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Community nurses' judgement for the management of venous leg ulceration: A judgement analysis

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ABSTRACT

Background: Nurses caring for the large numbers of people with leg ulceration play a key role in promoting quality in health via their diagnostic and treatment clinical judgements. In the UK, audit evidence suggests that the quality of these judgements is often sub optimal. Misdiagnosis and incorrect treatment choices are likely to affect healing rates, patients' quality of life, patient safety and healthcare costs.
Objectives: To explore the diagnostic judgements and treatment choices of UK community nurses managing venous leg ulceration.
Design: A judgement analysis based on Brunswik's psychological Lens Model theory.
Setting: UK community and primary care nursing services.
Participants: 18 community generalist nurses working in district (home) nursing teams and general practitioner services and 18 community tissue viability specialist nurses.
Methods: During 2011 and 2012, 36 nurses made diagnostic judgements and treatment choices in response to 110 clinical scenarios. Scenarios were generated from real patient cases and presented online using text and wound photographs. The consensus judgements of a panel of nurses with advanced knowledge of leg ulceration judged the same scenarios and provided a standard against which to compare the participants. Correlations and logistic regression models were constructed to generate various indices of judgement and decision "performance": accuracy (R_a), consistency (R_s) and information use (G) and uncertainty (R_e).
Results: Taking uncertainty into account, nurses could theoretically have achieved a diagnostic level of accuracy of 0.63 but the nurses only achieved an accuracy of 0.48. For the treatment judgement (whether applying high compression was warranted) nurses could have achieved an accuracy of 0.88 but achieved only an accuracy of 0.49. This may have been due to the nurses giving insufficient weight to the diagnostic cues of medical history and appearance of the leg and ulcer and insufficient weight to the treatment cues of type of leg ulcer and pain.
Conclusion: Clinical judgements and decisions made by nurses managing leg ulceration are complex and uncertain and some of the variability in judgements and choices can be explained by the ways in which nurses process the information and handle the uncertainties, present in clinical encounters.

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What is already known about the topic?

- Leg ulcer care is an important part of UK community nurses' workload. Nurses' judgements and decisions impact on both on patients' quality of life and health costs.
- Previous evidence suggests the quality of diagnosis and treatment of venous leg ulceration is below that which should be expected.
- Accuracy in diagnosis and treatment is important because misdiagnosis and incorrect treatment choices are likely to have a significant impact on healing rates, patients' quality of life, patient safety and healthcare costs.

What this paper adds

- Clinical decisions and judgements about the management of venous leg ulceration are made in environments that are irreducibly uncertain.
- Nurses' judgements are less accurate than is possible.
- Nurses give appropriate weight to the diagnostic cue of ABPI but insufficient weight to the diagnostic cues of medical history and appearance of the leg and ulcer and insufficient weight to the treatment cues of type of leg ulcer and pain.

1. Background

Leg ulceration affects many people worldwide and nurses are closely involved in making diagnostic judgements and treatment decisions for these patients (Srinivasaiah et al., 2007). The clinical responsibilities of the different professions in relation to leg ulceration will vary from country to country but in the UK, community nurses work as part of a larger multi-disciplinary team but are often responsible for making clinical judgements and decisions. The judgements and decisions of community nurses are a key determinant of the quality of care and outcomes in patients with leg ulcers. However, in the UK at least, leg ulcer practice and outcomes vary (in ways that are unwarranted) between different healthcare providers (Royal College of Nursing, 2001, 2008; Srinivasaiah et al., 2007; Vowden and Vowden, 2009). Exploring how nurses make judgements and decisions about managing venous leg ulceration may help understand the role of nurses in creating this variability.

Between 0.6% and 3.6% of adults will have a leg ulcer at some point in their lives (Graham et al., 2003, Posnett and Franks, 2007). The UK spends at least £168–£600 million per year on leg ulcer care (Posnett and Franks, 2008; Nelzen, 2000). The most common form of leg ulceration is venous leg ulceration, a chronic condition in which high blood pressure in the leg veins results in an open sore on the lower leg (Britsh Association of Dermatologists, 2008). Leg ulceration can also result from an inadequate arterial supply to the lower leg and some patients will have both venous and arterial insufficiency. A small proportion of patients will also present with rare forms of leg ulceration due to conditions such as pyoderma gangrenosum and cancer (Morison and Moffatt, 1994).

The recommended treatment for venous leg ulceration is graduated high compression where greater pressure is applied at the ankle and graduates to less pressure up to the knee (Royal College of Nursing, 2006). Graduated high compression can be delivered through bandaging such as four-layer or short stretch systems or through specialist hosiery. Accurate diagnosis is important in order to offer appropriate treatment especially since graduated high compression, is contra-indicated for patients with arterial insufficiency (Royal College of Nursing, 2006).

Clinical judgements and decisions link a patient's condition with the treatment they receive. These links are often compromised by differences of opinions, values and motives, errors, biases and uncertainty (Eddy, 1996, p. 308). Uncertainty will always exist within the clinical environment because of the variability of individual patients and clinical situations. Therefore, there will always be a level of 'irreducible' uncertainty which cannot be reduced at the moment that action is required (Hammond, 1996a). To manage uncertainty, nurses will use different decision strategies – all of which are affected by levels of clinical experience, knowledge, patient preferences and the resources available (Thompson, 1999b; Van hecke et al., 2008). Some judgement strategies are more effective (given the judgement) than others (Hammond, 1996b; Thompson, 1999a). Thus, it is possible for different nurses, using more or less effective reasoning styles, to reach very different judgements, even when faced with the same information or clinical scenario.

Clinical guidelines are one means of reducing unwarranted variations in judgements, decisions and practice (Eddy, 1994). Ideally, guidelines are based on the existing relevant research evidence base but when this is lacking, recommendations for best possible practice will be based on expert, experiential knowledge. In the UK, several national guidelines on managing venous leg ulceration exist (CREST, 1998; Sign, 1998; Royal College of Nursing, 2006) but the supporting evidence base is of variable quality. Some recommendations are based on robust clinical trial evidence; for example, Doppler assessment of ankle brachial pressure index (ABPI) to be included in leg ulcer assessment to identify arterial insufficiency (Callam et al., 1987); the use of multi-layer high compression to promote healing of venous leg ulcers (O'Meara et al., 2012) and the use of pentoxifylline as an adjuvant therapy to compression for healing venous leg ulcers (Jull et al., 2012). However, for many judgements and choices in the management of leg ulcers the evidence is too poor quality or even absent. For example, there is little reliable evidence to indicate the relative effectiveness of different types of dressings or the appropriateness of using 0.8–1.2 as the ABPI cut-off points for assessing arterial insufficiency. Consequently, reliable ways to reduce uncertainty in clinical practice often do not exist.

However, for aspects of care where good evidence does exist, audits of leg ulcer practice suggest that leg ulcer care may not be reaching the levels of care that should be achievable. For example, a European position document and the UK national clinical guidelines recommend the use of Doppler assessment of ABPI as part of leg ulcer assessment to exclude arterial insufficiency and high