

What evidence is there on the effectiveness of different models of delivering urgent care? A rapid review

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Scientific summary

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Background

Demand for urgent care (including emergency care) has increased year on year over the last 40 years. The reasons for this are only partly understood but comprise a complex mix of changing demographic, health and social factors. Over the last 15 years there have been a number of reviews of urgent care, policy recommendations for service changes and service level innovations, all of which were aimed at improving access to and delivery of urgent care. Despite this, the emergency and urgent care system remains under greater pressure than ever. It is increasingly recognised that provision of urgent care is a complex system of interrelated services and that this whole-system approach will be key to improvement and development in the future. In 2013, NHS England set out their strategy for development of a system that is more responsive to patients' needs, improves outcomes, and delivers clinically excellent and safe care. Knowledge about the current evidence base on models for provision of safe and effective urgent care, and the gaps in evidence which need to be addressed, can support this process.

Objectives

1. To examine the evidence on delivery of care relating to five themes:
 - i. Understanding demand for emergency and urgent care.
 - ii. Access and direction to the right service – telephone triage and advice services.
 - iii. Managing urgent care outside hospital – patient management by paramedics in the community.
 - iv. Delivery of emergency department (ED) services.
 - v. Emergency and urgent care networks.
2. To determine the quality of the evidence.
3. To determine the main/significant evidence gaps.

Data sources

Data sources used were MEDLINE, EMBASE, The Cochrane Library, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and the Web of Science.

Methods

We have utilised a rapid, framework-based, evidence synthesis approach to ensure the efficient identification and synthesis of the most relevant evidence. A separate review has been conducted for each of the five themes. A range of search methods was used. First, we performed a broad general search on MEDLINE. This was then supplemented by targeted database searches for each of the five themes. Searches were conducted for the years 1995–2014. To increase efficiency, where appropriate, we have utilised existing search strategies from related research that we have conducted within the School of Health and Related Research (ScHARR) or from existing related systematic reviews. Additional references were identified by scrutinising reference lists of included systematic reviews, utilising our own extensive archive of related research and new research provided by internal and external topic experts. A single reviewer sifted searches and a second reviewer checked a 10% random sample. Only empirical evidence was included. Data extraction from individual studies was only carried out for papers that met the inclusion

criteria and had not been included in a systematic review. Data were extracted directly into summary tables. We did not conduct formal quality assessment but provided a narrative summary of study quality based on the limitations reported by study authors. We have summarised the evidence for each theme and identified common issues that overlap between themes.

Results

We have conducted five separate rapid evidence reviews on themes related to the delivery of emergency and urgent care in the NHS. These themes were (1) trends in and characteristics of demand; (2) telephone triage and advice; (3) management of patients in the community by ambulance clinicians; (4) models of service delivery in the ED; and (5) emergency and urgent care networks.

Demand for emergency and urgent care

Four systematic reviews and 39 primary studies were included. There is remarkably little empirical evidence that can fully explain the increases in demand for urgent care. The key evidence gaps and challenges identified from the existing evidence relate to a need to examine demand from a whole-system perspective and to gain better understanding of the relative proportions of demand for different parts of the system and the characteristics of patients within each sector. This could be addressed by developing research studies that build on the existing knowledge about factors that may be influencing demand and the contribution each one makes, and mapping these onto a coherent system model. This would then support the development of service design and planning to meet current and future needs of local populations.

Telephone triage and advice

A total of 10 systematic reviews and 44 primary studies were included. There is an existing, substantial evidence base concerning the operational and clinical effectiveness of telephone-based triage and advice services for management of requests for urgent health care. Overall, these services provide appropriate and safe decision-making and patient satisfaction is generally high, as is the likelihood that patients will accept advice, although this varies depending on the clinician providing it. There is little evidence, though, on the efficiency of these services from a whole-system perspective. Evidence gaps and aspects of service delivery that warrant further study are centred around the need for (1) further assessment of the whole-system impact of telephone access services for emergency and urgent care, including the associated costs, to establish how it contributes to improving system efficiency; (2) more focused research on the broad area of the optimum requirements for different skill levels needed in the NHS 111 service; and (3) more detailed evaluation of the accuracy and appropriateness of call assessment decisions would help answer some of the questions about the appropriateness of referrals made by the NHS 111 service.

Management of patients with urgent care needs by the ambulance service in community settings

Seven systematic reviews and 12 primary studies were included. Extended paramedic roles have been implemented in various health systems and settings; these appear to be successful at reducing transports to hospital, making safe decisions about the need for transport and delivering acceptable care out of hospital, and are potentially cost-effective. The key evidence gaps and areas for further research include (1) further work on ways to support paramedic decision-making and development of integrated care pathways for a range of conditions that mediate safe management in the community setting; (2) more detailed study on the necessary skill mix of paramedics, and paramedics with advanced and specialist skills needed to provide a safe and high-quality, community-based service for patients; and (3) more accurate estimations of the likely proportion of patients who could be safely managed outside hospital to support ambulance resource and paramedic workforce planning.

Models of service delivery in the emergency department

Attempting to assess the evidence on different models of delivering ED services was challenging. We conducted two reviews. One updated an existing systematic review on co-location of primary care in the ED and identified potential for this initiative. Two systematic reviews and seven primary studies were included in this review. We have only been able to conduct a 'review of reviews' (22 systematic reviews) about the wider ED service and, given the complexity of the subject area, we have been unable to identify clear evidence gaps. The review highlighted some areas worth further consideration. Additional focused reviews utilising the existing search library with, where necessary, targeted focused additional searches. One of these could be management of the frail elderly in EDs, as this is a key area for development, but there is little evidence on interventions to improve care. There is scope to identify more recent primary studies from our existing search library. One clear evidence gap is the lack of studies conducted at scale. The emphasis on developing co-located primary care services within EDs is one area in which there is an opportunity to undertake a broader study.

Emergency and urgent care networks

We found no evidence on how to best organise and operate an emergency and urgent care network, nor any empirical evidence on the effectiveness of this type of network model. Research activities which could support emergency and urgent care network development include (1) a more detailed and targeted rapid review to further explore the related theoretical literature and identify evidence concerning design and strategies for successful network development; (2) some rapid scoping research to identify and map current emergency and urgent care network development nationally; and (3) a programme of research to evaluate emergency and urgent care networks and measure effectiveness.

Some common themes were identified across subject areas. These included (1) the relationship between better understanding of the drivers of demand and the planning of health services by networks; (2) the need to develop integrated care and referral pathways to improve effectiveness for telephone services and support patient management in the community; and (3) the need to measure whole-service and -system impact, and associated costs, when evaluating interventions and initiatives.

A substantial number of included studies for most themes were from the UK, but this was not the case for the trends in demand theme.

Limitations

This was a large-scope rapid review; therefore, we have not been able to conduct a detailed analysis of the quality of the evidence base. Some of the key themes identified are summarised below:

- Overall, the evidence base on the clinical effectiveness of different models of care for delivering emergency and urgent care is weak, with small numbers of randomised controlled trial designs and a reliance on uncontrolled before-and-after studies.
- There is an emphasis on process measurement, such as times and attendance rates, rather than patient outcomes other than satisfaction.
- Little attention has been paid to the costs and cost-effectiveness associated with interventions.

A quality assessment of the 22 systematic reviews on delivery of ED care found that, overall, the quality of these reviews was good, with 20 out of 22 conducting adequate searching, 13 out of 22 assessing risk of bias and 17 out of 22 using appropriate methods of synthesis; in 14 out of 22 the evidence presented was judged to support author conclusions.

The limitations of the rapid review method we have used are as follows: (1) we have not exhaustively searched for and synthesised all the relevant literature; (2) we have drawn extensively on existing systematic reviews; and (3) because of the potential scope and scale, there are related themes that have been excluded from this review. The most obvious gaps are separate reviews of models of urgent care within primary care and specific attention to workforce issues, such as skills, education and retention. We have also not been able to include patient and public involvement input to this review, but this will be of benefit when prioritising which evidence gaps should be addressed to assess importance to patients.

Conclusions

We have conducted five separate rapid evidence reviews on themes related to the delivery of emergency and urgent care in the NHS. We have found there is a paucity of evidence to explain the complex reasons that have driven the increases in demand for emergency and urgent care and to support the development of emergency and urgent care networks. There exists a considerable evidence base on the clinical effectiveness and cost-effectiveness of some interventions to improve service delivery, but the evidence base is weak overall and based in small single-site studies with no assessment of impact at scale or on the wider emergency and urgent care system.

The evidence gaps that appear to be in most immediate need of addressing are:

- research to characterise and map demand at a population level and link this to service need so that emergency and urgent care systems can be designed that can effectively, efficiently and safely respond to patient needs
- an assessment of the current state of play in the development of emergency and urgent care networks, and longer-term evaluation of the clinical effectiveness and cost-effectiveness of different network models to identify how best networks can deliver NHS England objectives
- expanding the current evidence base on existing interventions that are viewed as central to delivery of the NHS England plan by assessing the implications of increasing interventions at scale and measuring costs and system impact.

Although not an evidence gap, a clear theme that emerged across the reviews was the need for robust, high-quality and linked patient data to support these tasks.

Finally, given the large number of related programmes already at work in the NHS, it would be prudent to develop a national picture of existing pilot projects or interventions in development to support decisions about research commissioning.

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