendations (Minshall et al., 2013), suggesting a combination of reminder methods to be an optimal intervention strategy.

Other intervention methods based on reminders were more rudimentary and included a label stuck onto physician's phones (Sinha et al., 2014), a prompting tool placed inside a patient's file (Pasha et al., 2015), reminders on drug prescription charts (Irvine and Paterson, 2006), and placing removable reminder stickers on patients' notes (Thompson et al., 2008). In two of the studies the reminder systems were initiated alongside few other activities besides initial feedback from baseline audits and in both studies significant improvements were observed in physical health monitoring (Pasha et al., 2015) and appropriate thromboprophylaxis for neck of femur patients (Sinha et al., 2014), albeit based on a small sample in both studies. In the third study, a medication chart reminder system was tested alongside educational (outreach) meetings and the dissemination of educational materials (a tailored workbook) to reduce levels of polypharmacy of anti-psychotic drugs in a randomised controlled trial. Post-intervention, practitioners in the treatment group were less likely to prescribe multiple anti-psychotic drugs to patients,

and were therefore more in line with NICE guidance (Thompson et al., 2008). A fourth study on improving compliance with NICE guidance on venous thromboembolism prevention found substantial improvements in thromboprophylaxis after a combination of measures were introduced, including simple reminders, educational meetings and audit and feedback, albeit based on a small sample (Irvine and Paterson, 2006).

Overall, the evidence in the broader implementation literature (not specific to NICE guidance) suggests that reminders are an effective and commonly used strategy in raising levels of uptake of guidance. Studies in our scoping review which focussed on the implementation of NICE guidance also confirm this trend, albeit with caveats, and all five studies discussed above suggest that reminder systems - whether paper based or electronic - lead to improvements in practice (including improvements that are in line with guidance). One final study evaluated the impact of NICE 'recommendation reminders' which identify practices that should be discontinued when they are not supported by the evidence (which have now formed NICE's 'do not do' database). This study focussed on the area of fertility, where the highest number of reminders was issued by NICE. While perhaps not directly comparable with studies discussed above, the conclusions of the study that there was no change in uptake associated with the issue of recommendation reminders, are of interest in suggesting that this form of reminder may be ineffective at improving clinical practice (Chamberlain et al., 2013), without further additional actions to change patterns of established clinical practice.

3.4.6 Financial incentives

The impact of financial incentives was considered to be inconclusive on guidance uptake in a review of reviews (not specific to NICE guidance), where the effects ranged from 6 per cent increased uptake to 39 per cent; the lack of an observed dose-response relationship where the magnitude of the incentive did not impact upon the level of uptake also casts doubt on whether a causal relationship exists (Prior et al., 2008). The most recent Cochrane EPOC review around this topic examined the results of seven studies that offered incentives to primary care providers, finding that six of these showed positive effects on the quality of care (including some measures of uptake), but not across all indicators. Furthermore where positive results were observed, these were only modest changes in behaviour and all studies suffered from poor quality study design (Scott et al., 2011). Similar conclusions were drawn in a more recent review of reviews in that financial incentives show promise as a means of improving care in some studies, but that the evidence base is underdeveloped, lacks generalisability and is of poor methodological quality (Flodgren et al., 2011a). A recent systematic review focussed on the impact of financial incentives for pharmaceutical prescribers also found inconclusive evidence and suggested that the impact of incentives on uptake at best led to only temporary and modest changes in behaviour (Rashidian et al., 2015). Each of these reviews tend to focus on the impact of incentives on changing practice among providers which are individuals rather than organisations, and it is unsurprising that this is not a common intervention mode for the implementation of NICE guidance given the uncertain and weak evidence base surrounding the impacts of incentives on guideline implementation more broadly. In our map, no studies which were specific to NICE guidance were classified as utilising this mode focussed on individuals. However, three studies did consider the impact of national incentive schemes for organisations in improving levels of NICE guidance implementation and uptake.

Child and colleagues' study (2013) investigated the impact of the national Commissioning for Quality and Innovation (CQUIN) scheme at 4 sites in the South West of England on the

levels of uptake of NICE guidance on Venous Thromboembolism (VTE) (CG92). CQUIN enabled organisations to be rewarded on meeting targets for quality improvement including guideline implementation. While all sites involved in the study recorded improvements, process data suggested that it was difficult to separate out the impact of incentives from innate practitioner efforts to improve the quality of care. The researchers observed a disconnect between receipt of rewards for hospitals which did not trickle down to greater investment in the individual implementing departments. Another study also had a partial focus on CQUIN as a means of implementing a NICE quality standard to reduce the risk of VTE, finding that levels of VTE-related complications had decreased following implementation of monitoring and incentives, although due to the study design, a deeper understanding of the mechanisms involved was not presented (Catterick and Hunt, 2014). Meanwhile Llewellyn and colleagues investigated the adoption of three new NICE approved technologies - insulin pump therapy (IPT), breast lymph node assay (BLNA), and ultrawide field retinal imaging (UFRI), which were purposively selected for their complexity - in their (2014) qualitative study of implementation practices and strategies. One of many findings deriving from this study was the disjoint between national incentivisation and reward mechanisms (specifically Payment by Results) and the impact of guidance. For example, while BLNA almost certainly led to improved patient outcomes, due to the reward scheme in place there was actually a financial disincentive to implement this procedure as hospitals would be paid for one procedure using the new technology rather than two under the old procedures. While Llewellyn's example does not examine the impact of financial incentives as an intervention or strategy per se - as this was an existing component of the implementation context - it nevertheless provides an example of how extant contextual factors can disincentivise implementation, and shows perhaps the need to explore the use of financial incentives as levers of implementation more closely in future.

3.4.7 Peaks in activity

Four intervention modes - audit and feedback, educational meetings, educational materials and consensus processes - were highly visible among the sample of 87 studies identified in our scoping review. Seventy-two studies (83%) included at least one of these components. These peaks in the distribution of studies are similar to those found in previous systematic reviews of the broader (non-NICE) literature, although others find that the distribution of educational materials is the most commonly employed implementation mode (Medves et al., 2010), whereas the evidence here from NICE-specific studies finds that audit and feedback is most frequent, included in 54 of the studies (62%).

In the broader literature (not specific to NICE guidance), audit and feedback was found to lead to significant positive effects in over four-fifths of studies in one review (Medves et al., 2010). However, a review of reviews gave a less consistent picture, with some reviews finding no or even negative effects in terms of guideline adherence, and others finding up to 63 per cent improvement (Prior et al., 2008). This same study posited that the results of audit and feedback were more visible in terms of cost savings rather than actual guideline uptake. A systematic review focussed solely on audit and feedback found that among studies that were well executed, audit and feedback was associated with a weighted median increase of 4.3% (interquartile range of 0.5% to 16%) in levels of guideline uptake (Ivers et al., 2012). Unsurprisingly, audit and feedback did not exhibit blanket positive effects, and varied across clinical area; it was also more effective where baseline performance was low and where feedback was provided in a structured way with explicit targets and an action plan (Ivers et al., 2012).

Given that audit and feedback is a frequently utilised intervention mode in this broader literature on guidelines, and one that is associated with positive impacts, it is therefore unsurprising that audit and feedback featured frequently in our NICE-specific studies. Additionally, in terms of the national landscape in the UK, audit is a requirement for professional revalidation and CPD in some professions; and several national level organisations have a focus (sometimes their sole focus) on national audits or supporting local audit activity, as we will see later in this report when we report on the web searches. We provide further details of the characteristics of audit and feedback in box A below.

Box A: Quality improvement and audit and feedback

- 54 studies were identified as including audit and feedback as one of the components, and the details from each individual study is presented in evidence tables presented in Appendix 2.
- Those studies that reported only on the results of one or more audits and did not report any feedback mechanisms were deemed to be reporting only on headline uptake trends and had not reported conducting audit and feedback according to the EPOC (2015) definition as a “summary of health workers’ performance over a specified period of time, given to them in a written, electronic or verbal format”. We also focussed only on self-defined audit and feedback studies and not those studies that may have measured baseline uptake and uptake post-intervention (as the latter form of studies may be underpinned by a distinct conceptual framework).
- Eight studies were conducted at a national level, including one study where results were presented for a local level but were part of a national audit programme (Henfrey, 2015). Almost half (twenty-four studies) were conducted at a local level in a single institution. Audit and feedback, and particularly subsequent quality improvement activities, therefore appear to be a mainly local endeavour, but with some notable exceptions at a national level including (Baskind et al., 2010, Child et al., 2013, Hammond, 2013, Jones et al., 2015, Patton and O’Hara, 2013, Preece et al., 2012, Royal College of Physicians, 2011). Another national level study included a strong element of continuous ‘self-auditing’ of practice (Walsh et al., 2010), although can be considered to be an ‘outlier’ compared to other studies.
- Subsequent quality improvement activities were not a requirement for coding the study as ‘audit and feedback’ in our scoping review. Some studies were focussed on reporting the results of initial audit with subsequent changes reported as a minor focus, whereas others were more focussed on reporting the process of conducting subsequent quality improvement strategies. However, most studies in this scoping review tended to explicitly describe poor initial audit results as the basis for undertaking subsequent quality improvement activities. This means that much of the guidance implementation landscape is reactive rather than proactive. While this may make conceptual sense, it also does signify that changes in practice following the release of guidance may be a protracted and organic process and contingent on first stimulating and supporting local audit and feedback activities.
- Forty-two studies provide indicators of the impact of the audit and feedback and other components. Of these, thirty-two presented evidence that improvements were observed across all or the majority of the domains of interest, while ten suggested that improvements were either observed only in part or there had

been no substantial change in practice. For example, Bateman and colleagues (2013) describe an observational study of quality improvement processes (linked to audits) in reducing the risk of venous thromboembolism for hospital patients, and found while there were increases in the numbers of risk assessments being carried out, there were few changes in prescribed prophylaxis. Similarly Majumder and colleagues (2013) modified a pro-forma and developed educational materials and training sessions after conducting an audit on implementing NICE guidance on depression in children and young people, finding that while there was improvement in most indicators, some exhibited no change while a reversal in standards was observed in some indicators.

- Previous investigations into guideline dissemination and implementation have noted that few studies utilise theory in the design of implementation strategies, and that the choice of intervention strategy is often not justified (Davies et al., 2010, Gagliardi et al., 2015). This is something we sought to explore in this collection of studies, through examining whether justification was provided for the choice of implementation activity that accompanied audit and whether this was tied to any recognised quality improvement processes. All studies provided a rationale for focussing on the health topic of concern; however, of the studies included, only around a third (16 studies, 36%) provided justification for the choice of quality improvement, or provided detail of the process of choosing and refining the implementation activity (thereby incorporating some element of tailoring). Of the 16 studies:
 - The majority of these sixteen studies integrated audit within Plan Do Study Act (PDSA) quality improvement cycles (see Taylor et al., 2014) (10 out of 16 studies; but not ‘continuous’ quality improvement). Other approaches included:
 - The Breakthrough Series method developed by the Institute of Healthcare Improvement in the USA which involves a high degree of collaboration and the spread and adaptation of existing knowledge (Kilo, 1998); this was used by the CLAHRC CKD Collaborative (2010).
 - Baskind and colleagues (2010) linked audit to accreditation processes and provided a theoretical basis for doing so (see section 4.1.1 for further descriptions of this study)
 - Jones et al. (2015) employed a distinctive model where best practice and high performing organisations were identified from a baseline national audit. Determinants of success were identified and formed the basis of a targeted intervention among low performing organisations.
 - Other approaches included: Gill and colleagues (2014) who employed an implementation model developed by the RAND corporation; and Cotton (2013) specifically situated activity within theories outline in the NICE implementation guidance. Both Griffiths et al. (2005) and Somers et al. (2005) described implementation of a Sheffield model of quality improvement, but emphasised different aspects of the model. Griffiths et al. (2005) described a high degree of collaboration with patients, and the formation of community of practice with heavy usage of audit. In contrast Somers et al. (2005) describe the importance of integrating local opinion leaders into the audit and feedback model that was developed.
- While there are several caveats around the size of the sample, as well as some subjectivity around where ‘improvements were observed’ (i.e. this is not based

on meta-analysis), there were some indications that those studies which provided a rationale for audit-linked actions were more likely to be categorised as observing improvements (11/13 studies; 85%) than those that did not (21/29 studies; 72%). One previous review highlighted that conceptualising audit and feedback within a theoretical framework could maximise the impact of the tool in changing practice (Foy et al., 2005); a decade on and results here suggest that providing a rationale for quality improvement measures is still a feature that is lacking in the majority of studies included here, but a feature that may lead to optimal results.

3.4.8 Educational activities

Interventions that involve ‘education’ span those providing personalised and interactive educational meetings and educational outreach visits to more passive forms of guidance dissemination and awareness raising. Unsurprisingly, in the broader literature (not specific to NICE guidance), those interventions that involve more intense activities tend to be more effective in raising levels of guidance uptake, although these forms of intervention also have higher running costs. Interactive educational strategies are consistently found to be effective in systematic reviews, with effects ranging from a 1-39% improvement in uptake (Prior et al., 2008).

Similarly, in the broader literature, educational (outreach) meetings are found to have the highest impact, but are rarely employed because of the cost (Prior et al., 2008) (although not all reviews agree on the effectiveness of outreach, see (Medves et al., 2010)). In the current scoping review, educational outreach and educational meetings were often coded as being equivalent (as educational meetings) as establishing who delivered the education, and whether this amounted to ‘outreach’, was sometimes difficult to ascertain.

Nevertheless, we encountered two studies specific to NICE guidance that self-defined as ‘educational outreach’ interventions. The first aimed to improve uptake of NICE guidance on the management of depression, and particularly focussed on prescribing practices. This involved the development of educational materials with an academic partner, and educational visits by primary care pharmacists together with a psychiatrist on site at GP practices and carrying out follow-up visits. This approach was successfully implemented and resulted in a decline in the prescribing of Escitalopram (in accordance with guidance) while continued increases were observed in the rest of the region and the country (Patel and Afghan, 2009). The second also involved the use of reminders, and led to improved uptake of guideline-adherent prescribing practices in relation to anti-psychotic drugs (Thompson et al., 2008). In a broader review focussed on iatrogenic infection (non-NICE) guidelines, Flodgren and colleagues (2013) concluded that educational interventions delivered with active elements repeated over time, and involving specialised personnel who were experienced within the specific clinical field, were ‘worth further study’. In this sense the Thompson et al. (2008) and Patel and Afghan (2009) studies embody these principles. While educational interventions were a frequently employed mode of intervention in the current scoping review, the effectiveness of the educational outreach model in the wider implementation literature, as well as among those studies embodying educational outreach principles in this current review in relation to NICE guidance, may mean that we should expect further deployment of this method than is the case based on the results in the map.

Often the same intervention will employ different modes of education or training activity to raise levels of uptake. For example in a review of (non-NICE) guidance uptake strategies

among allied health professionals, studies often incorporated elements of both educational meetings and educational materials, and small positive effects were generally reported (Hakkennes and Dodd, 2008). In our map of studies implementing NICE guidance, while 25 and 24 studies reported the use of educational materials and educational meetings respectively, nine studies reported that both modes were used in the same study. Some broader reviews suggest that interventions incorporating educational materials and educational meetings have similar levels of impact (Medves et al., 2010), although other reviews do make a clear distinction; for example in Prior's (2008) review of reviews, passive education and dissemination activities, such as conferences, web sites and didactic lectures were consistently ineffective in increasing levels of implementation. A more recent systematic review also appeared to confirm these earlier findings, with seven studies showing that interventions employing passive guideline dissemination or educational opportunities showed little to no improvement in terms of adherent behaviour among GPs implementing guidelines for lower back pain (Tzortziou et al., 2008).

The web searches showed a great number of national level educational materials and educational meetings being produced to support implementation of NICE guidance. However, for our scoping review, we found only seven national or regional level studies of educational materials, and only four of educational meetings.

3.4.9 Consensus processes

In this context, consensus processes involve reaching agreement on the management of patient or service user care according to guidance recommendations. This could involve, for example, agreeing a clinical protocol to manage a patient group, adapting a guideline for a local/regional health system or promoting the implementation of guidelines (EPOC, 2015). In the current review of NICE-specific studies, consensus processes often involved reaching agreement on how care would be adapted to meet guidance recommendations and the production of a new pro-forma for patient care. Consensus processes in the current review were recorded more often in smaller, local implementation initiatives than among studies taking place across larger areas, and accounted for almost a third (32%) of studies. In Medev's (2010) systematic review of the broader (non-NICE) literature, studies using consensus processes as the intervention mode were among the least likely to record significant improvements (along with patient mediated interventions); however these conclusions are based on 'vote counting' rather than formal meta-analyses. Therefore, while consensus processes were frequently encountered in this scoping review, there is little available evidence on their effectiveness in the wider literature in raising levels of uptake. Theoretically, consensus processes could be important means of implementing guidance as they span a bridge between 'agreeing with evidence' and 'translating it to make decisions and/or change services' (Rycroft-Malone et al., 2013).

3.4.10 Peaks and troughs

Our map of literature documenting the evaluations of the implementation of NICE guidance does reveal peaks and troughs in terms of the mode in which the study observes or attempts to implement change. Some of these patterns follow those expected on the basis of the broader (non-NICE) literature, either in volume or in terms of the effectiveness of interventions, while others run contrary and may be worthy of further investigation. Some of the interventions appear to be more easily implementable and are likely to mirror existing quality improvement or quality assurance processes; for example audit and feedback strategies; while others are more purposive and require greater planning and investment, such as educational outreach meetings, which were documented

less frequently in relation to NICE guidance amongst the research studies. However, it is also worth considering two additional points. Firstly that one of the most recent reviews in this field that examined a range of study modes in relation to non-NICE guidance found that most achieved a positive impact (87.5%; again this is based on vote counting as opposed to a more robust meta-analysis), but that patterns of success could not be detected for any possible explanatory factor including guideline topic, the use of theory, the barrier being overcome, the number of components, or the type of implementation strategy (Gagliardi et al., 2015). Others have also critically considered the utility of systematic review evidence, noting both a lack of critical mass of studies and a heterogeneous evidence base as being obstacles to make recommendations on optimal implementation methods (Foy et al., 2005). A decade after these critiques, similar conclusions are still being drawn. Secondly, there are limitations to the findings from the studies included here in our scoping review focusing on NICE guidance (discussed in full in the conclusions). Publication bias is likely to be a particular concern here as the range of studies included will only represent a small fraction of the activity undertaken. In particular, those activities that do not lead to a significant change in behaviour are very much likely to be underrepresented among these studies, rendering formal synthesis methods inappropriate. Underlying ambitions around the sharing of best practice, exemplified in journals such as *BMJ Quality Improvement* where the goal is to create a repository of 'quality improvement evidence and best practice' only heighten the risk that we will struggle to identify implementation strategies that are less effective, but that continue to be deployed in practice but go unreported in the literature. Nevertheless, the questions raised in these results are worthy of further consideration and research, and are discussed further in the concluding chapter.

4. Part B: Characterisation of national level activities (evaluated and non-evaluated) relating to the implementation of NICE guidance

Chapter summary

Results relating to evaluated implementation interventions from the scoping review of the research literature

- Eighteen research studies were identified that offered insight into the implementation of NICE guidance at a national level; sixteen of which reported on the process or outcomes of implementation activities. All the studies were heterogeneous in terms of the mode of activity and the focus.
- National interventions which include elements of communities of best practice are found to be successful in this ambition in three included studies. National communities of best practice were created in different ways across the studies including through introducing an accreditation system; through developing online fora supported by less frequent face-to-face encounters; and through more purposive means through enabling low level implementers to learn from organisations with high levels of implementation.
- A cross-cutting theme was that national level activities provided a catalyst for improved organisational management processes facilitating the implementation of guidance. National level activities could also stimulate conversations to occur between clinical staff and managers that may not ordinarily occur.
- NICE produces many economic tools that can help practitioners and commissioners form a business case for change, but the evidence suggests that other factors including political and public pressure may also compel change. Greater public prominence associated with implementation of guidance, as may be the case with accreditation schemes for example, may also be effective strategies for leveraging change at senior levels.
- Standardisation of processes and tools is found to be a motive for undertaking national initiatives in a number of studies. This is reflective of an ambition both to ensure that guidance is interpreted similarly across geographic areas, but also to ensure that guidance is reflective of clinical episodes. Standardised tools that reflect clinical episodes involving commonly occurring co-morbidities and support decision-making are likely to improve levels of patient care and guidance uptake, but they are complex to develop and require a number of other adjunct processes to take place to ensure implementation. Standardisation in patient

care was also an underlying motive of the only evaluated example that we found of a national service delivery programme to implement NICE guidance through the Improving Access to Psychological Therapies (IAPT) initiative.

- Studies describing e-learning supporting implementation of NICE guidance find it to be an easily implementable form of national implementation intervention, and report that usage often exceeds the targets that are set. However, these studies are absent of robust data on any subsequent changes in the implementation of guidance in practice.
- Generic (non-tailored) interventions are not found to be appropriate when conducting patient-centred consultations.

Results from the supplementary web searches relating to evaluated and non-evaluated implementation activities

- Supporting and conducting audit and feedback was the most frequent form of bespoke (intervening) initiative (i.e. focused on NICE guidance) that national stakeholders were undertaking where there was no substantial NICE involvement (according to online information). Less commonly encountered bespoke initiatives were those that involved redesigning or integrating patient pathways as a means of ensuring that NICE guidance was implemented. Several national stakeholders undertook initiatives that aimed to implement NICE guidance through patient information and education. For example, Diabetes UK's 'information prescriptions' aimed to empower patients to understand why measures were being routinely collected from them and what they could do to help lower their risk.
- A greater range of organisations were found to undertake a more diverse set of activities in order to embed NICE guidance within their broader activities than they were to undertake bespoke (intervening) implementation activities. NICE guidance was found to be embedded in the professional regulation arrangements and service regulation arrangements across several organisations. As is a theme throughout this report, there was frequent support for implementing NICE guidance through their incorporation in broader audit programmes and audit tool development programmes (where these were not bespoke initiatives focused on NICE guidance as discussed above). One recent development came from the NHS Sustainable Improvement team (part of NHS England since November 2015),

which, in partnership, developed the GRASP Suite¹⁸ a suite of audit tools to improve the quality of care for atrial fibrillation, chronic obstructive pulmonary disease, and heart failure, each of which are aligned to NICE clinical guidelines.

- Many of the national stakeholder organisations profiled are engaged in awareness raising (publicising, disseminating or endorsing) activities that are likely intended to improve the acceptability of NICE guidance among practitioners. This includes endorsements of NICE guidance through statements and letters, expert commentaries, publicising, and signposting of guidance. This form of activity in itself can be regarded as a national ‘opinion leader’ intervention and have a substantial impact on implementation, helping to embed the guidance in professional culture, publically demonstrating support and providing an explanation of how the guidance with national professional priorities, and helping to add methodological credence to the guidance themselves, particularly when the endorsement is published in journal articles.
- Few evaluations of the activities of national organisations, either completed or underway, were identified, even in web searches designed to specifically find these. This means that a great deal of work is being undertaken to support the implementation of NICE guidance by national organisations in a number of different ways, but the actual impact of these activities in of themselves is unknown.
- While the focus in the web searches was on the activities of national stakeholder organisations, some of these operated as regional or sub-regional federations, or provided support to local initiatives in other ways¹⁹, and consequently some of their implementation activity was in fact locally or regionally based.
- Some organisations appeared to be prolific in actively attempting to increase the implementation of NICE guidance while others appeared to be relatively inactive. Those organisations that appear to be particularly active may be those where NICE could form ready partnerships whereas others may be organisations that NICE may want to invest further resources in developing implementation activity on a national scale.
- National level initiatives have the potential to create large scale communities of practice for improvement work and knowledge exchange, as well as to spur the development of more localised initiatives. Strategic Clinical Networks, Academic Health Science Networks, NIHR Collaborations for Leadership in Applied Health

¹⁸ The GRASP-AF tool for atrial fibrillation was developed by the West Yorkshire Cardiovascular Network, the Leeds Arrhythmia Team and PRIMIS at the University of Nottingham.

¹⁹ National stakeholder organisations are often referred to in NICE’s ‘local practice case studies’.

Research and Care, and several of the Royal Colleges (notably the Royal College of Psychiatrists) were all actively engaged in activities that were essentially mobilising national, regional or local communities of practice aimed at improving patient care, with implementation of NICE guidance an underlying theme.

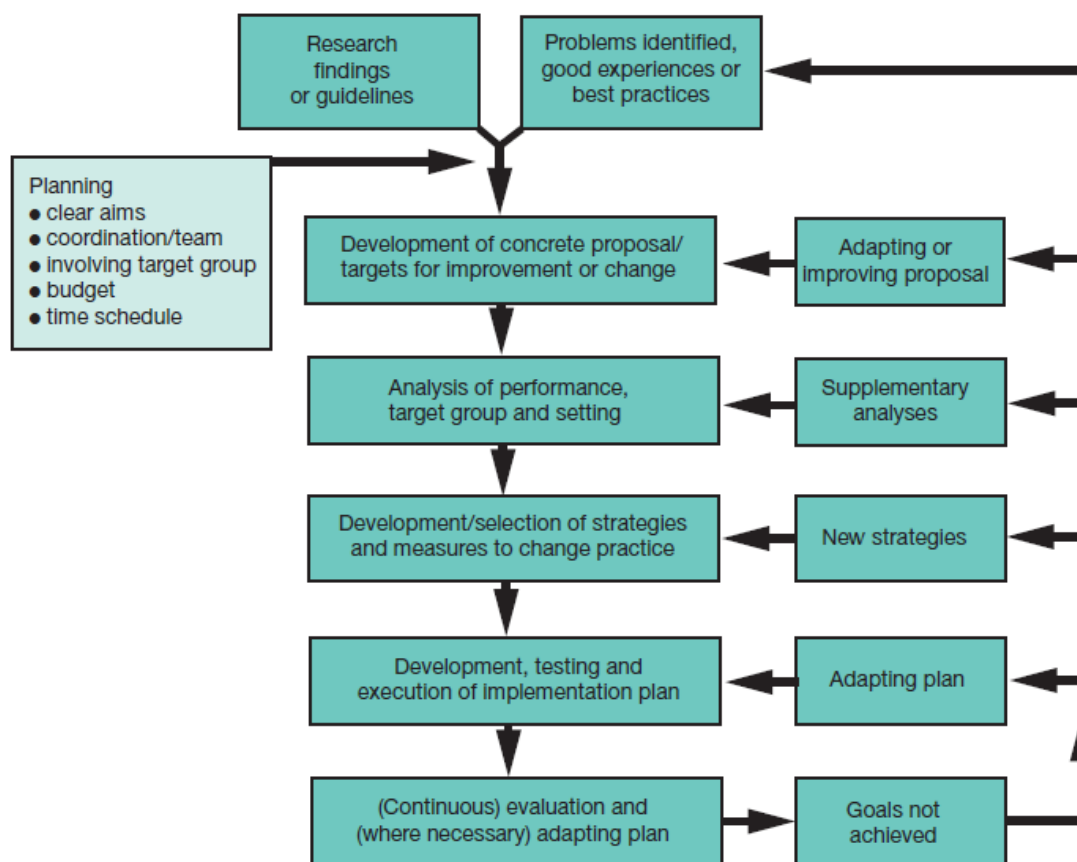
- The scoping review of research studies identified national initiatives as catalysts for change in leadership and management practices in organisations. This was not necessarily supported by the findings of the web searching, where many of those organisations that would be expected to be supporting commissioners and managers in implementing NICE recommendations and standards, actually had a low profile of activities.

National level activities aiming to increase the implementation of NICE guidance are arguably at a nexus of tension between the imposition of national (evidence-based) policy imperatives against supporting local developments, innovation and priorities (Kitson et al., 2008). In this sense any national level initiative needs to recognise the complex and heterogeneous landscape of local implementation activity that is taking place, and to complement rather than compete with this. The map presented in section three showed that a good deal of the evaluated NICE guidance implementation activity took place in small geographic areas, and in fact 22 studies (28%) were activities that took place within the confines of a single unit. Theoretically, some of the processes associated with guidance implementation - for example around adaptation, the development of appropriate targets, and the development of effective responses to identified problems (see Figure 4 taken from (Tooke, 2007)) - may be less compatible with large scale implementation. At the same time, other studies do provide justification for larger scale initiatives. For example, Patterson and colleagues (2011) examined guidance on Early Warning Systems used to identify patients with critical illness in hospitals in London and Scotland. They found that while all surveyed institutions were compliant in having an established scoring systems, the interpretation of the components of the scoring system was variable such that only 40 per cent of hospitals in London and 70 per cent in Scotland collected were compliant with regards to the minimum dataset collected. The authors recommended that a standardised tool (NHS Early Warning Score (NEWS); since being rolled out) would improve levels of full guidance uptake and replace local interpretations. In this example, a standardised approach to implementation was determined to be beneficial to levels of guidance uptake.

Overall, the extant research literature is largely absent of efforts to understand how scale may impact on the design or effectiveness of guidance implementation interventions. In this section we aim to partially address this gap through focussing on national level interventions and aim to present a description of:

- i. The characteristics and outcomes of evaluated national implementation activities as published in the research literature
- ii. A broader set of activities (national/ regional/ local) initiated or supported by national stakeholders and regional/ local improvement/ knowledge exchange networks, many of which do not have published evaluations, as identified through the web searches.

Figure 4: A model of implementing a change in practice (reproduced directly from (Tooke, 2007))



4.1 What form do the evaluated national level implementation activities (included in the scoping review) take?

Eighteen studies in the scoping review were identified as studies describing implementation processes at a national level, either as observational studies or at descriptions of interventions (see table 2). These employed several different modes in attempting to implement NICE guidance, and were carried out as part of national quality improvement projects and as observational and experimental studies carried out by academics and national representative bodies. The studies covered a range of clinical and public health topics, but clusters of studies were observed focussed on the implementation of guidance among practitioners working in mental health and working to reduce levels of venous thromboembolism. There were no studies focusing on the social care guidelines produced by NICE since 2013. Three papers also reported on a linked intervention to improve levels of uptake of NICE public health guidelines with respect to workplace health (in NHS Trust settings) (Jones et al., 2015, Preece et al., 2012, Royal College of Physicians, 2011), albeit reporting on different methods and stages of the intervention.

Most of the studies were (lead) authored by academics based in universities; four were authored by researchers based in Royal Colleges; and one each was (lead) authored by a researcher based in a pharmaceutical company, an academic partnerships (CLAHRC), a continuing education organisation, and a teaching hospital. Therefore, while activities may be conducted by a number of different organisations at the national level, their evaluation tends to be conducted by academics. Dissemination of learning from larger

scale studies may therefore be largely contingent on the existence of effective knowledge translation processes between academic researchers and practitioners, which is found to be lacking in many situations more broadly (for example Orton et al., 2011). The only national level studies which we found evaluating NICE's own implementation activities were Chamberlain et al (2013), an evaluation of 'do not' recommendation reminders, and Walsh et al (2010), an evaluation of e-learning produced by BMJ Learning with NICE. The web searches did not identify any other published evaluations of NICE's own implementation resources and tools. Two of the eighteen studies reported on the development of tools for implementation, rather than evaluating or describing their use, and are presented separately as examples (Gill et al., 2014, Hutchinson et al., 2003). Among the remaining sixteen studies, fifteen studies (all except (Catterick and Hunt, 2014)) provided information on the processes or mechanisms that underpinned implementation of NICE guidance, or provided implementation notes from intervention studies. Twelve of these fifteen studies provided evidence on the outcomes or impact associated with implementation efforts, although were often accompanied by caveats in the interpretation of the observed impact. Due to heterogeneity in study design (including observational vs experimental studies), the focus, outcomes and methodological quality of the studies, formal quantitative or qualitative synthesis methods would be inappropriate. We summarise some of the emergent themes from these studies under separate headings below, although with the caveat that heterogeneity in studies means that only a few examples support each theme (further details of all the studies is found in table 2).

4.1.1 Developing national communities of best practice

One study was focussed on developing a national community of best practice, mirroring elements of developing opinion leaders, consensus processes and communities of practice, albeit on a large scale. Underlying the study conducted by Hammond and colleagues' (2013) is the mechanism to identify and provide space to share best practice. Best practice identification and dissemination was promoted through the creation of a network where the 'effective two-way sharing of the most up-to-date guidance, tools, best practice and resources' was an explicit aim, which was realised by the management of a website with online fora and the development of regional meetings. Through focussing on the sharing of best practice, the network managed to address both a lack of expertise and support among practitioners, identified as key barriers to implementing NICE guidance, and achieved a membership of over 500 (Wilmot et al., 2016). NHS reorganisation saw the network disband, but it is now being resurrected through the Association of British Clinical Diabetologists (Wilmot et al., 2016).

Two other studies had elements of creating a community of best practice (although did not directly fall within this category) and are worthy of discussion here: Jones and colleagues' (2015) intervention aimed at raising the standard of uptake of workplace health guidance; and Baskind and colleagues' (2010) study of the process of introducing guideline linked accreditation. In Baskind and colleagues' (2010) account, the accreditation process ensured that best practice was defined through providing a clear focus for hospital wards to work towards, but accreditation was also an aspirational process and 'the standards provided further positive feedback to the ward team making them aware of good practice that they had previously overlooked' (p409). An example of sharing best practice that could only be achieved through a national level perspective was also provided by Jones and colleagues (2015). They demonstrate how support provided from organisations with high levels of implementation of NICE public health workforce guidance in the first round of an audit could help drive improvements among organisations that were found to be struggling to implement guidance. Through research to uncover the

determinants of practice among high performing organisations, workshops were designed to improve levels of implementation among organisations that were struggling to implement guidance. Trusts who received these workshops exhibited higher levels of improvement than those that did not, even after statistical adjustment for baseline levels.

The results not only highlight the potential effectiveness of establishing forms of communities of (best) practice, but also demonstrate their feasibility on a large scale, particularly with additional research to understand the determinants of implementation. There are caveats to this finding, and best practice shared using less interactive methods will be less impactful. For example, despite 'How To Why To' guides launched by NHS Technology Adoption Centre (NTAC) being directly based upon the learning of exemplar hospitals in implementing new technology, the guide was not perceived as being useful or impactful compared to more personalised and direct support (Llewellyn et al., 2014).

4.1.2 Catalysing leadership and management activities

A cross-cutting theme was that national level activities provided a catalyst for improved organisational management processes facilitating the implementation of guidance. In the case of NHS Technology Adoption Centre (NTAC) support for adoption of Insulin Pump Technology across Primary Care Trusts, one of the main contributions of NTAC as an external implementation adviser was to provide a project management framework within the Trusts to coordinate elements of the commissioning and procurement processes. This was articulated by a participant in Llewellyn's research as: "We knew where we wanted to be, but weren't sure of the map to use to get us there ... NTAC were really good in helping us to get the people in the room who needed to be in the room, to have the right conversations. Project management - I think that's what we really lack and what they did really well." (Llewellyn et al., 2014, p59).

Clarification of management and leadership roles, and allocation of new roles where gaps were identified, was also identified as an adjunct process taking place during guideline implementation (Quirk et al., 2016). In one further study, the prospect of accreditation formed a lever for practitioners to negotiate additional resources with senior management that would see greater uptake of guidelines as well as improved patient care. As one practitioner in the study reported: "We could say to the trust board that 'you signed us up to AIMS [accreditation] and therefore you need to facilitate these changes' and also had support of service users and carers to put pressure on." (Baskind et al., 2010, p408). Similarly nationally based implementation projects were able to provide internal staff with compelling information as a lever for change (Quirk et al., 2016). In some studies, tools produced as part of national initiatives were found to be aids for practitioners and commissioners in forming a business case for change. Elsewhere the evidence also suggested a recognition among implementation researchers of the importance of involving senior managers in the successful implementation of guidelines (Preece et al., 2012, Royal College of Physicians, 2011). However, the difficulty in changing management processes is evidenced by the 'management and leadership' domain being the only domain in the audit where zero change was observed (Royal College of Physicians, 2011), indicating that health management culture is much less modifiable than among other tiers of organisations.

Qualitative studies of the determinants of implementation have suggested that managers are unwilling to engage with costly recommendations in the absence of external public or political pressure, as expressed by one manager in (Spyridonidis and Calnan, 2010): 'Those that require particular financial investment I think will move at the back, unless there is pressure by politicians not to do that because you will be in front of the local paper.'

(Manager-5, Hospital -1) (Spyridonidis and Calnan, 2010). The same study also found that this tier of management were less likely to be aware of the complexity of implementation or the clinical benefits of guidance (Spyridonidis and Calnan, 2010). Clinical champions may be one route of overcoming such resistance through ensuring that a strong evidence-based rationale for implementation is delivered across different tiers of management (Keenan and Abraham, 2014). Quantitative evidence also demonstrates that higher levels of NICE (schizophrenia) guideline implementation are associated with better corporate commitment and leadership, the existence of a committee to oversee implementation, and commissioner support for health technology appraisals (Mears et al., 2008). The same study also suggested that guidelines were overall less visible in settings where commissioners did not support guideline implementation, and also found that a large majority of respondents (senior executives in mental health trusts) rated support from commissioners in implementing schizophrenia guidelines as poor, very poor, or non-existent (Mears et al., 2008). Clearly, productive engagement with senior managers is needed for successful guidance uptake, and different tiers of management will be responsive to a different balance of arguments. NICE produces many economic suggests that other factors besides economic including political and public pressure may also compel change. Greater public prominence associated with implementation of guidance, as may be the case with accreditation schemes for example, may also be effective strategies for leveraging change at senior levels.

Table 2: Characteristics of studies taking place on a national level in scoping review

Name	Geography	EPOC Category	Subject area	NICE Guidance topic	Overview of problem/ rationale	Overview of strategy	Study methods	Outcome
(Baskind et al., 2010)	National scope - focus on 11 wards that moved towards uptake; majority in Northern England	Targeted at organisations: change in organisational culture; audit and feedback	Clinical - mental health	NICE 2005 CG25 Violence: short-term management for over 16s in psychiatric and emergency departments	Royal College of Psychiatrists found that lack of uptake was widespread when conducting National Audit of Violence.	Development of an accreditation programme: Accreditation for Acute Inpatient Mental Health Services (AIMS)	Qualitative methods: semi-structured interviews	Impact: AIMS is ongoing. Mechanisms/Processes/Implementation notes: Specific themes identified as a result of participation in aims were improved communication within teams, greater equality within previously rigid hierarchies allowing for negotiation of resources, provision of a clear direction to practice and identification and reward of good practice
(Catterick and Hunt, 2014)	National scope - standardisation and introduction of compulsory risk scores	Targeted at individuals/workers: monitoring performance in delivery Targeted at organisations: financial incentives	Clinical - venous thrombo-embolism	VTE prevention quality standard. Quality Standards QS3	NICE recommend all patients, on admission, receive an assessment of VTE and bleeding risk using the clinical risk assessment criteria described in the national tool to do so	Two elements: monitoring and performance through mandatory risk assessment data collection and organisational incentives linked to Commissioning for Quality and Innovation payment framework	Quantitative data presented	Impact: Following the implementation of monitoring and incentivisation, the observed mean VTE-related secondary diagnosis rate for 2011-2012 was lower than estimated, at 91% of the estimated rate and the difference between the observed and estimated rates was statistically significant ($p < 0.001$). The observed mean 30-day VTE-related readmission rate for 2011 was lower than estimated, at 96% of the estimated rate ($p = 0.067$) and the mean 90-day VTE-related readmission rate for 2011 was also 96% of the estimated rate ($p = 0.02$). The authors estimate that among the approximately 15 million hospital admissions across England in 2011, around 2000 secondary diagnoses and 1,200 90-day readmissions were avoided. Mechanisms/Processes/Implementation notes: No direct process data are included.
(Chamberlain et al., 2013)	National (NICE) programme of 'recommendation reminders'	Targeted at individuals/workers: reminders	Clinical - maternal and child health	Various guidance - covered in caesarean section and fertility recommendation reminders	NICE issues reminders as an implementation aid for 'do not' recommendations; these have not been evaluated	Assessment of Hospital Episodes Statistics and specifically those on procedure volume before and after reminders	Quantitative methods: routine (real-world) data used to identify 'break points' or discontinuities in trends	Impact: Correlational design only but: - Between 1998-2010, planned caesarean sections in women with and without hepatitis B or C increased yearly (annual percentage change (APC) 4.9%, 95% CI 2.1% to 7.7%) in women with hepatitis, compared with women without (APC 4.0% [95% CI 2.7% to 5.3%] up to 2001, APC -0.6% [95% CI -2.8% to 1.8%] up to 2004 and 1.3% [95% CI 0.8% to 1.8%] up to 2010). - In infertile women under 40 years of age, endometrial biopsies for investigation of infertility increased, APC 6.0% (95% CI 3.6% to 8.4%) up to 2003, APC 1.5% (95% CI -4.3% to 7.7%) to 2007 followed by APC 12.8% (95% CI 1.0% to 26.0%) to 2010. - Varicocele procedures remained relatively static between 1998 and 2010 (APC -0.5%, 95% CI -2.3% to 1.3%). There were no observable impacts and no changes could be related to either the publication of guidance or recommendation reminders Mechanisms/Processes/Implementation notes: Difficulty in identifying when NICE published recommendation reminders. Nevertheless conclude recommendation reminders have no demonstrable effect.
(Child et al., 2013)	National scope - evaluates the impact of a national level intervention (Commissioning)	Targeted at organisations: forms of	Clinical - venous thrombo-embolism	NICE 2010 CG92: Venous thrombo-embolism (VTE): reducing the risk	CQUIN aimed to reduce some of the pressures on NHS commissioners who were balancing the need to secure high	CQUIN focussed on VTE because of its high impact on the health service; quality improvement	Multi-method study: qualitative interviews and	Impact: Results disaggregated by hospital but all exhibited improvement. However, difficulty in attributing individual or ward changes in performance to CQUIN as the incentive was received by the hospital and there were no linkages between the monies received for quality improvement and its use in the specified area.

	for Quality and Innovation (CQUIN) at 4 sites in the South West	financial incentives ²⁰		for patients in hospital	quality services and achieving best value for money. CQUIN enabled reward for meeting targets set as part of quality improvement schemes	was aligned with NICE guidance	quantitative analysis of routine data	Mechanisms/Processes/Implementation notes: The authors suggest that CQUIN cannot be characterised as improving patient experiences because of the disconnect between receipt of money in the hospital and through the individual department
(Downs et al., 2006)	Two non-contiguous sites in the UK (GPs in 2 London Health Authorities and Central Scotland)	Tested three different forms of intervention against usual practice: EPOC categories aimed at individuals/workers: educational meetings; educational materials; reminders	Clinical - dementia	<i>Incorporated elements</i> from Guidance on the use of donepezil, rivastigmine and galantamine for the treatment of Alzheimer's disease. Technology Appraisal Guidance 19. (2001)	Inadequate detection and referral and poor management cited as rationale	36 participating practices took part in trial. One arm received an electronic tutorial; one arm 'decision support software' (electronic prompts); one arm educational workshops delivered by experienced professional. A fourth arm received nothing.	RCT: Quantitative analyses presented	Impact: There were significant increases in the number of patients diagnosed with dementia in the workshop and 'decision-support'/reminder arms. No differences were detected in the arm that received an electronic tutorial. No differences were detected for any arm in terms of <u>concordance with guidance</u> regarding the diagnosis or management of dementia after the intervention Mechanisms/Processes/Implementation notes: The authors suggest that the lack of chance in concordance with guidance, despite the increased detection rates, could support the argument that generic (non-tailored) interventions are not appropriate to ensure patient centred consultations.
(Gyani et al., 2013)	National - improving access to treatments recommended in NICE guidance	Targeted at organisations: EPOC 2002: Integration (or changes) of services/pathways (as intervention)	Clinical - mental health	Various ²¹	Models of stepped care in mental health were deficient and there were substantial problems accessing NICE recommended treatments nationally. Arguments to support this implementation were put forward by a coalition of economists and clinical researchers	Pilot studies took place in Newham and Doncaster before a national implementation plan covering 6 years was rolled out in 2008. This was the basis of IAPT (improving access to psychological therapies) services nationwide. A 50% recovery target was set based on the level of studies	Quantitative data presented	Impact: One year on, the recovery rate stood at 40.3% and overall 63.7% of patients showed reliable recovery. Uptake of NICE guidance was associated with higher recovery rates Mechanisms/Processes/Implementation notes: In addition to patient level variables, service-level factors that were associated with recovery were: the use of stepped care, providing a higher mean number of sessions; having a high number of clinically active experienced staff; and a larger service. A key aspect of IAPT implementation was in the initial case made for service provision and reconfiguration and being able to hypothesise and then demonstrate that the types of results visible in RCTs could be achieved in practice.

²⁰ Note - this does not appear in the Implementation Strategies section of the EPOC 2015 classification (but does in the original 2002 classification).

²¹ Anxiety: Management of anxiety (panic disorder, with and without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care. Clinical guideline 22.

Depression: Management of depression in primary and secondary care. Clinical Guideline 23.

Obsessive-compulsive disorder: Core interventions in the treatment of obsessive-compulsive disorder and body dysmorphic disorder. Clinical Guideline 31.

Post-traumatic stress disorder (PTSD): The management of PTSD in adults and children in primary and secondary care. Clinical Guideline 26.

Computerized cognitive behaviour therapy for depression and anxiety. Technology Appraisal 97.

Depression: Treatment and management of depression in adults. Clinical Guideline 90.

Depression in adults with a chronic physical health problem: Treatment and management. Clinical Guideline 91.

Generalised anxiety disorder and panic disorder (with or without agoraphobia) in adults: Management in primary, secondary and community care. Clinical Guideline 113.

Common mental health disorders: Identification and pathways to care. Clinical Guideline 123.

Social anxiety disorder: Recognition, assessment and treatment

					in academic articles and populist pamphlets.	forming the basis of NICE guidance		
(Hammond, 2013)	National - developed by NHS Diabetes (NHS Quality Improvement)	Targeted at individuals/workers: audit and feedback (i) educational materials; (ii) communities of practice	Clinical - diabetes	NICE Technology Appraisal 151: Continuous subcutaneous insulin infusion for the treatment of diabetes (review).	Insulin pump therapy is an effective and safe method of insulin delivery for people with diabetes as stated in NICE guidance, although access is geographically patchy	Development of an Insulin Pump Network to promote uptake and level inequalities in access. Two main strategies: development of a website and online forum; formation of network meetings to strengthen network ties and promote discussion	Case study	Impact: N/A - no outcome data Mechanisms/Processes/Implementation notes: The authors note issues raised through the network around how to facilitate implementation further including: (i) development of benchmarking around staffing; (ii) support in developing a tariff system; (iii) further development of e-learning for broader healthcare staff (e.g. emergency ward staff); (iv) development of standardised pathways to pump therapy; (v) support in developing out-of-hours services; (vi) improved guidance over criteria for provision of continuous glucose monitoring; (vii) identification of reference or best practice centres
(Jones et al., 2015); (Preece et al., 2012)	National - identification of best practice following audit (see (Royal College of Physicians, 2011))	Targeted at individuals/workers: audit and feedback; consensus processes; educational meetings	Public health - workplace health	Various guidelines including: (i) Workplace health: long-term sickness absence and incapacity to work (PH19); (ii) Mental wellbeing at work (PH22); (iii) Smoking: workplace interventions (PH5); (iv) Physical activity in the workplace (PH13)	A healthy workforce contributes to better outcomes for organisations. A number of reviews have highlighted the role of poor NHS workplace health practices as contributory factors to poorer patient outcomes.	This was a staged research design. Based on the first round of the audit, investigators identified good practice. They then interviewed members of these trusts, informed by the theoretical domains framework, to identify barriers and facilitators and documented the findings. They then used this information to develop workshops with low scoring trusts. The remaining trusts just received the written feedback from the first audit round	Quantitative data presented	Impact: Median improvement in scores between rounds 1 and 2 was statistically significant except where baseline score was high. The improvement for trusts who received workshops was very much better than those who did not ($P < 0.001$). This difference remained after adjustment using stratification by baseline score ($P = 0.001$). Mechanisms/Processes/Implementation notes: In addition to one off workshops there were follow up phone calls to monitor progress. Authors acknowledge this as a rare example of implementation of NICE Public Health guidance. The authors conclude that: "Audit, combined with action-planning workshops and follow-up, appears to be more effective in improving implementation of NICE workplace health and well-being guidance than audit with feedback alone."
(Llewellyn et al., 2014)	National - implementation of new technology	[Observational] Targeted at organisations: forms of financial incentives Other: NHS Technology Adoption Centre	Clinical	Focussed on the implementation of new technologies one directly covered by NICE guidance: Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus [TA151]	Observational study tracking implementation of new technologies and examining (local) implementation projects as well as the work of the National Technology Adoption Centre (as of 2013 now part of NICE)	Observational design including qualitative interviews and quantitative survey. Examined local implementation strategies, barriers and facilitators, as well as evaluating national level initiatives	Observational case study: qualitative data presented with supplementary quantitative data	Impact: The authors find moderate levels of uptake of Insulin Pump Therapy (IPT), even among stakeholders who class themselves as being 'active implementers'. For example, of 91 stakeholders from whom the researchers collected data, only 35% were at Trusts where the level of uptake met NICE guideline recommendations. Mechanisms/Processes/Implementation notes: Many points raised in this report including (focussed on IPT): <ul style="list-style-type: none"> Financial incentive/reward system that could serve to disincentivise adoption of new technology Positive role of NHS Technology Adoption Centre (NTAC) in catalysing Trusts to 'do something and through providing a co-ordinating structure and project management that had been lacking. They also were instrumental in enlisting the involvement of key stakeholders

				(Insulin Pump Therapy)				<ul style="list-style-type: none"> NTAC was not present in two of four sites covered in qualitative fieldwork, although no data supporting differences in impact is presented
(Patton and O'Hara, 2013)	National - improving delivery of alcohol advice	Targeted at individuals/workers: audit and feedback ; local opinion leaders	Public health - alcohol use	Alcohol-use disorders: prevention (PH24)	The Emergency Department (ED) is an ideal location to offer help and advice to hazardous drinkers to reduce their consumption. NICE guidance recommended 'the use of screening tools and the delivery of brief advice in the ED'	This research looked at the factors associated with implementation, but included specific detail around the role and impact of alcohol champions in meeting NICE guidance requirements	Quantitative data presented	<p>Impact: There was a significant association between the presence of an alcohol champion and access to online training ($p<0.01$) and the presence of an alcohol champion and the provision of brief advice in the ED ($p<0.01$)</p> <p>Mechanisms/Processes/Implementation notes: More than half of ED's had an alcohol champion in 2011 (57.6%) - that is a specific team member who took responsibility for alcohol issues.</p>
(Pratt and O'Malley, 2007)	National - training 1.3 million NHS workers on infection control	Targeted at individuals/workers: educational materials	Clinical - infection control	Infection control: prevention of healthcare-associated infection in primary and community care (CG2)	Identified need to lower incidence of hospital acquired infections	This paper described the development of three steps of educational materials provided through e-learning modules: (i) infection prevention core course for all NHS staff; (ii) principles of infection prevention for non-clinical staff; (iii) interactive exercises to halt the spread of infection	Case study: Program protocol	<p>Impact: N/A - no outcome data</p> <p>Mechanisms/Processes/Implementation notes: Uptake exceeded expectations with a broad range of users from acute hospitals to GP surgeries. A Programme Marketing manager also assisted with promotional events , on-site train-the-trainer and producing adoption tools and frequently asked question guides</p>
(Quirk et al., 2016)	National - Guidance translation tool (4 pilot sites)	Targeted at individuals/workers: consensus processes	Clinical - various (but focussed on people with mental health issues)	Various guidelines identifying risk factors for poor cardiovascular health and their application among people with severe mental illness: smoking; lifestyle; weight; hypertension; glucose; and cholesterol ,	The physical health of people with severe mental illness is often neglected. Audit data have shown that the neglect of the physical health of people with mental illness persisted. NICE guidance on cardiovascular disease management and prevention has not been implemented.	The 'Lester Positive Cardiometabolic Health Resource - 2014 Update', based on screening the well-known determinants of cardiovascular disease and bringing together the advice in a number of NICE guidelines for the management of conditions such as diabetes and dyslipidaemia was trialled in pilot sites.	Mixed method quantitative audit outcome data and qualitative implementation data	<p>Impact: Pre- and post-test data demonstrated increased levels of screening overall, with the proportion of inpatients receiving all five screens increasing from 46% across all sites to 83%. Interventions for those needing them increasing from 79% to 94%. Nevertheless a substantial minority who should have been eligible for intervention continued not to receive appropriate care.</p> <p>Mechanisms/Processes/Implementation notes: Each pilot site used the Lester tool as a starting point for identifying risk factors for poor cardiovascular health among people with severe mental illness: smoking; lifestyle; weight; hypertension; glucose; and cholesterol. Qualitative data suggested that organisational culture, IT systems (electronic tools (pro-forma and reminders) and enthusiasm of dedicated staff as instrumental to driving changes. Some concern was expressed around findings that improvements in screening were not necessarily being matched with improvements in care.</p>
(Royal College of Physicians, 2011);	National - audit and best practice	Targeted at individuals/workers: audit and feedback; various other	Public health - workplace health	Various guidelines including: (i) Workplace health: long-	A healthy workforce contributes to better outcomes for organisations. A number of reviews	This report's on two waves of an organisational audit conducted by RCP with a specific focus	Audit and best practice: Quantitative	<p>Impact: Summary scores showed substantial improvement in overall performance: median scores increased from 59.2 in the first round to 67.2; however there was no change in the median score for 'Board engagement' (83.3 at both points). While there are issues in directly comparing performance between rounds, this finding could suggest</p>

(Preece et al., 2012)		strategies described		term sickness absence and incapacity to work (PH19); (ii) Mental wellbeing at work (PH22); (iii) Smoking: workplace interventions (PH5); (iv) Physical activity in the workplace (PH13)	have highlighted the role of poor NHS workplace health practices as contributory factors to poorer patient outcomes.	on identifying best practice in the implementation of NICE guidance. This takes many forms including: monitoring performance in delivery; continuous quality improvement; educational games; educational materials; educational meetings. Note: board engagement and support is a specific domain that is measured	e data and case studies	that changes to leadership practices may be slower to enact than for other areas and among other segments of the workforce Mechanisms/Processes/Implementation notes: An example of the processes implemented in one trust is given: "The Trust has recently run a four week weight loss challenge. Teams of five staff entered and weight losses were entered by each of the teams on a weekly basis so that teams could see how they compared to other teams. 30 teams entered the challenge with 150 staff participating. The four weeks have just finished and we are awaiting entries for week four from 19 teams. Weight loss recorded to date totals 46 stone and 1lb. Some teams are carrying on the challenge themselves and we are looking to re-run the challenge in the New Year." Note while the audit and feedback is a national level intervention, it is less clear the extent there is national support on other aspects of implementation A recommendation made is that trusts who experience difficulty in implementing the guidance should engage in 'peer learning' with other neighbouring trusts
(Thomas et al., 2014)	National - aim to trial an intervention to establish consistent standards of best practice in kidney disease (29 GP Practices across England and Wales)	Targeted at individuals/workers: educational meetings; patient mediated interventions	Clinical - nephrology	Early identification and management of chronic kidney disease in adults in primary and secondary care. (CG 73)	Widespread variation has been identified in the care of patients with kidney disease in primary care. This intervention aims to promote consistency in standards	A 'Care Bundle' was developed which combined patient and provider components into a single bundle, the components of which included a self-management intervention for patients (group education) and practitioner training for participating practices. Patients co-designed this quality improvement project.	Quantitative data presented	Impact: The project had a very modest impact on the meeting of targets, and interpretation was hampered by changing epidemiological patterns of kidney disease. Uptake of NICE (2008) blood pressure targets at the start of the project was 74.8% in people with CKD stage 3-5 and no diabetes and 48% in people with CKD stage 3-5 and diabetes. At the project end these figures in the same Practices were 76.7% and 49.2% respectively. Mechanisms/Processes/Implementation notes: This project suffered from a number of implementation issues including attrition (10/29 practices) and missing/incomplete data (6/29 practices). Maintaining engagement with practices and sustaining patient interest was challenging. Routine interruptions (e.g. Quality and Outcomes Framework scheme pay for performance data returns, influenza vaccinations, staff changes, and sickness) distracted focus from the project.
(Walsh et al., 2010)	National - development of e-learning resources to improve knowledge and change practice	Targeted at individuals/workers: educational materials	Clinical - various	Various including osteoarthritis, irritable bowel syndrome, urinary tract infection in children, antibiotic infection against ineffective endocarditis	Implementation of guidance is challenging; e-learning can provide a resource-light and effective means of aiding implementation but has not been rigorously evaluated in the context of guideline implementation	Development of e-learning for: awareness raising of guidance and its contents; challenging misconceptions around implementation; providing support and strategies for overcoming implementation barriers; promote self-reflection; improve the quality of healthcare.	Quantitative data presented	Impact: No reliable data on changes in practice but indicative data from a self-selecting subset of completers of e-learning modules (22%) suggested that the majority who had cared for a (relevant) patient since completion felt that the module had helped them to implement NICE guidelines (88.6%) while 86.5% who had not cared for a (relevant) patient felt that the module would help them to implement NICE guidelines. Mechanisms/Processes/Implementation notes: No data on penetration is presented. Knowledge and problem solving scores at post-test exhibited significant increases on pre-test values (p<0.01)

(Gill et al., 2014)	National and international guideline review	Targeted at individuals/workers: audit and feedback; monitoring performance in delivery	Clinical - child health	Various: Included potential elements from 37 NICE guidelines and 11 SIGN guidelines	Developing quality indicators for child health mapped derived from guidance as the UK Quality and Outcomes Framework largely excludes child health	All guidelines systematically searched and recommendations assessed against defined criteria to evaluate potential as indicators. Panel convened to moderate the results	Case study: Review and consensus	Impact: N/A - no outcome data Mechanisms/Processes/Implementation notes: The authors noted that the evidence base underlying the indicators was weak which made rationalising recommendations difficult
(Hutchinson et al., 2003)	National - translation of guidance	Targeted at individuals/workers: (development of) consensus processes	Clinical - coronary heart disease (CHD)	Various guidelines on management of CHD	Several guidelines can map onto a clinical episode. Guideline users need to develop consensus on which aspects to prioritise in clinical encounters	Identification of principal guidelines and prioritisation of recommendations among GPs using weighting strategies (3 panels of 60 GPs)	Case study: consensus processes	Impact: N/A - no outcome data Mechanisms/Processes/Implementation notes: Reducing down many components of guidelines to a limited set of criteria required development of a complex analytical framework. Project said to demonstrate 'importance of introducing the views of practitioners in the development of review criteria, through the prioritisation process'

4.1.3 National initiatives can provide a framework for standardisation of guidance that reflects clinical encounters and reduces care inequalities

The 'Lester Positive Cardiometabolic Health Resource' 2014 Update (LCHR), a NICE-accredited implementation resource, was trialled in four pilot sites in Quirk and colleagues' (2016) study that aimed to improve the physical health of patients with severe mental illness. LCHR aimed to standardise screening processes for physical health conditions, and is based on advice and recommendations contained in a number of NICE guidelines on the management of conditions such as diabetes and dyslipidaemia. It provides a framework for practitioners to recognise where patients meet risk thresholds that indicate treatment should be offered, and has been rolled out across much of the NHS. LCHR aims to provide a standardised algorithm for implementing NICE guidance, but the level of usage had previously been under-researched, particularly among people with severe mental illness. Use of the tool in four pilot sites indicated that a standardised, nationally driven tool did significantly increase the level of screening and the number of patients in need receiving interventions; although it did not represent a failsafe tool and its utility in improving screening rates was not necessarily matched by improvements in patient care (Quirk et al., 2016). A number of adjunct processes took place within the four pilot sites in implementing the tool including improving the efficiency of information systems and upskilling staff through training (Quirk et al., 2016), and the authors concluded that changes in organisational culture were also detectable. Gill et al (2014) and Hutchinson et al (2003) also report on tools that aim to consolidate NICE guidelines and reduce these into frameworks for care and monitoring performance for child health and coronary heart disease respectively. The aim in both studies was to develop tools that were more reflective of clinical encounters where patients present with complex 'multivariate' histories. No data is offered by the authors here on the success of implementation in the field, although both sets of authors report on the complexity of the process of standardisation and translating different recommendations into formats that reflect clinical encounters. None of the authors discuss the implications of updates in guidance on the integrity of such standardised tools. Therefore while standardised tools that reflect clinical episodes and support decision-making are likely to improve levels of patient care and guidance uptake, they are complex to develop and require a number of other adjunct processes to take place to ensure implementation.

A final example of standardisation is observed through the introduction of the IAPT programme (Gyani et al., 2013). IAPT was developed as a means of ensuring equitable access (standardising treatment pathways) to NICE approved psychological therapies. NICE had released a number of guidance documents starting from 2004 that provided evidence-based recommendations on the provision of 'lower intensity therapies', such as cognitive behavioural therapy, psychotherapy, couples counselling, for some people suffering from depression or generalised anxiety disorder (Clark, 2011). Evidence of the effectiveness of these therapies, their potential impact on the national economy, and the then highly unequal levels of access to these services through the NHS, was well publicised and disseminated to policy-makers in a series of reports developed by senior academics and charity coalitions between 2006 and 2010. In 2006, pilot sites were announced to examine whether efficacious results could be replicated in practice, and following the success observed in these two sites, a broader programme was designed by the Department of Health that included detailed and publically available implementation plans (Clark, 2011). In addition to allocation of sufficient resources, a roll out plan and the development of a stepped care model, a key part of the implementation plan was a commitment to train a large number of Cognitive Behavioural Therapy practitioners (Clark, 2011). Gyani and

colleagues found that recovery rates stood at 40.3 per cent, which was approaching the target 50 per cent derived from original evidence produced by NICE, but there was variation by site. One of the key factors for implementing IAPT cited in the study was the initial case made for service provision and reconfiguration, as well as (due to the pilot work) demonstrable evidence that results observed in trials could be replicated in practice (Gyani et al., 2013). IAPT demonstrates something of an anomaly in this collection of studies in representing a national programme of NICE guidance implementation that managed to engage politicians at the highest levels, capture and harness public support, and develop sustained support from a wide ranging coalition of voluntary sector providers and academics who provided complementary evidence for implementation. Despite IAPT being something of an anomaly, other studies do suggest that coordinated efforts, among membership organisations for example, can be vehicles for ensuring that guidance is implemented. For example, the Insulin Pump Network, which in many ways also sought to standardise access to pumps, was disbanded despite its success although is now being resurrected through efforts by the Association of British Clinical Diabetologists (Wilmot et al., 2016).

4.1.4 National financial incentive (and disincentive) schemes

Financial incentives (and disincentive) schemes were discussed in detail in section 3.4.6. No evidence was identified measuring their effectiveness on an individual level; on an organisational level some tentative evidence finds that national level incentive schemes such as CQUIN (financial incentives based on practice being in line with NICE guidance) may lead to improved outcomes, although with the caveats, causality was difficult to establish and process data suggested that such schemes were not universally popular with clinicians. The most recent study to date on the impacts of the Quality and Outcomes Framework, a pay-for-performance scheme for GPs, suggests that there is little observed impact of such incentive schemes on patient health in terms of mortality (Ryan et al., 2016). Llewellyn's study (2014) also suggested that recommendations and new technologies could, in some cases, work in the opposite direction of established organisational reward mechanisms, so that there were actual disincentives to implementing new practice and technology. Studies that examined financial incentives for NICE guidance implementation at lower levels of geography were absent in this review. It is therefore not possible to comment on whether working at a more localised level could lead to a more nuanced a priori understanding of how incentives can complement, rather than compete with, existing management and payment processes.

4.1.5 National e-learning schemes appear to be feasible but data are lacking on effectiveness

Both studies describing e-learning find it to be an easily implementable form of national implementation intervention, and report that usage often exceeds the targets that are set. However, both studies are absent of robust data on any subsequent changes in the implementation of guidance in practice. Pratt and O'Malley (2007) describe the development of e-learning training resources (initiated by the NHS) at different groups of NHS workers, as a means of implementing NICE guidelines on infection control. However, while the authors state that the training was theoretically available and applicable to 1.3 million NHS workers, the actual number of registered users stood at 20,000; nevertheless this total exceeded the target number of users. Meanwhile, another study found e-learning modules (developed by BMJ Learning with NICE) have 'high uptake, are popular and effective at helping health professionals learn about NICE guidelines and help them to put these guidelines into practice' (Walsh et al., 2010, p6). There were significant

improvements in knowledge and problem solving skills among users following module completion. Furthermore, the study found the majority felt that the modules had helped them to implement NICE guidelines in their practice (Walsh et al., 2010). However, the results were based on completers only - no information is provided on the numbers who start a module but do not complete - while implementation data is based only on a self-selecting subset of completers (22%). Both studies therefore appear to see the implementation of e-learning as feasible to deliver and acceptable to practitioners. This is also confirmed in more localised studies identified in this review, where GPs and Nursing staff express a preference for online training that can be timetabled more easily alongside other duties (Hannon et al., 2012). However, the evidence for the effectiveness of national e-learning schemes in changing implementation behaviour in relation to NICE guidance is less certain. Certainly the wider literature reviewed in section 3.4.8 suggested that more passive and static forms of education, which include modes such as e-learning, are unlikely to deliver the same changes in implementation behaviours that more interactive methods do.

4.1.6 Co-production with patients and other national level activities

A study aiming to raise levels of guideline uptake in the identification and management of chronic kidney disease involved a considerable element of co-production with patients and providers. Patients from 29 participating GP Practices in England and Wales were involved in the co-design and delivery of the quality improvement project, which included training for practitioners and patient self-management education. The study achieved only a modest impact on uptake rates in participating practices and a number of implementation issues were encountered in the delivery of the project components, including difficulties in sustaining patient interest (in self-management education) and practice engagement, particularly in the face of other routine interruptions. However, the main mechanism for involving patients in the design and delivery of the project through an advisory group was viewed as being a successful part of the study. Further details were not provided on the way in which co-production of the quality improvement intervention aided (or not) in the delivery of the project, although Thomas and colleagues' (2014) study show that co-produced quality improvement projects are feasible, even on large geographic scales.

Two studies had a partial focus on reminders (see 3.4.5). One found that more static 'recommendation reminders' (now called 'do not do' recommendations) issued by NICE had little observed impact (Chamberlain et al., 2013), whereas more active reminder (decision support) systems did raise levels of patient care but not necessarily in line with guideline-compliant care (Downs et al., 2006). The conclusions of the latter study, in that generic (non-tailored) interventions are not appropriate when conducting patient-centred consultations (Downs et al., 2006), are reflective of the broader limitation of guidance implementation projects that are conducted on a large scale.

4.1.7 Other national level initiatives

Some national level initiatives were identified that were aimed directly at patients, and therefore were not included as a main focus in this review. These included the development of the X-PERT programme of patient education for diabetes that supported the implementation of NICE guidance recommending that all newly diagnosed people with diabetes should have an opportunity to attend structured patient education. The X-PERT programme has been found to increase knowledge, self-efficacy and self-management skills as well as leading to clinical improvements (Deakin, 2011). Similarly, a model of education and support in the self-monitoring of blood glucose levels for diabetic patients

was piloted in an area of Merseyside (Edwards, 2013). LifeScan was developed by Johnson and Johnson, also in response to NICE guidance; and resulted in clinical improvements and estimated reductions in the cost of prescriptions of medical equipment through the appropriate use of blood glucose test strips (Edwards, 2013). Studies have also tested how the format of patient-directed guidance influences uptake, finding that simpler language and clearer styles of presentation can increase patients' intention to implement NICE guidance (Michie and Lester, 2005).

4.2 Supplementing the map with web searches - which guidance implementation activities are being undertaken by national level stakeholders

While the results of the scoping review provide an indication of national level guidance implementation activities that have been studied or evaluated, we present a more complete picture of activities (national, regional and local) initiated or supported by national stakeholders and regional/local improvement/ knowledge exchange networks in the following section. This broader pool of initiatives includes many for which there is no published evaluation. These results were produced through the web search methods presented in section 2.4 and 2.5 and are intended to represent a characterisation of the landscape of implementation activity, rather than a full inventory. We identify four main ways in which organisations could support the implementation of NICE guidance through (see section 2.5 for further details):

1. **Awareness raising activities:** Including publicising, disseminating, endorsing guidance
2. **Embedding activities:** This could include embedding or interpreting guidance in a way to complement an organisation's/ network's **broader** activities
3. **Intervening activities:** Undertaking bespoke initiatives (i.e. focused on NICE guidance²²) to support implementation of NICE guidance, where there was no substantial NICE involvement²³
4. **Collaborating activities:** Joint initiatives with NICE / formally endorsed or accredited by NICE, including producing educational materials

While awareness raising is clearly an important component of guidance implementation, as was demonstrated in the example provided on IAPT (Gyani et al., 2013), we do not focus on this mode due to the complexity of evaluating actual impact, and due to the evidence presented in section 3 suggesting that more passive forms of implementation are less effective. Table 3 contains details of the specific activities associated with the three remaining categories with many overlaps in activities than can fulfil different aims and purposes. We begin through focussing on those activities that we class as 'intervening activities', which are perhaps of most interest to NICE through the potential to actively change behaviour around implementation, but that appear to be conducted largely

²² For any one activity, whether to classify it as an 'embedding' activity or an 'intervening' (bespoke) activity was one of judgement, depending on how central the NICE guidance appeared to be to the initiative as presented in online documentation. Some initiatives were described as drawing on just two or three guidance/ best practice inputs, including NICE, and these were usually classified as 'bespoke' because the NICE guidance was central.

²³ This means that there was no substantial NICE involvement according to the information accessed online within the constraints of the web searches (e.g. there was a limitation on the time taken to carry out each organisational web search).

independently of NICE. We then move to consider the activities that we categorise as ‘embedding activities’. A list of activities identified as ‘collaborating activities’ is provided in Appendix 4, but we do not focus on these here as these are already known to NICE. A full list of the organisations/ networks included in the website searches is provided in Appendix 3.

Table 3: Specific activities from the web searches associated with different modes of activity

	Embedding	Intervening	Collaborating
Organisational strategy	Inclusion in annual reports/ Organisational objectives		
Supporting organisation role			Supporting statements in NICE press notices; official ‘supporting organisations’ for individual quality standards; NICE endorses other organisations’ initiatives
(Implementation-focussed) Secondments			NICE Fellowship scheme and secondments/ exchange schemes
(Implementation-focussed) Meetings			Meetings and other forms of communication between NICE and stakeholder organisations
Educational materials	Practice/ commissioning guidelines; Educational materials/ toolkits for practitioners	Practice guidelines; Educational materials/ toolkits for practitioners Digital tools/ e-learning for practitioners Redesigned integrated care pathways Decision support tools/ alerts	Practice guidelines; Educational materials/ toolkits for practitioners/ providers (including digital tools/ e-learning)
Supporting audit and feedback	Audit tools/ service standards for providers/ practitioners; and guidance on audits/ service indicators	Audit tools and audit support for providers/ practitioners	Targets/ indicators
Briefings	Information pages on website; information briefings for practitioners/ commissioners/ providers		NICE contributions to other organisations’ newsletters and updates
Patient/ carer directed materials	Information for patients/ service users	Educational materials/ events for patients/ carers/ representative organisations; and other patient-mediated interventions	
Audits and research	Policy/ discussion/ evidence papers/ research/ National Audits and other audits	National Audits (uptake) and measuring use of NICE-recommended medicines	
Public events	Include sessions on implementing NICE guidance in broader events	Events/ seminars/ speakers at others’ events/ CPD training - for professionals - focused on NICE guidance	NICE speakers at other organisations’ events and other organisations’ speakers at NICE events
Quality improvement	Improvement programmes	Regional/ local improvement work/ implementation networks/ communities of practice	NICE is member or attends meetings of or works jointly with regional/ national implementation networks
Policy and public Affairs	Campaigns Parliamentary activity	Campaigns Parliamentary activity	
Regulatory Affairs (professional)	Professional regulation and education/ CPD		Professional regulation and education/ CPD
Other training	Other training		Training for commissioners
Regulatory Affairs (Organisational)	Service regulation, including Patient Safety Alerts		Service regulation

4.2.1 How are national stakeholders including their regional/ local networks 'intervening' in the implementation of NICE guidance?

Supporting and conducting audit and feedback focused on uptake of NICE guidance was the most frequent form of bespoke initiative that national stakeholders were undertaking (see Table 4 for further details). This mirrored the literature included in the scoping review. Most of these NICE-focused audits were at national scale and part of broader national programmes of audit activities; and the results of many of these were deposited on the Health and Social Care Information Centre website. Some Royal Colleges (e.g. the Royal College of General Practitioners and the Royal College of Psychiatrists) were also involved in developing tools to support local audits of the uptake of NICE guidance to take place; this was also the case for an example found of activity by the East Midlands Strategic Clinical Network, which supported implementation of the IMPAKT™ tool (IMproving Patient care and Awareness of Kidney Disease progression Together²⁴) to improve diagnosis and management of kidney disease to meet NICE guidelines. Some audit activity identified was not part of a structured audit programme but took more of an ad hoc approach to measuring compliance, for example the Patient's Association's survey into the uptake of recommendations in NICE guidance on malnutrition.

Several examples were also identified of national initiatives where practice guidelines, educational materials (including e-learning), and toolkits were developed to help practitioners interpret NICE guidance according to specific groups or situations. All of these would be classified as 'educational materials' in our scoping review. These were produced by a number of national stakeholders, many of which were Royal Colleges or professional membership bodies. An example of such an initiative where implementation of NICE guidance was a clear focus included the College of Occupational Therapists (COT) guide (2009) to translating NICE guidance on multiple sclerosis into practice. Other activity by the COT has seen a toolkit being produced for care home managers on how to implement NICE Public Health guidelines on physical activity.

Less commonly encountered initiatives were those that involved redesigning or integrating patient pathways as a means of ensuring that NICE guidance was implemented, and the two examples included in table 4 also show a different approach in terms of scale. Rethink Mental Illness, a national organisation, developed a national 'Integrated Physical Health Pathway' (which was in turn developed and endorsed by the Royal College of General Practitioners, Royal College of Nursing and Royal College of Psychiatrists) as an aid for mental health professionals to ensure that people with psychosis and schizophrenia received physical health monitoring; this was also linked to CQUIN payments and is available for practitioners nationally (see 3.4.6). Meanwhile, an example from an Academic Health Science Network (a local knowledge exchange network) also involved developing a patient pathway for people with serious mental illness through the TRlumph (Treatment and Recovery In Psychosis) care pathway (see (AHSN, 2015)), although this was designed at a local level and consequently contains a much more granular level of detail. This is currently being piloted in four sites but in contrast, no information is provided on whether the pathway is being piloted or evaluated in the former example (Rethink Mental Illness). Two other initiatives supported by collaborative networks, in this case involving decision support and reminders, were also evaluated: CLAHRC²⁵ North Thames are

²⁴ The IMPAKT™ is a collaboration between NIHR CLAHRC for Greater Manchester and NIHR CLAHRC for Leicestershire, Northamptonshire and Rutland.

²⁵ The CLAHRC - Collaboration for Leadership in Applied Health Research and Care - are 13 partnership networks developed by the National Institute for Health Research (NIHR) that conduct applied research in health and translate findings to improve patient outcomes

beginning to evaluate decision-support systems for primary care to improve diagnoses of suspected cancer (as advertised in a recent PhD studentship), while a Chronic Obstructive Pulmonary Disease (COPD) care bundle had been evaluated in one setting (in part based on NICE guidance (see (Hopkinson et al., 2011)) and was then evaluated more broadly, again through the CLAHRC initiative (CLAHRC North West London) (see Mann et al., 2011, Laverty et al., 2015). There were few other examples where the mode of implementation of NICE guidance appeared to have been, or was in the process of being, evaluated.

Finally, several national stakeholders undertook initiatives that aimed to implement NICE guidance through patient information and education. For example, Diabetes UK’s ‘information prescriptions’ aimed to empower patients to understand why measures were being routinely collected from them and what they could do to help lower their risk. ‘Information prescriptions’ are prescribed when a patient’s routine measures fall outside the NICE recommended targets for blood pressure, cholesterol, or HbA1c (glycated haemoglobin) and are integrated into patients electronic health records. They are supported by the main electronic medical record systems and are designed to prompt action by the practitioner on behalf of the patient. An evaluation of ‘information prescription’ pilots across a wider range of chronic conditions was conducted by King and colleagues (2008), although not all of these activities contained a focus on implementing NICE guidance. Other examples of implementing NICE guidance through bespoke initiatives aimed at patients included Healthwatch’s production of guidance on ‘Giving Healthwatch NICE Teeth’ which aimed to align the recommendations produced by Healthwatch with those produced by NICE (see ²⁶). As with several other examples contained in table 4, while Healthwatch is a national organisation, the implementation activity featured was initiated through a locally identified need.

Table 4: Intervening activities - Undertaking bespoke initiatives to support implementation of NICE guidance

Activity	Organisations undertaking activity	Exemplar evidence and/or further details
National audits measuring uptake of NICE guidelines; audit tools; and supporting providers/practitioners to carry out audit	Many organisations undertaking or supporting independent audit activities which include a focus on uptake of recommendations in NICE guidance e.g. Healthcare Quality Improvement Partnership, Health and Social Care Information Centre, British Thoracic Society, Royal Colleges, College of Occupational Therapists, Patients Association, Diabetes UK, British Lung Foundation, Rethink Mental Illness, National Institute for Health Research Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), Strategic Clinical Networks (SCNs)	<p>Audit activities undertaken represent a combination of ‘official’ or recognised programmes of audits (including National Audits); and those taken on a more ad hoc basis, e.g. the Patients Association’s large-scale survey of in-patients <i>Malnutrition in the community and hospital setting</i> (2011) in association with YouGov to investigate screening for malnutrition in line with NICE guidelines. (see http://patients-association.org.uk/wp-content/uploads/2014/07/Malnutrition-in-the-community-and-hospital-setting.pdf)</p> <p>The most active organisation in publishing these data appears to be the Health and Social Care Information Centre (HSCIC):</p> <ul style="list-style-type: none"> • The ‘<i>NICE Technology Appraisals in the NHS in England (Innovation Scorecard)</i>’ publication gives information about the use of medicines and other technologies which have been positively appraised by a NICE Technology Appraisals process. The publication reports data from a number of sources and allows comparisons of use between organisations. • “<i>The Use of NICE Appraised Medicines in the NHS in England</i>” report. • IAPT Dataset (Improving Access to Psychological Therapies) in relation to treatments recommended by NICE. • Information sheets (Statements of Administrative Sources) for various HSCIC National Audits (Clinical Audit Support Unit in HSCIC) refer to NICE guidelines as central to aims. May be commissioned by HQIP as part of the National Clinical Audit Programme e.g. National Diabetes Audit.

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http://www.healthwatchblackburnwithdarwen.co.uk/sites/default/files/guide_for_local_healthwatch_on_using_nice_resources.pdf

		<p>The Healthcare Quality Improvement Partnership (HQIP) led on a project to develop an online care audit tool (based on NICE quality standards) to be used in care home settings. The aim was “test whether the benefits of a national audit approach, as used successfully in the NHS through clinical audit, can be realised in social care, if suitably adapted for the sector”. The project team comprised the Social Care Institute for Excellence, DH, the Clinical Audit Support Centre partnering with Healthcare Quality Quest, and the Royal College of Psychiatrists.</p> <p>http://www.hqip.org.uk/national-programmes/social-care/ http://www.scie.org.uk/news/dementia-care-audit/</p>
		<p>Royal College of GPs (RCGP) TARGET Audit Toolkits (2015), in partnership with Public Health England (PHE)) as part of the TARGET Antibiotics Toolkit²⁷ to show compliance with the Health and Social Care Act 2008: Code of Practice, and to support implementation of NICE and PHE guidelines on antibiotic prescribing e.g. sore throats / otitis media.</p> <p>http://www.rcgp.org.uk/clinical-and-research/toolkits/target-antibiotics-toolkit.aspx</p>
		<p>Royal College of Psychiatrists (RCPsych): Case note/Drug chart audit tools: <i>The use of rapid tranquillisation in older people’s services</i> (bulk of items based on NICE guideline)/ <i>for working age adults</i> (items based on NICE guideline).</p> <p>http://www.rcpsych.ac.uk/pdf/3b%20Older%20People%20FINAL.pdf http://www.rcpsych.ac.uk/pdf/3b%20Working%20age%20FINAL.pdf</p>
		<p>East Midlands Strategic Clinical Network Chronic Kidney Disease and Acute Kidney Injury Programme: Helping CCGs to work with GP practices to implement the IMPAKT™ (IMproving Patient care and Awareness of Kidney disease progression Together) chronic kidney disease tool²⁸ to improve chronic kidney disease diagnosis and management in line with NICE guidelines.</p> <p>http://emsenate.nhs.uk/cardiovascular/work-programmes/chronic-kidney-disease-and-acute-kidney-injury</p>
<p>Practice guidelines (e.g. extends NICE guidelines or applies to practitioner group/ specific settings or further considers practicalities); educational materials and toolkits, including digital tools/ e-learning</p>	<p>British Thoracic Society (BTS)</p>	<p>BTS <i>Hospital-at-Home in chronic obstructive pulmonary disease</i> guidelines (2006) for practice issues which the broader NICE guideline didn’t cover.</p> <p>https://www.brit-thoracic.org.uk/document-library/clinical-information/copd/copd-guidelines/bts-intermediate-care-hospital-at-home-for-copd-guideline/</p>
	<p>Royal College of Nursing (RCN)</p>	<p>Guidance to complement NICE guidance e.g. <i>Tuberculosis case management and cohort review: Guidance for health professionals</i> (2012), produced with the BTS, Health Protection Agency, National Treatment Agency for Substance Abuse, and the London Find&Treat TB outreach team.</p> <p>https://www2.rcn.org.uk/_data/assets/pdf_file/0010/439129/004204.pdf</p>
	<p>Royal College of GPs (RCGP)</p>	<p>Updates RCGP guidelines in light of new NICE guidance e.g. <i>Guidance for the use of substitute prescribing in the treatment of opioid dependence in primary care</i> (2011). Produced with the Substance Misuse Management in General Practice (SMMGP) and The Alliance.</p> <p>http://www.rcgp.org.uk/bookshop/clinical-topics/drug-and-alcohol-problems/guidance-for-the-use-of-substitute-prescribing-in-the-treatment-of-opioid-dependence-in-pc.aspx</p>
	<p>College of Occupational Therapists (COT)/ MS Society</p>	<p>Guidance document <i>Multiple Sclerosis (MS): Translating the NICE and NSF Guidance into Practice: a guide for occupational therapists</i> (2009) joint with the Multiple Sclerosis Society.</p> <p>https://www.cot.co.uk/publication/books-z-listing/translating-nice-and-nsf-guidance-practice-guide-occupational-therapists</p>

²⁷ The broader TARGET Antibiotics Toolkit is produced by the Antimicrobial Stewardship in Primary Care (ASPIC) collaboration of which the RCGP is a member.

²⁸ The IMPAKT™ is a collaboration between NIHR CLAHRC for Greater Manchester and NIHR CLAHRC for Leicestershire, Northamptonshire and Rutland.

		<p>COT <i>Activity Matters toolkit</i> (e-learning) to support implementation of NICE Public Health Guideline 16: <i>Occupational therapy interventions and physical activity interventions to promote the mental wellbeing of older people in primary care and residential care</i> (2008).</p> <p>https://www.cot.co.uk/older-people/activity-matters-toolkit</p> <p><i>Living well through Physical Activity in Care Homes: the toolkit</i> a resource (2015) aimed at care homes, and can help professionals implement the NICE quality standard on the <i>Mental wellbeing of older people in care homes</i>. https://www.cot.co.uk/living-well-care-homes</p>
	NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	See http://clahrc.diplomr.com/course/view/1 for <i>Obesity Online Learning</i> (e-learning with OCB Media) which has a focus on those aspects of the NICE guidelines particularly relevant to the work of GPs and practice nurses, and is tailored to local services in Leicestershire, Northamptonshire and Rutland.
Redesigned/ integrated care pathways	Wessex Academic Health Science Network/ Imperial College Health Partners/ Southern Health NHS Foundation Trust	Designed a locally developed integrated care pathway TRlumPH (Treatment and Recovery In Psychosis) for mental health (2015), with the initiating report <i>Pathways to recovery: A case for adoption of systematic pathways in psychosis</i> endorsed by the RCPsych and Rethink Mental Illness. They stated that “The National Institute of Clinical Excellence (NICE) guidelines for the treatment of psychosis were published in February 2014 and we have used the guidelines, as well as local expertise, to develop a best practice pathway to benchmark and map the gap between current and best practice’. The pathway is being piloted in four sites.
	Rethink Mental Illness	Launched the <i>Integrated Physical Health Pathway</i> (2014), a pathway to help primary and secondary care professionals to work together to monitor people’s physical health (in line with NICE guidelines and the Lester Positive Cardiometabolic Health Resource 2014 Update), in partnership with the RCGP, RCN, and RCPsych.
Educational materials/ events for patients/carers/ their representative organisations; and other patient-mediated interventions	Diabetes UK	Produce ‘ <i>information prescriptions</i> ’ (from 2015) given by clinicians to patients to help self-manage their blood pressure: “If a patient has diabetes and falls outside the NICE recommended targets for blood pressure, cholesterol, or HbA1c, the clinician receives a pop-up alert upon opening the patient’s medical record.”.
	Rethink Mental Illness	Produced ‘ <i>At-a-glance: New guideline for psychosis care in adults</i> ’ guide (2014) for people with mental health problems about new NICE guidelines.
	British Lung Foundation (BLF)	Developed the ‘COPD Patient Passport’ (2014) (based on NICE guidance) as both a digital tool and printed version, with the Primary
		<p>https://www.diabetes.org.uk/info-p-qa</p> <p>https://www.rethink.org/media/922664/nice_leaflet.pdf</p> <p>Ran workshops (Siblings Network) on NICE guidelines for siblings of people with mental health problems</p> <p>https://www.rethink.org/carers-family-friends/brothers-and-sisters-siblings-network/events-and-workshops</p>

		<p>Care Respiratory Society UK: The passport tells patients about the care that they should expect to receive; provides a focus for discussion during consultations; and provides collated data (from the digital tool) about patient experience. Qualitative research is being carried out.</p> <p>https://www.blf.org.uk/sites/default/files/BLF-PCRS-Using-a-patient-passport-to-assess-experiences-of-COPD-treatment-and-support.pdf</p>
	Royal College of Obstetricians & Gynaecologists (RCOG)	<p>Produced patient information leaflets based on NICE guidance e.g. pre-eclampsia (RCOG Patient Information Committee, 2012).</p> <p>https://www.rcog.org.uk/en/patients/patient-leaflets/pre-eclampsia</p>
	Local Healthwatch	<p>One local Healthwatch (Blackburn with Darwen) produced <i>Giving Healthwatch NICE Teeth: A guide for local Healthwatch organisations: How to use resources from the National Institute for Health and Care Excellence (NICE)</i></p> <p>http://www.healthwatchblackburnwithdarwen.co.uk/sites/default/files/guide_for_local_healthwatch_on_using_nice_resources.pdf</p>
Decision support tools and alerts for practitioners / commissioners	Royal College of Obstetricians and Gynaecologists (RCOG)	<p>Produces BiliChecker app for babies with jaundice based on NICE guidelines</p> <p>https://www.rcog.org.uk/en/guidelines-research-services/guidelines/rcog-bilichecker-app/</p>
	Diabetes UK	<p>Produces ‘information prescriptions’ (from 2015) given by clinicians to patients to help self-manage their blood pressure: “If a patient has diabetes and falls outside the NICE recommended targets for blood pressure, cholesterol, or HbA1c, the clinician receives a pop-up alert upon opening the patient’s medical record.”. The impact of a planning intervention for clinicians on use of the prescriptions is being evaluated in a randomised controlled trial by Newcastle University.</p> <p>https://www.diabetes.org.uk/info-p-qa</p> <p>http://www.isrctn.com/ISRCTN15637399?q=&filters=conditionCategory:Nutritional%5C,%20Metabolic%5C,%20Endocrine,ageRange:Mixed,recruitmentCountry:United%20Kingdom&sort=&offset=1&totalResults=4&page=1&pageSize=10&searchType=basic-search</p>
	NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	<p>Planned evaluation of an online decision support tool (2015 onwards) to maximise the implementation of NICE Guidance for suspected cancer (UCL and NIHR CLAHRC North Thames).</p> <p>https://www.findaphd.com/search/projectdetails.aspx?PJID=62307</p> <p>Evaluated impact of COPD discharge care bundle (part based on NICE guidance) on hospital discharge at one local site using “improvement methodology” (2012) (NIHR CLAHRC North West London with West Middlesex University Hospital). This features on the NICE shared learning database and is published in Mann et al (2012). See Hopkinson et al (2011) for a pilot evaluation, and Laverty et al (2015) for the broader evaluation at a number of sites.</p> <p>https://www.nice.org.uk/sharedlearning/assessing-the-impact-of-implementing-a-hospital-discharge-copd-chronic-obstructive-pulmonary-disease-care-bundle-on-the-respiratory-ward-at-west-middlesex-university-hospital</p> <p>NIHR CLAHRC South London are using a decision support tool relating to social values in decision making, developed by UCL, to understand how</p>

		commissioners make decisions about funding support services for people with alcohol problems in the context of a NICE quality standard. http://www.clahrc-southlondon.nihr.ac.uk/public-health/is-nice-quality-standard-about-alcohol-put-practice-south-east-london
Events/ seminars/ speakers at others' events/ CPD training - for professionals	Many organisations	Various.
Regional/ local improvement work/ implementation networks/ communities of practice	British Thoracic Society (BTS)	Proposed a TB Network (regional and local) in a recent discussion paper <i>Defining a model for a Gold Standard for a TB MDT group and associated networks</i> (2014) to integrate regional services to enhance and improve care, reduce inequalities, service inequity, overcome geography, improve education and achieve NICE approved quality standards of care. (See https://www.brit-thoracic.org.uk/document-library/clinical-information/tuberculosis/defining-a-model-for-a-gold-standards-for-a-tb-mdt-group-and-associated-networks/)
	Strategic Clinical Networks (SCNs)	East Midlands Strategic Clinical Network Chronic Kidney Disease and Acute Kidney Injury Programme: Helping CCGs to work with GP practices to implement the IMPAKT™ (IMproving Patient care and Awareness of Kidney disease progression Together) chronic kidney disease tool to improve chronic kidney disease diagnosis and management in line with NICE guidelines. http://emsenate.nhs.uk/cardiovascular/work-programmes/chronic-kidney-disease-and-acute-kidney-injury
	NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	Evaluated impact of COPD discharge care bundle (part based on NICE guidance) on hospital discharge at one local site using “improvement methodology” (2012) (NIHR CLAHRC North West London with West Middlesex University Hospital). This features on the NICE shared learning database and is published in Mann et al (2012). See Hopkinson et al (2011) for a pilot evaluation, and Laverty et al (2015) for the broader evaluation at a number of sites. https://www.nice.org.uk/sharedlearning/assessing-the-impact-of-implementing-a-hospital-discharge-copd-chronic-obstructive-pulmonary-disease-care-bundle-on-the-respiratory-ward-at-west-middlesex-university-hospital
Campaigns/ Parliamentary activity	British Thoracic Society (BTS)	The BTS launched the Case for Change in 2013 - a campaign for every hospital in the country to have a Stop Smoking Service for patients who smoke, in line with NICE guidance on Stop Smoking services. The campaign includes the promotion of BTS Stop Smoking Champions in acute hospital trusts. https://www.brit-thoracic.org.uk/document-library/clinical-information/smoking-cessation/bts-case-for-change/
	British Lung Foundation (BLF)	BLF campaign on idiopathic pulmonary fibrosis, including audit through patient survey and other research on uptake of NICE recommendations. One of the three key recommendations in its report for England <i>Lost in the System</i> (2015), launched in Parliament, was that “All those providing IPF services to follow NICE guidance (including the quality standard and guidelines) and pathway”. https://www.blf.org.uk/sites/default/files/BLF-IPF-Report-2015---Lost-in-the-System---250215.pdf https://www.blf.org.uk/sites/default/files/Year%202020IPF%20project%20report.pdf

4.2.2 How are national stakeholders 'embedding' the implementation of NICE guidance?

A greater range of organisations were found to undertake a more diverse set of activities in order to embed NICE guidance within their broader activities (Table 5) than they were to undertake bespoke implementation activities (section 4.2.1). For example, NICE guidance was found to be embedded in the professional regulation arrangements and service regulation arrangements across several organisations. Some of these were established inspection agencies, such as the Care Quality Commission (CQC), who view NICE and NHS England as 'leading on developing the definition of high quality care (2013)', a key way of supporting CQC inspectors in establishing whether care providers were operating at this level. In addition to embedding NICE guidance in their professional standards, some Royal Colleges, such as the Nursing and Midwifery Council, also used NICE guidance to assess whether individual organisations were delivering adequate care, for example examining the extent to which local policies and practice guidelines were in line with NICE guidance. The same organisation provided examples where professional conduct was benchmarked against NICE guidance, and misconduct allegations heard against individual nurses and midwives took into account whether care had been provided in accordance with NICE guidance. The Council also held a recent consultation on revalidation where members were asked if the professional code of conduct should require nurses and midwives to be aware of applicable NICE and SIGN quality standards in health and social care.

As is a theme throughout this report, there was frequent support for implementing NICE guidance through their incorporation in broader audit programmes and audit tool development programmes which drew on a number of sources of practice standards (i.e. not solely NICE guidance). One recent development came from the NHS Sustainable Improvement team (part of NHS England since November 2015), which delivers the GRASP Suite to the NHS (in partnership with the developers PRIMIS at the University of Nottingham). This is a suite of audit tools to improve the quality of care for atrial fibrillation (GRASP-AF), chronic obstructive pulmonary disease (GRASP-COPD), and heart failure (GRASP-HF), each of which are aligned to NICE clinical guidelines. These are already in widespread use and by January 2015, 34 per cent of GP practices in England had used at least one of the GRASP tools and had shared their data online for national benchmarking (see ²⁹).

Many organisations also provided advice to professionals on the implementation of NICE guidance in their work, which ranged from signposting on webpages to the production of toolkits. The General Medical Council, for example, was identified as conducting a range of such activities from signposting overseas candidates to NICE guidance when formulating patient management plans (which would form part of GMC assessment criteria) to embedding and signposting NICE guidance in their 'Good Medical Practice' and 'Leadership and Management for All Doctors' guides. Similar briefings, guides and toolkits which referred to NICE guidance were found on the NHS Confederation and NHS Sustainable Improvement team websites. In the latter example this included the recently published (April 2016) End of Life Care Commissioning Toolkit.

Full details of identified embedding activities are presented in Table 5, and although these are too numerous to discuss individually in detail, two further areas are worthy of mention. The first are a number of campaigns in which implementation of NICE recommendations was embedded as a message. These included, firstly, the Advisory

²⁹ <http://www.nhs.uk/improvement-programmes/living-longer-lives/clinical-engagement-in-the-five-big-killers/grasp-suite-of-audit-tools.aspx>

Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI; an expert scientific committee supported by Public Health England) which has initiated national level campaigns around the appropriate use of antibiotics aimed at both patients and professionals (McNulty et al., 2012); secondly, Rethink Mental Illness' campaign to establish a Schizophrenia Commission to ensure better uptake of NICE recommendations, and, thirdly, the launch of a report and campaign by Mind and a coalition of other charities to campaign for more equitable access to NICE recommended therapies (IAPT) and better uptake of recommendations around waiting times and treatment pathways (Mind, 2013). While the impact of these broader activities on changing implementation behaviour in relation to NICE guidance is unknown, such activities nevertheless are likely to help to push uptake of NICE guidance into the consciousness of wider audiences. A second exemplar of note was an instance where organisation had conducted its own research in order to understand the determinants of implementation of innovative practices to improve the design of subsequent quality improvement and implementation processes, specifically with a focus on innovation and new technology (Heitmueller et al., 2016). This was initiated by one Academic Health Science Network, and resulted in the creation of an 'Intrapreneur Programme', aimed at supporting provider organisations to create a more functional demand side for innovative products and services; which could see more efficient implementation of new guidance and particularly new technologies.

Although tables 4 and 5 and appendix 4 provide detailed descriptions of activities (intervening, embedding and collaborating) that are being undertaken by national stakeholders, in section 4.2.3 we examine where some potential strengths and gaps lie in the national landscape.

Table 5: Embedding activities - Embedding NICE guidelines in broader work to support the implementation of NICE guidance

Activity	Organisations undertaking activity	Exemplar evidence and/or further details
Annual reports/ organisational objectives	Strategic Clinical Networks (SCNs)	<p>NHS Commissioning Board paper (2012) on establishing the regional SCNs (<i>The Way Forward: Strategic clinical networks</i>): “Strategic clinical networks will focus on the main health issues identified by the NHS CB against a set of criteria” Criteria for first networks include “there are demonstrable links to NICE guidance”.</p> <p>https://www.england.nhs.uk/wp-content/uploads/2012/07/way-forward-scn.pdf</p>
	NHS Improvement	<p>The strategy document <i>Implementing the forward view: Supporting providers to deliver</i> (2016) for local providers (prepared by NHS Improvement in collaboration with other NHS organisations and the Local Government Association) mentions NICE: “Work is underway to ensure that new drugs and technologies are evaluated more speedily, and to ensure that greater numbers of new devices and equipment are evaluated by the National Institute for Health and Care Excellence. The Accelerated Access Review, supported by the Wellcome Trust, is considering how innovations can be more rapidly translated into mainstream clinical practice. Academic health science centres and networks will play an increasing role in supporting the diffusion of innovations that enhance patient outcomes”.</p> <p>https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/499663/Provider_roadmap_11feb.pdf</p>
	National QI and Clinical Audit Network (NQICAN)	<p>Annual report (2014/15) of national NQICAN had an objective “Engage, influence and be a point of contact for key organisations such as HQIP, NHS England and NICE”.</p> <p>http://nqican.org.uk/NQICANAnnualReport2014-15.pdf</p>
Practice/ commissioning guidelines; and educational materials/ toolkits	British Thoracic Society (BTS)	<p>BTS own (NICE accredited) guidelines (sometimes in partnership with other organisations) refer to relevant NICE guidelines e.g. <i>BTS/ICS Guidelines for the Ventilatory Management of Acute Hypercapnic Respiratory Failure</i> (2016).</p> <p>https://www.brit-thoracic.org.uk/document-library/clinical-information/acute-hypercapnic-respiratory-failure/ventilatory-management-of-ahrf/</p> <p>Incorporated NICE guidance in ‘Smoking Cessation Educational slide set’ (2014).</p> <p>https://www.brit-thoracic.org.uk/clinical-information/smoking-cessation/</p>
	Nursing and Midwifery Council (NMC)	<p>Refers to NICE guidelines in NMC guidance e.g. <i>Supporting women in their choice for home birth</i> (2010).</p> <p>https://www.nmc.org.uk/globalassets/siteDocuments/CouncilPapersAndDocuments/Committees/MC/14July2010/M_10_15_Annexe2_SupportingWomenInTheirChoiceOfHomeBirth.pdf</p>
	British Medical Association (BMA)	<p>References NICE guidance in advice documents for doctors</p> <ul style="list-style-type: none"> Children and Young People Toolkit (2010) (safeguarding concerns). http://www.chimat.org.uk/resource/item.aspx?RID=113662- Advised in <i>Insiders Guide to being a junior doctor in the NHS</i> (2015) that they should “Download useful apps such as the BNF (British National Formulary) and NICE guidelines, so that you can access them when necessary on the wards”. https://www.bma.org.uk/advice/work-life-support/life-and-work-in-the-uk/insiders-guide-to-being-a-junior-doctor-in-the-nhs/before-you-start Advised doctors returning after absence to check any updates on NICE guidance (2013).

		https://www.bma.org.uk/advice/career/applying-for-a-job/returning-to-clinical-practice/preparing-for-a-return-to-work
Royal Society for Public Health (RSPH)	Has Awards (e.g. <i>Level 2 Award in Understanding Health Improvement</i>) and publishes tutor packs e.g. <i>Health improvement and behaviour change</i> , which relate to NICE guidelines. http://healthtrainersengland.com/wp-content/uploads/2014/05/UHI_syllabus_2011_final.pdf	
Rethink Mental Illness	Produced <i>CQUIN toolkit</i> for practitioners - “contains links to all the NICE guidelines relevant to the 2014/15 CQUIN and Lester update 2014”; and includes the Lester resource (see Appendix 4) and the Integrated Physical Health Pathway (Table 4), which are bespoke/ collaborative activities for implementation of NICE guidance. https://www.rethink.org/about-us/health-professionals/cquin-downloads	
NHS Confederation	Produced guides/ briefings for commissioners/ providers/ clinicians which include advice on implementing NICE recs e.g. <i>Investing in emotional and psychological wellbeing for patients with long-term conditions</i> (2012) and <i>Reducing deaths from blood clots in hospitals</i> (2009). http://www.nhsconfed.org/resources/2012/04/investing-in-emotional-and-psychological-wellbeing-for-patients-with-long-term-conditions http://www.nhsconfed.org/resources/2009/05/reducing-deaths-from-blood-clots-in-hospitals	
NHS Sustainable Improvement team, part of NHS England from November 2015, previously part of NHS Improving Quality	Revised the End of Life Care Commissioning Toolkit (2016) which has amongst its objectives to support NICE guidance / quality standards on end of life care. http://www.nhs.uk/8627.aspx	
Royal College of Nursing (RCN)	Included references to NICE guidelines/ quality standards in toolkit on <i>Antimicrobial resistance</i> (2016); and in guidance on <i>Catheter care</i> (2012). https://www2.rcn.org.uk/_data/assets/pdf_file/0003/590484/04681.pdf https://www2.rcn.org.uk/_data/assets/pdf_file/0018/157410/03237.pdf	
Royal College of GPs	Information on NICE guidance included in RCGP toolkits and educational resources.e.g. <i>The RCGP/NSPCC Safeguarding Children Toolkit for General Practice</i> , produced with the NSPCC (2014). http://www.rcgp.org.uk/clinical-and-research/toolkits/-/media/Files/CIRC/Safeguarding-Children-Toolkit-2014/RCGP-NSPCC-Safeguarding-Children-Toolkit.ashx	
Royal College of Psychiatrists (RCPsych)	Guidance (2016) on <i>Psychotropic drug prescribing for people with intellectual disability, mental health problems and/or behaviours that challenge</i> embeds NICE recommendations. http://www.rcpsych.ac.uk/pdf/FR_ID_09_for_website.pdf	
Local Government Association (LGA)	Released a number of guidance reports that embed NICE guidance including: <ul style="list-style-type: none"> • <i>Tackling poor oral health in children</i>, joint with Public Health England (2016). http://www.local.gov.uk/documents/10180/7632544/L16-83+Tackling+poor+oral+health+in+children/5cb38916-bddb-4550-9f63-52d44f559591 • <i>The Health and Wellbeing System Improvement Programme</i> (2014), joint with DH. 	

		<p>http://www.local.gov.uk/documents/10180/5854661/The+Health+and+Wellbeing+System+Improvement+Programme+June+2014/7949a0d3-6433-4791-9f95-15080f80539e</p> <ul style="list-style-type: none"> • <i>Firefighter fitness Best Practice Guide.</i> <p>https://www.fbu.org.uk/circular/2016hoc0147mw/firefighter-fitness-best-practice-guide</p>
	Institute for Healthcare Management (IHM)	<p>IHM Professional Practice Framework links with NICE recommendations for workplace policy and management practices for health. IHF working with HE providers to embed its framework. Also using to inform training.</p> <p>http://www.ihm.org.uk/about-us/professional-practice-framework.html</p> <p>https://www.questia.com/library/journal/1P3-3819603641/nice-guidance-reflected-in-ihm-professional-practice</p>
Audit tools and service standards for providers/practitioners; and guidance on audit/service indicators	Healthcare Quality Improvement Partnership (HQIP)	<p>Guidance on Quality Accounts for 2016/17 and 2017/18 states that “Outcomes and processes of care being audited must be based on rigorous evidence (including NICE Quality Standards and Guidelines)”.</p> <p>http://www.hqip.org.uk/national-programmes/quality-accounts/</p>
	Health and Social Care Information Centre (HSCIC)	<p>Guidance for providers on information to give to patients about national datasets (e.g. Mental Health Services; Children and Young People’s Health Services; Maternity Services) refers to NICE in relation to indicators and fields (e.g. NICE-recommended interventions; NICE-recommended timescales) and aims of collecting the data.</p> <p>e.g. <i>Mental Health Services Data Set (MHSDS) - Information Governance and Consent Guidance for Care Provider Organisations</i>: “Examples of the way information collected is used include checking: Patients are provided with care that is compliant with standards set by the National Institute of Care and Health Excellence (NICE)”.</p> <p>http://www.hscic.gov.uk/media/20092/MHSDS-IG-Consent-Guidance/pdf/MHSDS_IG_Consent_Guidance_v1.0.pdf</p>
	NHS Sustainable Improvement team, part of NHS England from November 2015 previously part of NHS Improving Quality	<p>Delivers the GRASP Suite in partnership with PRIMIS at the University of Nottingham. This consists of three free audit tools, which can help GP practices “case-find and audit their management of patients with some of the most prevalent long term conditions”. They are aligned to NICE guidelines and can show uptake of NICE guidelines. The GRASP-AF tool for atrial fibrillation was developed by the West Yorkshire Cardiovascular Network, the Leeds Arrhythmia Team and PRIMIS.</p> <p>http://www.nhs.uk/improvement-programmes/living-longer-lives/clinical-engagement-in-the-five-big-killers/grasp-suite-of-audit-tools.aspx</p>
	Royal College of Psychiatrists (RCPsych)	<p>Guidance (2016) on Psychotropic drug prescribing for people with intellectual disability, mental health problems and/or behaviours that challenge refers to NICE guidelines in setting standards.</p> <p>http://www.rcpsych.ac.uk/pdf/FR_ID_09_for_website.pdf</p> <p>Similar references to NICE guidance made in a number of documents e.g. Standards for Inpatient Mental Health Services (2016) and Memory Services National Accreditation Programme (MSNAP) Standards for Memory Services (2016).</p> <p>http://www.rcpsych.ac.uk/pdf/Standards%20for%20Inpatient%20Wards%20-%20Working%20Age%20Adults%20-%20Fourth%20Edition.pdf</p> <p>CQUIN 2014/15 national mental health indicator (joint with NHS England) refers to NICE guidelines.</p> <p>https://www.england.nhs.uk/wp-content/uploads/2014/06/cquin-add-mh-guid.pdf</p> <p>The College has a Centre for Quality Improvement which runs National Audits and self-assessment and quality improvement</p>

		<p>initiatives working with local services. For example, members of The Prescribing Observatory for Mental Health (POMH-UK) self-assess against NICE guidance and other standards.</p> <p>http://www.rcpsych.ac.uk/workinpsychiatry/qualityimprovement/nationalclinicalaudits/prescribingpomh/prescribingobservatorypomh.aspx</p>
	Local Government Association (LGA)	<p>Referred to NICE guidance in Commissioning for better outcomes: a route map (2015), joint with DH and other orgs.</p> <p>http://www.local.gov.uk/documents/10180/5756320/Commissioning+for+Better+Outcomes+A+route+map/8f18c36f-805c-4d5e-b1f5-d3755394cfab</p>
	Strategic Clinical Networks (SCNs)	<p>London SCN used NICE guidelines as one input to developing framework for London acute care standards for children and young people: Driving consistency in outcomes across the capital (2015).</p> <p>http://www.londonscn.nhs.uk/wp-content/uploads/2015/06/cyp-acute-care-stds-042015.pdf</p> <p>East Midlands SCN uses NICE guidance as key source for its regional Dementia Work Programme (includes production of case finding audit tool) and Perinatal Mental Health Work Programme.</p> <p>http://emsenate.nhs.uk/mental-health-dementia-and-neurological-conditions/dementia-work-programme</p> <p>http://emsenate.nhs.uk/mental-health-dementia-and-neurological-conditions/mental-health-work-programme/2015-12-17-16-41-45</p>
	NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	<p>The IMPAKT™ (IMproving Patient care and Awareness of Kidney disease progression Together) chronic kidney disease audit tool is a collaboration between NIHR CLAHRC for Greater Manchester and NIHR CLAHRC for Leicestershire, Northamptonshire and Rutland. A chronic kidney disease (CKD)/hypertension project, from May 2014 across the Central Manchester CCG, has used the tool along with clinical education sessions and facilitation support.</p> <p>http://clahrc-gm.nihr.ac.uk/wp-content/uploads/CKD-NHS-Central-Manchester-CCG-report.pdf</p> <p>http://clahrc-gm.nihr.ac.uk/wp-content/uploads/Final-report-from-the-IMPAKT-tool-deployment_overall-version_final_2.3_anonymised.pdf</p> <p>An evaluation carried out during the development of IMPAKT™ is included in the scoping review (CLAHRC CKD Collaborative, 2010).</p>
Information pages on website; information briefings for practitioners/commissioners/providers	British Association of Social Workers (BASW)	Provides information about NICE-recommended therapies e.g. counselling for depression; school-based counselling therapies.
	College of Occupational Therapists (COT)	Refer to NICE guidelines in information resources and evidence briefings for members.
	NHS Providers	Refer to/ endorse NICE guidelines (safe staffing; transitions between settings) in policy/law briefings/ discussion papers.
	British Medical Association (BMA)	Mentions NICE guidance in information on webpages.
	Faculty of Public Health (FPH)	Links to NICE guidelines integrated into information pages on topics.
	Association of Directors of Children's Services (ADCS)	Information about domestic violence includes link to NICE guidance.
	NHS Improvement	Lists NICE website in Improvement Directory: "a list of websites that provide online improvement tools, resources or networks on health and social care".
		https://improvement.nhs.uk/resources/improvement-directory/

	Institute of Healthcare Management (IHM) (now part of Royal Society for Public Health)	NICE included in list of weblinks to useful organisations/ websites for managers.
	Strategic Clinical Networks (SCNs)	Northern SCN page about their regional programme Improving Physical Healthcare of People with Mental Illness incorporates links to NICE Local Government briefing, Lester implementation resource and Integrated Physical Health Pathway. http://www.nescn.nhs.uk/networks/mental-health-dementia-and-neurological-conditions-network/mental-health-dementia-and-neurological-conditions-network-groups/mhdnc-improving-physical-healthcare-of-people-with-mental-illness-group/
	Royal College of GPs (RCGP)	Information on NICE guidelines included in Clinical Resources pages of website e.g. kidney care; food allergy.
	NHS Confederation	Briefings for Members e.g. on report of independent Mental Health Taskforce to the NHS in England, e.g. on improving perinatal/ maternal mental health provision, which include endorsement of NICE recommendations on mental health.
Information for patients/ service users	Diabetes UK	Links to and references to NICE guidance integrated into information pages for patients.
	Rethink Mental Illness	Links to and references to NICE guidance integrated into information pages for people with mental health problems.
	Health and Social Care Information Centre (HSCIC)	Guidance for providers on information to give to patients about national datasets (e.g. Mental Health Services; Children and Young People's Health Services; Maternity Services) refers to NICE in relation to aims of collecting the data. e.g. Mental Health Services Data Set (MHSDS) - Information Governance and Consent Guidance for Care Provider Organisations http://www.hscic.gov.uk/media/20092/MHSDS-IG-Consent-Guidance/pdf/MHSDS_IG_Consent_Guidance_v1.0.pdf
Policy/ discussion/ evidence papers/ research (including research on national audits)	British Medical Association (BMA)	Mentions NICE guidance in discussion/ evidence papers (eg BMA Board of Science). e.g. Fetal alcohol spectrum disorders: A guide for healthcare professionals (2007). http://www.nofas-uk.org/PDF/BMA%20REPORT%204%20JUNE%202007.pdf
	Health and Social Care Information Centre (HSCIC)	NICE guidelines referred to in replies to Information Requests. e.g. http://www.hscic.gov.uk/media/14108/NIC225896X0T4GResponseRedacted/pdf/NIC_225896_X0T4G_Response_Redacted.pdf
	Royal College of Obstetricians and Gynaecologists (RCOG)	Clinical Query Answers (evidence reviews) include reference to NICE guidelines. https://www.rcog.org.uk/en/guidelines-research-services/guidelines/anti-d-after-miscarriage---query-bank/
	Strategic Clinical Networks (SCNs)	References to NICE guidelines incorporated throughout Wessex SCN's regional Strategy Document on A Strategic Vision for Cancer (2015). http://www.wessexscn.nhs.uk/files/1614/2719/9910/Strategic_Vision_for_Cancer.pdf
	Healthwatch	Healthwatch Sunderland refers to NICE guidelines/ recommendations as context for their local research visiting care homes to assess the "range and quality of meaningful activities available to residents" and find examples of good practice. http://www.healthwatch.co.uk/news/helping-people-care-homes-access-activities-will-improve-their-health

		Healthwatch England's report <i>Safely home? What happens when people leave hospital and care settings?</i> (2015) referred to lack of implementation of NICE guidelines. http://www.healthwatch.co.uk/sites/healthwatch.co.uk/files/170715_healthwatch_special_inquiry_2015_1.pdf
	Local Government Association (LGA)	References to NICE recommendations (including need to follow them) in various policy documents. e.g. A new home for public health services for children aged 0-5: a resource for local authorities" (2015): "To what extent do commissioning arrangements reflect NICE guidance on health visiting?". http://www.local.gov.uk/publications/-/journal_content/56/10180/7507693/PUBLICATION
	General Pharmaceutical Council (GPC)	Commissioned the report <i>Pharmacy and care homes</i> (2015), written by an independent consultant, which mentions NICE's Managing Medicines in Care Homes guideline. http://www.pharmacyregulation.org/sites/default/files/pharmacy_and_care_homes_report_by_jo_webber_december_2015.pdf
	Royal College of Psychiatrists (RCPsych)	Publishes research into audit results which include an explicit focus on NICE guidance. For example the National Audit of Dementia Care in General Hospitals. http://www.rcpsych.ac.uk/pdf/NAD%20NATIONAL%20REPORT%202013%20reports%20page.pdf
	Academy of Medical Royal Colleges (AoMRC)	Recommendation and local case study in <i>Protecting resources, promoting value: a doctor's guide to cutting waste in clinical care</i> (2014) which relate to greater use of NICE's 'do not do' recommendations database. http://www.aomrc.org.uk/wp-content/uploads/2016/05/Protecting_Resources_Promoting_Value_1114.pdf
Sessions on implementing NICE guidance in broader events	Various	
Quality Improvement programmes	Strategic Clinical Networks (SCNs)	East Midlands SCN uses NICE guidance as key source for its regional Dementia Work Programme (includes production of case finding audit tool) and Perinatal Mental Health Work Programme ("establish networks to coordinate care across the pathway, in line with NICE guidance, as has already been achieved successfully in some areas"). http://emsenate.nhs.uk/mental-health-dementia-and-neurological-conditions/dementia-work-programme http://emsenate.nhs.uk/mental-health-dementia-and-neurological-conditions/mental-health-work-programme/2015-12-17-16-41-45
	Academic Health Science Networks (AHSNs)	Imperial College Health Partners (IChP) commissioned research from Ipsos MORI to understand implementation barriers in three sites in North West London, and also from the Institute for Public Policy Research to map barriers. The AHSN planned in 2015 to use the findings to shape their work 'to diffuse innovations such as NICE guidance. Ultimate aim is to foster the innovation ecosystem (Heitmueller et al., 2016). http://imperialcollegehealthpartners.com/blog/understanding-the-challenges-and-enablers-of-diffusing-innovation UCL Partners is using a decision support tool (the Anticoagulant Programme East London (APEL) intervention developed by the Clinical Effectiveness Group at Queen Mary University of London) to support improvement in anticoagulation for patients with atrial fibrillation (AF) across 21 CCGs in line with NICE guidance. It has

		<p>also developed an AF Quality standards dashboard for continuous measurement and set up a community of practice.</p> <p>https://www.nice.org.uk/sharedlearning/improving-anticoagulation-in-atrial-fibrillation-af-primary-care-interventions</p> <p>http://uclpstoreneuprod.blob.core.windows.net/cmsassets/Case%20study%20Pan%20London%20AF%20Camden.docx%20v2.pdf</p>
	NHS Improving Quality	<p>Quality improvement programmes help services achieve NICE quality standards e.g. the national Transform Programme for end of life care, developed by the National End of Life Programme, to support individual hospitals.</p> <p>http://www.nhs.uk/improvement-programmes/long-term-conditions-and-integrated-care/end-of-life-care/acute-hospital-care/more-about-the-transform-programme.aspx</p>
	Royal College of Psychiatrists (RCPsych)	<p>The College has a Centre for Quality Improvement which runs National Audits, and self-assessment and quality improvement initiatives which work with local services. These include the Accreditation for Acute Inpatient Mental Health Services (AIMS) programmes aimed to improve standards in inpatient mental health, with an evaluation (Baskind et al., 2010) being included in our scoping review.</p> <p>http://www.rcpsych.ac.uk/workinpsychiatry/qualityimprovement.aspx</p>
Campaigns	Rethink Mental Illness	<p>Established Schizophrenia Commission in 2011 - one of its recommendations was to increase access to NICE-recommended therapies due to inadequate uptake of NICE guidelines</p> <p>https://www.rethink.org/about-us/the-schizophrenia-commission</p>
	Public Health England (PHE)	<p>Provides the Secretariat for the expert scientific Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI; group within PHE). This group has initiated national level campaigns around the appropriate use of antibiotics which has included patient and professional level elements. For example, its 2014-15 annual report makes a recommendation in relation to NICE guidance on catheter care.</p> <p>https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/405295/ARHAI_annual_report.pdf</p>
	Mind (with the We Still Need to Talk coalition)	<p>Launched <i>We still need to talk: A report on access to talking therapies</i> in 2013, by the We Still Need To Talk coalition of mental health organisations, to highlight continuing inequalities in access to NICE-recommended psychological therapies; includes commentary on success of IAPT (see section 4.1.3 of report).</p> <p>http://www.mind.org.uk/media/494424/we-still-need-to-talk-report.pdf</p>
Parliamentary activity	Patients Association	<p>Established an All-Party Parliamentary Group (APPG) for Patient Safety in 2015. Meeting minutes include references to NICE guidance and a briefing by NICE.</p> <p>http://www.patients-association.org.uk/policy-campaigns/all-party-parliamentary-group-patient-safety/</p>
Professional regulation and education/ CPD	Nursing and Midwifery Council (NMC)	<p>Links to NICE guidance, including in support preparation for the NMC's Test of Competence, and lists of useful literature.</p> <p>Professional misconduct allegations against individual nurses/ midwives considered their practice in relation to NICE guidelines.</p> <p>2014 consultation on revalidation: "There exists in the UK a variety of quality standards in health and social care, such as ones developed by National Institute for Health and Care Excellence (NICE) and the Scottish Intercollegiate Guidelines Network (SIGN). These mainly focus on the delivery of clinical care. Do you agree or disagree that the Code should require nurses and midwives to be aware of these UK applicable quality standards in health and social care?"</p>

		https://www.nmc.org.uk/globalassets/sitedocuments/consultations/2014/consultation-reference-document.pdf
	British Thoracic Society (BTS)	NICE mentioned in context of revalidation: "A respiratory physician could demonstrate the quality and effectiveness of their practice by presenting data and evidence of reflection on: - Results of national audits of patients under their care; - Demonstrating that they/their department services meet the standards defined in existing BTS and NICE Quality Standards". https://www.brit-thoracic.org.uk/delivery-of-respiratory-care/revalidation/
	Royal College of Obstetricians and Gynaecologists (RCOG)	NICE guidelines included in Recommended Reading for MRCOG professional exams, in individual courses, and in resources for trainers
	Royal College of General Practitioners (RCGP)	Refers to NICE guidelines in curriculum statements and in 'curriculum content' on website. RCGP events + CPD seminars for GPs include implementing new NICE guidelines.
	General Pharmaceutical Council (GPC)	Guidance for trainers for 2016 registration assessment for new pharmacists asked them to encourage trainees to: "read the pharmacy press, practice guidelines (from NICE and SIGN, for example) and other information sources to keep up with developments in practice". http://www.pharmacyregulation.org/regulate/article/how-prepare 2016 <i>Consultation on standards for pharmacy professionals</i> : "We also expect pharmacy professionals to take account of relevant guidance in their practice. Relevant guidance is published by a number of organisations - as well as by the GPhC - including professional leadership bodies, other regulators, the NHS and NICE." https://www.pharmacyregulation.org/sites/default/files/consultation_on_standards_for_pharmacy_professionals_april_2016.pdf NICE mentioned in Council's Accreditation Visits to Universities delivering MPharm courses.
	General Medical Council (GMC)	Referred to NICE (along with national service frameworks and Scottish Intercollegiate Guidelines Network (SIGN) guidelines) in <i>Leadership and Management for All Doctors</i> (2012) in the context of providing the best service possible with the resources available. http://www.gmc-uk.org/static/documents/content/Leadership_and_management_for_all_doctors_-_English_1015.pdf GMC guide to (PLAB) test (overseas doctors) signposts candidates to NICE guidance. http://www.gmc-uk.org/doctors/plab/23449.asp Provided web links to NICE guidance in <i>Good medical practice</i> online guides, for example <i>Treatment and care towards the end of life</i> (2010), and <i>Protecting children and young people</i> (2012). http://www.gmc-uk.org/guidance/ethical_guidance/end_of_life_care.asp
Service regulation	Royal College of Obstetricians and Gynaecologists (RCOG)	Reviews of individual Trusts include with a focus on uptake of NICE guidelines. https://www.rcog.org.uk/globalassets/documents/about-us/invited-reviews/invited-reviews-brochure-2015.pdf
	Nursing and Midwifery Council (NMC)	Considered implementation of NICE guidelines and implementation support in annual reports of Local Supervisory Authorities and reviews of individual hospitals (e.g. incorporation into local guidelines/ protocols).

	Care Quality Commission (CQC)	<p>Examples of ‘inadequate care’ (GPs) and press notices/reports of unsatisfactory/ good inspections of NHS Trusts include with a focus on uptake of NICE quality standards; examples of ‘outstanding care’ (GPs) include initiatives to comply with NICE guidelines; refer to need to comply with NICE guidelines/ quality standards in recommendations for improvement.</p> <p>CQC consultation <i>Changes to the way we inspect, regulate and monitor care services</i> (2013) stated that “Organisations such as NICE and NHS England will lead on developing the definition of high quality care to support inspectors in identifying providers which perform at this level.”</p> <p>http://www.cqc.org.uk/content/cqc-launches-consultation-future-inspection-and-regulation</p> <p>Thematic reviews may within their remit investigate whether settings meet NICE quality standards e.g. <i>Diabetes care in community settings</i> (2015-16).</p> <p>http://www.cqc.org.uk/content/diabetes-care-community-settings</p>
	Ofsted	<p>Thematic inspection report <i>From a Distance: Looked After Children Living Away from their Home Area</i> (2014) referred to a NICE quality standard on looked after children and young people.</p> <p>https://www.gov.uk/government/publications/looked-after-children-living-away-from-their-home-area-from-a-distance</p>
	Monitor	<p>NICE guidance embedded in 2016-17 National Tariff Payment System guide (joint with Department of Health) (2016): “High-cost drugs, devices and listed procedures meet standard criteria, and we have taken advice from providers, commissioners, the National Institute for Health and Care Excellence (NICE) and other experts to assure which drugs and devices are included on the list.For 2016/17 we have introduced a new mandatory BPT (Best Practice Tariff) for non-elective admissions for heart failure, which is designed to incentivise improved uptake of National Institute for Health and Care Excellence (NICE) guidance”.</p> <p>https://www.gov.uk/government/publications/nhs-national-tariff-payment-system-201617</p> <p>Independent Provider Bulletin and Foundation Trust Bulletin (Jan 2016) reminded Trusts of contractual obligations in relation to uptake of NICE guidance; March 2016 Provider Bulletin: ‘please can you ensure that surgeons within your organisation: adhere to NICE clinical guidance’.</p> <p>https://www.gov.uk/government/publications/independent-provider-bulletin-january-2016/independent-provider-bulletin-january-2016</p> <p>https://improvement.nhs.uk/news-alerts/nhs-improvement-provider-bulletin-16-march-2016/</p>
	Patient Safety	<p>Referred to NICE guideline on self-harm in the <i>Revised Never Events Policy and Framework</i> (2015).</p> <p>https://www.england.nhs.uk/wp-content/uploads/2015/04/never-evnts-pol-framwrk-apr.pdf</p> <p>NHS England/ Public Health England/ Health Education England issued a joint National Patient Safety Alert (2015): <i>Addressing antimicrobial resistance through implementation of an antimicrobial stewardship programme</i>, in line with NICE guidance recommending that commissioners establish these programmes. Uptake by CCGs of the recommendations in this Alert is included in an evaluation <i>Antimicrobial resistance: A patient safety issue</i> by the Patients Association.</p> <p>https://www.england.nhs.uk/2015/08/psa-amr/</p> <p>http://www.patients-association.org.uk/wp-content/uploads/2016/05/patients-association-antimicrobial-resistance-a-patient-safety-issue-report-final.pdf</p>

4.2.3 Prolific stakeholders and gaps identified through the web searches

We conducted detailed and systematic web searching among almost sixty national organisations, and uncovered a number of activities underway, but also some characteristics of the broader landscape that support some of the earlier themes. Clearly the number of potential stakeholders who may comprise part of the implementation landscape could number in the hundreds, and some of the organisations profiled were intended to form exemplars for the potential activity of that ‘type’ of organisation. For example, we searched the websites of Carers UK and Shaping Our Lives to assess the roles that social care voluntary sector organisations representing carers and service users can occupy in the implementation landscape, but these are exemplars; and some organisations not included may be much more active, while others much more limited in their scope. Similarly, the General Medical Council, Nursing and Midwifery Council and General Pharmaceutical Council (among others) provide an indication of the range of activities being conducted by professional regulators. We also searched a limited number of the many professional organisations, Royal Colleges and topic-specific organisations, intended to form exemplars. Nevertheless, the following patterns were evident based on the results of the web searching.

- Few evaluations of the activities of national organisations, either completed or underway, were identified, even in web searches designed to specifically find these. This means that a great deal of work is being undertaken to support the implementation of NICE guidance by national organisations in a number of different ways, but the actual impact of these activities in of themselves is unknown. In some case, NICE guidance implementation is just one part of broader activities aimed at improving standards of patient care (i.e. embedding activities); in other activities the implementation of NICE guidance is a key focus or the sole rationale for the activity (i.e. intervening activities). Neither situation appears to be characterised by a strong tradition of evaluating and understanding how the activity - be this campaigns, the development of professional tools, information pages and briefings or many of the other activities taking place - is changing the implementation of guidance or improving practice. A possible exception may be in the case of the large audits and quality improvement programmes. However, even though many of these audits can be used to detect change, without accompanying quality improvement measures supporting an audit, such as is the case with the PDSA approach in many of the audits taking place locally (see Box A), it is unclear how effective ‘audit’ is as a single component tool.
- Many of the national stakeholders profiled are engaged in awareness raising (publicising, disseminating or endorsing) activities that are likely intended to improve the acceptability of NICE guidance among practitioners. This includes endorsements of NICE guidelines through statements and letters, expert commentaries, publicising, and signposting of guidance. This form of activity in itself can be regarded as a national ‘opinion leader’ intervention. It can have a substantial impact on implementation, helping to embed the guidance in professional culture (Bergen and While, 2005); publically demonstrating support and providing an explanation of how the guidelines with national professional priorities (Cullum et al., 2004); and helping to add methodological credence to the guidelines themselves, particularly when the endorsement is published in journal articles (Gagliardi et al., 2015).
- Some of the patterns observed earlier from the empirical studies for evaluated interventions were repeated in the results of the web searching. While the focus of the web searches was on the activities of national stakeholders, some of these operated as regional or sub-regional federations, or provided support to local initiatives in other

ways, and consequently some of their implementation activity was in fact, locally or regionally based. Examples are Strategic Health Networks, Academic Health Science Networks, and NIHR Collaborations for Leadership in Applied Health Research and Care.

- As was the case for the research studies in the scoping review, there was a cluster of activity around conducting audits, dissemination of audit results, or developing tools for use in audit activities; and there were other clusters of activity in the web searches around educational materials and educational meetings. The scoping review gave promising evidence on the impacts of accreditation models, standardisation of processes, and decision support tools. We found no other examples in the web searches of the first type of activity, but we did find examples of decision support tools and redesigned patient pathways developed by national organisations or regional/ local networks, a few of which have ongoing evaluations.

- Consistent with results from the scoping review showing a gap in studies relating to social care guidelines, there appeared from the web searches to be a lower level of engagement with the implementation of NICE guidelines among organisations with a focus on social care³⁰; a different pattern may have emerged however if the study examined social care organisations involved in the development of NICE guidance. A similar pattern was evident for organisations³¹ with a focus on public health.

Furthermore, there were some organisations across a variety of sectors that appeared to be prolific in actively attempting to increase the implementation of NICE guidance while others appeared to be relatively inactive. There are caveats around this distinction, and some organisations may simply not be publishing their activities, while other may be relatively new to the field. Also less prolific organisations may have only one or two activities, but these may be high impact or reach a large audience. Nevertheless, those organisations that appear to be particularly active may be those where NICE could form ready partnerships whereas others may be organisations that NICE may want to invest further resources in developing implementation activity on a national scale (table 6).

- We identified implementation activities (Appendix 4) where stakeholder organisations/ networks and NICE have collaborated in their production, including educational materials and events, or where NICE has formally endorsed or accredited external organisations' implementation resources (since November 2015). The Lester Resource, one of the NICE-endorsed resources, has been evaluated and this study appears in our scoping review (Quirk et al, 2015), as does an evaluation of the NHS Technology Adoption Centre (Llewellyn et al, 2014) before it transferred to NICE. However, as we mentioned earlier for the scoping review, the only national level studies which we found evaluating NICE's own implementation activities were Chamberlain et al (2013), an evaluation of 'do not' recommendation reminders, and Walsh et al (2010), an evaluation of e-learning produced by BMJ Learning with NICE. The web searches did not identify other published evaluations of NICE's own implementation resources and tools.

³⁰ Organisations not searched include the Social Care Institute for Excellence and Skills for Care.

³¹ Organisations not searched include Public Health England and the Institute for Health Promotion and Education

Table 6: Organisations appearing from the web searches³² to be more prolific and less prolific in terms of supporting implementation of NICE guidance*

Highly prolific organisations - organisations that described six or more independent ³³ implementation activities (embedding, intervening or collaborating ³⁴)	Less prolific organisations - organisations that described two or less independent implementation activities (embedding, intervening or collaborating)
<p>Professional regulators General Medical Council Nursing and Midwifery Council</p> <p>Service regulators Care Quality Commission</p> <p>Professional (medical) organisations/ Royal Colleges/ learned societies British Medical Association Royal College of Obstetricians and Gynaecologists Royal College of General Practitioners Royal College of Psychiatrists College of Occupational Therapists British Thoracic Society</p> <p>Audit / indicators Health and Social Care Information Centre</p> <p>Improvement / evidence into practice/ knowledge exchange networks Strategic Clinical Networks NIHR Collaborations for Leadership in Applied Health Research and Care (CLARHCs) Academic Health Science Networks</p> <p>Patient/ service user/ carer participation/ representation Healthwatch</p> <p>Topic specific Diabetes UK Rethink Mental Illness</p>	<p>General healthcare/ NHS organisations (including statutory organisations) NHS Clinical Commissioners although the search did not extend to regional Commissioning Support Units NHS Providers NHS Improvement but only established since April 2016 NHS Trust Development Authority (now part of NHS Improvement) NHS Alliance</p> <p>Service regulators Ofsted</p> <p>Audits/ indicators National Advisory Group on Clinical Audit and Enquiries</p> <p>Professional organisations/ Medical education Academy of Medical Royal Colleges Medical Schools Council</p> <p>Healthcare management Faculty of Medical Leadership and Management Institute of Healthcare Management (now part of Royal Society for Public Health)</p> <p>Social care British Association of Social Workers Association of Directors of Children’s Services</p> <p>Local authorities Society Of Local Authority Chief Executives (SOLACE) National Association of Local Councils</p> <p>Public health Royal Society for Public Health Association of Directors of Public Health</p> <p>Patient/ service user/ carer participation/ representation Patients Association Carers UK Shaping our Lives</p>

³² These were limited to 45 minutes for any one organisation/ network.

³³ The counts are of independent initiatives, not the number of products or activities within that initiative. So if an organisation embeds NICE recommendations in its practice summaries, this is counted as one initiative regardless of the number of practice summaries which refer to NICE guidance.

³⁴ The counts of activities excluded (i) endorsing activities (ii) critiques of the implementation of NICE guidance, for example contributions to public discussions and consultations (iii) membership of the NICE Implementation Collaborative, membership of NICE standing committees/ stakeholder groups, and membership of Guidance Development Groups for individual guidance/ quality standards.

* We searched only a small number of the many professional regulators; professional organisations/ Royal Colleges/ Learned societies, topic-specific organisations, and organisations representing patients, service users and carers.

4.2.4 What are the common patterns between the results of the web searching and the studies included in the scoping review?

- The findings from both approaches were consistent in suggesting that national level initiatives have the potential to create large scale communities of practice, as well as to spur the development of more localised initiatives. Strategic Clinical Networks, Academic Health Science Networks, Collaborations for Leadership in Applied Health Research and Care, and several of the Royal Colleges (notably the Royal College of Psychiatrists) were all actively engaged in activities that were essentially mobilising national communities of practice aimed at improving patient care, with implementation of NICE guidance an underlying theme.
- The scoping review identified that national e-learning schemes appear to be feasible to implement, but data were lacking on effectiveness. E-learning - mainly in the form of toolkits published online - were prevalent across many organisations, with NICE guidance commonly embedded within toolkits. One such initiative, the Essential Knowledge Update and Challenge Programme developed by the Royal College of General Practitioners, was deemed award winning at the 2014 eLearning Awards. As was the case for the studies included in the scoping review, data on the impact of these activities in changing behaviour around implementation were generally unpublished.
- The scoping review identified national initiatives as catalysts for change in leadership and management practices in organisations. This was not necessarily supported by the findings of the web searching, where many of those organisations that would be expected to be supporting commissioners and managers in implementing NICE recommendations and standards, actually had a low profile of activities. These organisations included the Association of Directors of Children's Services; Association of Directors of Public Health; Association of Directors of Adult Social Services; NHS Providers; Faculty of Medical Leadership and Management, and the Society of Local Authority Chief Executives.

5. Summary and Research Recommendations

This scoping review has revealed that the literature on NICE guidance and levels and processes of implementation is large but fragmented. The implementation landscape can be characterised as having peaks of activity around audit and feedback, consensus processes, educational meetings and educational materials. The landscape can also be described as being composed of a large body of local level implementers who conduct quality improvement and guidance implementation activities that vary in methodological quality and focus, some of which conduct an evaluation of effectiveness or process. In contrast, a smaller body of national stakeholders exist who conduct a variety of activities, including bespoke activities, but often do not evaluate the success of these. In this sense there is much that larger stakeholders can learn from local level implementers. Exceptions were encountered and green shoots identified at the national level, which are summarised at the beginning of both results chapters and include the creation of national communities of best practice.

There are limitations to the results presented in this report, which represented a rapid review of the literature conducted within the space of three months. One of the main limitations is that this report deliberately focussed away from the multitude of implementation activities that are being conducted by NICE itself, and in this sense this report is an incomplete depiction of the implementation landscape. The second main limitation is publication bias, which has been mentioned throughout the report, but is likely to mean that we are unable to identify those implementation interventions that are less likely to change practice. This was perhaps compounded by limitations to the search, and a larger exercise could have involved: greater levels of consultation with experts, in particular the National Collaborating Centres, for their knowledge of relevant studies; a greater focus on backward and forward citation searching; and closer examination of NICE's databases of local practice case studies and uptake database (studies measuring the uptake of NICE guidance) for empirical evidence on implementation interventions. There are also limitations to the review methods, and data extraction may have benefitted from two reviewers screening and data extracting from each reference (although this was piloted before independent screening). We did not conduct formal quality appraisal of the included studies.

Production and passive dissemination of guidance alone is unlikely to lead to implementation and change in clinical practice (Azocar et al., 2003). Even where there is high agreement with the content of the guidance, there is frequent and substantial 'leakage' in the numbers who agree with guidelines, to those who adopt, and finally to those who adhere to guidelines (Mickan et al., 2011). There is no failsafe mechanism or activity around implementation of guidance, and while there exist a large body of literature in this arena, there remain a number of gaps in the literature, which are translated here into seven key research priorities.

Research Question 1	How do we stimulate leaders, managers and commissioners to engage with guidance implementation?
Potential Method	Survey of membership organisations aiming to establish levels of awareness, knowledge, acceptance and supportive behaviours in the implementation of NICE guidance. Such a survey could target members of the Association of Directors of Children’s Services; Association of Directors of Public Health; Association of Directors of Adult Social Services; NHS Providers; Faculty of Medical Leadership and Management, NHS Clinical Commissioners, and the Society of Local Authority Chief Executives. This focus could also help to engage national stakeholders currently not active in this field.
Rationale	Corporate commitment is linked to many key implementation markers and where it is lacking, implementation will not be very far advanced (Mears et al., 2008). Despite the importance of management and leadership in implementing NICE guidance, there is little focus on this aspect in the research literature or initiatives found through the web searches.

Research Question 2	How does the process of implementing NICE guidance affect systems of delivering care to patients/service users?
Potential Method	Aiming to establish the range of stakeholders involved in implementing NICE guidance within organisations. Organisational case studies incorporating documentary research, including examinations of internal policy documents and strategies, and repeated interviews with different stakeholders over a period of implementing NICE guidance.
Rationale	There is a need for further research into how the implementation of guidance impacts upon systems and individual actors within those systems. Such an approach should build upon some of the qualitative studies included in this review, for example Llewellyn et al. (2014), and extend these findings to develop theories of how guidance implementation is both an activity conducted by individuals and the systems and contexts in which they operate.

Research Question 3	What value could extending accreditation (for organisations and/or practitioners) to cover guidance implementation bring?
Potential Method	Aiming to explore the benefits and feasibility of accreditation in implementing NICE guidance. Potential methods could include a scoping review focussed on different forms of accreditation which are linked to guidance, and the benefits and challenges of administering accreditation systems, with further stakeholder interviews on the feasibility, the ethics and the rationale for such a system.
Rationale	One study provided some indicative evidence on the benefits that accreditation could in increasing implementation and in raising levels of patient care. NICE already supports an accreditation system for the production of guidance by other organisations; this research could begin to explore the feasibility of extending this process and how accreditation should be established across different forms of guidance.

Research Question 4	Do practitioner-led and externally-led implementation activities have different impacts on guidance implementation - exploring the impacts of communities of practice compared to educational outreach meetings.
Potential Method	A cluster (e.g. CCG, Trust or Local Authority) randomised controlled trial to establish effectiveness and comparative effectiveness (compared to control conditions). An RCT is a particularly valuable approach in implementation research as across the body of evidence as a whole, selection effects are likely to have considerable impact. Alongside the RCT, a process evaluation should be conducted examining implementation and adjunct processes such as leadership and management support.
Rationale	Both educational outreach meetings and communities of practice were deemed to be effective strategies in increasing levels of implementation in the literature and in studies focussed on NICE guidance, albeit based on a small number of studies. However, it is unclear whether a more prescriptive model, as is the case for educational outreach meetings, is

	more effective than a more organic and practitioner-led model. This is an important issue as most implementation activities identified in this review taking place locally tend to be practitioner led while success is measured against national targets.
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Research Question 5	What are the impacts of e-learning on levels of guidance implementation, and what is the impact of the amount of interactivity and tailoring of content to the user?
Potential Method	A cluster (e.g. CCG, Trust or Local Authority) randomised controlled trial to establish effectiveness. Such a trial could be conducted across a variety of settings to understand whether e-learning is a more suitable option in some settings, for example social care settings, than others. As was the case above, a process evaluation should be conducted alongside an RCT to help to identify facilitators and barriers to effectiveness and implementation.
Rationale	E-learning was viewed as easily implementable at a national level. However, there was a dearth of research exploring changes in implementation behaviour directly attributable to participation in e-learning. Further research into the impacts of e-learning should be prioritised as it is relatively low cost to implement and its potential to be developed across the suite of NICE guidance.

Research Question 6	What are the characteristics of audit and feedback that are associated with increased guidance implementation across clinical, public health and social care settings?
Method	This research would aim to build on the tentative findings in the current scoping review through conducting a focussed systematic review with a broader focus than on NICE guidance alone (in order to better capture trends in public health and social care)
Rationale	This activity would build on the findings of the current review through including a sub question exploring whether the absence of theory and rationale in audit and feedback equate

	to a lower impact on implementation. There is a need to understand how audit and feedback improve levels of implementation outside clinical settings and to establish the mechanisms of impact.
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Research Question 7	What is the impact of NICE's own implementation activities?
Method	Methods would be appropriate to the type of implementation activity being evaluated. For example, a cluster randomised trial might be carried out to evaluate the impact of new implementation tools which have not yet been disseminated (as described above for e-learning); and for the external support given by the Field team and the Adoption team (as described above for externally led support) which could be considered forms of 'educational outreach'. These would be accompanied by a longitudinal qualitative research study assessing mechanisms of change and the acceptability and accessibility of these activities.
Rationale	This reflects the gap in published evaluations of NICE's own implementation resources and tools.

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Appendices

Appendix 1 - Example search syntax

Example (PubMed) search for literature:

Purpose/Challenge

(improve implementation in professional practice)

#1 MeSH terms Health Plan Implementation

#2 MeSH terms Compliance

#3 MeSH terms Guideline Adherence

#4 MeSH terms Professional Practice

#5 (implement* or aware* or uptake or up-take or “take up” or take-up or adhere or adhered or adherence or adopt* or comply or complies or compliance or “behaviour change” or fidelity or adherence or use or inform or “decision-making” or decision)

#6 (#1 or #2 or #3 or #4 or #5)

Intervention method

(developed from a combination of the initial logic model, EPOC taxonomy 2002 and EPOC taxonomy 2015)

#7 MeSH terms Education, Professional, Retraining

#8 MeSH terms Education

#9 MeSH terms Benchmarking

#10 MeSH terms Best practice analysis

#11 MeSH terms Nursing Faculty Practice

#12 MeSH terms Management Quality Circles

#13 MeSH terms Quality Assurance

#14 MeSH terms Quality Improvement

#15 MeSH terms Quality Indicators

#16 MeSH terms Quality of Health Care

#17 MeSH terms Clinical Audit

#18 MeSH terms Information Dissemination

#19 MeSH terms Evidence-Based Practice

#20 (Training or “Professional Development” or CPD or Education or “education material” or “education materials” or “educational material” or “educational materials” or “outreach visit” or “outreach visits” or “local consensus” or “education meeting” or “educational meeting” or “education meetings” or “educational meetings” or “local

opinion leader” or “local opinion leaders” or “patient modelled intervention” or “patient mediated interventions” or Campaign* or “Performance Management” or Monitoring or “Community of practice” or “Communities of practice” or “practice community” or “practice communities” or “Quality Framework” or “Quality Frameworks” or “Quality Assessment” or “Quality Improvement” or “Implementation guidance” or “Implementation guideline” or “Implementation guidelines” or “Opinion leader” or “Opinion leaders” or “Professional Network” or “Professional Networks” or “Practice Network” or “Practice Networks” or Audit* or feedback or “Organizational culture” or “Organisational culture” or Reminder* or Marketing or “Mass media” or “Real world data” or “Real-world data” or “guidance development” or “Professional conduct” or “professional standard” or “professional standards” or affiliation or “Professional Body” or “Professional Association” or “Royal College or Benchmarking” or “Best practice analysis” or “academic detail” or “academic detailing” or “implementation tool” or “implementation tools” or “implementation support”)

#21: #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

Implementation of what

#22 MeSH Guidelines as topic

#23 MeSH Practice Guidelines as topic

#24 MeSH Clinical Practice Guidelines

#25 guidance or guidelines or guideline

#26 #24 or #25

Implementation of whose guidance

#27 “National Institute for Health and Care Excellence” or “National Institute for Clinical Excellence” or “National Institute for Health and Clinical Excellence” or NICE or “Social Care Institute for Excellence” or SCIE or “National Collaborating Centre

Appendix 2 - Characteristics of studies in the scoping review in which audits were undertaken

Name	Area	EPOC Category	Subject area	NICE Guidance topic	Overview of problem/ rationale	Overview of strategy	Details on how quality improvement measures selected	Were improvements observed
(Agha et al., 2012)	Local	Targeted at individuals/workers: audit and feedback; consensus processes	Clinical - Parkinson's	Parkinson's Disease: Diagnosis and Management in Primary and Secondary Care (CG035)	Guidance adherence challenging in clinical practice, and clinicians may not be exhibiting referral practices in line with NICE guideline recommendations	After initial audit, new pro-forma introduced and placed in prominent places.	Unclear method for selection of intervention or theory used for implementation	Yes - Uptake of the NICE criteria improved to 100% on all criteria measured
(Baskind et al., 2010)	National	Targeted at organisations: audit and feedback; change in organisational culture	Clinical - mental health	NICE 2005 CG25 Violence: short-term management for over 16s in psychiatric and emergency departments	Royal College of Psychiatrists found that lack of uptake was widespread when conducting National Audit of Violence.	Development of an accreditation programme: Accreditation for Acute Inpatient Mental Health Services (AIMS)	Conceptual framework described based on accreditation process	Unclear; clinical outcomes not reported in study - but process of implementation successful
(Bateman et al., 2013)	Regional	Targeted at individuals/workers: audit and feedback; local opinion leaders; educational materials	Clinical - venous thromboembolism	NICE 2010 CG92: Venous thromboembolism (VTE): reducing the risk for patients in hospital	Prevention of VTE has been identified as a major health need.	This is an observational study describing quality improvement programme across four hospitals. All hospitals created dedicated multi-disciplinary VTE committees with the consultants and clinical managers as champions; All hospitals conducted regular audits; Training in VTE risk and prophylaxis was included in the staff/trust induction of all hospitals and education was made mandatory in one.	Observational - Unclear method for selection of intervention or theory used for implementation (not described for any of the included sites)	In part - increases in risk assessment were documented but no change in prescribed prophylaxis
(Child et al., 2013)	National - evaluated at 4 sites in the South West	Targeted at individuals/workers: audit and feedback Targeted at organisations: forms of financial incentives ³⁵	Clinical - venous thromboembolism	NICE 2010 CG92: Venous thromboembolism (VTE): reducing the risk for patients in hospital	CQUIN aimed to reduce some of the pressures on NHS commissioners who were balancing the need to secure high quality services and achieving best value for money. CQUIN enabled reward for meeting targets set as	CQUIN focussed on VTE because of its high impact on the health service; quality improvement was aligned with NICE guidance	Details of how and why CQUIN focussed on DVT but implementation theory on impact of financial incentives not discussed	Yes - Results disaggregated by hospital but all exhibited improvement. However, difficulty in attributing individual or ward changes in performance to CQUIN

³⁵ Note - this does not appear in the original EPOC 2015 criteria (but does in the 2002 criteria)

					part of quality improvement schemes			
CLAHRC ³⁶ Greater Manchester (2011) (CLAHRC CKD Collaborative, 2010)	Regional	Targeted at individuals/workers: audit and feedback; communities of practice	Clinical - nephrology	National clinical guideline for early identification and management in adults in primary and secondary care (CG73)	Low uptake of guidance on blood pressure monitoring in primary care	Audit of performance and establishment of collaborative network to improve Chronic Kidney Disease (CKD) outcomes	CKD Collaborative uses a method called the Breakthrough Series (Institute of Healthcare Improvement in the USA). The method draws on two main principles: rapid cycle change using Plan-Do-Study-Act (PDSA) cycles and collaboration between participants for shared learning.	Yes - increase from 23% of patients being tested to 78% after a year
(Cotton, 2013)	Local/Regional	Targeted at individuals/workers: audit and feedback; skill mix changes; local opinion leaders	Clinical - rehabilitation on after critical illness	Rehabilitation after Critical Illness (CG83)	Complications following critical illness has historically been poorly assessed and managed	Small patient audit conducted to assess baseline position. Critical care network director appointed a passionate and experienced champion to assess baseline performance, make recommendations, provide knowledge and assistance to improve uptake of guidelines.	Drew on NICE implementation guidance: 'How to put NICE guidance into practice'	Unclear; clinical outcomes not reported in study - but process of implementation successful
(Cracknell, 2015)	Local	Targeted at individuals/workers: audit and feedback; educational meetings; local consensus processes	Clinical - mental health	Guidelines on the initial management of Self-harm in A+E (CG16)	A&E is a challenging environment for appropriate management of self-harm and suicide and uptake of NICE guidance can be low	Audit and feedback and development of departmental training, posters and changes to pro-forma in Emergency Departments	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-compliance undertaken at each staged intervention	Partially. Documentation of psychosocial history improved greatly (from 14% to 42%), but levelled out afterwards
(Croxford et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; local consensus processes	Clinical - venous thromboembolism	Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital (CG92)	Baseline audit showed weak uptake of NICE guidance	New pro-forma with a tick-box design developed after consultation with relevant stakeholders	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Partially. Frequency of assessments increased after implementation with between 36% and 85% of all patients being assessed for VTE risk post intervention. Fluctuations reported in usage dependent on resources.
(da Costa et al., 2011)	Local	Targeted at individuals/workers: audit and feedback; educational meetings	Clinical - mental health	Depression: management of depression in primary and secondary care - (CG23)	Baseline audit showed weak uptake of NICE guidance on three key areas	Implementation of an action plan devised to address areas requiring improvement. Teaching and feedback session incorporated into the trust academic meeting and attended by professionals. Disseminated findings by e-mail.	Unclear how action plan developed or theory used for implementation	Yes - significant improvements observed in uptake of guidance on areas previously with high levels of non-compliance

³⁶ Note - CLAHRC is a network of collaborations between health providers, decision-makers and academics working on applied health research projects.

(Daum, 2013)	Local	Targeted at individuals/workers: audit and feedback;	Clinical - venous thrombolism	Venous thromboembolic diseases: the management of venous thromboembolic diseases and the role of thrombophilia testing (CG144)	Recognised that there were poor procedures around diagnosis of venous thrombosis	A new investigation pathway and pro-forma were introduced into the department. Audit was incorporated into PDSA process	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - uptake across indicators increased substantially; for example documentation of risk scores increased from 9% of cases at baseline to 46%.
(De Silva et al., 2012)	Local	Targeted at individuals/workers: audit and feedback; educational meetings; Targeted at organisations: skill mix changes	Clinical - diabetes	Diabetes in Pregnancy (CG 63)	Baseline audit showed weak uptake of NICE guidance	Phased plan: Phase 1 involved: (1) discussion regarding rapid referral; (2) designating a midwife to co-ordinate referral of patients. Further changes implemented to address issues. Phase 2 changes involved: (1) designating an Ophthalmology Fail-safe officer; (2) Implementing electronic communication between departments; (3) block booking of follow up appointments (4) patient information leaflet; (5) improving feedback of screening outcomes and follow up plans.	Unclear processes for design of phases or theory used for implementation, although element of adaptation implemented	Yes - number of patients seen according NICE guidelines increased from 19% at baseline to 72% after implementation of both phases
(Dong et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; educational materials	Clinical - cancer	Early and locally advanced breast cancer: Diagnosis and treatment (CG80)	Baseline audit showed weak uptake of NICE guidance	Phased approach implemented: Findings of baseline audit were presented and discussed at the local general surgical audit meeting. Identified that the most important aim was to disseminate guidelines and educate clinicians to follow them. Audit results disseminated widely and posters constructed	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - number of patients seen according NICE guidelines increased from 38% at baseline to 90% after implementation
(Jajawi et al., 2016)	Local	Targeted at individuals/workers: audit and feedback; Targeted at organisations: integration or changes in services or pathways	Clinical - mental health	Psychosis and schizophrenia in adults: prevention and management (CG178)	Baseline audit showed weak uptake of NICE guidance	Establishment of new physical health clinic service	Unclear	Unclear although reported improvement in compliance
(Gill et al., 2014)	National (potential)	Targeted at individuals/workers: audit and feedback; monitoring performance in delivery	Clinical - child health	Various: Included potential elements from 37 NICE guidelines and 11 SIGN guidelines	Developing quality indicators for child health mapped derived from guidance as the UK Quality Outcomes Framework	All guidelines systematically searched and recommendations assessed against defined criteria to evaluate potential as indicators.	Method employed devised by the RAND organisation	Process measures only

					largely excludes child health	Panel convened to moderate the results		
(Gerakopoulos, 2015)	Local	Targeted at individuals/workers: audit and feedback; consensus processes; educational meetings	Clinical - venous thromboembolism	Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital (CG92)	The most important element of VTE risk assessment strategy is to assess all patients for VTE on admission	Following baseline audit, a new pro-forma was introduced and teaching sessions organised for relevant doctors	Method of identifying quality improvement actions not specified and unclear theory for implementation	Yes - significant increase from 56% uptake at baseline to 92-93% in following audits
(Green et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; Targeted at organisations: skills mix changes; changes in medical equipment	Clinical - screening	Familial hypercholesterolaemia (QS41)	Fewer than 15% of familial hypercholesterolemia (FH) cases diagnosed, representing a major gap in coronary heart disease prevention.	Audit tool developed according to RCGP/NICE criteria and implemented in electronic systems with decision-support software. Following baseline audit, nurse-led clinics developed	Method of identifying quality improvement actions not specified and unclear theory for implementation, although standards of care for clinics themselves stated	Yes - significant increases in the numbers screened and significant decreases in the numbers thought to be at risk and unscreened
(Griffiths et al., 2005)	Regional	Targeted at individuals/workers: audit and feedback; local consensus processes; educational materials; educational meetings; consensus practices	Clinical - arthritis	Guidance on the use of cyclo-oxygenase (Cox) II selective inhibitors (TA27)	Baseline audit showed weak uptake of NICE guidance	National guidance released and local implementation group formed (before first audit) of key staff. After first audit. Inappropriate prescribing tackled through strategies such as review clinics, education sessions in primary and secondary care and through ensuring clinician access to the guidance, algorithm, patient information leaflets and audit results	Sheffield model	In part - based on interim results - uptake of guidelines increased by 20% over a period of six months
(Hall et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; educational meetings	Clinical - emergency medicine	Acutely ill adults in hospital: recognising and responding to deterioration (CG50)	Baseline audit showed weak uptake of NICE guidance: discharge summaries consistently lacked essential criteria	Phase approach. Phase 1: Audit results presented to the critical care departmental meeting and discussed. Discharge summary pro-forma modified. Teaching sessions delivered and feedback sought on pro-forma. Phase 2: Further review of discharge summary (pro-forma) was conducted and summary was then distributed.	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - Significantly improved uptake of NICE guidelines and positive staff feedback
(Hammond, 2013)	National	Targeted at individuals/workers: (i) educational materials; (ii) communities of practice	Clinical - diabetes	NICE Technology Appraisal 151: Continuous subcutaneous insulin infusion for the treatment of diabetes (review).	Insulin pump therapy is an effective and safe method of insulin delivery for people with diabetes as stated in NICE guidance, although	Commissioned clinician-led audit of insulin pump services and the creation of an Insulin Pump Network. Development of an Insulin Pump Network to promote uptake and	Actions followed the creation of an Insulin Pump Stakeholder Group. Underlying theory for creation of network not specified	Unclear - outcome data not presented in paper

					access is geographically patchy	level inequalities in access. Two main strategies: development of a website and online forum; formation of network meetings to strengthen network ties and promote discussion		
(Henfrey, 2015)	Local (evaluative); National (programme)	Targeted at individuals/workers: audit and feedback;	Clinical - mental health	Various (addressed through Improving Access to Psychological Therapies)	Baseline audit showed variable compliance	Feedback from first audit and patient directed posters and information leaflets	Unclear	Yes - improved uptake of guidance
(Hughes and Kosky, 2007)	Local	Targeted at individuals/workers: audit and feedback; educational meetings; local consensus processes	Clinical - mental health	Self-harm in over 8s: short-term management and prevention of recurrence (CG16)	Baseline audit showed low compliance	Following concerns raised in baseline audit, a new pro-forma and educational materials were introduced	Involvement of stakeholder group. Strategies for selecting quality improvement interventions unclear and no underlying theory for quality improvement named	Yes - significant improvements in the collection of information needed to conduct risk assessments on patients (from 0% on one indicator to 98% at re-audit)
(Royal College of Physicians, 2011); (Preece et al., 2012)	National	Targeted at individuals/workers: audit and feedback; various other strategies described	Public health - workplace health	Various guidelines including: (i) Workplace health: long-term sickness absence and incapacity to work (PH19); (ii) Mental wellbeing at work (PH22); (iii) Smoking: workplace interventions (PH5); (iv) Physical activity in the workplace (PH13)	A healthy workforce contributes to better outcomes for organisations. A number of reviews have highlighted the role of poor NHS workplace health practices as contributory factors to poorer patient outcomes.	Reports on two waves of an organisational audit conducted by RCP with a specific focus on identifying best practice in the implementation of NICE guidance. Takes many forms including: monitoring performance in delivery; continuous quality improvement; educational games; educational materials; educational meetings. Note: board engagement and support is a specific domain that is measured	Unclear - individual organisations developed multiple ways of improving uptake	In part - summary scores showed substantial improvement in overall performance: median scores increased from 59.2 in the first round to 67.2; however there was no change in the median score for 'Board engagement' (83.3 at both points).
(Irvine and Paterson, 2006)	Local	Targeted at individuals/workers: audit and feedback; reminders; educational meetings	Clinical - venous thromboembolism	SIGN/NICE	VTE is a significant cause of hospital admissions	Baseline audit showed low levels of care. Quality improvement measures implemented including feedback sessions and the insertion of reminders in drug prescription notes	Strategies for selecting quality improvement interventions unclear	Yes - large improvements noted
(Jani et al., 2012)	Regional	Targeted at individuals/workers: audit and feedback; local consensus processes	Clinical - cancer	Referral Guidelines for Suspected Cancer. (CG27)	High prevalence of diagnostic delays in UK cancer screening	Audit and introduction of pro-forma to reduce referral times	Strategies for selecting quality improvement interventions unclear and no underlying theory for quality improvement named	In part - uptake rates after the introduction of pro-forma ranged between 50-90%. Where pro-forma was used, this was associated with high rates of compliance
(Jones et al., 2015); (Preece et al., 2012)	National	Targeted at individuals/workers: audit and feedback; consensus processes; educational meetings; tailored interventions	Public health - workplace health	Various guidelines including: (i) Workplace health: long-term sickness absence and incapacity to work	A healthy workforce contributes to better outcomes for organisations. A number of reviews have highlighted the	Based on the first round of the audit, investigators identified good practice. They then interviewed members of these trusts, informed by the	Tailored intervention developed based on identified good practice	Yes - Median improvement in scores between rounds 1 and 2 was statistically significant except where baseline score was high.

				(PH19); (ii) Mental wellbeing at work (PH22); (iii) Smoking: workplace interventions (PH5); (iv) Physical activity in the workplace (PH13)	role of poor NHS workplace health practices as contributory factors to poorer patient outcomes.	theoretical domains framework, to identify barriers and facilitators and documented the findings. They then used this information to develop workshops with low scoring trusts. The remaining trusts just received the written feedback from the first audit round		
(Koris and Hopkins, 2015)	Local	Targeted at individuals/workers: audit and feedback; local consensus processes	Clinical - anaesthesia	Preoperative tests for elective surgery (CG3)	Large discrepancies uncovered between preoperative assessment clinic findings and same day anaesthetic assessment among some groups of patients	Audit integrated into quality improvement systems. Phased approach involving introduction of written guidelines, pro-forma, and pre-operative risk 'calculator'	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - after interventions, 96% of patients were compliant for history (vs 68% at baseline), 94% for examination findings (vs 76%), 88% had the correct choice of preoperative investigations (vs 32%)
(Latoo et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; educational materials Targeted at organisations: skill mix changes; changes in medical systems or equipment	Clinical - mental health	Psychosis and schizophrenia in adults (QS80)	Anti-psychotic drugs linked with metabolic changes that need monitoring. Study draws upon two sets of guidance	Initial audit findings discussed and specialist project group formed. Educational materials developed and disseminated. Specialist database created	Plan-Do-Study-Act (PDSA) cycles implemented	Yes - substantial improvements for screening across known risk factors
(Leung et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; educational materials; educational meetings	Clinical - screening	Use of perioperative tests (CG3)	Guideline implementation found to be poor	After initial audit two interventions were implemented to optimise compliance	Method of choice for quality improvement actions not specified	Yes - post intervention full compliance achieved
(Mace and Taylor, 2011)	Local	Targeted at individuals/workers: audit and feedback; educational materials	Clinical - mental health	Bipolar Disorder: The Management of Bipolar Disorder in Adults, Children and Adolescents in Primary and Secondary Care. (CG38)	Valproate should not routinely be prescribed for women of childbearing age; if prescribed, contraception should be ensured and the risk of taking valproate during pregnancy should be explained to the patient.	Audit was performed in five stages: baseline audit and feedback, implementation of a quality improvement programme, re-audit and feedback of results, a second quality improvement programme and final audit. Quality improvement consistent of production and dissemination of information sheets	Unclear - but baseline audit integrated with quality improvement programme	Yes - Significant improvement recorded between baseline and final audit in rates of information provision (10% v. 63%), contraceptive use (15% v. 38%) and folate prescription (3% v. 35%)
(Majumder et al., 2013)	Local	Targeted at individuals/workers: audit and feedback; educational	Clinical - mental health	Depression in children and young people: identification and management (CG28)	Improve level of care for the initial management of children and young	Involved baseline audit and modification of pro-forma, developing educational	Method of choice for quality improvement actions not specified and unclear theory for implementation	In part - most indicators exhibited improved uptake of NICE guidance, but some exhibited no change, and some exhibited negative changes

		materials, consensus processes			people with moderate to severe depression in secondary care	materials and training sessions		
(Minshall et al., 2011)	Local	Targeted at individuals/workers: audit and feedback; educational meetings	Clinical - epilepsy	The epilepsies: The diagnosis and management of the epilepsies in adults and children in primary and secondary care (CG20)	Improve the levels of inappropriate therapeutic drug monitoring (TDM) taking place	Two hour tutorial (educational intervention) developed after first audit to improve compliance	Method of choice for quality improvement actions not specified and unclear theory for implementation	In part - declines observed in some practices although levels of decline uneven
(Minshall et al., 2013)	Local	Targeted at individuals/workers: audit and feedback; reminders	Clinical - epilepsy	The epilepsies: The diagnosis and management of the epilepsies in adults and children in primary and secondary care (CG20)	Improve uptake of vitamin D and calcium supplements among patients prescribed anti-epileptic drugs	After an initial audit, a computer reminder was added to electronic health records. This was trialled in all practices; half of practices received additional written recommendations	Method of choice for quality improvement actions not specified and unclear theory for implementation	In part - no change was observed for practices receiving reminder alone; significant improvement observed for practices receiving written recommendation and computer reminders
(Mitchell and Lawes, 2008)	Local	Targeted at individuals/workers: audit and feedback; Educational meetings; Educational materials	Clinical - screening	Falls in older people: assessing risk and prevention CG161	Weaknesses identified in levels of awareness of falls	Audit and feedback implemented alongside CD Rom and self-directed training as well as group learning sessions	Method of choice for quality improvement actions not specified and unclear theory for implementation	Process evaluated but not outcomes
(Onalaja et al., 2008)	Local	Targeted at individuals/workers: audit and feedback; consensus processes	Clinical - mental health	Guidance on the use of electroconvulsive therapy (TA59)	Need to identify the benefit of developing a new care pathway	Develop a new care pathway for patients with severe mental health problems	Unclear - [Abstract only]	In part - Use of a care pathway enhanced aspects of the clinical practice of ECT, although the overall effect was inconsistent.
(Pasha et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; reminders	Clinical - mental health	Psychosis and schizophrenia: management (CG82)	Anti-psychotic medicines can interfere with metabolic processes and the physical health of patients	Phased approach implemented; after initial audit a prompt/reminder sheet was trialled across different iterations	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - demonstrable improvement across 10/11 indicators
(Patel et al., 2013)	Local	Targeted at individuals/workers: audit and feedback; Educational meetings	Clinical - venous thromboembolism	Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. (CG92)	Extended venous thromboembolism prophylaxis (EVTEP) with adjunct medicines for 28 days following surgery for cancer significantly reduces venous thromboembolic events compared to a shorter course, and is now recommended practice	A number of steps were in place to encourage EVTEP usage at baseline audit, but uptake was found to be low. As there were a number of reminders already in place, an educational intervention was put into place. This consisted of short educational presentations to specialist nurses, pharmacists, junior doctors, and staff in pre-operative assessment clinics. Emails were sent to all junior doctors and surgical trainees informing them of EVTEP guidelines and audit results.	Method of choice for quality improvement actions not specified and unclear theory for implementation	Yes - results of the second and third audit cycles showed 100% of patients received treatment according to guidelines

(Rafi et al., 2013)	Local	Targeted at individuals/workers: audit and feedback;	Clinical - cancer	Familial breast cancer: The classification and care of women at risk of familial breast cancer in primary, secondary and tertiary care (CG41)	Primary care has a role in prevention of breast cancer through promoting awareness and aiding detection and early referral of suspected cancers. This involves collecting data on antecedent risk factors.	Baseline audit data helped to form an action plan and workshops and educational meetings were held at general practices	Method of choice for quality improvement actions not specified and unclear theory for implementation, although a literature review was conducted on potential intervention points and models	In part - recording of some risk factors improved (alcohol and smoking) but not others (family history of cancer and lifestyle factors)
(Ryton and Liddle, 2009)	Local	Targeted at individuals/workers: audit and feedback; local consensus processes; monitoring performance in delivery	Clinical - Parkinson's disease	Parkinson's disease: diagnosis and management in primary and secondary care (CG35)	Rationale based on collaboration being underlying factor driving the implementation of guidelines	Collaboration of local stakeholders including patients formed. Devised a plan based around a local implementation tracker - includes three key sections; the NICE recommendations, the current position and the Sheffield recommendations. Audit information included in the implementation tracker. Specific actions include rapid access clinic slots and development of educational sessions	Sheffield approach constitutes an approach to implementation in of itself	Unclear - paper reports on process not clinical outcomes
(Patton and O'Hara, 2013)	National	Targeted at individuals/workers: audit and feedback; local opinion leaders	Public health - alcohol use	Alcohol-use disorders: prevention (PH24)	The Emergency Department (ED) is an ideal location to offer help and advice to hazardous drinkers to reduce their consumption. NICE guidance recommended 'the use of screening tools and the delivery of brief advice in the ED'	The study itself reports on the results of national audits; however it has some focus on the impact of 'alcohol champions'	Unclear - this was based on national audits but the rationale for alcohol champions not included in this published study	Yes - for alcohol champions - there was a significant association between the presence of an alcohol champion and access to online training ($p < 0.01$) and the presence of an alcohol champion and the provision of brief advice in the ED ($p < 0.01$)
(Pratt and O'Malley, 2007)	Local	Targeted at individuals/workers: audit and feedback; Targeted at organisations: organisational culture	Various	Various	Reorganisation and mergers of health services necessitated need to consolidate audit processes	A new group was established called the NICE Review Group (NRG). NRG consisted of key staff to oversee the appraisal and monitoring processes and report issues and progress. NRG devised new procedure for ensuring implementation	Unclear	Unclear - process only described; no patient data or uptake data included in study
(Roberts et al., 2010)	Local	Targeted at individuals/workers: audit and feedback; education meetings	Clinical - COPD	Chronic obstructive pulmonary disease in over 16s: diagnosis and management	Levels of COPD significantly higher in Salford so greater need to ensure standards of care	Clinical audit was used to evaluate success of service reorganisation. Service reorganisation is not reported to have been	Unclear. Audit appears to be a facilitator of service redesign rather than audit serving as a catalyst	Yes - based on early findings - for example reductions in unscheduled hospital admissions for COPD

		Targeted at organisations: service reorganisation				contingent on poor audit results (but more on disproportionate burden of COPD in population). Service redesign included greater focus on smoking cessation and community based services. Education and audit were viewed as ways of implementing service redesign		
(Sadideen et al., 2011)	Local	Targeted at individuals/workers: audit and feedback; education meetings; educational materials	Clinical - venous thromboembolism	NICE 2010 CG92: Venous thromboembolism (VTE): reducing the risk for patients in hospital	Venous thromboembolism (VTE) significant cause of mortality and morbidity and patient-level education can lower levels of complications	Audit of patient education was undertaken. Education of junior doctors and the production of patient-level information leaflets to address gaps in understanding. Re-audit took place afterwards	No formal theory used for implementation of quality improvement actions	Yes - Following the introduction of implementation measures, there was a significant improvement in patients' awareness of VTE to 90% (P < 0.01), its signs to 80% (P < 0.01), and its preventative measures to 84% (P < 0.01).
(Sen et al., 2010)	Local	Targeted at individuals/workers: audit and feedback; education meetings; local consensus processes	Clinical - COPD	Chronic obstructive pulmonary disease in over 16s: diagnosis and management (Along with BTS and SIGN)	Acute exacerbations of COPD are the second commonest cause of acute medical admission in the UK	Closure of an audit loop, with a change of practise based on national guidelines which involved developing a pro-forma and educational meetings to reinforce pro-forma usage	No formal theory described for implementation of quality improvement actions	Yes - significant increases in correct categorisation of respiratory failure and administration of oxygen
(Sharma and Downey, 2002)	Local	Targeted at individuals/workers: audit and feedback; local consensus processes	Clinical - Maternal and perinatal health	Use of Electronic Fetal Monitoring (CG17)	Examined result of quality improvement measures	Identified shortcomings in established methods and undertook a cyclical model	No formal theory described for implementation of quality improvement actions by a cyclical approach described	Yes/In part - high levels of baseline compliance existed
(Shenker et al., 2005)	Regional	Targeted at individuals/workers: audit and feedback; Targeted at organisations: integration or change in care pathways	Clinical - arthritis	Adalimumab, etanercept and infliximab for the treatment of rheumatoid arthritis (TA130)	Tumour necrosis factor (TNF) blockers are effective in the treatment of rheumatoid arthritis. However, these drugs are expensive and there is uncertainty over their long-term safety	Repeated audits used to refine a new nurse-led service. Audits have been used to monitor progress and results have been feedback.	Unclear	Unclear - data on outcomes not included or on processes beyond development
(Soni-Jaiswal et al., 2012)	Local	Targeted at individuals/workers: audit and feedback; consensus processes	Clinical - venous thromboembolism/dvt	NICE CG42 venous thromboembolism: reducing the risk	Found difficulty in using a recommended tool and developed a new tool to reduce the risk of venous thromboembolism	Prospective standards based audit implemented to monitor change resulting from use of VTE risk assessment tool	No formal theory used for implementation of quality improvement actions but cyclical process described	Yes - 100% compliance on re-audit
(Somers et al., 2005)	Local	Targeted at individuals/workers: audit and feedback; consensus processes, opinion leaders	Clinical - various	Various	A need to standardise methods of implementation identified	Model developed is described in full and included reliance on identification of opinion leaders	Developed the Sheffield model which is described in full	Yes - substantial rises in guidance compliance

(Tauro, 2014)	Local	Targeted at individuals/workers: audit and feedback; educational materials, local consensus processes	Clinical - delirium	Delirium: diagnosis, prevention and Management (CG103)	Baseline audit showed low uptake and low levels of delirium on discharge	Audit and staff survey revealed deficiencies. A multi-professional group was formed; ward based and departmental educational meetings were held. A Trust based awareness programme was also provided. Information leaflets on delirium were produced for service users. A delirium care pathway was created and monitored.	Plan-Do-Study-Act (PDSA) cycles implemented and investigations into reasons for non-uptake undertaken at each staged intervention	Yes - significant improvements in detection rates
(Tiwari et al., 2015)	Local	Targeted at individuals/workers: audit and feedback; educational meetings Targeted at organisations: skill mix changes	Clinical - fracture	Hip fracture: management (CG124)	Delayed diagnosis of hip fractures result in risk of further displacement of the fracture and increased risk of morbidity and mortality	After the initial audit the reasons for delay were identified and a quality improvement plan put into place. This included educational meetings, better use of electronic equipment, improved weekend service and emergency MSK radiologists; quicker notification between departments; improved administrative arrangements (next of kin form) with patients	Unclear theory for implementation of quality improvement actions	Yes - After implementing strategies re-audit demonstrated a 16 % improvement in patients scanned within 24 hrs.
(Truran et al., 2011)	Local	Targeted at individuals/workers: audit and feedback; consensus processes	Clinical - venous thromboembolism	NICE 2010 CG92: Venous thromboembolism (VTE): reducing the risk for patients in hospital	Surgery carries a high risk of venous thromboembolic disease with studies estimating the innate risk to be at high as 25% in general surgery patients. Prophylactic measures have been recommended in NICE guidelines to offset the risk	Introduction of new pro-forma based on WHO checklist and conforming to NICE guidelines	Unclear theory for implementation of quality improvement actions	Yes - Non-uptake of NICE VTE guidelines reduced significantly for elective and non-elective procedures
(Tugnet et al., 2013)	Regional	Targeted at individuals/workers: audit and feedback; Targeted at organisations: skill mix changes	Clinical - arthritis	Rheumatoid arthritis: The management of rheumatoid arthritis in adults (CG79)	Early initiation of therapy is recommended in NICE guidance and may offset complexity of the disease	Study is focussed on regular programme of audits and the role that designated early inflammatory arthritis clinics (EIAC) may have in implementing NICE guidance	Unclear theory for implementation of quality improvement actions	Yes - patients with arthritis attending EIACs are more likely to receive a treat-to-target approach as exhibited by significant differences across several indicators of care Note - not clear if clinics pre-date issue of guidance
(Twomey, 2006)	Local	Targeted at individuals/workers: audit and	Clinical - cancer	Referral Guidelines for Suspected Cancer	Release of national guidance viewed as	Approach involves developing local consensus and pro-forma on how to	No formal theory used for implementation of quality improvement actions	Unclear - processes described only

		feedback; local consensus processes			opportunity to review local processes	translate national guidance into locally workable guidance. Audit supports this translation process (but is not the stimulus).		
(Walsh et al., 2010)	National	Targeted at individuals/workers: audit and feedback; educational materials	Various	Self-audit	Self-audit	Self-audit	Self-audit	Process only

Appendix 3 - List of national stakeholders and regional/ local networks represented in web searching

Healthwatch

NHS Providers (previously the Foundation Trust Network)

NHS Alliance

NHS Clinical Commissioners

NHS Confederation

NHS Improvement

NHS Sustainable Improvement Team (previously part of NHS Improving Quality) in NHS England, including the NHS Improving Quality website

Patient Safety (now part of NHS Improvement)

Health and Social Care Information Centre (HSCIC)

Healthcare Quality Improvement Partnership (HQIP)

Monitor (now part of NHS Improvement)

Care Quality Commission (CQC)

NHS Trust Development Authority (NHS TDA) (now part of NHS Improvement)

Strategic Clinical Networks (SCNs)

Faculty of Medical Leadership and Management (FMLM)

Institute of Healthcare Management (IHM) (now part of Royal Society for Public Health)

British Medical Association (BMA)

General Medical Council (GMC)

Nursing and Midwifery Council (NMC)

General Pharmaceutical Council (GPC)

Medical Schools Council (MSC)

Academy of Medical Royal Colleges (AoMRC)

Royal College of Obstetricians and Gynaecologists (RCOG)

Royal College of General Practitioners (RCGP)

Royal College of Psychiatrists (RCPsych)

Royal College of Nursing (RCN)

British Association of Social Workers (BASW)

College of Occupational Therapists (COT)

British Thoracic Society (BTS)

National QI and Clinical Audit Network (NQICAN)

National Advisory Group on Clinical Audit and Enquiries (NAGCAE)

Clinical Audit Support Centre

Local Government Association (LGA)

National Association of Local Councils (NALC)
Society of Local Authority Chief Executives (SOLACE)
Royal Society for Public Health (RSPH)
Faculty of Public Health (FPH)
Association of Directors of Public Health (ADPH)
Association of Directors of Adult Social Services (ADASS)
Association of Directors of Children's Services (ADCS)
Ofsted
Association for Real Change (ARC)
Shaping Our Lives
Patients Association
Carers UK
British Lung Foundation (BLF)
Diabetes UK
Rethink Mental Illness
Academic Health Science Networks (AHSNs)
National Institute for Health Research (NIHR) including Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)
Novartis

Appendix 4 - Examples from the web searches of National Stakeholders and regional/ local networks undertaking Collaborating Activities with NICE³⁷

Supporting statements in NICE press notices; official 'supporting organisations' for individuals Quality Standards; NICE endorses other organisations' initiatives	Various	
NICE Fellowship programme and secondments / exchange schemes	College of Occupational Therapists (COT)	COT Chief Executive received the first NICE social care fellowship to help support implementation (2011). https://www.theguardian.com/society/2011/apr/13/julia-scott-chief-executive-british-association-college-occupational-therapists
	Faculty of Public Health (FPH)	National Treasures placements for public health trainees include NICE. http://www.fph.org.uk/national_treasures_placements/
	Faculty of Medical Leadership and Management (FMLM)	National Medical Director's Clinical Fellow Scheme for doctors in training includes placements at NICE. https://www.fmlm.ac.uk/professional-development/national-medical-directors-clinical-fellow-scheme
Meetings and other forms of communication between NICE and stakeholder organisations	Association for Real Change (ARC) A member of Care Providers Alliance	"Shirley, our Head of Workforce Development, and I met recently with NICE Associate Director for Social Care, Jane Silvester, along with Nicola Bent, the Programme Director for Health and Social Care and Stephen Stericker, who works with the field team engaging directly with providers. We met to talk about NICE's role which has expanded to include developing guidance and quality standards for social care" (2013). http://arcuk.org.uk/blog/arc-diary-update-11-september-2013/
	Patient Safety	Communications between Acute Kidney Injury Programme and NICE - see programme board minutes Jan and April 2015. https://www.england.nhs.uk/wp-content/uploads/2015/06/aki-140115-minutes.pdf The National VTE Prevention Programme has included the production of NICE guidance and now enables implementation of this guidance. Evaluations of a compulsory national VTE risk assessment tool and CQUIN indicator (Catterick and Hunt, 2014) are included in our scoping review. https://www.england.nhs.uk/wp-content/uploads/2013/05/vte-prev-guide-may2013.pdf
NICE contributions to organisational/ network newsletters and updates	Association of Directors of Adults' Social Services (ADASS)	NICE issues updates on published guidance/ implementation resources and role of NICE field team for London ADASS network (May 2015). http://londonadass.org.uk/wp-content/uploads/2015/01/NICE-update-for-London-ADASS.pdf
NICE is member, attends meetings of or works jointly with national/ regional/ local implementation networks	Association of Directors of Adults' Social Services (ADASS)	NICE gives presentations on social care guidance to eg London ADASS Commissioners Network (July 2015). http://londonadass.org.uk/wp-content/uploads/2015/01/Nice-update.pdf

³⁷ These examples exclude membership of NICE stakeholder groups and standing committees; and also exclude replying to consultations and membership of GDGs for the development of individual guidelines/ quality standards.

	NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)	PenCLAHRC (South West Peninsula) is working with NICE and local partners to investigate approaches nationally to disinvestment as a result of NICE Do Not Do recommendations. http://clahrc-peninsula.nihr.ac.uk/nice-implementation
	Academic Health Science Networks (AHSNs)	NICE's <i>Health Technologies Adoption Programme: Process guide for adoption support resources for health technologies</i> (2015) outlined how local organisations should be recruited for HTAP implementation projects by using the NICE website and AHSNs: "This is because AHSNs: have an active role in promoting NICE guidance in their regions; provide a link to NHS organisations; can support the spread of good practice after an adoption project has been completed." https://www.nice.org.uk/process/pmg23/chapter/5-new-adoption-projects The NICE Health Technologies Adoption Programme (HTAP), previously the NHS Technology Adoption Centre (NTAC) (see Llewellyn et al, 2014 included in the scoping review - Table 2) "will provide a more systematic approach to the adoption by the NHS of new technologies such as diagnostic and monitoring devices, surgical implants and other technologies that improve the care given to patients..... HTAP will also support the work of Academic Health Science Networks, a new tier of organisations created to improve the identification, adoption and spread of innovation in the NHS". (2013). https://www.nice.org.uk/news/article/nice-boosts-support-for-innovative-ideas
	NHS Alliance	Runs the national People Powered Improvement Network (mainly virtual/ email) which includes NICE and advises the Alliance on patient and public involvement - "The Network unites organisations and individuals around a common goal of spreading and embedding better and more responsive patient and public involvement practice in healthcare. Participants include large organisations such as NICE, National Voices and The Centre for Public Scrutiny, as well as CCG leaders, PPI and engagement professionals, providers and individuals; all of whom share an interest, experience and expertise in patient and public involvement". http://www.nhsalliance.org/members-network/people-powered-improvement-network/
	National QI and Clinical Audit Network (NQICAN)	NICE is one of the stakeholder members of NQICAN which "brings together the regional clinical audit / effectiveness networks from across England". This network links regularly with the National Advisory Group for Clinical Audit and Enquiries (NAGCAE). http://www.nqican.org.uk/ NICE is also a member of and attends/ speaks at regional network meetings, for example in London and Manchester where NICE offices are located.
Practice guidelines; Educational materials/ toolkits/ e-learning for practitioners/ providers	British Medical Association (BMA) and Royal Pharmaceutical Society (RPS)	NICE provides access for NHS practitioners to the British National Formulary (BNF) and British National Formulary for Children (BNFC) (drug compendia), published jointly by the RPS and the BMA, including through smartphone apps (2012). https://www.nice.org.uk/about/what-we-do/nice-apps-for-smartphones-and-tablets BMJ Learning has produced a series of e-learning tools for NICE. An evaluation of these (Walsh et al, 2010) is amongst the national level studies in Table 2 which were included in the scoping review.
	Royal College of GPs (RCGP) Royal College of Psychiatrists (RCPsych) And others - see NICE website https://www.nice.org.uk/	NICE endorses implementation resources produced by other organisations. e.g. RCGP/ Arthritis UK's e-learning resource <i>Core Skills in Musculoskeletal Care</i> (2016); and RCGP's <i>Practical Implications for Primary Care of the NICE guideline CG192 Antenatal and postnatal mental health</i> (2015). https://www.nice.org.uk/guidance/cg177/resources/endorsed-resource-core-skills-in-musculoskeletal-care-2373534541

	about/what-we-do/into-practice/endorsement	<p>https://www.nice.org.uk/guidance/cg192/resources/endorsed-resource-practical-implications-for-primary-care-436750670</p> <p>e.g. RCPsych with RCGP: <i>The Lester UK Adaptation of the Positive Cardiometabolic Health Resource - 2014 update</i>³⁸: NICE endorsed physical health framework with target values, monitoring schedules and intervention strategies (2014). An evaluation of its development + use in four pilot sites (Quirk et al, 2016) is amongst the national level studies in Table 2 which were included in the scoping review.</p> <p>http://www.rcpsych.ac.uk/workinpsychiatry/qualityimprovement/nationalclinicalaudits/nationalschizophreniaaudit/cmhresourceinformatio n.aspx</p>
	NHS Trust Development Authority (now part of NHS Improvement)	<p>Produced film (2014) about safe nurse and care staffing (to support NHS Trust Directors of Nursing) to which NICE and CQC contributed.</p> <p>http://www.ntda.nhs.uk/blog/2014/12/19/8521/</p>
	Many organisations	<p>Produce NICE-accredited practice guidance. NICE accredits the evidence-informed process used to produce the guidance, see https://www.nice.org.uk/about/what-we-do/accreditation.</p> <p>e.g. ADASS published a NICE-accredited practice guide (2009) <i>Practice guidance on the involvement of Independent Mental Capacity Advocates (IMCAs) in safeguarding adults</i> jointly with the Social Care Institute for Excellence .</p> <p>http://www.scie.org.uk/publications/guides/guide32/</p>
Targets/ indicators	<p>British Medical Association (BMA)</p> <p>NHS Employers</p> <p>Royal College of GPs (a key partner)</p>	<p>NICE produces a menu of indicators suitable for inclusion in the Quality and Outcomes Framework (QOF) and linked GP contract. Negotiations and decisions about which indicators are added to or removed from the QOF involve the BMA (the General Practitioners Committee) and NHS Employers.</p> <p>https://www.bma.org.uk/qofguidance</p> <p>https://www.nice.org.uk/news/press-and-media/nice-announces-new-indicators-for-improving-care-in-general-practice</p>
	Health and Social Care Information Centre (HSCIC)	<p>NICE recommends new indicators for HSCIC datasets, for example the Clinical Commissioning Group Outcomes Indicator Set; NICE is a member of HSCIC Indicator Governance Board.</p> <p>http://www.hscic.gov.uk/ccgois</p> <p>Publishes QOF business rules and online results relating to the contract for GPs, and NICE-recommended indicators are central to the QOF (see above) (NICE QOF advisory committee).</p> <p>http://www.hscic.gov.uk/qofbrv32</p>
	Diabetes UK	<p>Chairing independent group over-seeing assessments for the diabetes clinical priority area in NHS England's CCG Improvement and Assessment Framework for 2016/17, including Diabetes patients that have achieved all the NICE-recommended treatment targets: Three (HbA1c, cholesterol and blood pressure) for adults and one (HbA1c) for children (2016).</p> <p>https://www.diabetes.org.uk/Professionals/News--updates/NHS-England-announces-new-CCG-Improvement-and-Assessment-Framework/</p>
NICE speakers at other organisations' events and other organisations' speakers at NICE events	Various	

³⁸ The updated 2014 version of the Lester resource was co-produced by NHS England, NHS Improving Quality, Public Health England and the National Audit of Schizophrenia team based at the Royal College of Psychiatrists.

Professional regulation and education/ CPD	General Medical Council (GMC)	Close working with NICE and other organisations on use of medicines 'off licence' (2015). http://www.gmc-uk.org/guidance/28349.asp
	Medical Schools Council (MSC) and GMC	Worked with NICE to reduce errors in intravenous care (2013). https://www.nice.org.uk/news/press-and-media/better-education-needed-to-stop-errors-in-drip-fluid-care-and-prevent-potential-patient-harm-says-nice
Training for commissioners	Rethink Mental Illness	Implemented mental health leadership training programme for CCGs (2014) in partnership with NICE and other organisations, commissioned by DH. https://www.rethink.org/media-centre/2014/11/charity-launches-training-to-help-commissioners-improve-mental-health-services
Service regulation	Care Quality Commission (CQC)	<p>The Memorandum of Understanding between NICE and CQC (2014) lists areas where NICE and CQC plan to work together, including CQC guidance on 'fundamental standards' referring to NICE guidance/ quality standards; alignment between CQC inspection framework and NICE guidelines/ quality standards; CQC to comment during development of NICE quality standards, especially for social care; NICE guidance/ quality standards will inform CQC inspection of providers; NICE guidelines/ quality standards to be referenced in CQC handbooks for inspectors and providers; co-ordinate on communications and Parliamentary/ public affairs activities; cross-refer about serious concern within both organisations' remits; have annual discussion to agree joint priorities.</p> <p>http://www.cqc.org.uk/content/joint-working-agreements</p> <p>NICE is member of CQC Thematic Activity Strategy Board - may jointly badge thematic activity.</p> <p>NICE Chief Executive is member of CQC External Reference Group (meets annually).</p> <p>Meetings between NICE staff and CQC Chief Inspectors; also between NICE and CQC Partnership Group.</p> <p>NICE representation on CQC advisory groups for thematic reviews.</p> <p>NICE endorsing CQC thematic reviews where relate to their guidelines e.g. transitions between children's and adult services; dementia care.</p>

Appendix 5 - Guidance and implementation resources produced by the National Institute for Health and Care Excellence

The **National Institute for Health and Care Excellence (NICE)** develops national systematically-developed, evidence-based³⁹ guidance, standards and information on providing high-quality health and social care, and preventing and treating ill health. NICE guidance takes into account effectiveness, cost effectiveness, safety and social values in a climate of constrained resources. The aim is to improve outcomes for people using health and social care services. In England, NICE has a legal duty to perform certain functions as set out in the [Health and Social Care Act 2012](#) and associated 2013 statutory Regulations. It has agreements to provide specific services to Wales, Scotland and Northern Ireland.

NICE was set up in 1999 as the **National Institute for Clinical Excellence**, a special health authority, to reduce variation in the availability and quality of NHS treatments and care. The organisation merged with the Health Development Agency in 2005, and changed its name to the **National Institute for Health and Clinical Excellence**, reflecting its new remit to include public health. In April 2013, the Health and Social Care Act (2012) established NICE as an operationally independent Non Departmental Public Body (NDPB) under direction from the Secretary of State for Health. Its remit was further extended to include social care, and its name changed again to the **National Institute for Health and Care Excellence**. The organisational acronym has remained throughout these changes as NICE.

Guidance and standards

NICE produces a range of types of evidence-based guidance:

- **Guidelines**⁴⁰ make recommendations on the treatments, interventions, care and services that are suitable for most people with a specific condition or need:
 - **clinical topics** (since 1999), covering physical and mental health conditions (e.g. diabetes and anxiety; aimed at healthcare practitioners and NHS managers & commissioners; and produced by NICE's clinical National Collaborating Centres⁴¹)
 - **public health** (since 2005) to prevent ill-health and to promote and protect the health of communities (e.g. smoking, obesity, emotional health of

³⁹ NICE guidance, quality standards and other advice products are based on the best available evidence, using systematic research review and other forms of evidence and expert input. Guidance and quality standards are developed through a systematic manualised process by an independent committee of experts, including practitioners and lay members (patients, carers, service users and/or the general public), who have to declare any conflicts of interest.

⁴⁰ These were previously four types of guideline: **clinical guidelines**, **public health guidelines**, **social care guidelines**. NICE also previously published **safe staffing guidelines** (2013-14) and **cancer service guidance** (2002-2006). NICE now uses a unified process to develop all guidelines, with a unified process manual published in October 2014, and the first unified guideline published in January 2015.

⁴¹ The National Guideline Centre (NGC) is hosted by the Royal College of Physicians and overseen by the Royal College of General Practitioners, Royal College of Nursing, Royal College of Physicians and Royal College of Surgeons of England. NGC was formerly the National Clinical Guideline Centre (NCGC). The National Guideline Alliance (NGA) is hosted by the Royal College of Obstetricians and Gynaecologists. It was formed on 1 April 2016 and merged the National Collaborating Centre for Cancer (NCC-C), the National Collaborating Centre for Women's and Children's Health (NCC-WCH) and the National Collaborating Centre for Mental Health (NCCMH).

children); aimed at local authorities, practitioners in the NHS, the wider public, and private, voluntary and community sectors; and produced by NICE's Centre for Public Health

- **social care** to adults and children (since 2013); aimed at social care and health practitioners & providers (e.g. care homes and social workers), health and social care commissioners including local authorities, and people who use services and their carers; and produced by the National Collaborating Centre for Social Care.
- **managing medicines** (since 2013) about governing, commissioning, prescribing and decision-making relating to medicines.
- **Health technology guidance** on a variety of specific health treatments
 - **Technology appraisals guidance** (new and existing medicines, medical devices, diagnostic techniques, surgical & other interventional procedures, health promotion activities, and psychosocial interventions)
 - **Interventional procedures guidance** (surgical and other interventional procedures)
 - **Medical technologies guidance** (specific technologies notified to NICE by manufacturers)
 - **Diagnostics guidance** (measurements and tests used to evaluate a patient's condition, such as physiological measurements, laboratory tests and pathology tests, imaging tests, and endoscopy)

To drive an outcome-focused improvement in the quality and consistency of care, NICE helps commissioners, providers and practitioners assess performance and improve:

- Produces **Quality Standards** - these are concise sets of evidence-based statements, with accompanying metrics, designed to drive and measure priority quality improvements within a particular area of care
- Proposes a menu of indicators for potential inclusion in the Clinical Commissioning Group Outcomes Indicator Set, and the Quality and Outcomes Framework for GPs.

The status of guidance

NICE's technology appraisals have a statutory status differing from that of other NICE guidance. NICE states that "the NHS in England and Wales is legally obliged to fund and resource medicines and treatments recommended through our technology appraisal programme" within three months⁴² of the publication date. The 2013 statutory Regulations included clinical commissioning groups and local authorities (public health) within the remit of this requirement where relevant. The NHS Constitution reinforces this status of technology appraisals by stating that "You have the right to drugs and treatments that have been recommended by NICE for use in the NHS, if your doctor says they are clinically appropriate for you".

NICE's other guidance, guidelines and Quality Standards are not subject to these statutory obligations for the NHS and commissioners. NICE states that "health and social care professionals are actively encouraged to follow our recommendations to help them deliver the highest quality care. Of course, our recommendations are not intended to replace the professional expertise and clinical judgement of health professionals, as they discuss

⁴² except where specific implementation barriers exist within that period.

treatment options with their patients”. In March 2016, NICE updated its advice to practitioners on how to make decisions using NICE guidance. It emphasise the importance of person-centred care, which includes individuals’ preferences and choices, and also taking into account other professional guidelines, standards and laws.

NICE stakeholders

NICE states that its stakeholder organisations includes:

- national organisations for people who use health and social care services, their families and carers, and the public
- local Healthwatch organisations;
- national organisations that represent health and social care practitioners and other people whose practice may be affected by the guideline, or who can influence uptake of the guideline recommendations
- public sector providers and commissioners of care or services
- private, voluntary sector and other independent providers of care or services
- companies that manufacture drugs, devices, equipment or adaptations, and commercial industries relevant to public health
- organisations that fund or carry out research
- government departments and national statutory agencies

Any stakeholder organisation can register with NICE for the purposes of commenting on draft guidelines and submitting evidence for consideration. Individuals from stakeholder organisations can join NICE Committees. Stakeholder organisations also support implementation once guidance is published (see below).

Implementation of NICE guidance

NICE has a programme of implementation support to help audiences implement guidance and Quality Standards. Firstly, NICE builds its relationships with stakeholder organisations so that they (i) use their networks and influence to publicise guidance and endorse and support implementation; and (ii) embed NICE recommendations and standards in their work (for example, in their own initiatives, standards, guidance regulatory frameworks, leaflets for patients, and service contracts). Relationship building by NICE includes:

- a number of Communities and External Reference Groups/ Networks/ Panels for specific stakeholder sectors, for example, local government, general practice and social care)
- issuing regular newsletters tailored to specific audiences such as GPs, commissioners, local government and social care stakeholders
- endorsing resources produced by other organisations which support implementation of NICE guidance and standards.

Secondly, NICE produces its own summaries and implementation tools⁴³ to support local implementation of specific guidance and Quality Standards, including:

⁴³ Also called **tailored resources and support tools**.

- producing guidance/ guideline summaries and NICE Pathways (an online tool) for practitioners, and versions of guidance/ guidelines for the public
- implementation guides⁴⁴ for local organisations to help them assess implementation barriers, design local tailored implementation interventions, and create structures and processes for implementation
- Return on Investment tools for commissioners and policymakers, and other commissioning support tools
- tools for audit and service improvement (for providers and practitioners)
- educational and learning products
- local practice case study examples of quality improvement in health and social care, the [NICE Shared Learning Awards](#) celebrate the best submissions to the NICE shared learning database
- resources and practical solutions produced by NICE's **Adoption team** (formerly known as the **Health Technologies Adoption Programme/ HTAP**, and previously the **NHS Technology Adoption Centre**) to overcome barriers to the implementation of selected health technologies guidance

To offer tailored local implementation support, NICE has a **Field Team** of eight regional **implementation consultants** to help organisations put guidance into practice. The field team links with a community of local NICE **medicines and prescribing associates**, who form a community of practice and work within their own organisations and local health economies to promote high quality, safe, cost-effective prescribing and medicines optimisation.

⁴⁴ *Into Practice and How to change practice: understand, identify and overcome barriers to change*

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