Australasian Emergency Nursing Journal xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Australasian Emergency Nursing Journal

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

Case study

Concepts, antecedents and consequences of ambulance ramping in the emergency department: A scoping review

Chris Kingswell[a], Ramon Z. Shaban[b,d,f,*], Julia Crilly[c,d,e]

[a] School of Nursing, Midwifery and Paramedicine, University of the Sunshine Coast, Fraser Coast Campus, 161 Old Maryborough Road, Hervey Bay, Qld, 4655, Australia
[b] School of Nursing and Midwifery, Griffith University, Health Sciences Building (N48), 170 Kessels Road, Nathan, Qld, 4111, Australia
[c] School of Nursing and Midwifery, Griffith University, Clinical Sciences 2 Building (G16), Parklands Drive, Southport, Qld, 4215, Australia
[d] Menzies Health Institute Queensland, Griffith University, Health Sciences Building (N48), 170 Kessels Road, Nathan, Qld, 4111, Australia
[e] Department of Emergency Medicine, Gold Coast Health, 1 Hospital Boulevard, Southport, Qld, 4215, Australia
[f] Department of Infection Control, Division of Infectious Diseases and Immunology, Gold Coast Hospital and Health Service, 1 Hospital Boulevard, Southport, Qld, 4215, Australia

ARTICLE INFO

Article history:
Received 9 March 2017
Received in revised form 17 July 2017
Accepted 30 July 2017
Available online xxx

Keywords:
Ambulance ramping
Delay
Emergency nursing
Paramedic

ABSTRACT

Background: Patients arriving at the Emergency Department (ED) via ambulance can experience a delay in receiving definitive care. In Australia, this phenomenon is referred to as 'Ambulance Ramping', 'Patient Off Stretcher Time Delay' or 'Offload Delay'. As a direct consequence of crowding, and in the context of a worldwide increase in ED and ambulance usage, hospital and ambulance service function is hampered. The aim of this review was to synthesize the literature with respect to the conceptualisation, meaning, antecedents and consequences of Ambulance Ramping.
Methods: This was a scoping review and synthesis of the literature. Six search terms were employed: emergency medical technician; paramedic; ambulance; hospital emergency services; delay; and ambulance ramping. Journal articles that discussed Ambulance Ramping (or similar terms), and were published in English between 1983 and March 2015 were included. PubMed and CINAHL Plus databases were searched, with secondary searches of reference lists and grey literature also undertaken.
Results: Thirteen papers were selected and inform this review. Several terms are used internationally to describe phenomena similar to Ambulance Ramping, where there is a delay in patient handover from paramedics to ED clinicians. Antecedents of Ambulance Ramping included reduction/limitation of ambulance diversion, patient acuity, the time of day, the day of the week, insufficient ED staff, insufficient ED beds, and high ED workload. Consequences of Ambulance Ramping include: further delays in patients' ability to receive definitive care and workforce stressors such as missed meal breaks, sick leave and staff attrition.
Conclusion: While the existing research literature indicates that Ambulance Ramping is problematic, little is known about the patient's experience of Ambulance Ramping; this is required so that an enhanced understanding of its implications, including those for emergency nurses, can be identified.

Introduction

The number of patients presenting to emergency departments (ED) is increasing in Australia [1] and worldwide [2,3]. The increased demand for ED services globally has been attributed to a number of factors such as the growing elderly population with disproportionate ED attendance [4,5]; increasing population co-morbidities [6]; poor accessibility of primary care providers, particularly after hours [7]; changing health-seeking behaviours [8]; and improved access to healthcare for socially disadvantaged people [3,9]. Such factors have led to ED and hospital crowding, and poor patient outcomes [10–13]. The challenge for the emergency healthcare system is to deliver safe and effective health care to an increasing number of patients in a timely, cost efficient manner. Ambulance Ramping is a consequence of overcrowding and involves a delay to definitive emergency care for patients arriving to the ED by ambulance [14]. Ambulance Ramping may be unsafe

* Corresponding author at: Department of Infection Control, Gold Coast University Hospital, 1 Hospital Boulevard, Southport, Qld, 4215, Australia.
E-mail address: r.shaban@griffith.edu.au (R.Z. Shaban).

http://dx.doi.org/10.1016/j.aenj.2017.07.002
1574-6267/

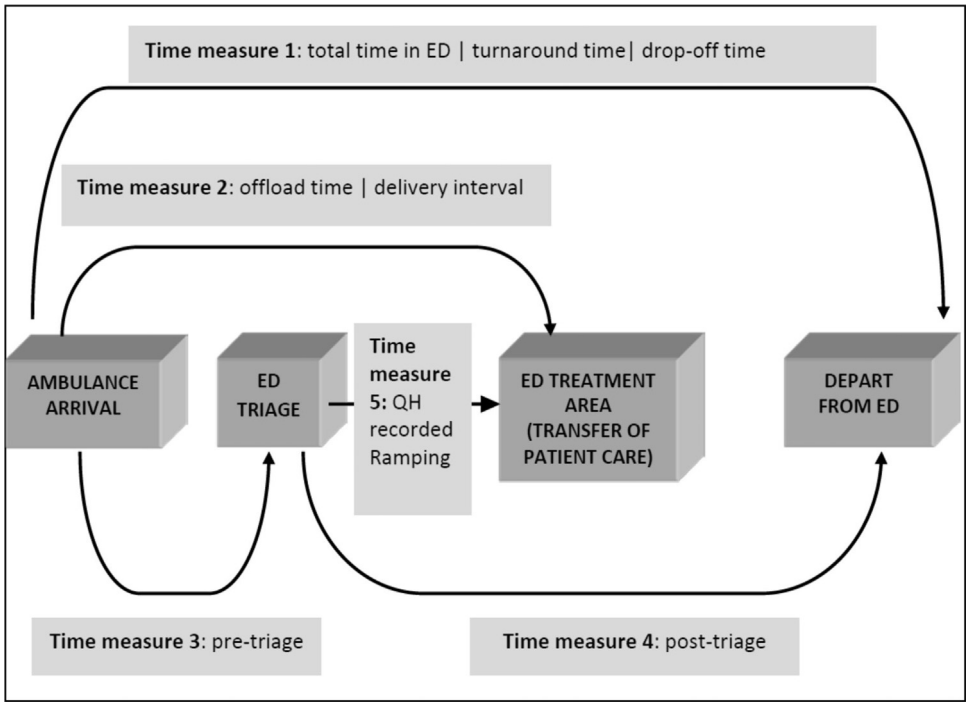

Fig. 1. Measures of Ambulance Patient Delays in Triage and Handover in the ED. QH = Queensland Health; ED = Emergency Department.

for patients in the ED, and for patients in the community waiting for an ambulance.

Inefficiencies at the ambulance–ED interface is an international concern with reports arising within the US [15–18], Australia [19–21], Canada [22] and the UK [23]. Delaying ambulances at the ED creates resource inefficiencies and can impact on ambulance response time and community safety. Understanding the causes and consequences of Ambulance Ramping will better inform research into the patient's experience of the emergency healthcare system, which is necessary to inform the quality and safety of this system [24]. This paper presents a synthesis of the literature with respect to the conceptualisation, meaning, antecedents and consequences of Ambulance Ramping.

Methods

This scoping review of the literature was designed to provide an overview of a particular topic [25] – Ambulance Ramping. Searches of databases PubMed and CINAHL Plus with Full Text through EBSCO Host, was conducted to identify academic literature on ambulances waiting in the ED. Six search terms present in article titles were used: emergency medical technician; paramedic; ambulance; hospital emergency services; delay; or ambulance ramping. Only full-text academic articles published in English between 1983 and 2015 were included. Reference lists, related citations, emergency healthcare journals, and grey literature searches were also conducted using web-based search engines Google and Google Scholar. The titles and keywords were screened for relevance (by CK), with on-topic titles retrieved in full text, and related topics retrieved in abstract version. Related papers reporting Ambulance Ramping (or similar) were included. Papers were excluded if they did not: document a delay in ambulance patient handover to ED staff; detail any antecedents or consequences of delay in ambulance patient handover to ED staff; or document delays of ambulance crews within the ED. Data extracted (by CK) from included articles were: author, year and country of study, study aim, definition of ambulance ramping (or similar term), sample/population, and main results/findings. Tables were used as structures to display and integrate research findings. This was supplemented with an assessment of level of evidence of the selected articles according to recommendations of the National Health and Medical Research Council (NHMRC) [26]. All articles included in this review were assessed for their level of evidence and included regardless of their level of evidence to provide a description of the current research in this area. Regular meetings were held between the authors to discuss the findings and reach consensus.

Results

The search yielded 761 potential papers. Thirteen articles met our criteria for inclusion for review (see Table 1), with most being multi-site studies from developed countries, and involving a geographical area serviced by a network of hospitals, with at least one trauma center or tertiary hospital. Five single site studies were conducted in Canada, the United States, and Australia. Assessing these articles using NHMRC guidelines [26] revealed no level I (systematic reviews of randomised controlled trials (RCTs)), II (RCTs), or III-1 studies (pseudo-RCTs). However, there were two level III-2 comparative case controlled studies; both had Ambulance Ramping as an outcome, and identified risk factors for the experience. There were three level III-3 studies (interrupted time series studies without control group), and eight level IV studies – seven of these were traditional observational studies (direct observation or utilising ambulance service and hospital data), and one involved a computer simulation.

Conceptualising ambulance ramping

Ambulance Ramping is a term mostly used in Australian studies to describe a set of practices within the emergency healthcare system, at the interface between ambulance services and EDs [21]. Ambulance Ramping was recently defined as "the situation where patients transported to an ED by ambulance experience delays (of more than 30 min) in offload from the ambulance trolley to an ED

Please cite this article in press as: Kingswell C, et al. Concepts, antecedents and consequences of ambulance ramping in the emergency department: A scoping review. Australas Emerg Nurs J (2017), http://dx.doi.org/10.1016/j.aenj.2017.07.002