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NIHR HS&DR evidence synthesis centres: achievements and learning from the first three year programme, 2014–2017

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Important

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Abstract

Background: The National Institute for Health Research (NIHR) Health Services and Delivery Research (HS&DR) programme commissioned teams at the universities of Sheffield and York to undertake a responsive rapid evidence synthesis programme. The first phase of the programme ran from early 2014 to early 2017.

Objectives: To summarise the review teams' experience and learning from the three years of the evidence synthesis centre programme.

Methods: This report was developed from information contained in the available protocols and reports from the two centres, and from extensive reflection and discussion by team members both within and between the Sheffield and York centres. The report is structured around six key themes (defining review scope, tailoring the review approach, tailoring methods, review team organisation, involving stakeholders and dissemination and impact) with illustrative examples drawn from projects undertaken for the programme.

Results: The two centres delivered thirteen projects (seven from Sheffield and six from York). The programme covered a wide range of topics within the remit of the HS&DR programme, including models of organisation and delivery in mental health; urgent and emergency care; diagnostic testing services and public health topics such as TB contact tracing. Methodological topics were also covered, for example reporting standards for organisational case studies and involvement of patients and the public in decision-making around service reconfiguration. The outputs produced were also highly diverse, ranging from brief scoping reviews to reviews of broad topics with multiple components. Reports were used to inform NHS decision-making and to support research commissioning by the HS&DR programme. Key lessons learnt included:

- the value of a two-stage approach with initial literature mapping/scoping and stakeholder consultation before finalising the protocol
- expert stakeholder involvement is extremely important and beneficial but not always easy to obtain unless the stakeholder has a direct interest in the outcome of the project.
- opportunities for patient/public involvement were limited by time, access and availability; both teams are committed to improving this within the next phase

- dissemination of review findings involved a variety of channels. Conference presentations and journal articles were aimed mainly at researchers and/or clinicians, while the York centre has also emphasised evidence summaries for decision-makers. It is important to plan carefully to maximise the impact of dissemination efforts rather than working on an opportunistic basis.

Limitations: The report presents the reflections of the review teams themselves and is not an independent evaluation. This limitation is mitigated by peer review of all the teams' outputs, including this report.

Conclusions: The review teams in Sheffield and York have developed ways of working that have enabled us to deliver outputs of high quality to an agreed timetable. The continuation of the programme for a further three years offers an opportunity to build on the review teams' experience to date and further improve the service we offer to the HS&DR programme and the NHS.

Future work: Areas identified for further development include improved use of software; patient/public involvement; and contributing to ongoing debates around rapid review methodology.

Funding: National Institute for Health Research Health Services & Delivery Research Programme

Word count: 489

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List of abbreviations

BJPCN   British Journal of Primary Care Nursing

CHD   Congenital heart disease

CHE   Centre for Health Economics

CINAHL   Consolidated Index of Nursing and Allied Health Literature

CLAHRC Collaboration for Leadership in Applied Health Research and Care

COPD Chronic obstructive pulmonary disease

CRD   Centre for Reviews and Dissemination

DARE Database of Abstracts of Reviews of Effects

HS&DR   Health Services and Delivery Research

HSR UK   Health Services Research UK conference

IPC   Integrated and personalised commissioning

JHSRP Journal of Health Services Research and Policy

MRI   Magnetic Resonance Imaging

NHS   National Health Service

NIHR National Institute for Health Research

PI   Principal Investigator

PPI   Patient/public involvement

PROSPERO   Prospective Register of Systematic Review Protocols

SALSA   Search, Appraisal, Synthesis and Analysis

ScHARR   School of Health and Related Research

SMI   Serious mental illness

SPRU Social Policy Research Unit

SSM   Society for Social Medicine

TB   Tuberculosis

URL: Uniform Resource Locator

Plain English summary

In 2013, the National Institute for Health Research Health Services and Delivery Research (HS&DR) programme appointed teams at the Universities of York and Sheffield to carry out rapid evidence reviews on topics of importance to the NHS. Topics were to be suggested by the HS&DR programme team. This report summarises what the teams have learned from providing this service between early 2014 and 2017. Methods for producing systematic evidence reviews are well developed but can take a long time. The teams used various methods to make the process quicker and more efficient. They produced thirteen reports in total. These covered a wide range of topics, including ways of organising and delivering services in mental health; urgent and emergency care; and diagnostic testing services. . Reports were used to inform NHS decision-making and to help the HS&DR programme to identify areas where new research is needed.

The report begins by defining what we mean by a rapid review. It then discusses six key themes, including setting the scope for a new evidence review; choosing an approach that fits the purpose of the review; choosing which methods to use; involving clinical experts, health service managers and the public; and making sure that findings reach the right audience. Each theme is illustrated by examples from the teams' projects. The teams found that it was often helpful to carry out complex reviews in two stages. An initial search for relevant evidence would give an idea of the amount and type of relevant evidence. The teams would discuss the findings with the HS&DR programme team and relevant experts before finalising the plans for the review.

The continuation of the programme for a further three years offers an opportunity to build on the review teams' experience Areas identified for further development include improved use of software and patient/public involvement.

Word count: 293

Scientific summary

Background

In early 2013, the National Institute for Health Research (NIHR) issued a call for expressions of interest for production of rapid evidence syntheses for its Health Services and Delivery Research (HS&DR) programme. Evidence synthesis was defined as a comprehensive review of published literature with an explicit search strategy, using an appropriate range of sources and including critical assessment of quality of evidence and strength of findings. The scope of the programme was not restricted to systematic reviews based solely on clinical trials, and the programme did not specify the methodology to be used. In this report, the terms (rapid) evidence synthesis and rapid review are used interchangeably.

The Universities of Sheffield (School of Health and Related Research (ScHARR)) and York (Centre for Reviews and Dissemination (CRD), Centre for Health Economics (CHE) and Social Policy Research Unit (SPRU)) submitted successful bids in response to the call and three-year programmes began in early 2014.

Objectives

The objective of this report is to summarise the lessons learnt across both centres during the first three years of the programme. It is anticipated that this report will inform future activities of the centres themselves, the HS&DR programme, and the wider evidence synthesis community.

Methods

The report is derived from information contained in the available protocols and reports from the two centres, and on extensive reflection and discussion by team members both within and between the Sheffield and York centres. After defining what is meant by rapid evidence synthesis in Chapter Two, the rest of the report is structured around six key themes (defining review scope, tailoring the review approach, tailoring methods, review team organisation,

involving stakeholders and dissemination and impact). The themes were determined by discussion and consensus among the authors and reflect major strands in the literature on rapid systematic review and evidence synthesis methods. Examples from specific projects were selected to illustrate particular themes and complement the overall narrative. The themes are not mutually exclusive, with some of the illustrative examples relating to multiple themes.

Results

The two centres delivered thirteen projects (seven from Sheffield and six from York). The programme covered a wide range of topics within the remit of the HS&DR programme (see Table A). Methodological topics were also covered, for example reporting standards for organisational case studies and involvement of patients and the public in decision-making around service reconfiguration. The outputs produced were highly diverse, ranging from brief scoping reviews to reviews of broad topics with multiple components.

Table A: Summary of completed and ongoing evidence synthesis centre projects

Project short title	Review team	Review type	Reference to main report
York projects			
Service user engagement	Dalton, Chambers, Harden, Street, Parker, Eastwood	Rapid evidence synthesis	Dalton et al. Health Services and Delivery Research. 2015;3(17).
Reporting organisational case studies	Rodgers, Thomas, Harden, Street, Parker, Eastwood	Rapid review and consensus development	Rodgers et al. Health Services and Delivery Research. 2016;4(1).
Integrated care for people with serious mental illness (SMI)	Rodgers, Dalton, Harden, Street, Parker, Eastwood	Rapid review	Rodgers et al. Health Services and Delivery Research. 2016;4(13).

Supporting staff to manage cognitive impairment	Dalton, Thomas, Harden, Wright, Eastwood	Rapid scoping review	Dalton et al. York: Centre for Reviews and Dissemination, University of York, 2016.
Support for carers	Thomas, Dalton, Harden, Eastwood, Parker	Updated meta-review (review of systematic reviews)	Thomas et al. Health Services and Delivery Research. 2017;5(12).
PTSD in military veterans	Dalton, Thomas, Melton, Harden, Eastwood	Rapid evidence review	Web report published, full report in production
Sheffield projects			
Congenital heart disease services	Turner, Preston, Booth, O'Keeffe, Campbell, Jesurasa, Cooper, Goyder	Rapid review	Turner et al. Health Services and Delivery Research. 2014;2(43).
Measuring nursing input	Preston, Booth, Goyder	Brief scoping review	Unpublished brief scoping review
Group clinics	Booth, Cantrell, Preston, Chambers, Goyder	Systematic review	Booth et al Health Services and Delivery Research. 2015;3(46).
Models of urgent care	Turner, Coster, Chambers, Cantrell, Phung, Knowles, Bradbury, Goyder	Rapid review(s)	Turner et al. Health Services and Delivery Research. 2015;3(43).
Community diagnostic services	Chambers, Booth, Baxter, Johnson, Dickinson, Goyder	Literature mapping exercise and focused rapid reviews	Chambers et al. Health Services and Delivery Research. 2016;4(35).

TB contact tracing	Baxter, Goyder, Chambers, Johnson, Preston, Booth	Evidence synthesis	Baxter et al. Health Services and Delivery Research. 2017;5(1).
Frail older people in the ED	Preston, Chambers, Campbell, Cantrell, Turner, Goyder	Mapping review	Web report published, full report in production

Reports were used to inform NHS decision-making and to support research commissioning by the HS&DR programme. Key lessons learnt are described under the six key themes defined at the outset (defining review scope, tailoring the review approach, tailoring methods, review team organisation, involving stakeholders and dissemination and impact).

Defining scope of a rapid review

A number of projects demonstrated the value of a two-stage approach to scoping and undertaking complex review projects. This approach involved an initial phase of literature mapping/scoping and stakeholder consultation prior to finalising the review protocol. In future projects adopting a two-stage approach the project protocol should state explicitly that the approach and methodology to be adopted will be determined by the results of the initial mapping and consultation phase. It will be important for transparency and impact to disseminate project protocols as widely as possible. We suggest that in future the HS&DR evidence synthesis centres should work with the PROSPERO administrators to achieve optimal registration of review protocols on PROSPERO (prospective register of review protocols) Patient and public involvement in scoping new reviews where feasible would help to ensure their relevance and usefulness.

Tailoring the review approach

Adapting their general approach to the purpose of different projects required the teams to be creative and flexible. This included devoting additional resources to a particularly demanding project and incorporating approaches more typical of primary research than conventional

systematic review or evidence synthesis methods. An example of this was the modified Delphi process used in the project on reporting guidelines for organisational case studies.

Tailoring rapid review methods

Collectively, the variety of review topics and purposes explored by the two evidence synthesis centres offers a rich testbed for rapid review methods. The specific rapid review methods used include both those using accelerated timelines and those employing methodological shortcuts. For example, limiting the literature search to published literature or one database, limiting inclusion criteria by date or language, using a single reviewer to screen or abstract data and another reviewer to verify, not conducting risk of bias/quality appraisal or having only one reviewer conduct the quality appraisal, and presenting results as a narrative summary have all been used to differing extents by the two evidence synthesis centres.

A key conclusion within the review community has been that rapid review methods require more extensive reporting of limitations within the Discussion section of reports and journal articles. Similarly, decisions on scope made to meet the specific requirements of the NIHR HS&DR programme may have implications when other organisations or programmes seek to consolidate, update or extend evidence synthesis centre outputs. Agreed standards of reporting, specific to the principal types of review output, would facilitate this process.

Organisation and management of review teams

The York and Sheffield centres followed different models of review team organisation, with Sheffield involving a larger number of different individuals. Both centres used similar processes to manage projects and support quality control. It was important that the researchers involved were all experienced and had an interest in service delivery and in developing rapid review methods. Both centres felt that their model worked well for their context and are planning to follow a similar model in the next phase of the programme.

Stakeholder involvement

Opportunities for patient/public involvement (PPI) in the programme were limited by time, access and availability but both teams are committed to improving this within the next phase.

Expert stakeholder involvement was extremely important and beneficial to a number of projects. However, the teams' experience was that active involvement is not always easy to obtain unless the stakeholder has a direct interest in the outcome of the project. The HS&DR programme team played a key role as stakeholders and used the evidence synthesis programme in part to inform commissioning of new primary research.

Dissemination and impact

The York and Sheffield teams have used a variety of channels to disseminate the findings of their projects. Conference presentations and journal articles were aimed mainly at researchers and/or clinicians, while the York centre has also emphasised evidence summaries for decision-makers. The focus on dissemination and impact is likely to continue and indeed increase in the next phase of the programme. It is important to plan carefully to maximise the impact of dissemination efforts rather than working on an opportunistic basis.

The York and Sheffield teams have made slightly different choices on where to focus most effort and both have achieved some successes. Further reflection and research is needed to establish the best use of resources to achieve optimum dissemination and impact.

Barriers to journal publication to supplement the main report publication exist but they can be overcome if the strengths of the research and importance of the findings are clearly communicated to journal editors and peer reviewers. Prospective registration of review protocols where possible may facilitate future journal publication.

Conclusions

This three year programme has covered a wide range of topics prioritised for evidence synthesis by the HS&DR programme team and/or NHS stakeholders. The review teams have developed ways of working that have enabled us to deliver outputs of high quality to an agreed timetable. The teams have placed particular emphasis on clarifying the scope of each project (often by an iterative process) and understanding the intended purpose(s) of the project outputs.

This report illustrates the variety of rapid but systematic review methods that have been used as well as different methods of organising review teams. It emphasises the benefits of working closely with key stakeholders and of providing review findings in suitable formats for different audiences. The continuation of the programme for a further three years offers an opportunity to build on the review teams' experience to date.

Implications for further research

Current methodological research is developing and testing a wide range of new approaches to rapid evidence synthesis. Where opportunities arise, we would seek to undertake such work either as part of the evidence synthesis centre programme or as separate projects. The next phase of the programme could also provide an opportunity for the rapid evidence synthesis centre teams to contribute to the ongoing discussions around the definition and taxonomy of rapid reviews. Research is also needed to critically examine the impact of using less traditional methods on the quality of evidence synthesis, in terms of delivering comprehensive and unbiased synthesis that all relevant stakeholders will be confident is sufficiently robust to be useful to decision makers.

Priorities for internal development within the evidence synthesis centres include improved PPI and (specifically for the Sheffield team) optimum use of software to support review processes and an internal quality control programme.

 Word count: 1687

Chapter One: Background and introduction to the programme

Background

In early 2013, the National Institute for Health Research (NIHR) issued a call for expressions of interest for production of rapid evidence syntheses for its Health Services and Delivery Research (HS&DR) programme. The call aimed to identify suitable teams or review units to undertake up to five projects per year. Key features of the specification were that teams were expected to produce outputs of immediate use to the UK National Health Service (NHS); that teams would review and synthesise evidence on important topics where evidence may be dispersed with useful information derived from other sectors, countries or a broad range of literature; and that outputs would provide simple top-line messages together with an evaluation of the quality of information and strength of findings.

Evidence synthesis was defined as a comprehensive review of published literature with an explicit search strategy, using an appropriate range of sources and including critical assessment of quality of evidence and strength of findings. The scope of the programme was not restricted to systematic reviews based solely on clinical trials, and the programme did not specify the methodology to be used.

A key rationale for commissioning the evidence synthesis centre programme was to ensure that evidence synthesis projects were initiated and completed more rapidly than in the past. Previously, research was commissioned via the HS&DR programme of commissioned and researcher-led calls with multiple institutions submitting proposals for evaluation on a competitive basis. Under this system there would be a substantial time lag between identifying the need for evidence synthesis work and the project getting under way.

The Universities of Sheffield (School of Health and Related Research (ScHARR)) and York (Centre for Reviews and Dissemination (CRD), Centre for Health Economics (CHE) and Social Policy Research Unit (SPRU)) submitted successful bids in response to the call and three-year programmes began in early 2014. Following an internal review, the HS&DR

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programme decided to commission a further three-year programme starting in spring 2017. The existing York and Sheffield centres were commissioned and a third centre, based at the University of Exeter, was added for the second phase of the programme.

Evidence synthesis centre websites

Background information about the two centres and relevant documents may be found on the NIHR journals library website and on the centres' own sites (Table 1).

Table 1: Evidence synthesis centre websites

	URL	Date accessed
Sheffield centre	https://www.journalslibrary.nihr.ac.uk/programmes/hsdr/130512/#/ http://www.sheffield.ac.uk/scharr/sections/ph/hsdr	8 March 2017
York centre	https://www.journalslibrary.nihr.ac.uk/programmes/hsdr/130511/#/ https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/	8 March 2017

Summary description of projects and outputs

Projects and outputs for the two centres in the first phase of the programme are summarised in Tables 2 and 3, with references for published outputs. The programme covered a wide range of topics within the remit of the HS&DR programme, including models of organisation and delivery in mental health; urgent and emergency care; diagnostic testing services and public health topics such as tuberculosis (TB) contact tracing. Methodological topics were also covered, for example reporting standards for organisational case studies and involvement of patients and the public in decision-making around service reconfiguration. The outputs

produced were also diverse, and although all used systematic methods to identify, select and appraise evidence, only one report was described as a 'systematic review'. Other terms used included 'rapid review', 'rapid evidence synthesis', 'mapping review', 'scoping review' and 'meta-review' (for a review of systematic reviews). The topic of nomenclature is discussed further in Chapter Five and in the Discussion (Chapter Nine).

Table 2: Summary of York centre projects and outputs

Project title	Review team	Review type	Reference to main report	Other published/presented outputs
Service user engagement	Dalton, Chambers, Harden, Street, Parker, Eastwood	Rapid evidence synthesis	Dalton et al. 2015[1]	Dalton et al. JHSRP 2016[2] Evidence summary on CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/) Poster presentation at the 2016 HSRUK symposium
Reporting Organisational Case Studies	Rodgers, Thomas, Harden, Street, Parker, Eastwood	Rapid review and consensus development	Rodgers et al. 2016[3]	Checklist and report added to the reporting guidelines database on the EQUATOR website Oral presentation at the 2016 HSRUK symposium Poster presentation at the 2016 Society for Social Medicine Annual Scientific Meeting Evidence summary on CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/)

Integrated care for people with SMI	Rodgers, Dalton, Harden, Street, Parker, Eastwood	Rapid review	Rodgers et al. 2016[4]	Poster presentation at the 2016 HSRUK symposium NIHR Dissemination Centre signal with expert commentary Blog on the Mental Elf (National Elf Service) website Peer-reviewed journal article submitted
Supporting staff to manage cognitive impairment	Dalton, Thomas, Harden, Wright, Eastwood	Rapid scoping review	Dalton et al. 2016[5]	Final report available from project webpage on the CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/)
Support for carers	Thomas, Dalton, Harden, Eastwood, Parker	Updated meta-review (review of systematic reviews)	Thomas et al. 2017[6]	Peer-reviewed journal article and evidence summary in preparation
PTSD in military veterans	Dalton, Thomas, Melton, Harden, Eastwood	Rapid evidence review	Dalton et al. 2017[7]	Web report published, full report in production

Table 3: Summary of Sheffield centre projects and outputs

Project title	Review team	Review type	Reference to main report	Other published/presented outputs
Congenital	Turner, Preston,	Rapid review	Turner et al.	Preston et al. 2015[9]

heart disease services	Booth, O'Keeffe, Campbell, Jesurasa, Cooper, Goyder		2014[8]	
Measuring nursing input	Preston, Booth, Goyder	Brief scoping review	Unpublished brief scoping review	
Group clinics	Booth, Cantrell, Preston, Chambers, Goyder	Systematic review	Booth et al. 2015[10]	Summary and expert commentary via NIHR Dissemination Centre Discover Portal; Summarised in BJPCN: https://www.bjpcn.com/browse/evidence-in-practice/item/1902-diabetes-care-could-group-clinics-be-better-than-individual-consultations.html
Models of urgent care	Turner, Coster, Chambers, Cantrell, Phung, Knowles, Bradbury, Goyder	Rapid review(s)	Turner et al. 2015[11]	Included in NIHR Dissemination Centre themed review. Poster presentation at EMS2016 conference. Journal article accepted by Academic Emergency Medicine
Community diagnostic services	Chambers, Booth, Baxter, Johnson, Dickinson, Goyder	Literature mapping exercise and focused rapid reviews	Chambers et al. 2016[12]	Poster presentations at 2016 HSR UK and Society for Social Medicine Journal article provisionally accepted by BMC Health Services Research

TB contact tracing	Baxter, Goyder, Chambers, Johnson, Preston, Booth	Evidence synthesis	Baxter et al. 2017[13]	
Frail older people in the ED	Preston, Chambers, Campbell, Cantrell, Turner, Goyder	Mapping review	Preston et al. 2017[14]	Web report published, full report in production

Rationale and methods of this report

The objective of this report is to summarise the lessons learnt across both centres during the first three years of the programme. Although the teams worked independently, they had regular formal and informal contacts. In particular, the two teams met with the HS&DR team at the start of the programme of work and annually thereafter to discuss progress and agree on allocation of forthcoming review projects. Given this background, it seemed logical for us to prepare a joint report drawing on examples from the work of both centres. It is anticipated that this report will inform future activities of the centres themselves, the HS&DR programme, and the wider evidence synthesis community. The report is derived from information contained in the available protocols and reports from the two centres, and on extensive reflection and discussion by team members both within and between the Sheffield and York centres. Regular team meetings at both centres were supplemented by face-to-face and telephone discussions. Members of the two teams worked together to facilitate a workshop at the 2016 Society for Social Medicine meeting focusing on some of our methodological challenges and approaches. The framework for this report was developed by discussion and consensus following that workshop.

After defining what is meant by rapid evidence synthesis in Chapter Two, the rest of the report is structured around six key themes (Chapters Three to Eight). The themes were determined by discussion and consensus among the authors and reflect major strands in the literature on rapid systematic review and evidence synthesis methods. How the review teams worked with the HS&DR programme team and other stakeholders to clarify the scope of the various projects will be discussed in Chapter Three and the selection of appropriate methods will be covered in Chapters Four and Five. Organisation and management of review teams is a relatively neglected topic in methodological research and the experiences of the two centres will be compared in Chapter Six. Chapters Seven and Eight cover stakeholder involvement and dissemination of review outputs.

Examples from specific projects were selected to illustrate particular themes and complement the overall narrative. A full list of how general themes were reflected in specific projects is provided in Appendix 1. The themes are not mutually exclusive, with illustrative examples

relating to multiple themes, for example defining scope (Chapter Three) and tailoring methods (Chapter Five).

Chapter Two: What is a rapid review?

As stated in the Preface of each of their reports, HS&DR evidence synthesis centres were specifically "contracted to provide rapid evidence syntheses". Currently little consensus has been reached on what constitutes a rapid evidence synthesis or rapid review;[15] unlike systematic reviews few published methodological guidelines or reporting standards exist.[16] The label "rapid" communicates little methodological detail other than that, syntheses are delivered within a timescale that is, on average, of shorter duration than that for the average systematic review.[15] It conflates issues relating to the urgency of the review question with those associated with the speed of conduct of the review itself.[16] Commissioners face the challenge of ensuring that "rapid" is not used as an apology for poor quality.[17] Authors face the task of assuring journal editors and peer reviewers that "rapid" does not reflect a lack of intellectual contribution or substance.[18]

Methodological heritage

Neither evidence synthesis centre routinely references external methodological literature on review methods when producing their review outputs, drawing instead on in-house knowledge drawn from their extensive track record in review activities.[19] It is possible that the review protocols draw more extensively on the methodological literature; certainly methodological choices are discussed extensively within the review teams and when negotiating with the research commissioners. A scoping review similarly found limited acknowledgement of rapid review methods papers within published reviews.[20] This may indicate that trends and emerging methods are assimilated more generally by the review teams as a body of evidence with no particular method emerging as particularly influential. Both teams deliver review methodology training, including specifically on rapid reviews, and contribute to the methodological literature and ongoing debates. Given this, it seems likely that emerging methods become part of the implicit knowledge that the teams bring to bear on projects undertaken as part of the HS&DR evidence synthesis centre programme.

What makes a rapid review?

Collective experience from the HS&DR evidence synthesis centres confirms observations from the Cochrane Rapid Review group[15] that a key rapid review feature relates to the degree of interaction and iteration between the research commissioners and the review team.[21] Such interaction serves multiple purposes. First, it can accelerate discussions and decisions relating to scope. Even for commissioned review projects, it can take a newly-constituted review team several months to finalise a scope based on an initial application form. Second, interaction can clarify expectations on the nature of the review output and what it will and will not be able to achieve. Third, relationship building between the commissioners and the review team facilitates the development of trust; the commissioners begin to trust methodological advice offered at the protocol stage and subsequent decisions that emerge from the review process, while the review team can have confidence that decisions made in good faith will not be misconstrued by the research commissioners or subsequent peer reviewers as expedient. In the absence of normative methodological guidance or reporting standards these three features are central to the success of any rapid review endeavour.

Towards a rapid review taxonomy

The collective portfolio produced by the two evidence synthesis centres includes a diverse range of outputs fulfilling a variety of purposes. Thus, while the term "rapid review" or "rapid evidence synthesis" is a useful umbrella term to describe the overall activity of the two centres it is less helpful in characterising individual review outputs. "Rapid review" does not distinguish between diverse review outputs; rather, it groups together outputs that modify the systematic review process (e.g. accelerated or abbreviated systematic reviews) with distinct products with specific and equally valid purposes[22] (e.g. scoping reviews and mapping reviews). Feedback from the NIHR peer review process reveals a similar lack of discrimination; some referees criticised review outputs against the standards of a full systematic review while others applauded the same review for the pragmatic procedures that sought to deliver timely answers to specific types of review question.

Previous authors distinguish reviews for "knowledge support" from those for "decision support" and at least some of this debate is captured in the preliminary experiences of the two centres.[23] Furthermore, this distinction at least partially explains why the congenital heart

surgery report, notwithstanding its role in supporting critically sensitive decision-making, received a negative verdict from the BMJ before being successfully published in BMJ Open.[9] Similar debates persist within the review community, with mapping reviews increasingly seen as a methodologically valid and useful contribution in their own right[24] while scoping reviews are typically characterised as preparatory work for a more ambitious endeavour, whether further primary research or a full systematic review.

Chapter Three: Defining the scope of a rapid review

Defining and agreeing the scope of a review at an early stage is particularly important for a responsive review programme. The review team and review commissioners may start out with different understandings and preconceptions of the topic and, if these are not identified and discussed early on, time and resources could be wasted. The scope needs to be manageable in terms of the volume of evidence to be evaluated and synthesised. A broad topic may need to be reduced to a more specific question or questions, or the project may need to privilege breadth at the expense of depth, depending on the intended purpose of the review.

An initial basic approach to defining the review scope is to ask the commissioner to provide some details prior to the first discussion of the topic. This enables the review team to do some provisional scoping work such as informal searches of Internet resources, for example Google and Google Scholar. The York team made use of a standard specification form to be completed by the commissioner which details the topic, provides the rationale for the work (the motivation for the topic and how the findings will be used), the research questions to be addressed and the timescale for completion.

Mapping reviews may play a significant part at this early stage. The Sheffield team, for example, used a preliminary mapping review approach to help inform the scope of a review looking at diagnostic testing services in community/primary care settings (see Box 1), followed by consultation with the National Clinical Director who had instigated the topic, together with the HS&DR programme team . The chosen solution represents one of several possible alternatives but it was underpinned by a clear rationale and a combination of depth and breadth intended to make the outputs suitable for diverse uses. The mapping exercise used broad criteria to identify potentially relevant references and decisions were largely based on examination of titles (and abstracts where available). Despite the reduced sensitivity of this strategy, the mapping exercise proved useful in focusing the discussion with stakeholders about how best to approach the initial broad review question.

Sometimes extensive work is involved in exploring the topic area and describing the scope, as exemplified by the review of integrated care for people with serious mental illness carried

out by the York team (Box 2). On other occasions, a proposed review may be abandoned following the initial scoping, as for a proposed project on models of end of life care undertaken by the York team. In this case initial scoping identified relevant ongoing research, so the project was put on hold and eventually dropped. The examples in Boxes 1 and 2 identify relevant considerations and the need for flexibility in responding to both the results of initial scoping and wider developments such as changes in commissioner priorities or new policy initiatives. The York team's review of integrated care for people with serious mental illness refined its scope in response to the discovery of a relevant and fairly up-to-date systematic review and emerging findings from a number of local evaluations (Box 2). The final scope included an increased emphasis on evidence about implementation as well as effectiveness. Similarly, in the Sheffield team's TB contact tracing review, consultation with clinicians and other stakeholders guided the team in re-defining the review scope when it became apparent that pursuing the original proposed scope was unlikely to be fruitful (see Chapter Seven for more details).

As review commissioners, the HS&DR programme team were particularly significant stakeholders in clarifying the scope of reviews undertaken on their behalf. The relationship between the HS&DR team and the evidence review teams developed during the course of the programme with advice based on preliminary work from the two centres being valued by the review commissioners.

Opportunities to involve patients, service users and the public in defining review scope were limited by the short timelines for most (but not all) projects, together with the diversity and unpredictability of new review topics. In such a time-critical context identifying and contacting suitable representatives was extremely challenging. While acknowledging practical considerations, the limited patient and public voice has been recognised as an important area for future enhancement by both Centres, with current discussion about how best to take this forward in the next phase of the programme. Patient and public involvement is discussed further in Chapter Seven.

Review protocols

The scope of a systematic review is defined in advance in the review protocol. The York and Sheffield evidence synthesis centre teams published protocols for their overall programmes as well as protocols for most reviews (brief mapping or scoping projects did not require a protocol). The protocols were registered with the HS&DR programme and published on the relevant project websites (see Table 1). Protocols for some, but not all projects were registered with the PROSPERO prospective register. Those that were not registered were review methodologies, such as scoping reviews and mapping reviews, that do not fall within the scope of PROSPERO which is primarily intended for 'full' systematic reviews or methodological reviews that did not satisfy the PROSPERO inclusion criterion that they had at least one health outcome

Registration of review protocols is increasingly mandated for publication of systematic reviews in peer-reviewed journals. Some journals (e.g. the BioMed Central journals) specify registration on PROSPERO. Both teams suggest that in future the HS&DR evidence synthesis centres should work with the PROSPERO administrators to achieve optimal registration of review protocols on PROSPERO. This will provide wider dissemination of the project to the systematic review community at an early stage, and facilitate publication of journal articles in addition to the main publication in the Health Services and Delivery Research journal.

Box 1: Defining scope: Review of diagnostic testing services in primary care/community settings[12]

Background

This review addressed a topic suggested by Professor Erika Denton, National Clinical Director for Diagnostics at NHS England, and identified as a priority by the Department of Health R&D Committee. The objective was to assess the evidence base for diagnostic services provided outside hospital settings, for example in the community or in general practice. The focus of the project was primarily on ways of delivering services and not on

diagnostic accuracy or other attributes of the tests themselves.

The methodological challenge

The initial question was very broad, potentially covering all types of diagnostic test for any condition. Relevant evidence was likely to be widely distributed across both peer reviewed and grey literature. The potential diversity of included interventions (service models and associated diagnostic tests/technologies), populations and study designs could make it difficult to produce a meaningful synthesis.

What the team did

Literature mapping

Following preliminary discussion with Professor Denton and the HS&DR Programme team, we decided to conduct the review in two stages. We performed an initial mapping exercise to assess the quantity and nature of the available research evidence. As the aim was to acquire a broadly representative, not exhaustive, sample we did not perform any grey literature or citation searches at this stage and restricted the search to one bibliographic database (Medline).

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Refining scope based on the findings

The findings of the mapping exercise were discussed by the Sheffield team internally and in a teleconference with Professor Denton and the HS&DR programme team. The Sheffield team identified a need to examine a particular diagnostic technology in some depth, as this had not been undertaken within primary care by any of the identified reviews. Ultrasound was chosen because it is a key diagnostic technology for a wide range of clinical conditions; provision of diagnostic ultrasound in the community has been possible since the 1990s and recent developments in equipment could potentially change the balance between different models of service; and improving access to ultrasound to support early diagnosis of cancer (particularly for ovarian cancer) is a priority for the NHS.

Another finding that seemed to require further analysis was the wide range of diagnostic technologies included and the different implications for providing them in community settings. The team proposed to carry out a further piece of work to identify key logistic and service delivery considerations associated with the introduction and ongoing provision of diagnostic services in community or primary care settings.

During the discussions, Professor Denton emphasised the importance of considering diagnostic testing services in primary care as part of a diagnostic pathway rather than in isolation. Pathways for the diagnosis of patients presenting with breathlessness was chosen as a topic for further review because breathlessness is a common symptom with a range of possible underlying causes and relevant diagnostic tests that can be delivered using different service models. The mapping exercise identified some relevant evidence, particularly for the use of spirometry to diagnose COPD in primary care.

Implications for the review process

Following the mapping exercise the team conducted three separate focused reviews. Separate protocols were developed for each review and different team members were involved. Implications of the findings for service delivery and further research were summarised in an overall discussion section of the final report.

Lessons learnt

The process of scoping this review illustrates a possible approach to making a clinically-relevant but broad question manageable with the resources available. The literature mapping exercise offered suboptimal sensitivity while providing an indication of the volume of potentially relevant evidence and suggesting some possible topics and approaches for further exploration. The combination of research and methodological expertise with the clinical and policy insight provided by Professor Denton was particularly helpful in choosing topics for the focused review work.

Based on this experience, the team recommends that a literature mapping or scoping exercise

should be a standard part of future HS&DR Programme reviews.

Full details of the review may be found in the published report.[12]

Box 2. Defining scope: Review of integrated care for people with serious mental illness[4]

Background

People with mental health conditions have a lower life expectancy and poorer physical health outcomes than the general population. The services they may access in order to manage the mental health condition are likely to be separate from general healthcare for physical conditions, and the latter may not be well-equipped to deal with patients who also have complex mental health needs. There are examples of service models which provide integrated care for people with mental health issues, offering access to support and care for the full range of health conditions and in some cases other types of support.

Initial scope

The research questions initially suggested by HS&DR were:

Q1. What models exist for the provision of integrated care for people with mental health problems?

Q2. What evidence exists for the effectiveness of these models?

Q3. Are there evidence gaps that require either further primary research or a full evidence synthesis?

Refining the scope

The review team began by attempting to define the terms of these research questions and to establish the size and feasibility of the work given the resources available. This combined a rapid scoping of the existing literature with making contact with practitioners, academic

health and social care research specialists, Collaborations for Leadership in Applied Health Research and Care (CLAHRCs), local mental health service and associated leads, and NHS England (who had recently set up a taskforce to develop a five year strategy for mental health across England).

The initial searches identified a systematic review funded by the US Department of Veterans Affairs (Bradford et al 2013) that directly addressed the broad questions about existing integrated care models for people with mental health problems and their evaluation that had initially been suggested by HS&DR.

Around this time, NHS England had also announced both demonstrator sites for integrated and personalised commissioning (IPC) for people with complex needs, and the first group of 'vanguard' sites to inform the development of new care models for the NHS.

Given the existence of a recent good quality systematic review, the ongoing national developments around integrated care, and the limited resources of a rapid review, the team worked with expert advisors to refine the focus for the final set of review questions:

> Q1. What type of models currently exist for the provision of integrated care specifically to address the physical health needs of people with severe mental illness (SMI) when accessing mental health care services?
>
> Q2. What are the perceived facilitators and barriers to implementation of these models?
>
> Q3. How do models implemented in practice compare and contrast with those described in the literature?
>
> Q4. What are the high priority areas for either further primary research or a full evidence synthesis?

Lessons learnt

While the focus of the models of interest in Q1 was narrower than that in the initially suggested research question, the revised scope looked beyond purely evaluative evidence to

include implementation issues. In addition, while all evidence would be interpreted in the context of NHS delivery, the range of included evidence was not restricted by country of origin.

Full details of the review may be found in the published report[4]

Key lessons

The examples featured above, like most other projects undertaken by the two centres, demonstrate the value of a two-stage approach to complex review projects. The teams expect an initial phase of literature mapping/scoping and stakeholder consultation to figure prominently in future evidence synthesis projects. In many cases the approach and methodology to be adopted will be determined by the results of this initial phase and this will be specified in the project protocol. It will be important for transparency and impact to disseminate project protocols as widely as possible. Where feasible, patient and public involvement in scoping new reviews would help to ensure their relevance and usefulness.

Chapter Four: Tailoring the review approach to the purpose of the review

Current review methods offer a versatile toolkit from which experienced review teams are able to select judiciously. This requires experience of a wide range of review alternatives as well as detailed knowledge of review purposes and a realistic expectation of time taken and resources required. Both evidence synthesis centres have a portfolio that comprises diverse review types and have contributed to the methodological literature on systematic approaches to evidence synthesis.

The HS&DR evidence synthesis centres were asked to undertake a range of projects with different primary purposes. Outputs were intended to inform service commissioning decisions; to inform commissioning of primary research; to provide a useful resource for NHS managers and decision-makers; or to be a resource for researchers submitting proposals to the HS&DR programme and for the wider research community. This chapter includes two contrasting case studies of the overall approach to framing and planning review projects (Boxes 3 and 4). Approaches to specific review methods are considered in more detail in Chapter Five.

Some review projects were planned primarily to inform research commissioning by the HS&DR programme. These projects would be undertaken over a short time period and/or by a small team. In one such project, the Sheffield team mapped the evidence around nursing workforce issues in approximately two weeks with the bulk of the work carried out by two people. This project was unusual in focusing on current and ongoing research and involved searching Internet sources (such as institutional or individual Web pages) rather than the standard bibliographic databases. Given the time limits and the nature of the results the report was purely descriptive, with no attempt to assess the quality of the included research. A similar project from the York centre looked at the evidence around supporting staff to manage people with cognitive impairment. This review aimed to help research commissioners by mapping evidence against an existing framework, making use of existing quality-assessed systematic reviews (from the DARE database) and prioritising findings based on the best available evidence.

Both Centres planned to utilise existing systematic reviews as sources of evidence and/or references in any projects where this was appropriate. Only one project exclusively delivered a review of systematic reviews (this was an update and the York team followed the original authors in using the term 'meta-review) but existing reviews were found to be helpful in dealing with large volumes of evidence and in work intended to provide an overview for research commissioners and NHS decision-makers. A good example of this approach is the review of evidence on different models of urgent and emergency care.

The Sheffield team's review on congenital heart disease services (Box 3) was commissioned to inform NHS policy-making and required a large review team with a high level of experience. The review approach involved working closely with stakeholders throughout to a greater degree than was typical for the programme. It was also recognised from the outset that standard systematic review methods would need to be adapted to meet project deadlines. At the same time a high degree of rigour would be required given the scrutiny the report would receive.

In contrast, the research community was the primary audience for the York project on reporting standards for organisational case studies which was commissioned by the HS&DR programme to improve the quality of research proposals submitted to the programme. Given that the objective was to develop new reporting standards, it was clear that an evidence review by itself would not be sufficient. A modified Delphi approach was used to obtain expert input informed by the results of a rapid review. This was an unusual but promising approach for the evidence synthesis centre programme as it combined evidence review with an element of primary research leading to new knowledge generation. The resulting guidelines were adopted by the EQUATOR network as well as being made available through the project report and associated evidence summary.

Box 3. Review approach: congenital heart disease services[8]

Background

In late 2013, NHS England made a specific request to the NIHR HS&DR team for evidence

synthesis support for an ongoing service redesign consultation exercise services for patients with congenital heart disease. The aim of the review was to explicitly inform NHS policymaking and the key stakeholders in the findings were directly involved in the review commissioning process.

The Sheffield team worked closely with NHS England and HS&DR throughout the reviewing process. The team utilised rapid review methods in order to ensure that the review was transparent, reproducible and delivered within the agreed three month review timescale.

The brief required that rapid production of the review be balanced with a need to review the included evidence in depth, as the question sought to examine evidence for a relationship between patient outcomes and the volume of cases or the proximity of services. Clearly, a mapping or scoping review methodology would not be appropriate for the question being asked.

What the team did

The Sheffield evidence synthesis centre established a large internal team within ScHARR to deliver the review. The team was led by a Research Fellow/Information Specialist who worked 3.5 days on the review from January to April. The review team comprised three senior leads and four additional systematic reviewers. The team held weekly internal team meetings and regular teleconferences with NHS England and HS&DR. Notes from all meetings were written up promptly and circulated for agreement, with allocated tasks for each team member. A clear timetable with milestones was drawn up at the start of the project and these were adhered to throughout – having a large team mitigated for issues such as staff illness and variable working patterns. The review required us to be highly responsive to our review commissioners, for example NHS England put out a call for evidence for inclusion in our review to stakeholders. Numerous suggestions were received from academic, clinician and PPI stakeholders. Each suggested piece of evidence was examined and the decision about whether it was included or not, and the reasons for this decision, were included in the final report.

What the review team did differently

Standard systematic review methods were adapted in order to deliver the review rapidly, whilst ensuring that it stood up to the highest methodological scrutiny to give the research commissioners and decision makers full confidence in the review findings. Adaptations included:

- Running the search strategy across a smaller number of databases than conventionally used for a systematic review
- One reviewer screening search results for inclusion in the review
- A forensic approach to reference list checking and citation searching
- Having a team of four reviewers undertaking data extraction
- Clinical experts were identified by NHS England, not by the review team, and they also arranged teleconferences with the experts
- The review team reported to two different stakeholders – NHS England and HS&DR
- Omission of quality assessment for individual studies – rather the team assessed the overall usefulness of the included evidence in answering the research questions. The predominance of a small number of registry datasets across multiple analyses allowed the team to highlight known limitations as identified by the study authors themselves.

What was learnt from it?

A large team is an effective way to deliver a rapid review, as long as someone is tasked with the management of the review and responsibilities are clearly defined. The team was able to adhere to all timetable milestones. The team produced a substantive report, with all adaptations clearly and consistently documented. The stakeholders expressed their gratitude for completion of the review within their exacting time requirements and the peer reviewers comments were favourable with regard to what had been achieved within the time allocated for the report. The quality of the review was underlined by its acceptance as a peer reviewed journal article by BMJ Open.

The report has been published as follows:

Turner J, Preston L, Booth A, O'Keeffe C, Campbell F, Jesurasa A, Cooper K, Goyder E. What evidence is there for a relationship between organisational features and patient outcomes in congenital heart disease services? A rapid review. Health Services and Delivery Research 2014[8]

The peer reviewed journal article is as follows:

Preston, L., et al. "Is there a relationship between surgical case volume and mortality in congenital heart disease services? A rapid evidence review." BMJ open 5.12 (2015): e009252.[9]

Box 4. Tailoring review to scope: Developing a methodological framework for organisational case studies[3]

Background

The case study has been proposed as an appropriate method for describing, explaining, predicting, or controlling processes associated with phenomena at the individual, group, or organisational level. The majority of NIHR HS&DR funded case studies are specifically concerned with description or explanation at the organisational level. In the past, many proposals for organisational case studies submitted to the HS&DR programme have been poorly articulated and methodologically weak and were therefore unlikely to deliver robust research findings. Consequently, HS&DR expressed an interest in identifying the characteristics of good quality case study research, and in devising quality and publication standards, with particular application to the NHS.

Objectives

To develop reporting standards for organisational case study research, with particular

application to the UK National Health Service (NHS).

Tailoring review approach and methods

Our initial concern was that any standards derived purely from a rapid review of the methods literature without the authorship of leaders in the field of organisational case study methods would be inappropriate. An alternative approach would be to undertake a Delphi consultation or expert consensus-building exercise to identify elements of good practice and standards for reporting and publication.

We developed a novel hybrid methodology to combine the different strengths of the rapid review and Delphi approaches. Unlike a traditional Delphi consensus process in which all items are generated by respondents before refinement in subsequent rounds by the same respondents, we expedited the process by deriving an initial pool of items from a rapid review of the methodological literature relevant to organisational case studies. These items were then rated in two rounds by a Delphi panel of experts, all of whom had direct involvement with case study research.

This hybrid approach aimed to ensure that both the generation and refinement stages were informed by expert knowledge within the short time frame available for the project. The research team made concerted efforts to avoid influencing the content or outputs of the review and consultation processes, and the processes themselves were reported as clearly as possible to maximise transparency and avoid bias.

The team also used published case studies from the wider literature to ensure that the project was informed by 'real-world' research practices and to check the validity of high-consensus Delphi items for inclusion in the final reporting checklist.

The final checklist consisted of 13 items for which there was a high level of consensus, and was made available through the EQUATOR network (http://www.equator-network.org/reporting-guidelines/developing-a-methodological-framework-for-

organisational-case-studies-a-rapid-review-and-consensus-development-process/)

Lessons learnt

Tailoring a review project to meet the required scope may provide opportunities to combine different methodological approaches in a creative and innovative way.

Further details may be found in the full report[3]

Key lessons

Adapting their general review approach to the purpose of different projects required the teams to be creative and flexible. This included devoting additional resources to a particularly demanding project and incorporating approaches more typical of primary research than of conventional systematic review or evidence synthesis methods. This brief overview introduces the detailed discussion in the next chapter of how specific rapid review methods were selected and modified across both Centre portfolios during the first three years of the evidence synthesis centre programme.

Chapter Five: Tailoring rapid review methods

Current rapid review methodology offers considerable opportunities for development and innovation. It accommodates consolidated learning from examination of shared and differential features across the collective corpus of evidence synthesis centre outputs. It also perpetuates a degree of flexibility when tailoring rapid review outputs to the specific requirements of a particular question.

Summary of evidence synthesis centre output terminology

Eight of the thirteen protocols/outputs produced by the two evidence synthesis centres explicitly use the term "rapid" in their title. The most common label is "rapid review(s)" with five occurrences. Other terms include rapid evidence review, rapid evidence synthesis, and rapid scoping review. The remainder are described variously as brief scoping review, evidence review, evidence synthesis, meta-review, and a systematic review. Associated products include a consensus development process and a literature mapping exercise. The terminology used reflects that reported in a scoping review of rapid review methods.[20] All the York team's outputs include "rapid" in the title, with the exception of an "updated meta-review" which similarly distances itself from the expectations of a systematic review. In contrast three of the Sheffield team's outputs make no reference to "rapid".

Methods used

For their first rapid evidence synthesis the York team acknowledged that "There is no generally accepted definition of this term and a number of other terms have been used to describe rapid reviews incorporating systematic review methodology modified to various degrees".[1] This synthesis shared the systematic review requirement to be systematic and transparent but anticipated limited evidence in the peer-reviewed literature and expected the outputs to be less detailed than for a systematic review. This type of review could be characterised as an "abbreviated systematic review" and was repeated several times within the York portfolio. The other two principal approaches used by York were the meta-review or the review update; either singly or in combination. Sheffield also used different variants of the "abbreviated systematic review". Typically reviews from both centres used techniques

such as scoping, mapping, meta-review and updating of existing reviews within a battery of approaches to tackle a single review question. For example the Sheffield review of group clinics prefaced a systematic review with a mapping of existing reviews and their component studies.

Taken as a whole the experience of the two teams suggests that there is a good argument for defaulting to a position where every review output is preceded with elements of scoping and mapping activity. A key distinction relates to the formality of the process and its status within the final deliverables; formative mapping is a necessary prequel to any substantive review activity (primarily to inform dialogues between commissioner and review team relating to scope) while summative mapping may relate to actual outputs (offering a resource to potential audiences, whether researchers or decision-makers).

Box 5 shows how both abbreviated and accelerated methods were used within the context of the Sheffield review on urgent care. Again most of the innovation in this review related to data extraction and quality assessment.Table 4 characterises methods used within the reviews against an existing published framework (Search, Appraisal, Synthesis and Analysis; SALSA).[25] The table displays considerable variety in the purposes of the reviews and the methods used, with innovation being particularly concentrated towards the Search (including the Sift process) and Appraisal (including data extraction) stages of the review.

The heterogeneity of the evidence base and the multiplicity of sub-questions addressed has required that narrative synthesis techniques, including tabulation, are used most commonly across the programme of work. The collective portfolio also demonstrates considerable use of frameworks and/or logic models both as technical devices for structuring data extraction, synthesis and presentation and as vehicles for establishing context and congruence with audience expectations. Frameworks have previously been identified as particularly amenable to rapid review methods.[26]

Box 5 - Tailoring review methods: Review of evidence on different models of delivering urgent care[11]

Background

The HS&DR Programme requested a review of the evidence around the delivery of urgent care services. The main purpose of the review was to assess the nature and quality of the existing evidence base, and identify gaps that require further primary research or evidence synthesis.

The methodological challenge

The review covered a broad area with an extensive published evidence base and was required within a 6-month time frame. The team achieved this by accelerating the review process (bringing in extra personnel, including those with extensive topic expertise) and by abbreviating the processes of data extraction, quality assessment and assigning strength of evidence ratings.

What the team did

Accelerating the review process

The review was structured around a framework based on a recent NHS England report on transformation of urgent and emergency care services.[27] This ensured that the review aligned with current policy priorities in the NHS in England (discussed further in Chapter Three).

To meet the time frame for completing the review, a large review team was used. The lead reviewer and several other authors were experienced urgent care researchers. Other authors provided expertise in systematic review methods.

The team drew on ScHARR's extensive network of urgent care researchers, bringing in people from outside the core evidence centre team to contribute to this review project. The degree of topic expertise allowed researchers to take responsibility for particular sections of the project and these were conducted in parallel, rather than sequentially.

Abbreviating the review methods

ScHARR's previous research in urgent care facilitated re-use of previously developed targeted search strategies for some topics covered by the review. These strategies were used to supplement more general searches and speed up identification of studies for the review. Other methods used to speed up the review process are described in the following adaptation of wording from the published report.[11]

Existing relevant systematic reviews were used as the starting point for decisions about data extraction. Instead of extracting data from individual papers already included in relevant systematic reviews; the team extracted study data direct from the systematic reviews themselves. Data for additional papers, not included in the systematic reviews, were extracted into summary tables.

All data extraction was carried out directly into summary tables rather than via detailed data extraction forms. A simple, broad template was used to summarise the key characteristics and findings from each included systematic review or individual paper..

Rather than using a standard (risk of bias) checklist approach to quality assessment, the team focused on an assessment of the overall relevance and quality of the evidence included within each theme in the review. Relevance was assessed based on various factors, including the number of included studies, particularly systematic reviews; study types and design; the country and health system within which the research was conducted; and whether the research is single centre or multicentre. Overall quality was assessed based on study types, the strength of the evidence identified by related systematic reviews and other key factors. Four methodological criteria: adequate search, assessment of risk of bias, appropriate method of synthesis and whether conclusions reflect evidence presented were used when assessing primary studies. Where appraisal of a review had previously been generated for the DARE database this was used for quality assessment. Each theme was accompanied by a narrative commentary on quality and relevance.

Lessons learnt

In this example, the review methods were tailored for a rapid, but rigorous, evidence review

that identifies potential areas for further research. The team were able to achieve this given the existence of a substantial body of published evidence and access to topic experts from outside the core HS&DR programme team.

Methods used were determined by the timeframe pre-specified by the HS&DR programme. Topic experts and experienced information specialists and systematic reviewers worked together to synthesise the evidence and complete the project within the agreed 6 month timescale.

Methods used to map the quantity and quality of research would not have been required for a review within a narrower topic area and would not have been appropriate for a review intended to support clinical or commissioning decisions. The report was tailored to the specified purpose and was subsequently included in a research summary on urgent care published by the NIHR Dissemination Centre.

Full details of the review are found in the published report.[11]

Table 4: - Characteristics of rapid review methods (according to SALSA framework)

Title	Overall process	Search	Appraisal	Synthesis	Analysis
Service user engagement[1]	To contextualise existing policy guidance and provide resource for commissioners and providers.	Systematic and transparent methods, process less exhaustive. Expected to find limited evidence in peer-reviewed primary literature. Broadened to include current practice.	Systematic and transparent methods	Sought to go beyond identifying main areas of research and listing their findings. Output less detailed than for full systematic review.	Suggests NHS England guidance as helpful practical framework for future engagement activity Includes Evidence Summary. Subsequent article published in Journal of Health Services Research & Policy[2]
Organisational case studies[3]	Emphasis on reporting over methodological guidance, as latter requires more resource and expertise, and difficult to gain consensus.	Systematic review methodology to identify articles. Targeted methods literature from textbooks, book chapters, journal articles and research methods guidance. Searched library catalogues, key author searches, focused searching of health and social science databases and targeted website searching.	Focused on reporting not study quality	Systematic review methodology to extract and synthesise data. Output less detailed than for full systematic review	High-consensus items translated into 13 reporting standards to improve consistency, rigour and reporting of case study research, to make it accessible and useful to different audiences Includes Evidence Summary
Serious Mental Illness[4]	Necessarily pragmatic and iterative approach. Process less exhaustive than might be expected from a full systematic review: Focused scope on physical health needs of people within a mental health service setting..	Systematic and transparent methods to identify relevant evidence from 2013 to 2015	Systematic and transparent methods to appraise relevant evidence	Combined studies in a narrative synthesis, using nine factors from Mental Health Foundation report as a guiding framework.	Incorporated other relevant factors identified during data extraction and from discussions with advisory group field experts, particularly wider system factors that might underpin successful implementation of

					interventions.. NIHR Signal Alert.
Patients with Cognitive impairment[5]	Review of systematic reviews using evidence mapping to inform a research call.	Searches for systematic reviews supplemented by database searches to cover the period since DARE closed (2015 onwards)	Assessment of review conduct (ie, review methods; reliability of authors conclusions; and appropriateness of authors research recommendations). Based on critical appraisal process undertaken for DARE	Mapping studies against review template. Used summary mapping of results to quantify systematic reviews and illustrate their focus across five headings and sub-categories.	Reviews grouped according to whether they were well-conducted or poorly-conducted
Support for Carers[6]	Update to meta-review (review of systematic reviews). Used purpose/methods and target audience from previous meta-review	Database search strategies from previous meta-review checked and updated. Updated strategies to account for changes to search interface/provider or new indexing terms. Searches re-run on all databases searched for original meta-review. Used reviews filter.	Followed quality assessment approach used in original meta-review. Refined original scoring system: introduced second tier of criteria based on DARE inclusion process to differentiate reviews as 'high' and 'medium' quality	Focused on high quality reviews to identify any intervention effect (positive or negative, derived from narrative or quantitative synthesis); size of effect; heterogeneity; details of population, intervention/comparator, and outcome.	Highlighted findings of interest from high quality reviews. Summarised medium and low quality reviews, to identify any differences from high quality reviews in terms of review coverage.
Provision of services for UK armed forces veterans with PTSD[28]	Focus on UK NHS or NHS relevant international literature (i.e. privileging relevance). Included an overview of current practice; evidence review of models of care; meta-review of treatments.	Use of specialist databases (e.g. PILOTS) and secondary sources e.g. NHS Evidence and National Guidelines Clearing House. Select websites for USA, Canada, Australia. Update searches for material post-DARE	Use of DARE criteria (see above). Prioritising evaluations over descriptive accounts.	Narrative synthesis. Use of framework from one phase to structure subsequent synthesis of later phase. 'Best evidence approach' (highlighting best quality and most promising evidence) to inform future research and practice.	Contact with current service providers to inform existing models. Use of findings from NHS Stakeholder Engagement Survey. Report not yet available
Congenital Heart Disease[8]	Update and extension of pre-existing quasi-systematic review using rapid review that followed	Systematic search of MEDLINE, EMBASE, CINAHL, Cochrane Library and Web of Science (2009–	Inclusion and exclusion criteria applied by one reviewer; 10% checked by second reviewer.	Identified range of factors as well as volume that influence outcome, including condition	Review identified substantial number of studies, but cautioned that complexity of

	standard methods to ensure transparency and reproducibility.	14) with citation searching, reference list checking and stakeholder recommendations of evidence (2003-2014)	Reviewers extracted data from included studies using data extraction form subsequently used for evidence synthesis. No formal quality assessment. Assessed usefulness of evidence and limitations identified by study authors.	severity, individual centre and surgeon effects and clinical advances over time	evidence requires careful interpretation. Also published as BMJ Open article[9]
Group Clinics[10]	Systematic review of evidence from randomised controlled trials (RCTs) supplemented by qualitative studies, cost studies and UK initiatives. Telescoped review, within half time period of conventional systematic review, focused on contribution of recently published evidence from RCTs.	Searched MEDLINE, EMBASE, Cochrane Library, Web of Science and CINAHL (1999-2014) for systematic reviews and RCTs. Additional searches performed for qualitative studies, studies reporting costs and evidence specific to UK settings.	Data extracted for all included systematic reviews, RCTs and qualitative studies using standardised form. Quality assessment performed for systematic reviews, RCTs and qualitative studies. UK studies included regardless of quality or level of reporting. No independent double data extraction or double quality assessment.	Tabulation of extracted data informed narrative synthesis. No attempt to synthesise quantitative data through formal meta-analysis. Sought breadth covering feasibility, appropriateness and meaningfulness in addition to effectiveness and cost-effectiveness.	Analysed subset with common biomedical outcomes using quantitative analysis. Did not reanalyse trials covered in previous reviews. Review team identified three research priorities. NIHR Signal Alert
Urgent Care[11]	To assess nature and quality of existing evidence base and identify gaps that require further primary research or evidence synthesis.	MEDLINE, EMBASE, The Cochrane Library, CINAHL and Web of Science. One general and five theme-specific database searches conducted (1995–2014).	Separate reviews linked to themes from NHS England review. Relevant systematic reviews and additional primary research papers included. Narrative assessment of evidence quality for each review. Used four methodological criteria (See Case Study).	Rapid, framework-based, evidence synthesis approach.	Summarised findings for each theme with assessment of evidence base and implications for future research. Findings fed into Professional Colleges review
Nursing Manpower[29]	To determine prevalent research and to identify gaps in existing research using evidence mapping to	Desk based research, searches of websites, database searching and contact with experts if	None	Document structured around existing generic human resources framework/ typology.	Analysis structured around what is known and what this research is investigating.

	inform a future research call.	necessary			
Community Diagnostics[12]	To identify current models of provision in the UK and internationally and to assess the evidence for quality, safety and clinical effectiveness of such services. Also explored evidence to support broader range of diagnostic tests in community.	Initial broad literature mapping exercise to assess quantity and nature of published research evidence. Results informed selection of 3 focused reviews. Databases, other sources and search dates, decided individually for each review. Included quantitative and qualitative systematic reviews and primary studies of any design.	Individual approaches to quality assessment for each review. No assessment for logistics review (non-research evidence)	Used novel STEP-UP framework to analyse logistic considerations. Produced logic model for pathway review. (See Case Study below).	Mapping review followed by Logistics review; Intervention review and Pathway review. Evidence briefings produced
Tuberculosis contact tracing[13]	Used two-stage process: initial mapping to develop and refine scope and identify potential volume of literature available to a full review to assess feasibility. Initial mapping followed by two linked sub-reviews.	Searched MEDLINE, EMBASE, EconLit, PsycINFO, Social Policy & Practice, Cochrane Library, CINAHL, Science and Social Science Citation Indices. (1995 to date) using terms from existing reviews, supplemented by protocol, and terms from relevant documents. Broadened scope following mapping (which indicated small body of literature).	Initially intended to use standard quality appraisal tools to appraise evidence. Studies typically narrative (descriptive) reports and did not meet criteria of available checklists. Only two studies were considered evaluative.	Content of literature in each review component categorised by country and type of intervention. Narrative synthesis used to provide overview of included studies within review components. Narrative explored similarities and differences between reviews, and highlighted data of importance.	Logic model diagram used to summarise findings across reviews. Integrated data from both reviews within a pathway. Prioritised implications for health care and prioritised implications for research.
Frail older people in the emergency department[14]	Mapping review to identify specific approaches, to identify associated outcomes and any evidence for impact of approaches.	Used existing reference management database from previous review, plus database and supplementary searching, Used pre-existing	Identified records screened by three reviewers. Data extraction undertaken by four reviewers using bespoke form. Due to	Narrative synthesis of interventions and outcomes.	Review suggests additional work required on developing combined interventions targeted specifically at frail older

		search strategies.	heterogeneity of study designs, formal quality assessment not undertaken; overall evidence base assessed together with self-reported limitations.		people

Functions of rapid reviews

Five discrete, but not necessarily exclusive, functions of rapid reviews were identified from the experience of the evidence synthesis centre programme and the wider literature (see Table 5).

- Exploration involves identifying opportunities or gaps either for an individual project or review (scoping) or for an area of work (mapping). Where graphical and database means are privileged or emphasised over the review methods the term evidence map is occasionally preferred. Previously reported confusion between scoping and mapping persists in the literature, with the terms being used interchangeably.[25]
- Consolidation involves building on the platform of either an existing review (review update) or multiple reviews (meta-review).
- Adaptation involves starting from the basic systematic review template but either accelerating progress through extra resources or efficiencies (accelerated), taking methodological shortcuts with a consequent acknowledgement of bias (abbreviated) or using broadly similar methods with non-conventional types of evidence (logistics review or review of good practice).
- Conventional systematic review methodology (evidence Generation) continues to occupy a place in the rapid review portfolio – with decisions about the quantity and quality of the available literature informing a review's viability within the typically short timescales.
- While the remaining outputs (Evidence Summary and Signal Alert (a summary produced by the NIHR Dissemination Centre)) are more Dissemination outputs rather than distinctive rapid review products in their own right, within the context of decision support they occupy an integral part of the rapid review response.

Table 5: Five characteristics of rapid review products

Exploration	Consolidation	Adaptation	Generation	Dissemination
Scoping Review Dalton et al.[5]	Review Update Rodgers et al.[4] Thomas et al.[6] Turner et al.[8]	Accelerated Systematic Review Turner et al.[8] Chambers et al.[12]	Systematic Review Booth et al.[10] Baxter et al.[13]	Evidence Summary Dalton et al.[1] Rodgers et al.[3]

				Chambers et al.[12]
Mapping Review Dalton et al.[5] Chambers et al.[12] Baxter et al.[13] Preston et al.[14]	Meta-review Dalton et al.[5] Thomas et al.[6] Dalton et al.[7] Booth et al.[10] Turner et al.[11] Chambers et al.[12]	Abbreviated Review Dalton et al.[1] Rodgers et al.[3] Rodgers et al.[4] Turner et al.[11]		Signal Alert Rodgers et al.[4] Booth et al.[10]
Evidence Map Preston and Booth[29]		Logistics Review Chambers et al.[12]		
		Review of Good Practice Dalton et al.[1] Booth et al.[10]		

While Table 5 concentrates on the review products the teams also combined synthesis with other primary data gathering activities. For example, Box 4 (see previous chapter) demonstrates how the organisational case studies review from York was used to feed into a consensus development process, thereby accelerating the production of methodological reporting standards.

Summary of Methods for Rapid Review

Collectively, the variety of review topics and purposes explored by the two evidence synthesis centres offers a rich testbed for rapid review methods. Interestingly, this diversity has worked against the dominance of a standardised methods template for either Centre, let alone across both Centres. Instead, recurrence of particularly productive techniques (for example, the use of a common set of quality criteria from the DARE (Database of Abstracts of Reviews of Effects) assessment process) offers the opportunity for continuity and consolidation of experience. Experience within both teams offers opportunities for judicious review method selection from within a wider toolkit while adapting specific techniques against a backdrop of expectations informed by systematic review methodology. Not only does this allow the Centres to learn from each other but it also moves the NIHR HS&DR Programme towards organisational learning of potential benefit to stand-alone commissioned reviews.

Table 6 documents methods used by at least one of the included reviews, offering a toolkit rather than a template. Approaches include both those using accelerated timelines and those employing methodological shortcuts.[15] A scoping review of rapid review methods found that the most common rapid review approaches were: limiting the literature search to published literature or one database, limiting inclusion criteria by date or language, using a single reviewer to screen or abstract data and another reviewer to verify, not conducting risk of bias/quality appraisal or having only one reviewer conduct the quality appraisal, and presenting results as a narrative summary.[18] All of these approaches have been used to differing extents by the two evidence synthesis centres.

Table 6: Consolidated summary of rapid review methods

Methods for Accelerating the Review Process ("Working Smarter/Quicker")	Methods for Abbreviating the Review Process ("Taking Shortcuts" – with increased likelihood of bias)
Overall Process	
Update existing systematic review(s)	Overall pragmatic and iterative approach
Use multiple pairs of reviewers for study selection, data extraction and quality assessment	Use date and English language restrictions
	Exclude Conference Proceedings and Theses
Search (including Sifting)	
Use existing reference management databases	Use of NIHR Project data for identification of exemplars
Use relevance ranking of documents	Use data mining software as second reviewer for non-priority items
Prioritise search terms by relevance	Very narrow date range (for review update)
Scan preselected Websites	Very specific/focused search strategies
	Use of study design filters
Conduct supplementary searches by title word within original reference management database sampling frame (to prioritise sift process)	Conduct supplementary searches by title word within original reference management database sampling frame (to select)
Update and use pre-existing search strategies	Privilege full text sources (pdfs on Google) especially for grey literature and good practice
Identify studies from existing systematic reviews	Limit searching to 5 key non-specialist databases (MEDLINE, EMBASE, CINAHL, Cochrane Library and Web of Science)
Use specialist reviews and secondary literature databases[1]	Use citation searching as alternative to sensitive topic searching
Target review evidence first, and then conduct more focused searches for primary studies within specific gaps	Text word searching limited to Title only when identifying reviews
Use of UK specific databases/catalogues[2]	Searching for publications by experts (methods only)

Screening	
	Two stage screening process (one reviewer for obvious excludes; two for final inclusion)
	Double screening of a sample of records (e.g. 10% or 20%)
Appraisal	
Use appraisals from existing reviews	Use reported limitations from included studies
Use appraisals from evidence based databases (e.g. DARE)	Use existence of independent evaluation as proxy for study quality (good practice reports only)
Use of DARE criteria for quality assessment of systematic reviews	Use descriptive (reporting), not analytical (study quality), criteria when extracting
Use of criteria from original review (review update)	
Synthesis (including data extraction)	
Use of proforma contact forms (for stakeholders) with preset list of questions	Two stage data extraction (basic for all studies and full for exemplars)
Prioritise studies for extraction by reverse chronological order	Intensity sampling of rich cases
Mapping studies against a review template	Prioritise UK health and social care exemplars
Use of spreadsheet for simultaneous quality assessment and data extraction	
Analysis	
Use external frameworks to guide analysis	Focus on reviews with most robust information
Use of logic model to integrate data	
Use of existing accepted 'NHS family' definitions	
Use of stakeholders (field experts and service users) as a complementary data source	
Use of findings from NHS Stakeholder Engagement Survey	
Presentation	
Production of Evidence Summaries	Include mapping process to identify areas for further research
Use of NIHR Signal Reports	

1 The Cochrane Database of Systematic Reviews, the Campbell Library, Database of Abstracts of Reviews of Effects (DARE), Database of Promoting Health Effectiveness Reviews, the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), Evidence Library and Health Systems Evidence, National Guidelines Clearing House, TRIP database, Epistemonikos

2 Health Management Information Consortium, Health Services Management Centre ONLINE (via the University of Birmingham; www.birmingham.ac.uk/facilities/hsmc-library/library-resources/index.aspx), 1 Health Management Online (via NHS Scotland; www.shelcat.org/nhml), The King's Fund Library Database (http://kingsfund.koha-ptfs.eu/).

While the implications of methodological shortcuts for potential publication or reporting bias, and for the robustness of findings from rapid review outputs, requires exploration within a future research agenda, a key conclusion within the review community has been that rapid review methods require more extensive reporting of Limitations within the Discussion

section of reports and journal articles.[17] Similarly, decisions on scope made to meet the specific requirements of the NIHR HS&DR Programme may have implications when other organisations or programmes seek to consolidate, update or extend evidence synthesis centre outputs. Agreed standards of reporting, specific to the principal types of review output, would facilitate this process.[17]

Other facilitators of rapid review projects

Where data collection methods extend beyond the review process, or where stakeholder consultation is critical to achievement of the review objectives, other facilitators contribute to accelerate the process. These include the availability of survey software, access to University ethics committees for original data collection projects, and access to professional discussion lists and mailing lists. Access to in-house topic expertise[20] is also important in minimising delays in the consultation process and allowing the review response to remain flexible and agile.

Chapter Six: Organisation and management of review teams

Different models

Review team organisation and management is a relatively neglected area of systematic review methodology. Systematic review guidance recommends that teams should include topic experts, people with knowledge of systematic review methodology (including statistics and meta-analysis if appropriate) and an information specialist.[19] A recent scoping review of rapid review methods has identified common roles required by review teams including content experts, information specialists, experienced staff, methodologists and knowledge users.[20]

The York and Sheffield centres followed different models of review team organisation, reflecting differences in their broader university settings. The York team was based in a centre specialising in systematic reviews and health technology assessment (while also drawing on expertise from the Centre for Health Economics (CHE) and Social Policy Research Unit (SPRU)). The Sheffield team was part of a large multidisciplinary university department with over 300 staff across sections undertaking a range of primary and secondary health research programmes in health services research, public health and health economics and decision science. In practical terms, the York model involved fewer individuals with generally greater time commitment (among the core team) to the programme. The York approach to review team organisation and management is described in Box 6.

The larger number of individuals affiliated with the Sheffield centre potentially gave the team access to a broad range of in-house expertise but also required careful management to match individuals' availability with the team's workloads. As discussed above, the centre was able to assemble a large and experienced team for a review of congenital heart disease services. The review of evidence around urgent and emergency care systems was led by a topic expert and involved several active researchers in the field, with input and advice from more experienced systematic reviewers.

Review team expertise

In the York team, the PI (AE) was responsible for the overall management of each project. The joint PIs of the Sheffield centre shared this responsibility, with AB providing particular input on methodological issues and EG on clinical topics and liaison with the NHS. Each review in both centres also had a researcher responsible for day-to-day management of the project. This researcher would normally be the lead author of the main project report. Project teams would meet regularly (normally fortnightly in the case of the Sheffield team) to review progress and address any problems or uncertainties.

An important feature of both evidence synthesis centre teams was that the personnel involved were all experienced reviewers and/or information specialists with an interest in service delivery issues and previous experience of the field. A distinctive feature of the Sheffield team was the use of researchers with an information specialist background in a more extended role where they contributed to all aspects of the review process. These reviewers (LP and Anna Cantrell) contributed significantly to most of the centre's projects, including first authorship of reports and journal articles.

The team members also required a flexible attitude to review processes to accommodate the rapid nature of most projects and the need to produce useful outputs for the HS&DR programme and NHS decision-makers.

The wide variety of topics covered by the programme meant that additional topic expertise was sometimes required. This was often sought by consulting diverse stakeholders (see Chapter Seven) but was sometimes available within the core team or by adding to the team. The Sheffield team benefitted from wider departmental expertise in urgent and emergency care when conducting reviews on urgent care systems and frail elderly people in the emergency department. A ScHARR researcher with a background in TB contact tracing provided informal advice for that review and contributed to team meetings and drafts of documents. From the York team, the expertise of one of the co-investigators was pivotal in the work on support for carers, and the background of one of the CRD researchers as a member of a hospital governing body provided valuable extra insight for the review of

service user involvement in decisions about service reconfiguration. In addition to the expertise of the core team members, the York team benefitted from informal advice and input from wider university expertise in related departments when conducting reviews on mental health. The team's budget also allowed for the use of topic expertise from across the university or elsewhere as required.

Software and quality control

The Sheffield team largely used general purpose software such as Microsoft Word and Excel alongside reference management software (EndNote). This had the advantage of requiring minimal training but we propose to make more use of specialist review software in the future. In particular, the data mining capabilities of software such as EPPI-Reviewer could be helpful for screening large sets of references against inclusion criteria.

The Sheffield team have also learnt from the feedback received during the report writing and production process. Our main reports are typically large and complex documents and we plan to focus on internal quality control to comply with the HS&DR programme's preferred style and terminology. This would reduce the time spent on technical editing of draft reports and speed up publication.

Box 6: The York centre's approach to review team organisation and management

The York evidence synthesis centre draws on the skills and expertise of senior staff members, skilled research fellows and information specialists with access to external experts as required. A core team of relevant staff was established over the duration of the contract including three experienced CRD researchers and an information specialist. Individual core team members have been involved in all topics within the initial three year contract enabling consolidation of methodological expertise in rapid evidence syntheses. Beyond this core team, the Centre draws upon additional expertise available to us. This offers a balance of skills within each project team, to meet the requirements of individual topics, whilst maintaining continuity of approach.

Access to wider expertise has proved particularly important in developing the individual topic protocols, and also in interpreting results to ensure relevant and accessible outputs. Wherever possible of the team capitalises on existing links with experts familiar with this type of work to optimise the advice and expertise available. Specialist topic expertise, including that provided by stakeholder and patient and public involvement, especially in the early stages of the review process, is highly beneficial. This type of involvement helps to define and refine the research questions, providing essential background to set the work in an appropriately informed policy and practice context. It also highlights important areas and issues from differing perspectives.

For each topic the work is supervised and managed by the PI, with experienced research fellows responsible for the day to day running of projects. Additional supervision, content and methodological expertise is provided by senior team members. The team adopts a collaborative approach with regular meetings to monitor progress and discuss any issues as they arise, amending the protocol or timelines as necessary. Ongoing dialogue and discussion with HS&DR around the scope and content of the topics allow us to be flexible and responsive to HS&DR requirements.

After initial scoping work, in partnership with the commissioner, the team develops a protocol to facilitate a systematic, methodical and explicit approach and ensure rigour in the conduct of each review. The protocol sets out the approach and methods to be used and addresses any relevant issues identified during scoping; it includes a detailed project timetable with key milestones and deadlines specified to ensure quality and timeliness of delivery. The key elements of the evidence synthesis are documented in the protocol, including: a clear research question (or set of questions); literature searching and data management; study selection, data extraction and quality assessment; synthesis methods; and outputs.

Lessons learnt

The York team's approach to review management allowed team members to develop their

methodological expertise and maintained continuity of approach while drawing on additional expertise as required.

Review sub-teams

Some review projects involved multiple components with different team members working on different aspects. For the Sheffield review of community diagnostic services, the whole team contributed to the initial mapping exercise but smaller teams worked on the focused reviews of logistics, ultrasound scanning and diagnostic pathways for breathlessness (Box 7). The review of urgent and emergency care systems followed a similar process.

Box 7: Review team organisation and management; Review of diagnostic testing services in primary care/community settings[12]

Background

For the background to this review, see Box 1 in Chapter Three.

The organisational challenge

The breadth of the research question and the accompanying time constraints prohibited a linear approach to review management. However, managing several reviews concurrently would prove onerous for the team leader.

What the team did

As previously described (Box 1), a decision was made, following discussion with the funding team, to carry out a literature mapping stage followed by reviews that focussed on particularly pertinent topics. Ultrasound was chosen for the key diagnostic technology and pathways for the diagnosis of patients presenting with breathlessness was chosen as dyspnoea is a commonly presenting condition in primary care. The team decided that it would be useful to map the wide range of diagnostic technologies available in primary care.

The team involved with this review consisted of reviewers, a review methodologist and a topic expert. The review methodologist also doubled as a reviewer for this study.

It was decided that sub-teams would carry out the four different aspects of the review. Each sub-team consisted of two reviewers with one leading on management of the review process. The review lead and one of the co-Directors continued to oversee the reviews as a whole and members of all the sub-teams were invited to team meetings to ensure optimum communication and shared learning.

Implications for the review process

Creating multiple review components required a separate protocol for each review. Each protocol provided a clear focus on one review question, but at the risk of potential overlap between protocols. Creating sub-teams limited to some extent the burden on the project lead, redirecting review management effort towards optimal communication of progress and shared understanding of the aims and agreed timelines between sub-team leads and the main lead. This was particularly important given that the completed written reviews were to be combined and submitted to the funders as a single piece of work.

Lessons learnt

Creating sub-teams to work with separate reviews reduces the management workload of the lead providing there is optimum communication and shared learning across sub-teams and with the lead.

Based on this experience, we recommend that, where multiple review questions are being addressed by a team comprising several reviewers who can access regular team meetings, management via sub-teams should be utilised in future HS&DR Programme reviews.

Full details of the review may be found in the published report.[12]

Key lessons

The York and Sheffield centres followed different models of review team organisation, with Sheffield involving a larger number of different individuals. Both centres used similar processes to manage projects and support quality control. It was important that the researchers involved were all experienced and had an interest in service delivery and in developing rapid review methods. Approaches such as use of a larger than normal review team (congenital heart disease services, see Box 3) and use of sub-teams to handle reviews with more than one question (Box 7) were successfully tested by the Sheffield team. The York team's approach provided continuity and the opportunity to develop methodological expertise Both centres felt that their model worked well for their context and are planning to follow a similar model in the next phase of the programme.

Chapter Seven: Involvement of stakeholders

Stakeholder involvement is increasingly recognised as an essential element of evidence synthesis, with benefits to be realised throughout the review process. Such involvement may be even more important when time constraints and the tailored nature of diverse outputs have an impact on expectations from the review. Indeed recent methodological commentary indicates that the intensity of stakeholder involvement, particularly with commissioners of the review, is a defining characteristic of the rapid review process. That said, management of stakeholder involvement can present a challenge to an already time-constrained review process.

The main stakeholders for the HS&DR evidence synthesis programme were considered to be the HS&DR programme itself; NHS commissioners, managers and other professional users of the programme's outputs; and patients and the public with an interest in the effective delivery of health services and the topic area under consideration. Stakeholders have a role to play in the centres' projects in different ways at different stages. Stakeholder involvement would benefit the programme by:

- increasing efficiency through the use of expert knowledge to complement published evidence at each stage of the process
- ensuring that reviews consider and address aspects important to stakeholders.

Patient and public involvement (PPI)

Projects consistently faced constraints of short timelines in which to complete studies, which precluded time to identify, recruit and involve patient and public advisors. In many cases the general health service nature of the study topics (rather than condition-specific focus) led to a lack of obvious patient groups who could be approached and from which to recruit representatives.

The selected example of PPI outlined below originates from the York team's update of a meta-review (review of reviews) on support for informal carers and shows how the review team made use of existing links and networks (Box 8). The York review of services for UK armed forces veterans with PTSD benefited greatly from input from an army veteran in terms of consolidating the research team's interpretations of review findings.

Box 8: Patient/Public Involvement (PPI). Updated meta-review of support for informal carers[6]

Background

Policy and research interest in carers (those who provide support, on an unpaid basis, to ill, disabled or older people to enable them to live in their own homes) has grown in importance over the past 30 years. In 2009, the Department of Health commissioned a meta-review for the Standing Commission on Carers from the Social Policy Research Unit at the University of York. The aim of the meta-review, published in 2010[30] was to provide the Department of Health with an overview of the evidence base relating to the outcomes and cost-effectiveness of support for carers of ill, disabled or older adults.

With the increase in published evidence since the meta-review in 2010, and the introduction of the Care Act in 2014,[31] an updated meta-review was considered by the National Institute of Health Research (NIHR) Health Service & Delivery Research Programme (HS&DR) to be helpful to inform both the NHS and future research commissioning on the needs of different types of carers and provide information about interventions to support them.

For this update, we adopted a pragmatic approach given the relatively limited time (7 months) and resources available, adapting (as necessary) the methods from the original meta-review to conduct a rapid evidence synthesis.

The need for PPI

The primary research included in the earlier reviews sometimes researched outcomes that were different from those that carers themselves might value. Over 25 years ago, the King's Fund (1988)[32] identified a set of 'core needs' for carers including information and advice

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about caring; assessment of review of their own needs and of those of the person they are supporting; financial support; training; help in the tasks of caring, including respite; emotional support.

There is little in more recent literature to suggest that these core needs have changed substantially, although changes in women's labour market participation in the interim mean that support to remain in or take up paid work now feature both in the literature and in policy.

A review process challenge

As this was a rapid meta-review with a limit on resources and timescale the York team sought a way to engage meaningfully with carers in order to consider and address aspects important to them.

What the team did

Early in the review process the team contacted a small reference group of carers, drawn from one of the University of York's Social Policy Research Unit's permanent consultation groups. We aimed to send them a copy of the draft final report.

Review methods

This updated meta-review used similar methods to the earlier review. Inclusion criteria covered any study relevant to the UK health and social care system that included carers (who provide support on an unpaid basis) of adults who are ill, disabled, or older.

The narrative synthesis was structured by patient condition and by seven carer related outcomes of interest. The quality of the included systematic reviews was assessed using established criteria.

Carer input

A final version of the report was sent to four carers, together with a short brief on the purpose of the project outlining how they might be able to contribute. The team were particularly interested in whether they felt that the interventions for which the reviews seemed to have

found evidence were ones which carers might find helpful. They were given sufficient time to comment in any format they felt most comfortable with.

The carer group highlighted that carers of people with different conditions experience different caring experiences and trajectories. Thus what might be useful and effective for one sort of carer might not be for another. Similarly, what might be useful and effective at one stage in the trajectory might not be at another stage. This underlined the difficulty, as they saw it, of knowing what a true 'control' carer or condition might be in a controlled research design.

They also felt that variations in caring situations and across carers made it difficult to see that a single intervention could be the 'answer' in supporting carers. Rather, as one put it 'because of the complexities of the situations there is unlikely to be a one size fits all that will be right at any one time'. As a result it was felt, any opportunity to engage with carers and the cared for person might 'just press the right supportive button at that moment', hence a 'pick and mix' approach where various support options were on offer would be the ideal.

All the interventions that the high quality reviews had suggested might have a positive effect on carers were seen as acceptable, but the carers pointed out that what was actually available to them was limited and incomplete, and that while education and training for the carer might have a part to play, this was no substitute for 'direct intervention on the carer's own behalf'. They also raised the issue of the value to carers of standard services, including respite, provided to the person they cared for.

Implications for the review process

The team found it necessary to draw on existing links to enable meaningful PPI in the review timescale for this rapid evidence synthesis.

Lessons learnt

PPI provided a contextually-grounded perspective to interpreting the evidence.
PPI offered some assurance to the findings on best evidence, in terms of perceived

acceptability of the interventions.

PPI highlighted that differences can sometimes arise between research and practice (eg, findings on respite care).

The richness of detail from PPI in this rapid evidence synthesis shows that quality input can be achieved from a small number of appropriately selected people.

Drawing on existing PPI representatives who are familiar with the research process can add substantial value.

Full details of the published evidence synthesis can be found in the full report.[6]

Consultation with clinicians, commissioners and other stakeholders

Box 9 illustrates how the Sheffield team's review of TB contact tracing was actively shaped by input from stakeholders. This enabled the team to choose the most useful option for further work following the initial literature mapping phase of the project.

Some review projects had a key external stakeholder (i.e. outside the HS&DR programme) who had proposed the review topic and had a keen interest in the outcome. Examples of such stakeholders were NHS England for the CHD review and Professor Erika Denton (then NHS England's clinical lead for diagnostic services) for the community diagnostic services review. It was important for the review team to keep such stakeholders informed and to work with them closely during the project. The stakeholders provided valuable expertise to the review team by providing information on request and helping to publicise the review findings.

In other cases the review teams sought opportunistic input from local clinicians and commissioners dependent on their goodwill and availability. The team engaged with decision-makers at some or all of the scope, review focus and draft report stages. In addition to the work highlighted in Box 9, the Sheffield review on group clinics used interviews with clinicians to help us understand how these services operated in practice in the NHS. The York team's review of reporting standards for organisational case studies benefitted from the participation of a range of researchers via a modified Delphi process. An exchange of views

with some researchers, who questioned the basis of the project, was managed and resolved amicably.

Box 9: Stakeholder involvement: TB contact tracing review[13]

The methodological challenge

The planned focus of the review was TB contact tracing in specific population groups however, following an initial mapping of the literature it became apparent that there was only a small body of literature potentially available, and data identified were likely to derive from poor quality studies. It was anticipated that the conclusions which might be drawn from a full review of this literature would be severely restricted by the limited numbers and quality of available research studies.

What the team did

Following the mapping exercise the team consulted with stakeholders to inform further work on this topic area. Feedback was invited regarding three potential options for further review work. The options below were presented for discussion with local and national policy makers, topic experts, infectious disease and public health practitioners, specialists in the field and representatives of the review commissioners (the NIHR HS&DR programme).

Option 1. Widen the population inclusion criteria to TB contact tracing in any population (not just specific populations) and explore in particular implementation processes and feasibility. The mapping work indicated that there would be a substantive number of studies available to synthesise.

Option 2. Examine contact tracing in specific populations for other conditions drawing on data from existing systematic reviews. The other conditions included would need to be carefully considered, to ensure that findings from these research studies would be applicable to TB, with careful documentation regarding the criteria for judging applicability. The review would aim to examine what may be learned from tracing in specific population in other conditions, and applied to contact tracing in TB.

Option 3. The mapping exercise indicated that social network approaches, and use of community workers may be promising approaches to TB contact tracing in specific populations. Further work could comprise a systematic review of these interventions in relevant conditions.

The three options presented seemed to offer different potential for adding to the knowledge base. The first option would keep the focus on the condition and use instrumental lessons from the literature. However, coverage would be limited to approaches that have actually been implemented. Also, the mapping review of interventions in specific populations suggested the existence of a limited number of typically poor quality research studies. The second option would focus on the conceptual/theoretical contribution of the wider literature. It might offer innovative solutions from other populations and settings however, might be limited by heterogeneity in the nature of "contacts" and issues of applicability. The third option might shed further light on the mechanisms and processes underpinning these promising interventions, and any issues of implementation reported in other conditions. However, differences in context and delivery may reduce the applicability to TB contact tracing.

Following the consultation, the consensus of opinion was that option one offered the most promise. Further systematic review work would therefore extend the scope to include contact tracing in wider populations, but retain a particular focus on what could be learned and applied to interventions for specific population groups.

The review team broadened the scope to also include TB contact tracing in any population. They re-examined the citations retrieved in the mapping review searches, and also extended the date inclusion criteria backwards five years from 2000-to 2016 to include studies from 1995-to 2016. A second round of searching was completed within these broader parameters.

What was learnt

Involvement of stakeholders at key decision-making points during the review process provides an important steer regarding the focus of further stages of work.

The structure for reporting multi-stage reviews such as this one requires consideration. The feedback from some reviewers of the final report was that the write up of the stages of mapping and then sub-views could have been clearer.

Full details of the review may be found in the published report[13].

The HS&DR programme as a stakeholder

The purpose of much of the work carried out by the Centres was to inform research commissioning, therefore the main stakeholder input was from the HS&DR programme itself. Examples of this were the Sheffield team's brief scoping exercise on nursing workforce input and York's project on reporting standards for organisational case studies. In addition, although the Sheffield group clinics review had a wider remit, the need for new research was a key finding of the review and the HS&DR programme subsequently issued a call for commissioned research on this topic. The York team's scoping review on supporting staff to manage cognitive impairment was also carried out primarily to support research commissioning.

At the inaugural meeting with the NIHR the Centre Directors discussed whether conducting evidence synthesis to inform research commissioning might confer an advantage in bidding for the resulting opportunities. In practice, the HS&DR programme has robust processes to ensure transparency in its research commissioning and the issue has not raised any conflicts for the evidence synthesis teams. Benefits to the Centres have proved more collateral than causal; core Sheffield evidence synthesis centre staff have been involved in a successful NIHR New Models of Care funding application with one of the Sheffield co-Directors acting as methodologist to a further project. Given that the new evidence synthesis centre at the University of Exeter is also supporting one of the successful applications it seems likely that

this simply reflects the topic interests and expertise of the research teams. It is unclear whether the proven track record of delivering reviews under the evidence synthesis centre contracts has a material effect on the deliberations of the NIHR commissioning board, when compared with the promise, or less directly comparable pedigrees, offered by other teams. However, there is evidence that constitution of the Sheffield staff within the evidence synthesis centre has allowed them to more easily mobilise their review resources for additional funding applications such as for the Wellcome Trust. Benefits for the NIHR have included an expanded pool of potential peer reviewers as evidenced by one of the Sheffield team being used to review a subsequent Group Clinics primary research proposal.

The HS&DR programme team also co-ordinated and transmitted requests for evidence synthesis work that originated from various different sources. This inevitably meant that the degree of access the review teams had to the original source of the request varied between projects. The availability of details of the source and rationale of a project was particularly helpful to the review teams at the initial scoping and protocol development stage.

Key lessons

The time and effort required for meaningful input should not be underestimated. Opportunities for PPI in the programme are limited by time, access and availability but both teams are committed to improving this within the next phase. The example highlighted in Box 8 demonstrates the value of using existing links to seek feedback on a short timescale.

Expert stakeholder involvement is extremely important and beneficial but not always easy to obtain unless the stakeholder has a direct interest in the outcome of the project. Topic experts may offer valuable guidance when asked to address specific questions at key decision-making points during the review process (Box 9).

The HS&DR programme team played a key role as stakeholders and used the evidence synthesis programme in part to inform commissioning of new primary research.

Chapter Eight: Dissemination and impact

It is not sufficient for an evidence synthesis centre to demonstrate technical proficiency in production of review outputs. A key component of the review process is engagement with target audiences; optimally this should take place throughout the review process from the start.

The main audience for the outputs of the evidence synthesis centres was envisaged as being NHS decision-makers needing to use and make sense of research evidence to help them in their work. Some projects were designed to benefit the HS&DR programme itself by scoping areas of research to inform decisions about calls for new commissioned research. The results of our work could also be relevant to researchers (both applied health researchers and methodologists) and in some cases potentially to patients and the public. For example, the review of patient and public involvement in decisions about service reconfiguration[1] covers a topic which is of broad interest and likely to remain so at a time of major change in the UK health system.

It was therefore important for both centres and the HS&DR programme to ensure that results were disseminated appropriately and to identify any evidence of the reports and other outputs having an impact on practice and/or research.

How to reach the relevant audiences

The Sheffield centre's first report, covering congenital heart disease services, was commissioned to inform NHS decision-making and as such was supported by a comprehensive programme of dissemination (Box 10). The report was made available to stakeholders in the consultation process and discussion of the review was noted in the official minutes of the Clinical Advisory Panel.

Box 10. Dissemination example: congenital heart disease services[8]

Background

The background to this project is outlined in Box 3 (Chapter 4)

Methods of dissemination

The full review was included in the consultation reference pack published on line and distributed widely "Proposed congenital heart disease standards and service specifications: a consultation 15 September 2014 to 8 December 2014" on pages 166-376.

The formal minutes of the New Congenital Heart Disease Clinical Advisory Panel held on 18 June 2014 records that the panel also directly discussed the findings of the rapid review. University of Sheffield School of Health and Related Research (ScHARR) and its implications for the review:

"Michael Wilson advised that the University of Sheffield School of Health and Related Research (ScHARR) have identified:

- a substantial number of studies that report a positive relationship between volume and outcome

- limited literature to demonstrate improved outcomes as a result of services being close to each other

- limited literature that addresses the proximity of services to home."

Members discussed the findings noting specific findings of relevance to the service review. The Chair then asked members whether the findings would mean a change to the draft standards and this was discussed, as further documented in the published minutes.

It was therefore possible for the review team and NIHR to produce evidence for an immediate impact on the service review, ensuring that both the research team and the funders could document the unusually direct pathway from research findings to impact.

This review was also disseminated in due course through the publication of both an HS&DR journal article[8] and a paper published in BMJ Open[9].

Lessons learnt

The involvement of a key stakeholder in the commissioning of the review ensured that the review would address the questions of most relevance to the decision making process and greatly enhanced the value of the review to the decision makers and certainty that it would be of value in informing the consultation process.

The ability to ask for advice and input to the review process from independent, international clinical and academic topic experts who already involved in advising the NHS England review also ensured the credibility of the review findings. Whilst asking for their assistance in identifying relevant evidence that might have been missed by the review team's database searches did not yield additional evidence that met the review inclusion criteria, it did identify literature useful to inform the review context and provided an invaluable way to check whether key evidence had been missed.

With hindsight, these two factors were crucial in ensuring both the quality and credibility of the review and its direct relevance to the decisions that needed to be made with respect to future service specifications.

Full details of the review may also be found in the published report.[8]

Presentation at relevant conferences is an important vehicle for informing audiences of findings at an early stage and in an accessible format (brief presentation or poster). The main focus of the evidence synthesis centres' conference presentations was the annual Health Services Research UK (HSR UK, formerly Health Services Research Network) conference. Team members also presented at the Society for Social Medicine (SSM) annual scientific meeting.

At the 2016 HSR UK conference, the York team gave an oral presentation on the organisational case studies project (MR) and presented posters on service user engagement in service reconfiguration and integrated care for people with serious mental illness. The

Sheffield team presented two posters covering different aspects of the broad-ranging community diagnostic services project.

The SSM conference has a focus on methods and gave the two centres an opportunity to deliver a joint workshop on the topic of rapid and responsive evidence synthesis. This workshop enabled us to give delegates interested in evidence synthesis an update on our work to that point and also encouraged us to start discussing some of the themes developed in this report. A further poster on the limitations of Internet searching for service delivery information was presented at the 2016 SSM conference.

Some of the evidence synthesis centres' work has been disseminated via the NIHR Dissemination Centre in Southampton, which has a brief to serve a wide range of audiences. The Sheffield group clinics review and York integrated care for people with serious mental illness review were both summarised by the centre with expert comments by independent experts. The latter review was also featured by the widely-read Mental Elf blog. The review on urgent and emergency care was featured in a themed review covering a wide range of NIHR-funded research in this field.

As noted in Chapter One, both centres maintained web pages with details of projects and outputs in addition to the project pages on the HS&DR programme website. Dissemination of our research through social media was limited although individual researchers used Twitter to publicise new publications and this was supported by some NIHR- and NHS-linked accounts. This is an area of work that could be strengthened in the future.

In summary, the centres have used a number of mainly traditional channels to disseminate research to decision-makers, researchers and clinicians. The NIHR Dissemination Centre has supported this process for some of our outputs. The Sheffield team recognise that our approach to dissemination has been to some extent opportunistic and for future projects we intend to incorporate active planning for dissemination and impact from the outset.

How to make outputs as accessible/useful as possible;

Reports in the NIHR journal series routinely include summaries intended to make the findings more accessible to general readers (plain English summary) and those with limited time (abstract and scientific summary). The York evidence synthesis centre, in particular, aimed to produce additional stand-alone summaries tailored to the needs of NHS decision-makers. This work follows on from previous research at York into 'translation' of findings from systematic reviews into actionable messages for decision-makers going back to the publication of the Effective Health Care Bulletin series starting in 1992.

Box 11 describes the development of an evidence summary for the review of service user involvement in service reconfiguration. The York team subsequently produced an evidence summary for the project on reporting standards for organisational case studies. The Sheffield team have plans to develop evidence summaries for selected projects in the future.

Box 11. Dissemination example: Service user engagement and health service reconfiguration[1]

Background

This rapid evidence synthesis addressed a topic arising from the National Institute of Health Research (NIHR) Health Services and Delivery Research (HS&DR) Programme. The objective was to explore what is known about methods and impact of service user engagement in major health service reconfiguration relevant to the NHS. As part of the research output, the team anticipated potential scope to translate findings into practice by developing a succinct dissemination product (an 'Evidence Summary') to highlight exemplars of good practice.

The methodological challenge

This was a broad topic area lacking a clearly defined target audience. The team quickly identified diverse interpretations of health service reconfiguration; service user engagement

could be characterised in multiple ways. Relevant evidence was widely distributed across both peer reviewed and grey literature. The potential diversity of populations/settings, interventions (different methods of engaging users), outcomes (e.g., impact on service change; user satisfaction), and study designs could make it difficult to produce a meaningful synthesis.

What the team did

From the outset, on the team privileged pragmatic value. In addition to producing a comprehensive final report for the commissioners of the review, the team generated a shortened research product (an 'Evidence Summary') for easy access by managers and clinical leaders. The evidence summary was based around six 'exemplars' of good practice. Exemplars covered service user engagement in urgent and emergency care settings; maternity, mental health, and eating disorder services.

Dissemination

Using the six 'exemplar' case studies as source material, the team developed a four-page leaflet (the Evidence Summary)[33] which sought to deliver two main messages:

- What works when engaging service users
- What is most important for future evaluation and reporting

Impact

The research output from this rapid evidence synthesis was commended by service providers and academics alike. The Evidence Summary was accepted as the basis of a conference poster in 2016.

Lessons learnt

The process of keeping the review contextually grounded by early engagement of stakeholders and use of existing guidance (see the full report for further details) illustrates one way to help develop a successful dissemination product. Close attention to policy and context throughout the review also enabled us to discuss the implications of the work in two areas of ongoing service change in the NHS at that time (Emergency Care and Maternity

Services). The exemplar case studies enabled the team to showcase the desired characteristics of future evaluation and reporting when undertaking service user engagement. The team used this information as an opportunity to translate findings into practice using an Evidence Summary. On the basis of this experience the team recommends that this type of accessible output be considered as a standard part of future HS&DR programme reviews, where appropriate.

Full details of the rapid evidence synthesis can be found in the published report[1] and journal article.[2] The Evidence Summary can be found at https://www.york.ac.uk/media/crd/Evidence-Summary-engaging-service-users.pdf. The team have subsequently produced a similar two page evidence summary for another HS&DR evidence synthesis centre topic to develop reporting standards for organisational case studies and others are currently in process.

Other approaches to making research more accessible include social media activity such as project blogs and the use of Twitter and Facebook to disseminate information and engage with the research community. These activities are time-consuming and may be of limited value unless carefully targeted. For this reason, the teams have made limited use of social media to date. An exception was an article on the widely read mental Elf blog about the integrated care for people with serious mental illness project.

Journal publication

At the time of writing (April 2017), the two evidence synthesis centres have published two peer-reviewed journal articles additional to reports in the Health Services and Delivery Research journal. A paper from the congenital heart disease services review was published in BMJ Open and one from the service user involvement in service reconfiguration review appeared in the Journal of Health Services Research and Policy. Papers from the urgent care review (reviewing what is known about the reasons why people choose to access urgent and emergency care services) and the community diagnostic services review (specifically on diagnostic ultrasound services) have been provisionally accepted by Academic Emergency Medicine and BMC Health Services Research, respectively, and are likely to be published

later in 2017. Manuscripts from other reviews are in preparation or have been submitted to journals and are under peer review.

Publication of additional journal articles benefits the centres and the HS&DR programme by bringing the research to the attention of academic audiences who might be less likely to read the longer reports in Health Services and Delivery Research. There is also a benefit to the researchers in terms of their publication record and impact, particularly where the journal has an established 'impact factor'. For reviews covering broad topic areas such as urgent and emergency care and diagnostic testing services, journal articles provide an opportunity to highlight particularly important findings or to bring together findings from different parts of the main report. For example, the community diagnostics team brought together data on logistic aspects of ultrasound services with the available evidence from evaluations of services in primary care and community settings in a paper submitted to BMC Health Services Research. The urgent care paper deals with reasons why people choose to access urgent care services, a topic where previous systematic reviews are lacking.

In addition to the time and resources required for writing and internal peer review, we have encountered a number of barriers to publication of journal articles from the centres' rapid review projects. Potential duplication of content with the main report can be a problem although our experience has been that journal editors often do not see this as a major barrier when the relationship between the two publications is clearly explained and there is a rationale for the publication of the additional paper.

Another potential barrier to the publication of journal articles may be the perception by some editors that rapid reviews fall short of the rigorous standards of a full systematic review. This was mentioned above in relation to the Sheffield congenital heart disease services review (see Chapter Five). The continued development and application of methods for rapid reviews will help to combat this perception. In particular, it will be important for editors to understand the strengths and role of different types of rapid reviews. Improved consistency of nomenclature (see Chapter Five) and agreed reporting standards for rapid reviews will contribute to meeting this goal.

The review protocol is fundamental to the success of a systematic review and this is also true of rapid reviews. Both of the HS&DR evidence synthesis centres produced protocols for all

their projects (except for brief scoping exercises) and these were published online by the centres themselves and the HS&DR programme. Registration of protocols with the PROSPERO register maintained by CRD is now a condition for publication of systematic reviews by some journals. The flexible and iterative development of review protocols by the evidence synthesis centre teams and their stakeholders could be a challenge to timely registration with PROSPERO but the teams expect to aim for PROSPERO registration wherever possible for future projects.

In summary, preparation of additional papers for peer-reviewed journals is time-consuming but worthwhile when the papers bring the research to the attention of different audiences or add value by the way they select and synthesise key findings from the full technical report.

Key lessons

Both teams have used a variety of channels to disseminate the findings of their projects. Conference presentations and journal articles were aimed mainly at researchers and/or clinicians, while the York centre has also emphasised evidence summaries for decision-makers. The focus on dissemination and impact is likely to continue and indeed increase in the next phase of the programme. It will be important to plan carefully to maximise the impact of dissemination efforts rather than working on an opportunistic basis.

The teams have made slightly different choices on where to focus most effort and both have achieved some successes. Further reflection and research is needed to establish the best use of our resources to achieve optimum dissemination and impact. The examples discussed in Boxes 10 and 11 demonstrate the importance of early stakeholder involvement for subsequent dissemination. Both of the reviews highlighted were relevant to areas of active decision-making around service change, creating a favourable context for dissemination of the findings.

Barriers to journal publication exist but they can be overcome if the strengths of the research and importance of the findings are clearly communicated to journal editors and peer

reviewers. Prospective registration of review protocols where possible may facilitate journal publication in the future.

Chapter Nine: Discussion and Conclusions

The commissioning of two centres to provide a rapid and responsive evidence review facility was a new venture for the HS&DR programme. The commissioning of a further three-year programme involving three teams rather than two suggests that the initial programme met the HS&DR programme's objectives. As researchers involved in delivering the service, the end of the first three-year phase provides a natural opportunity to summarise and reflect on what we have learned to date and possible future developments.

Summary of key lessons

The key lessons learnt are described in Chapters 3 to 8. The main points are:

- An initial phase of literature mapping/scoping is valuable for clarifying the scope of complex review projects and defining questions that can be addressed within the available time and resources

- Adapting a general review approach to the requirements of specific projects has required the teams to be creative and flexible, and provided opportunities to use a range of different methods

- The centres used slightly different approaches to review team organisation and management and also adapted their approach for some specific projects. It was important that both teams involved experienced researchers with an interest in service delivery topics

- The time and effort required for meaningful stakeholder involvement should not be underestimated. Topic experts can offer valuable guidance at key decision-making points. Patient and public involvement in rapid reviews can be difficult to achieve; contact with existing networks can be helpful

- It is important to plan carefully to maximise the impact of dissemination efforts rather than working on an opportunistic basis. The teams have made slightly different choices on where to focus most effort and both have achieved some successes. The examples discussed in Boxes 10 and 11 demonstrate the importance of early stakeholder involvement and relevance to current policy for subsequent dissemination.

Implications for review teams

The brief for the evidence synthesis centre teams was to provide a responsive service. This meant that they could be asked to review any topic within the broad remit of the NIHR HS&DR programme. The core teams at both centres comprised experienced reviewers with an interest in topics related to service delivery and organisation. The teams also needed to put arrangements in place from the outset to access expert advice as required, for example from clinical experts and service commissioners.

Delivering the service required the teams to show flexibility and creativity to respond to a wide variety of topics and commissioner requirements. Following initial discussions to define the scope of a new project, it was often helpful, especially for broad and/or complex projects, to undertake some initial scoping work before finalising the review protocol. This enabled an approach to be agreed that met the requirements of the HS&DR programme and was feasible to deliver with the available time and personnel. In some cases, the findings of the scoping phase led to a substantial change from the initial version (e.g. integrated care for serious mental illness). In another project (models of end of life care), the discovery of existing synthesised evidence and ongoing research meant that further review work was not considered necessary.

As summarised throughout this report, but especially in Chapter Five, the two teams used a broad range of methods during the programme, including some not traditionally associated with systematic evidence reviews, such as a Delphi exercise (organisational case studies) and

searches aimed at better understanding current service provision (community diagnostic services). Gaining experience of a broader range of methods is beneficial to the development of the review teams and of individual researchers, so such opportunities are welcome.

While there were many similarities in the approach of the Sheffield and York teams, there were also some differences, particularly in terms of the organisation of the review teams (Chapter Six). This demonstrates that there is no need for a 'one size fits all' approach to this type of review programme, with each team adopting a model that fitted with its own culture and setting within the broader university.

Systematic reviews are founded on the principle of transparent reporting and this requirement applies just as strongly to those undertaking rapid reviews. The evidence synthesis centre teams published their project protocols online and where appropriate on the PROSPERO database. Projects were reported in full in the Health Services and Delivery Research journal and via a range of other outputs and presentations. The range of topics and methods covered within the broad heading of 'rapid reviews' suggests a need for agreed terminology and reporting standards to improve readers' understanding of rapid review outputs and facilitate peer review and publication.

Rapid review teams need to acknowledge the implications of choices made at the scoping stage, including any constraining features. The review teams have made consistent efforts to acknowledge limitations but some peer reviewers have continued to judge what was defined, for example, as a mapping review against the standards of an idealised systematic review (typically a Cochrane review or similar). It will be important to continue educating the wider health research community about the role and value of rapid reviews and their similarities and differences to a 'standard' systematic review.

Wide dissemination of review findings, including additional peer-reviewed journal articles where possible, is an important priority for a responsive evidence synthesis programme. The York and Sheffield teams produced numerous evidence summaries, conference presentations and journal articles as described in Chapter Seven. There is a substantial time lag in the publication of journal articles and this needs to be allowed for in deciding which topics are

priorities for extra publications and where papers should be submitted. Registration of protocols (sometimes specifically on PROSPERO) is increasingly required for review papers to be accepted for publication. The adoption of an initial scoping phase to clarify the scope of the review could potentially complicate the process of protocol registration.

All of the review projects undertaken for this programme (except for brief scoping exercises) have benefitted from the expert input of various stakeholders at different stages of the review process. Maintaining and developing links to people and groups with relevant interests and expertise is important for a responsive evidence synthesis centre. Active PPI can help to assure the relevance and impact of research. As discussed below, this is one aspect that will be developed further in the ongoing evidence synthesis centre programme.

The preparation of this report has demonstrated to the authors the value of sharing lessons between the review teams. It could be valuable for all three teams involved in the next phase of the programme to consider discussing their experiences on a more regular basis.

Implications for research commissioners

From the perspective of the review teams, the existence of the evidence synthesis centres allowed the HS&DR programme to respond to developing priorities more quickly and flexibly than they could have done through their normal process of commissioning individual evidence synthesis projects. The programme produced a wide variety of outputs, some of which directly informed subsequent commissioning of primary research (for example, on group clinics). Topics originated from a range of sources beside the HS&DR programme itself, suggesting that availability of rapid evidence synthesis capacity in York and Sheffield benefitted the programme's ability to serve NHS decision-makers and other stakeholders.

The teams' experience suggests that research commissioners benefit most from this type of programme if they specify their needs clearly but are able to be flexible if scoping suggests

lack of evidence or need to modify original review question. The three-year duration of our programme enabled each centre to maintain a core team and provided continuity and a potential to build relationships and increase understanding between research commissioners and researchers.

It was helpful to the review teams when the HS&DR programme team were able to provide background information on the source of a new project and its underlying rationale. Feedback on occasions when the findings had been actively used by the HS&DR programme and other stakeholders helped the review teams in assessing impact and considering possible dissemination channels for future projects.

Strengths and limitations of the report

This report includes input from the majority of those involved in delivering the programme, representing extensive and varied experience in rapid review methods in general and reviews of organisation and delivery of health services in particular. However, it represents the views of the review teams themselves rather than an independent evaluation. The peer reviewers of our reports and journal articles provided many helpful suggestions and represent one strand of independent evaluation. The HS&DR programme carried out its own evaluation of the programme and decided to commission it for a further three years and to add a third team to the two existing ones.

The thematic approach taken in this report was based on discussion and consensus among the authors. It is not the only possible way of organising such a report and there is some overlap between themes. A key feature of our approach is the numerous examples of challenges that arose in different review projects and how the teams responded to them (Boxes 1 to 11). These allowed us to describe challenges and solutions in some detail but are not intended to be prescriptive. Readers should consider applicability of our examples to their own context (for example, skills, resources and the topic they are reviewing).

Implications for research and development

The experience of delivering such a diverse programme of reviews highlights the value of developing a wider range of well tested methodological approaches to the different stages of the evidence synthesis process to ensure methods can always be appropriately matched to the purpose and resource constraints of a specific review. However, current users of evidence synthesis products may have less confidence in the quality and value of reviews undertaken using methods other than those consistent with established methodological guidance (such as those developed by the Cochrane Collaboration or NICE). This implies that as well as methodological research which is developing a wide range of new approaches, research is also needed to critically examine the impact of using less traditional methods on the quality of evidence synthesis, in terms of delivering comprehensive and unbiased synthesis that all relevant stakeholders will be confident is sufficiently robust to be useful to decision makers.

Over the last three years, the York team have continually developed and evolved our methods building on our experiences from each project we undertake. Where possible we have undertaken work alongside the projects to evaluate specific elements of the methods we have used. For example, the use of text-mining software in a number of our projects; the opportunities to undertake this work is limited by the time and resources available, but we have been able to call upon the expertise of our collaborators at the EPPI-centre. We have identified areas where we think further methodological research will be useful and are looking for additional opportunities to undertake this work alongside other research activity within CRD; in particular we are contributing to the developing work on knowledge transfer.

In the course of the programme the Sheffield team have identified a number of areas for development in the next phase. These include:

- Optimising our use of software to support the review process. The Sheffield team largely used general purpose software such as Microsoft Word and Excel alongside reference management software (EndNote). This had the advantage of requiring minimal training but we propose to make more use of specialist review software in the

future. In particular, the data mining capabilities of software such as EPPI-Reviewer could be helpful for screening large sets of references against inclusion criteria.

- Standardisation of quality of reporting. Our main reports are typically large and complex documents and we plan to focus on internal quality control to comply with the HS&DR programme's preferred style and terminology. This would reduce the time spent on technical editing of draft reports and speed up publication.

- Improved PPI both for the programme as a whole and for specific projects. The current focus on the need to transform service delivery in the UK NHS suggests that there could be could be considerable scope for PPI initiatives to support the centres' work. The Sheffield team are planning to set up a PPI advisory group with 10–12 members. The key roles of the advisory group will be: to provide input regarding the focus of the review to ensure it is relevant and meaningful to patients; to assist in making the research findings clear to a lay audience; and to provide input regarding the dissemination of findings to lay people and third sector organisations. In collaboration with the PPI group, the team propose to produce a plain English description of the centre's work. Another proposal is for an accessible video summary of future completed reviews to be made available via YouTube.

Expert stakeholder involvement is a further priority for the next phase of the programme. This includes both interaction with topic experts to guide the scoping and conduct of reviews and the effective dissemination of findings to health professional audiences. As noted by one of our peer reviewers, dissemination efforts should emphasise face-to-face interaction as well as written or electronic communication.

The next phase of the programme could also provide an opportunity for methodological research, for example the combination of different methods of data collection alongside reviews of published research evidence. Where opportunities arise, we would seek to undertake such work either as part of the evidence synthesis centre programme or as separate projects.

Conclusions

This three year programme has covered a wide range of topics prioritised for evidence synthesis by the HS&DR programme team and/or NHS stakeholders. The review teams have developed ways of working that have enabled us to deliver outputs of high quality to an agreed timetable. We have placed particular emphasis on clarifying the scope of each project (often by an iterative process) and understanding the intended purpose(s) of the project outputs.

This report illustrates the variety of rapid but systematic review methods we have used as well as different methods of organising review teams. It emphasises the benefits of working closely with key stakeholders and of providing review findings in suitable formats for different audiences. The continuation of the programme for a further three years offers an opportunity to build on the review teams' experience to date and further improve the service we offer to the HS&DR programme and the broader NHS.

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Susan K Baxter (Senior Research Fellow, Public Health): report writing, commented on drafts of the report

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Data sharing

No new data have been created in the preparation of this report

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Appendices

Appendix 1: summary tables relating projects to key themes discussed in the report

Table 7: Summary table for Sheffield projects by themes

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
Congenital heart disease services[8]	Scope agreed with both NHSE and HS&DR	Very rapid review. Forensic literature searching. Non standard quality assessment process.	Using Authors own limitations of the data set instead of formal QA	Very large team, all senior staff involved. 5 reviewers undertaking DE. Dedicated review lead (LP) and lead author (JT)	Extensive:. clinicians and commissioners throughout.	Impact on the decision making process as part of the Safe and Sustainable Review.
Measuring nursing	Used published scope of	Internet searching for	Two week turnaround	Partnership; lead plus	HS&DR Programme	Informed HS&DR Call: 14/194

input[29]	nursing; taxonomy for workload	Research in Progress; Use of Authors' Web pages; Web enabled launch pad	Links to existence of projects (descriptive) not evaluated for quality or contribution	methodological consultant; Validation process for initial results	only	
Group clinics[10]	From Chief Medical Officer; excluded pregnancy (already done by me for an HTA). Issues with diverse terminology e.g. SMAs; group visits etcetera.	MOSAIC: Mapping of Component studies from reviews Progressive Fractions; Rapid Realist Review; Web searches for UK Current Practice/ Research in	Linked to Tailoring methods; Also used CRD DARE summaries for existing reviews rather than de novo QA (includes one done by CRD on	Chapters determined early; Division of responsibilities for chapters e.g. Louise for Cost studies; Andrew for Realist Synthesis	Telephone interviews with diabetes clinicians (no direct informants in UK). Email contact with group-clinic-like projects in UK, especially for extra papers	Summary and expert commentary via NIHR Dissemination Centre Discover Portal; Led to HS&DR Call: 15/25. [Lead author peer reviewed proposal] Summarised in BJPCN: https://www.bjpcn.com/browse/evidence-in-practice/item/1902-diabetes-care-could-group-clinics-be-better-than-individual-consultations.html

		Progress	request)			
Models of urgent care[11]	Designed to identify research gaps	Multiple sub-reviews	Use of existing reviews; limited quality assessment and selective data extraction	Greater involvement of topic experts Sub-teams or individuals worked on different aspects		Conference presentation and journal article
Community diagnostic services[12]	Worked with HS&DR and Prof. Denton	Mapping exercise and multiple sub-reviews. Internet search for current services Logistics Review	Limited duplication etc	Sub-teams or individuals worked on different aspects	Sought input from commissioners and clinicians Follow up with Prof Denton	Conference posters and evidence summaries

		STEPUP Framework approach				
TB contact tracing[13]	Input from HS&DR/PH commissioners and clinicians/topic experts in TB	Presentation of evidence to stakeholders after initial search for specific populations, with options for further review outlined. Further review focus on wider populations based on this consultation.	Limited duplication, nature of evidence precluded QA	Lead for review with additional team members supporting	Sought input from commissioners and clinicians at scope, review focus and draft report stages	HS&DR journal report

		Logic model to outline contact tracing pathway.				
Frail elderly in the ED[14]	Developed from the urgent care review. Worked with our academic consultants in ED in ScHARR.	Large review, mapping review approach adopted	Data extraction, quality assessment	Traditional approach with one lead, two senior leads and four reviewers	Protocol to ScHARR ED academic consultants. Academic Summary to above, plus expert in frailty. Academic and Plain English summary to online PPI panel run by STH.	Web report published, full report in production

Table 8: Summary table for York projects by themes

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
Service user engagement[1]	Consultation with HS&DR; engagement with expert advisors (senior academics in health services research) ; discussion with PPI/Communications Management at local Hospital Foundation Trust	To contextualise existing policy guidance and provide resource for commissioners and providers.	Measures to improve efficiency: (1) drawing on multiple sources to shape the research from the outset; (2) careful refinement of inclusion	Collaborative, systematic working; regular team meetings to remain on focus throughout the project	Input from local health care provider during protocol development and final report stages.	Dalton et al. JHSRP 2016[2] Evidence summary on CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/) Poster presentation at the 2016 HSRUK symposium

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
			criteria; (3) use of expert information specialists to tailor the search; (4) agreeing strict quality assessment criteria; (5) signposting and summarising where follow up of evidence not feasible; (6) mapping the			

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
			evidence against existing policy and guidance; (7) close attention to implications of all decisions on workload and resources.			
Reporting Organisational Case Studies[3]	Consultation with HS&DR.	Emphasis placed on reporting over methodological guidance, as the latter would	Rather than starting with a blank page, we obtained an initial list of Delphi	Collaborative, systematic working; regular team meetings to remain on	Engagement with methods experts through the Delphi	Checklist and report added to the reporting guidelines database on the EQUATOR website Oral presentation at the 2016 HSRUK symposium Poster presentation at the 2016 Society

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
		require far more resource and expertise, and would be difficult to gain consensus.	items from a systematic review of the methodological literature and asked experts to refine or expand upon these. Used text mining for checking selection of studies.	focus throughout the project	process and email. Concerns expressed by experts via email were acknowledged and brought into the formal Delphi process. HS&DR were informed and consulted where	for Social Medicine Annual Scientific Meeting Evidence summary on CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-centre/)

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
					appropriate.	
Integrated care for people with SMI[4]	Consultation with HS&DR, local academic experts.	Focused scope on the physical health needs of people with mental health problems, primarily within the mental health service setting.	Focus on overview of current service provision and literature published since two substantial recent reviews	Collaborative, systematic working ; regular team meetings to remain on focus throughout the project	13 field experts interviewed. Included service users and practitioners. Approached NHS England but did not receive reply.	Poster presentation at the 2016 HSRUK symposium NIHR Dissemination Centre signal with expert commentary Blog on the Mental Elf (National Elf Service) website Peer-reviewed journal article submitted
Supporting staff to manage cognitive	Consultation with HS&DR.	Evidence mapping to inform content of a research	Mapping the evidence against an existing	Collaborative, systematic working ; regular team	HS&DR Senior Scientific Adviser	Final report available from project webpage on the CRD website (https://www.york.ac.uk/crd/research/service-delivery/york-evidence-synthesis-

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
impairment[5]		call.	framework; use of established criteria (DARE) to assess the quality of systematic reviews; prioritised findings based on best available evidence.	meetings to remain on focus throughout the project		centre/)
Support for carers[6]	Consultation with HS&DR; collaboration with lead author of	Purpose/methods and target audience based on previous	Use of text mining to screen and select studies;	Collaborative, systematic working; regular team	Engagement with established advisory	Final report now published. Peer-reviewed journal article and evidence summary in preparation

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
	previous review (project was an updated meta-review).	meta-review.	early agreement on method of data management; prioritising results by study quality and best available evidence; use of signposting and summarising.	meetings to remain on focus throughout the project	group of carers to help interpret research findings.	
PTSD in military veterans[7]	Consultation with HS&DR; NHS England; Public Health	For policy makers, commissioners and providers.	Limited checking and duplication.	Collaborative, systematic working; regular team	Use of NHSE published survey;	Web report published, full report in production

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
	representatives; senior academics in military health research.	Overview of current practice; evidence review of models of care; meta-review of treatments.		meetings to remain on focus throughout the project	engagement with veteran service users (to be confirmed) at the draft final report stage to help interpret research findings.	
Topics dropped after initial scoping work undertaken						
End of life care	Consultation with HS&DR, contact with researchers involved in related projects, identification of					

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
	other ongoing work. This lead initially to the work being put on hold, and eventually dropping the topic.					
Models of rehabilitation	Consultation with HS&DR, initial scoping work and further consultation with HS&DR to refine the questions. The work was reprioritised and put on hold by HS&DR whilst we					

	Defining scope	Tailoring methods	'Cutting corners'	Team management	Stakeholder involvement	Dissemination and impact
	undertook other topics. Subsequently a revised potential topic was included in the programme of work, but was not prioritised to be undertaken.					