Reliability Engineering and System Safety 141 (2015) 54–62

Contents lists available at ScienceDirect

Reliability Engineering and System Safety

journal homepage: www.elsevier.com/locate/ress

The role of dynamic trade-offs in creating safety—A qualitative study of handover across care boundaries in emergency care

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ARTICLE INFO

Available online 13 March 2015

Keywords:
Resilience
Patient safety
Emergency care
Handover
Healthcare
Dialectics

ABSTRACT

The paper aims to demonstrate how the study of everyday clinical work can contribute novel insights into a common and stubborn patient safety problem—the vulnerabilities of handover across care boundaries in emergency care. Based on a dialectical interpretation of the empirical evidence gathered in five National Health Service organisations, the paper argues that performance variability is an essential component in the delivery of safe care, as practitioners translate tensions they encounter in their everyday work into safe practices through dynamic trade-offs based on their experience and the requirements of the specific situation. The findings may shed new light on the vulnerabilities of the handover process, and they might help explain why improvements to handover have remained largely elusive and what type of future recommendations may be appropriate for improving patient safety.

1. Introduction

It is widely recognised that patients across all healthcare systems may suffer preventable harm [1,2]. Research from various countries and different medical settings provides evidence suggesting that 4–12% of patients experience an adverse event during the course of their treatment, and that half of these may have been preventable [3–6]. This causes needless harm and suffering to patients, and it can be traumatic for the practitioners involved [7]. There are significant financial implications in terms of litigation and additional treatment costs; for example it is estimated that the costs associated with adverse drug events in the National Health Service (NHS) are £0.5–1.9B annually [8].

Communication failures have been identified as a key threat to patient safety [2]. A Joint Commission report suggests that breakdown in communication was the leading root cause for sentinel events reported during 1995–2006 [9]. A large body of research demonstrates that inadequate handover practices from one caregiver to another are putting patients at risk [10–12]. Handover failures can lead to delays in treatments [13], medication errors [14], unnecessary duplication of assessments [15], and poor patient experience [2]. The risks arising from inadequate communication and handover in emergency care may be particularly significant due to high patient acuity and overcrowded emergency departments (ED) [16]. The Institute of Medicine identified poor handover as a leading cause of medical error in the ED [17]. Factors that may affect the quality of handover include unclear structure of the handover conversation [11], frequent distractions [18], inadequate documentation [19] and overreliance on documentation [20], and a lack of training in handover and non-technical skills [21].

A frequent recommendation for the improvement of handover is the adoption of standardised communication protocols [22–25]. However, a systematic review of the literature on handover in hospitals (up to 2008) concluded that there was no reliable body of evidence to suggest that standardisation of handover provided sustainable improvements in patient outcomes [10]. This may be due to an overly narrow perspective that regards handover as discrete acts of information transfer [26]. The introduction of standardised communication protocols is intended to prevent failures of information transfer, which are perceived to be caused by inadequate communication skills. The focus on failures is a key characteristic of traditional approaches to safety management. However, it has been argued that this might lead to solutions that are not based on an in-depth understanding of everyday clinical work and the problems practitioners face [27,28].

Leading writers in the domain of Resilience Engineering refer to this kind of thinking as Safety-I [29]. Safety management from a Safety-I perspective aims to reduce harm and adverse events as far as possible by either eliminating the causes of harm or by controlling the risk associated with these. In order to prevent an undesirable event from repeating itself, the learning that is generated from retrospective analysis of incidents and adverse events frequently leads to the implementation of additional safeguards or defences in order to reduce or eliminate vulnerabilities in the system [30]. Such defences often include technological solutions or attempts at eliminating human error by constraining

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http://dx.doi.org/10.1016/j.ress.2015.03.006
0951-8320/

behaviour and reducing variability through standardisation [31], as in the case of patient handover.

Safeguards, defences and standardisation are examples of well-intentioned interventions that represent instances of formal assumptions about how work should be carried out—work-as-imagined (WAI) [32]. Their primary purpose is to break a particular causal chain in order to prevent a specific failure trajectory from repeating itself. However, the way everyday clinical work is actually unfolding—work-as-done (WAD)—is different, and modern healthcare systems might best be understood as complex adaptive systems [33]. The complexity of healthcare opens up gaps in the continuity of care, which practitioners have to anticipate, detect and bridge using their judgement and expertise [34]. Such necessary performance adjustments are thought to contribute to organisational resilience [35].

Resilience has been defined as the ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions [36,37]. The emerging field of Resilience Engineering [38] is based on an alternative view of safety—referred to as Safety-II—that regards the performance adjustments that people undertake on a daily basis as the origin of both success and failure [29]. Most of the time, these performance adjustments enable successful transformation of WAI into practice; sometimes the performance adjustments are inadequate or insufficient and lead to failure. From a Safety-I perspective, however, performance variability is often regarded as detrimental deviations or violations [32]. Safety-II, on the other hand, aims to understand and learn from how systems succeed, i.e. from situations when there is safety, rather than exclusively from failures, i.e. situations where there is no safety [39]. It could be argued, therefore, that there is a need for a change in focus from the study of the extraordinary (i.e. failures) to the ordinary, everyday clinical work.

The aim of this paper is to demonstrate how the study of everyday clinical work can contribute novel insights into a common and stubborn patient safety problem—the vulnerabilities of handover across care boundaries in emergency care. Based on a dialectical interpretation of the empirical evidence gathered in five NHS organisations, the paper argues that performance variability is an essential component in the delivery of safe care, as practitioners translate tensions they encounter in their everyday work into safe practices through dynamic trade-offs based on their experience and the requirements of the specific situation. Such insight might help explain why improvements to handover have remained largely elusive, and what type of future recommendations might be appropriate for improving patient safety.

The next section provides a brief description of the context of handover in emergency care. This is followed by a description of the methods for data collection and data analysis. We then present the results of the qualitative data analysis, and we discuss these in the wider context of the growing body of resilience engineering literature. We conclude the paper with implications for research and for practice.

2. Handover in emergency care

The British Medical Association defines handover as “the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis” [40]. The definition includes explicitly the transfer of responsibility for patient care, in addition to the transfer of information from one caregiver to another.

The emergency care pathway includes pre-hospital, ED and hospital activities for patients with acute needs. In this paper only patients taken to the ED by ambulance, and patients referred from the ED to acute medicine are considered. Handover in emergency care comes in different shapes and forms. There is the handover at the end of a shift, which takes place between peers that share the same professional background. On the other hand, the types of handover considered in this paper take place along the patient pathway. Such handover typically involves individuals from different backgrounds who often belong to different departments or organisations.

For critically ill patients requiring immediate treatment, handover occurs from the paramedic to a senior ED doctor in the resuscitation area. Other patients arriving by ambulance will be handed over from the paramedic to the nurse coordinator at the nurses' station or at a dedicated handover point in the main ED area. When the patient is referred on from the ED there is a handover by phone from the ED doctor to either a doctor or a nurse in acute medicine or a specialty. There is also a handover from the ED nurse to the nurse on acute medicine when the patient is transferred physically onto the ward.

The style of communication and the information that is communicated during the handover are dependent on the purpose of the handover and on where in the patient's journey it occurs. For example, handover from paramedic to ED nurse is predominantly unidirectional and typically includes consideration of aspects such as patient demographics, patient condition, aspects of clinical and social history, treatments given pre-hospital, observation of vital signs, and any symptoms exhibited. When a patient is referred to acute medicine the communication style is more interactive, and the focus of the conversation is on the need and justification for admission [41]. The handover from the ED nurse to the nurse on acute medicine will focus on issues relevant to nursing aspects, such as any specific care arrangements that may be required. As an example, Figs. 1 and 2 provide a graphical representation of the emergency care pathway and the handovers that take place along the pathway for “Majors” patients involving the ambulance service, the ED and the acute medical ward in the hospital. The pathway for resuscitation patients is slightly different, and pathways may vary for different organisations. Full pathway descriptions are provided elsewhere [42].

3. Methods

3.1. Setting

The Emergency Care Handover (ECHO) project was funded by the National Institute for Health Research (NIHR) Health Services & Delivery Research (HS&DR) programme. Study sites included three English NHS hospitals and two NHS ambulance services that provide emergency care services in the catchment area of one participating hospital, respectively. The third ambulance service chose not to participate in the study, and no data involving their staff were collected.

Table 1 provides an overview of general characteristics of the three hospitals. Hospital A is part of a large NHS Foundation Trust and provides services to a deprived city community with ethnic diversity. Hospital B is part of an NHS Trust consisting of four hospitals. The population served is slightly younger than the national average, and it has above average health and life expectancy. Hospital C is a District General Hospital providing services to an ethnically diverse and rural population.

The study was undertaken from April 2011–December 2012. The study had NHS research ethics approval from South Birmingham Research Ethics Committee (reference 11/WM/0087) as well as institutional approval at all participating organisations. All participants received a participant information leaflet and were briefed prior to participation, and provided written consent.