A qualitative study of decision-making and safety in ambulance service transitions

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Scientific summary

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Scientific summary

Background

The delivery of emergency health care within the NHS embodies challenges for risk management and patient safety. Circumstances can be demanding for patients and staff, with multiple decisions being made that often involve crossing professional and organisational boundaries. Front-line ambulance service staff routinely make critical decisions about the most appropriate care to deliver in a complex system characterised by significant variation in patient case mix, care pathways and linked service providers. Before the commissioning of this research very little research had been carried out within ambulance service settings to identify areas of high risk associated with decision-making about patient care options.

The increase in demand for emergency care over the last decade has led to significant changes in the way pre-hospital emergency care is delivered. These changes have increased the complexity of the system, with the introduction of new services, staff roles and associated patient care pathways, along with increasing demands to meet operational standards and performance targets. To address the patient safety issues associated with decisions around transitions in patient care, it is therefore necessary to examine the influence of the wider system in which these decisions are made.

This study examined system influences on decision-making by ambulance service staff around transitions in patient care.

Aim

To explore the various influences on safe decision-making by ambulance service staff to identify areas in which interventions are needed to improve patient safety during transitions and areas in which further research is needed.

Objectives

1. To map the ambulance service system, care pathways, linked services and decisions that are critical for safe care in a sample of ambulance services in England.
2. To conduct an ethnographic investigation of factors influencing decision-making by ambulance service staff directly involved in patient care to identify threats to patient safety (risk factors) and how these threats are managed.
3. To feed back the study findings to participating ambulance services and local stakeholders to elicit their views and identify areas in which strategies are needed to improve patient safety and areas in which further research is needed.

Study setting

Selection of three ambulance service trusts sought to ensure that the study represented the variety of contextual factors in the pre-hospital emergency care system (e.g. care pathways, staff roles, service configuration) and that the issues identified had relevance to the other ambulance service trusts in England. Three case study organisations enabled the examination of variations in system characteristics and how these relate to delivering safe care. The participating trusts operate across diverse geographical areas, including densely populated urban areas and sparsely populated rural areas. They also serve

socioeconomically diverse populations and provide a variety of emergency care responses (e.g. paramedics or paramedics with advanced training and skills).

Methods

The study adopted a multisite design using multiple qualitative methods to examine the various influences on decision-making by ambulance service staff, particularly concerning transitions in the care process and the safety implications for patient care.

Phase 1: mapping the system

Phase 1 aimed to provide some contextual understanding of the three sites by mapping the emergency care system, care pathways, linked services, safety critical decisions and organisational characteristics that could affect patient safety in the participating ambulance services. This involved conducting semistructured interviews with a small number of key informants ($n = 16$) across the three sites and consulting documentation to develop a representation of the local system and elicit informants' perceptions of influences on staff decisions, care transitions and threats to patient safety. Phase 1 highlighted a number of issues relevant to phase 2 that helped to trigger discussion in the focus groups.

Phase 2: exploring influences on decision-making and safety

Phase 2 examined decision-making practices and influences around care transitions across the three ambulance services and their linked urgent and emergency care network. It addressed how the emergency care system influenced decision-making and identified the key issues for staff and service users. Phase 2 included an ethnographic study in which ambulance service staff at each site were observed over a full shift period (10–12 hours) by either a university researcher or an ambulance service researcher. In total, 34 shifts were observed across the three trusts, including at least two different operational areas per site and involving a range of staff ($n = 57$) and patient calls ($n = 155$). Digital diaries were completed by paramedics across the three sites ($n = 10$), recording issues in relation to a range of patient calls ($n = 141$).

Three staff focus groups were conducted across the three ambulance service trusts ($n = 21$). Participants had experience with the service ranging from < 1 year to 20 years. Roles included solo rapid response, dual crew member, emergency care practitioner (ECP), paramedic practitioner (PP) and critical care paramedic (CCP). In addition, three focus groups were carried out involving service users ($n = 23$).

Phase 3: feedback workshops

Phase 3 involved workshops at each site to feed back research findings. The aim was to feed back the study findings and elicit suggestions on potential areas for intervention to improve patient safety and areas in which further research is needed. Across the three sites, a total of 45 staff and service users attended the workshops along with members of the study team.

Data analysis

For interviews, focus groups, digital diaries and workshops, data were audio recorded. Data from observations were collected using a mix of audio recorder and written notes. Audio recordings were transcribed verbatim for analysis. Data analysis involved coding and categorisation of data, using a human factors framework. From the framework, an iterative process of coding and categorisation identified themes relevant to the research question.

Observation data from each shift attended were charted and coded to produce a typology of different types of decisions that paramedics make when attending patients. Influences on those decisions from observation, digital diary and focus group data were coded within the human factors framework and then thematically analysed. The categories were fed back to participants at the three workshops.

Findings

In phase 1 the changing political and financial context of the ambulance service was acknowledged and interview data identified a range of institutional and organisational issues that potentially impact on operational decision-making.

Nine types of decision were identified, from specialist emergency pathways to non-conveyance. The nine decision types illustrate the escalation in complexity and the potential risk involved in decision-making for urgent and more complicated cases compared with emergency and protocol-driven pathways for conditions such as trauma, cerebrovascular accident (stroke) and heart attack (ST segment elevation myocardial infarction). Whereas emergency cases are more straightforward in terms of whether to convey a patient to hospital or not, non-emergency patients and potential non-conveyance invoke complex decisions about social and psychological care as well as attending to comorbidities.

Whereas the typology illustrated the kinds of decisions made by ambulance crews, focus group, observation and digital diary data also provided information about factors that impact on decisions. The real-time data gathered during observations allowed the process of decision-making on scene to be observed as well as some of the influences on those decisions. Digital diary and focus group data provided accounts from paramedics about decision-making and influences on decisions in the context of patient safety.

Coping with increasing demand, particularly in urgent care, influenced decisions as accident and emergency (A&E) departments are becoming overloaded and there was acknowledgement that one way to improve the situation for staff and patients is, as far as possible, to support patients to remain at the scene rather than conveying them to hospital. Observations and digital diaries showed that this option was considered in cases in which hospital admission was not strictly necessary. However, all data methods used highlighted the complexity of this option in practice. For example, to allow patients to be treated and remain on scene paramedics needed the confidence to make this decision safely, which required an appropriate level of skills and knowledge. Patients and/or carers needed to understand the implications of treatment and follow-up care and/or self-care. Follow-up often required referral to other professionals outside the ambulance service, which was dependent on those services being available at that time and in that setting.

The process of decision-making began with information retrieved from the control room and was followed by patient assessment. Assessment included looking for clues about what was normal or abnormal for the patient, what was needed in that situation and whether this perceived need could be reconciled with what the patient wanted. External clues about best practice and alternative options to A&E conveyance were retrieved from the available ambulance decision support mechanisms.

Staff focus group data highlighted 10 main issues influencing patient safety in decision-making. These overlapped with findings from observations and digital diaries and gave a degree of confidence to the validity of the findings. However, focus groups provided a different perspective because they were retrospective and group based. Groups spoke about the changing nature of demand for ambulance service care, including the increased scope and complexity of decisions that encompass emergency care, primary care and psychosocial decisions. Time and resource pressures were felt to be exacerbated by the current ambulance service performance regime and targets designed to improve emergency care outcomes. Operational demands and performance targets also impacted on opportunities for training and education, which was regarded as a risk to patient safety. A lack of standardised access to appropriate care options for a range of conditions and situations was a major issue, especially as crews were working across numerous boundaries, geographical and organisational. Some patient populations were felt to be at greater risk because of limited and inconsistent service provision across the urgent and emergency care system (e.g. mental health, end-of-life and elderly patients), particularly out of hours. This led to situations,

which were also reported in digital diaries and interviews, in which paramedics made difficult decisions without specialist support.

There was a sense that communication between crews and their organisation was opportunistic and somewhat distant. A particular issue was the lack of useful feedback to crews about the appropriateness of the decisions they had made. This hampered learning for use in similar future cases. Disproportionate risk aversion was associated with a combination of limited confidence, limited care options and a culture in which paramedics felt at risk professionally should they make a mistake.

Service user focus groups across the three sites reflected on similar issues. The accuracy of information being accessed during the initial process was a concern. Service users also emphasised the importance of patient involvement in decisions made on scene. Service users were aware of the demands facing staff and the impact of being accessible 24/7, whereas other services are more difficult to access. Risk aversion among the public and health professionals was reported to be a potential reason for increased demand, particularly in relation to patients with primary care and psychosocial needs.

The study findings resonated with workshop participants. The prioritisation exercise to rank issues for attention identified the two highest ranking issues as training and development and access to alternative care options. A range of potential topics for future research as well as interventions was suggested at the workshops.

The seven overarching issues identified are not mutually exclusive and they encompass an array of underlying subthemes that might be more fruitful to target for research or intervention. The level of consistency across the participating trusts suggests that the issues identified are possibly relevant to other ambulance service trusts. Although the findings largely focus on perceived weaknesses in the system and potential threats to patient safety, it is fair to say that there were parts of the system within each of the trusts that were working well, for example specific pathways, local roles and ways of working and technological initiatives that address information needs [Intelligence Based Information System (IBIS) and electronic patient record form (ePRF)].

Conclusions and research recommendations

The study explored influences on safe decision-making and provided insights on the types of decisions that staff make as well as a range of system influences. The use of multiple methods provided consistent evidence around key issues.

The NHS system within which the ambulance service operates is characterised in our study as fragmented and inconsistent. For ambulance service staff the extent of variation across the geographical areas in which they work is problematic in terms of knowing what services are available and being able to access them. The lack of standardisation in practice guidelines, pathways and protocols across services and between areas makes it particularly challenging for staff to keep up to date with requirements. As ambulance services are increasingly under pressure to focus on reducing conveyance rates to A&E, this intensifies the need to ensure that crews are appropriately skilled to make effective decisions over the need to convey or not. However, there were widespread claims that meeting ambulance service operational demands and performance targets limits the time available for training and professional development. The effectiveness of the paramedic role in facilitating access to appropriate care pathways also hinges on relationships with other care providers but staff felt that perceptions of the ambulance service as primarily a transport service pose a barrier to working across these professional and service boundaries.

Service users were receptive to non-conveyance options but felt that lack of awareness of staff roles and skills may cause concern when patients expect conveyance to A&E.

The following research recommendations are based on the study findings:

- identify effective ways of improving the delivery of care across service boundaries, particularly for patients with limited options at present (e.g. mental health, end-of-life care, older patients)
- explore the impact of enhanced skills on patient care and on staff, for example the impact of increased training for urgent rather than emergency care
- explore the impact of different aspects of safety culture on ambulance service staff and the delivery of patient care
- given the increased breadth of paramedic decision-making, there is a need to look at the diagnostic process and potential causes of error
- explore whether there are efficient and safe ways of improving telephone triage decisions to reduce over-triage
- explore public awareness of, attitudes towards, beliefs about and expectations of the ambulance service and the wider urgent and emergency care network and the scope for behaviour change interventions
- ensure that evaluations of new ambulance service performance metrics or other innovations address their potential impact on patient safety.

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