



Profiling wound management in the emergency department: A descriptive analysis



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ABSTRACT

Background: The service profile of wound, skin and ulcer presentations to emergency departments is an area that lacks an existing published commentary. Knowledge of these presentations would inform the allocation of resources, staff training, and, in turn, patient outcomes. The aim of this study was to describe the discharge and referral status of adult patients presenting to one Australian emergency department with a wound, skin or ulcer condition.

Methods: A retrospective descriptive review was conducted of all emergency presentations including discharge and referral statuses for skin, wound and ulcer related conditions from 1st January 2014 until 31st December 2014.

Results: A total of 4231 wound, skin and ulcer conditions were managed, accounting for 7% of the total emergency presentations. Wound conditions were the most prevalent (n = 3658; 86%). Males were more likely to present for all three conditions. For all conditions, discharge to home was the most common destination. Following discharge to home, over half all patients were referred to the local medical officer.

Conclusions: Nursing workforce models, education and training needs to reflect the skill set required to respond to wound, skin and ulcer conditions to ensure that high quality skin and wound care continues outside of the emergency department.

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1. Introduction

Demand for emergency department (ED) services is increasing internationally and locally [1]. In Australia, ED presentations increased 19% between 2010 and 2015 [2]. With this demand on an already overwhelmed healthcare system likely to continue [3]. Multiple factors are implicated as contributing to this growth including difficulty accessing primary health care providers in the community [4], the 24 h convenience of the ED [1], the lack of cost to the patient for a public ED attendance [5] and the immediacy of specialised healthcare [6].

Emergency department workload is characterised by the number and type of presentations and the severity and the need for dedicated healthcare resources; and one area of clinical care for which investigation has been modest is that of wound and skin care. International data suggests that presentations for skin and wound management is one condition that significantly contributes

to ED workload [7] with skin and soft tissue injury complaints a common occurrence in the ED setting [8]. For example, Singer [9] reported that 1 in 10 patients seen in the ED presented for a wound related condition [9]. In the Australian context, ED care data for the calendar year 2014–15, reported wound and skin conditions to be in the top 10 ICD-10-AM patient presentations to EDs [2]. Wound care broadly encompasses both acute and chronic wounds [10]; lacerations and open wounds in particular account for 8% of ED workload [11]. Skin and soft tissue injuries range in severity from minor/major burns [12] to open wounds requiring exploration and closure [13], while chronic wounds commonly require specialist services and referral [14]. Wound management is commonly performed in the ED [15], however, this care is time consuming and can require specific skills to provide optimal wound healing, cosmesis and to prevent infection [16].

The cost of ED care is increasing per patient presentation and the associated cost of patients who require a hospital admission following ED care is reported as 2.2 times more than patients who are discharged home from the ED [17]. With wound and skin care being a frequent presentation to the ED, the financial implications for appropriate wound management are significant. Chronic wound care management is also a significant burden to healthcare ser-

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vices. In Australia, annual costs for chronic wounds are estimated at \$2.58 billion annually [18]. Given this expense, an understanding of the prevalence and management of patients in the ED who require treatment and or admission to the hospital for acute and chronic wound or skin care warrants investigation to facilitate appropriate focusing of resources and staff training in the ED setting.

The provision of evidence based wound care for patients in the ED is important for wound outcomes [10,19]. Wound management is provided by an array of healthcare professionals in the ED. However, formal wound care education is often fragmented [20] and staff training for wound management varies among EDs [21]. While evidence based journals were used by specialised clinicians [22], a descriptive cross-sectional study of ED nurses and doctors by Ashton and Price [22] found that knowledge for clinical decision making for wound care was sourced often from other colleagues and personal experience. As such, there is scope to refine the theoretical and empirical basis on which practice is based to optimise clinical outcomes for patients. A clear understanding of the types of skin and soft tissue injuries that need to be attended by ED clinicians would help focus the parameters of wound training required for clinicians in this setting.

While much of the literature examining wound management in the ED has focussed on treatment and closure [7,10], ongoing care and follow up within primary healthcare settings outside of the ED is critical to optimise long term wound outcomes. Chronic wounds, specifically leg ulcers, contribute a significant life burden for many patients [23] and ongoing care for these wounds is typically managed in the community setting at general practitioner (GP) practices [24] and specialised wound clinics. Emergency departments need to provide a consistent management approach for patients presenting with differing profiles of wound care complaints [21]. Careful considerations are required for these patients as local skin and soft tissue infections in ED are the most common cause of morbidity in bite wounds [25]. Emergency management occurs from the initial point of wound assessment through to patient discharge and referral. Consistency in this approach ensures patients are appropriately followed up and cared for by specialised services outside of the ED.

The profile of patients presenting to the ED with an acute or chronic wound, skin or ulcer condition is not well understood. Treatment patterns including discharge and referral statuses have largely been ignored and is, therefore, not well documented for either the emergency or wound management fields. Appropriate decision making for ED discharge and referral is important for the outcomes for patients with wounds. The purpose of this study was to understand the service profile of patients who present to the ED for management of skin and wound conditions and explore the discharge and referral statuses for these patients with a wound, skin or ulcer related condition.

2. Method

2.1. Setting

The study was conducted in one adult metropolitan ED in Victoria, Australia, with an annual presentation rate of 60,345 for the calendar year 2014. The hospital is a major adult referral centre with a 50% hospital admission rate.

2.2. Design

A retrospective exploratory design was used to measure the total number of presentations, discharges and referrals from the ED for all wound, skin and ulcer related conditions from 1st January 2014 until 31st December 2014. All patients who presented to the ED during the sampling timeframe for treatment for these con-

ditions were included in this study. Patients did not go through a recruitment process. Ethics approval for this low risk research study was gained by the Hospital's Research and Ethics Committee (Project: 161/15).

2.3. Data collection

Aggregated data for wound, skin and ulcer related conditions were extracted through the Victorian Emergency Minimum Dataset (VEMD) using International Statistical Classification of Diseases (ICD) codes and descriptions (Version 10). An information analyst at the study site obtained the data using the primary diagnosis field from the VEMD. Search criteria for ICD codes and descriptors included wound, skin and ulcer. A keyword search using the words: 'wound' 'skin' and 'ulcer' was also undertaken to elicit the highest possible number of presentations. All ICD descriptors were checked to ensure their applicability for inclusion for the presenting condition (wound, skin, ulcer). Two ICD codes were removed from the skin related condition dataset as they were not applicable. These included dyskinesia of oesophagus ($n=6$) (K22.4) and paraesthesia of skin ($n=77$) (R20.2). Compiled data fields included a report of overall patient numbers relating to emergency presentation, departure and referral status following ED presentation for a wound, skin or ulcer related condition. Age and gender for each skin, wound and ulcer presentation was also collected. Departure status was defined as the patient destination on departure from the ED [26]. Referral status following departure included any agency the patient was referred to for continuing care [26].

2.4. Data analysis

Data were analysed using SPSS version 22 (IBM SPSS Statistics 22) using the presenting conditions of wound, skin and ulcer. Descriptive statistics were used to summarise these service profiles. Percentage frequencies were used to describe departure and referral statuses.

3. Results

A total of 60,345 patients presented to the ED between 1st January 2014 until 31st December 2014. Wound, skin and ulcer conditions ($n=4231$) accounted for 7.0% of the total ED presentations. Almost all patient presentations were for wound related conditions ($n=3658$; 86.5%). Thirty four patients presented to the ED for a decubitus ulcer and pressure area condition. There were 539 presentations for skin conditions (12.7%). Skin conditions, categorised by ICD codes are shown in Table 2. The most common presentation was for disorder of skin and subcutaneous tissue, unspecified (43.4%).

Males were more likely to present to the ED for a wound, skin and ulcer condition (64.4%, 53.4%, 64.7% respectively). Over one third (35.2%) of all wound related patient presentations to the ED were for males aged between 21 and 30 years. Demographic data for age and gender is displayed in Table 1.

Presenting conditions for wound and ulcer related conditions are shown in Table 3. Almost all patient wounds were classified as open with the most common presentation being open wound to wrist and hand. One hundred and thirteen ($n=113$) presentations were for wound infection following a procedure.

Patients presenting to the ED with either a wound, skin or ulcer related condition were most commonly discharged to home. Over half of all patients presenting with a wound condition to the ED were discharged home ($n=2496$; 68.2%). Hospital admission to a ward area following a wound presentation accounted for a further 15.5% ($n=566$), and 477 patients presenting for wound condition (13.0%) were admitted to the short stay observation unit (SSOU).

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