international wound journal

Pressure ulcer prevalence across Welsh orthopaedic units and community hospitals: surveys based on the European Pressure Ulcer Advisory Panel minimum data set

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James J, Evans JA, Young, T, Clark M. Pressure ulcer prevalence across Welsh orthopaedic units and community hospitals: surveys based on the European Pressure Ulcer Advisory Panel minimum data set. Int Wound J 2010; 7:147–152

ABSTRACT

The survey used the European Pressure Ulcer Advisory Panel (EPUAP) methodology for the collection of pressure ulcer prevalence data. The orthopaedic survey was conducted across all National Health Service Trusts in Wales between 2 and 6 July 2007 while the community hospital survey covering 25% of all community hospital beds was conducted between 21 April 2008 and 2 May 2008. Data were gathered upon 1196 patients (581, 48·6% within orthopaedic units with 615 located in community hospitals). Of these patients, 81 (13·9%) and 162 (26·7%) had pressure ulcers in orthopaedic and community hospitals, respectively. Where patients presented with multiple pressure ulcers, the most severe pressure ulcer was recorded. Across both surveys, most pressure ulcers were reported to be either category I or II with 91 category I wounds (33 in orthopaedic units and 58 in community hospitals). Severe (categories III and IV) pressure ulcers affected 78 patients (19 in orthopaedic units and 59 in community hospitals). Adoption of the EPUAP pressure ulcer prevalence methods can help achieve consistent data upon pressure ulcer prevalence in different health care organisations and specialities. The adoption of a consistent data collection capture methodology is a clear prerequisite for the compilation of meaningful pressure ulcer prevalence data sets at a national level.

Key words: Community hospitals • Orthopaedics • Pressure ulcer prevalence

Key Points

- data were gathered upon 1196 patients (581, 48·6% within orthopaedic units with 615 located in community hospitals). Of these patients, 81 (13·9%) and 162 (26·7%) had pressure ulcers in orthopaedic and community hospitals, respectively
- in clinical practice, 11/13 health care organisations across Wales routinely collect pressure ulcer occurrence data
- surveys of pressure ulcer point prevalence were reported across nine organisations with the majority ($n = 6$) collecting these data on an annual basis. Continuous prevalence recording was noted in a single organisation as was infrequent data collection (defined as being more than 12 months between surveys)

INTRODUCTION

Despite investment in pressure ulcer prevention practices and interventions, pressure ulcers remain common (1–10). Part of this apparent contradiction stems from confusion over appropriate methods for recording pressure ulcer occurrence (11) while the lack of robust baseline data against which changes in pressure ulcer occurrence can be compared also prohibits examination of any trends in the

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number of people affected by pressure ulcers. Within the UK, the only national (England) data on pressure ulcer prevalence is over 25 years old (12) and is largely unpublished. Within this early survey, 6·67% of adult hospital in-patients was reported to have pressure ulcers while many of these wounds involved damage to tissues below the dermis [$n = 939$, 62·3% of all surveyed pressure ulcers were categories III and IV pressure ulcers (13)]. Given the lack of national or extensive regional pressure ulcer occurrence data post-1983 within the UK, it is unsurprising that there remains uncertainty over trends in the number of people with pressure ulcers and potentially any changes in the characteristics of these wounds over time.

This publication describes the use of the European Pressure Ulcer Advisory Panel (EPUAP) pressure ulcer prevalence minimum data set (4) to structure pressure ulcer data collection in a timely, consistent manner where limited resources (data collectors and funding) were available. While the data were collected following the then current EPUAP pressure ulcer classification tool, the data have been reported using the new system of categories introduced in 2009 by the International Pressure Ulcer Guidelines (13) on the basis that the major descriptions of grade (EPUAP) and category (International Guidelines) remain broadly consistent.

Wales has a population of 2·98 million people and a relatively simple health care system with, at the time of the project's initiation, 13 National Health Service (NHS) organisations. Given that extensive funding to recruit data collectors was not available, a key requirement for the successful gathering of pressure ulcer prevalence data was access to a cohort of clinicians with the necessary experience to identify and classify pressure ulcers accurately. Across Wales, there are 27 specialist tissue viability nurses and these individuals cooperate through the All-Wales Tissue Viability Nurses Forum (AWTVNF). While providing a platform for sharing information and experience between the specialist, nurses have also undertaken discreet project work, for example in 2007, the AWTVNF developed documentation to describe, assess and record competencies in tissue viability (http://www.agored.org.uk/default.aspx?id=1). This is an example of the collaborative working between AWTVNF members and served as a foundation for the present study. All AWTVNF members agreed to participate and support the collection of pressure ulcer prevalence data using a consistent methodology in this study.

The report provides for the first time comparable data upon pressure ulcer prevalence across selected specialities (orthopaedics and community hospitals) across all NHS settings within Wales. These specialities were selected following discussion within the AWTVNF and were considered to reflect areas where the highest numbers of people with pressure ulcers were expected. Information was also collected upon the methods currently used to identify pressure ulcer vulnerable patients and the extent of pressure ulcer occurrence. This information was gathered using an online survey conducted in September 2009 with data gathered across the 13 health care organisations within Wales.

Pressure ulcer data collection methods used across Wales

In clinical practice, 11/13 health care organisations across Wales routinely collect pressure ulcer occurrence data. In the two organisations that did not collect such data vulnerability to pressure ulcer development was assessed using the Waterlow (14) or Pressure Sore Prediction Scale (PSPS) (15) risk assessment tools. Where pressure ulcer occurrence data were collected, risk of developing pressure ulcers was assessed most commonly using the Waterlow scale ($n = 8$) with two organisations using the PSPS tool and the final using a risk assessment tool not described in the literature (Maelor tool). National guidance had been issued in Wales in 1999 (16) upon pressure ulcer prevention and the recommended national risk assessment tool was the PSPS scale. Surveys of pressure ulcer point prevalence were reported across nine organisations with the majority ($n = 6$) collecting this data on an annual basis. Continuous prevalence recording was noted in a single organisation as was infrequent data collection (defined as being more than 12 months between surveys). Where pressure ulcer prevalence was recorded infrequently, it was noted that period prevalence collection was also undertaken. One organisation collected pressure ulcer prevalence data monthly in medical units and quarterly across the rest of the organisation with an overall annual survey also conducted. Across Wales, four organisations depended upon wound product suppliers to undertake the prevalence surveys while most used a mix of direct observation of patients' skin and reporting of pressure ulcers by ward staff to obtain their prevalence data. Two organisations relied exclusively on direct observation of skin and one depended upon staff reports of pressure ulcers alone. In only 4/12 organisations, pressure ulcer prevalence was collected across all patients, with the most common excluded specialities being learning difficulties ($n = 3$), paediatrics ($n = 3$), maternity ($n = 2$) and mental health ($n = 2$). In seven of nine organisations with routine pressure ulcer prevalence surveys, data were reported upon all encountered pressure ulcers while two organisations excluded category I pressure ulcers.

The collection of pressure ulcer incidence data was restricted to five organisations with the frequency of recording reported for three (continuous $n = 2$ and annual $n = 1$). All organisations which provided details of their incidence monitoring noted that data were gathered from a mix of direct skin observation and reports from clinical staff. No commercial supplier appeared to organise pressure ulcer incidence data collection. Only one organisation collected pressure ulcer incidence data across all patients with paediatrics ($n = 1$), mental health ($n = 1$) and learning difficulties ($n = 1$) excluded from this data collection. Category I pressure ulcers were excluded from one organisation's incidence reporting while the remaining organisations who collected incidence data reported all encountered nosocomial pressure ulcers.

Nine of the organisations routinely reported pressure ulcers as critical incidents. One organisation appeared to report all pressure ulcers, two reported categories III and IV pressure ulcers only as critical incidents while the remaining six reported all pressure ulcers from category II. At the time of the online survey, two organisations had under 10 pressure ulcer cases as active adverse incidents, one had under 20 while three had over 20 active adverse incidents related to pressure ulcers. The remaining three organisations did not identify how many pressure ulcer-related adverse incidents were currently active.

SURVEY METHODOLOGY

Two serial point prevalence surveys were conducted following the methods described by Vanderwee *et al*. (4) when using the EPUAP pressure ulcer minimum data set to gather prevalence data. The minimum data set comprises data upon patients' age, gender and current care location; their perceived level of vulnerability to pressure ulcer developed as assessed using the Braden scale (17); incontinence was assessed using the appropriate subscale from the Norton pressure ulcer risk assessment tool (18); the severity and anatomical location of encountered pressure ulcers was recorded along with the provision of pressure redistribution in bed and while seated through either the provision of pressure redistributing devices or through manual repositioning and specified time intervals. No attempt was made to combine the Braden and continence scores into a single indicator of possible vulnerability to pressure ulcers. The use of the Braden scale, an integral part of the EPUAP minimum data set, provided the single largest challenge to the participating data collectors, none of whom used this tool in their daily practice, and to overcome this, the educational tools developed by the EPUAP were used to inform data collectors upon the correct use of this tool. No formal pilot was undertaken given that data collection was based on a pre-existing tool (4). Nor was there any formal testing of inter-rater reliability between observers.

The identification of pressure ulcers was made following visual inspection of the skin of each patient by one member of the AWTVNF with verification of the presence and extent of the pressure ulcer made by a second, independent assessment by a second AWTVNF member. The EPUAP provided permission to reproduce their pressure ulcer prevalence minimum data set data collection form. Formal research ethics committee approval was not sought given that pressure ulcer prevalence surveys were a common feature of tissue viability practice, although conducted using various methodologies that precluded collation of pre-existing data to provide an overall summary of the occurrence of pressure ulcers in Wales.

Ideally the pressure ulcer prevalence survey would have covered all hospital and community care patients across Wales; however, this was unrealistic given constraints upon data collector time and numbers. Accordingly two areas of perceived high pressure ulcer prevalence were selected which were common to all health care organisations across Wales – orthopaedic units in acute care and community hospitals. These areas were surveyed serially with the first survey restricted to orthopaedic units. While the data collection methods remained constant across the two surveys, there was one key difference between the two surveys. It was possible to survey all orthopaedic in-patients within the confines of the study resources; however, the number of community hospital beds across Wales precluded complete coverage of this area. A 25% convenience sample was taken across all Welsh community hospital beds and formed the basis for the present survey population. Between the orthopaedic and community hospital surveys, minor modification of the response categories describing the frequency of manual repositioning and explicit recording of whether an individual was bedfast or chairbound were included in the data collection form to remove perceived ambiguities in data collector responses during the orthopaedic unit survey.

Prior to the first survey, training in the correct use of the Braden risk assessment tool was provided; in addition, all data collectors completed the self-directed module upon pressure ulcer classification (PUCLAS 2) available on the EPUAP website (www.epuap.org). All data collection forms were returned to a central point (Department of Wound Healing, Cardiff University) for compilation into an SPSS database (SPSS Inc, version 16.0) for subsequent descriptive analysis.

RESULTS

Pressure ulcer prevalence data were gathered across orthopaedic units between 2 and 6 July 2007 while the survey within the community hospital occurred between 21 April and 2 May 2008. Data were gathered upon 1196 patients (581, 48·6% within orthopaedic units with 615 located in community hospitals).

The surveyed patients tended to be elderly with 223 (38·4%) and 401 (65·2%) of all orthopaedic and community hospital patients, respectively, aged at least 80 years old. Most patients were female in both surveys: orthopaedic units 371 (63·9%) and community hospitals 383 (62·4%). Patients appeared slightly more vulnerable to pressure ulcer development within the orthopaedic units (mode Braden score 23, range 6–28) compared with the community hospital population (mode Braden score 19, range 8–28).

Across the orthopaedic wards of 12 hospitals, 81 patients (13·9%) had established pressure ulcers. The pressure ulcer status of 11 patients was unreported with the available data derived from all, bar 1, hospital site with orthopaedic wards within Wales. The final site only returned data upon patients with pressure ulcers preventing any calculation of the prevalence of pressure ulcer within that location. Accordingly no data were included from the partial return site. Within community hospitals, 162 patients had pressure ulcers (26·7%) with the pressure ulcer status of eight community hospital patients unreported.

The most severe pressure ulcer was recorded for all patients with pressure ulcers. Across both surveys, most pressure ulcers were reported to be either category I or II (13) with 91 category I wounds (33 in orthopaedic units and 58 in community hospitals). Severe (categories III and IV) pressure ulcers affected 78 patients (19 in orthopaedic units and 59 in community hospitals).

In both audits, two independent observers had verified the presence and severity of the encountered pressure ulcers – in community hospitals, 22/162 (13·6%) of all pressure ulcers were reported by a single observer only (including three category III and six category IV wounds). In the surveyed orthopaedic units, 23/81 (28·4%) of all encountered pressure ulcers were only seen by a single observer, including four category III and three category IV wounds.

DISCUSSION

Pressure ulcers present major clinical and financial challenges to health care systems which are likely to remain unless regional and national standardisation over their care and reporting occur. Wales, with only 13 local health care organisations (in 2008), exhibited widespread differences in care practices, for example the selection of pressure ulcer risk assessment tools and the monitoring of pressure ulcer outcomes (primarily prevalence and clinical incidents). This is the first report at a national level of the often-assumed local variations in pressure ulcer monitoring and risk assessment methods. The results of the online survey conducted as part of the background to the two pressure ulcer prevalence surveys highlight that comparison between health care organisations is restricted until common methodologies are adopted.

The two pressure ulcer prevalence surveys conducted across Wales identify that pressure ulcers occurred within all surveyed care locations with a mix of severity similar to that seen in other surveys (1). The prevalence proportions – 13·9% in orthopaedic units and 26·7% in community hospitals – are challenging to interpret given the lack of prior data collected specifically in these specialities using the EPUAP pressure ulcer prevalence minimum data set. However, that over 10% of Welsh orthopaedic patients and over one quarter of community hospital patients had pressure ulcers highlights that these wounds remain common. The execution of the surveys using uniform methods across a wide number of health care organisations highlights that it is possible to begin to compile accurate information at a national level (at least in a small country such as Wales) upon the size of the pressure ulcer population thus allowing future comparison of trends in pressure ulcer occurrence to be monitored.

Despite the success of the two pressure ulcer audits being conducted nationally, the process was not without its challenges. The EPUAP data collection tool required completion of a Braden score for all patients; however, this tool was not in use within Wales prior to (or indeed after) the audits were performed with a required lengthy training on the correct use of the Braden scale. While this additional training was required prior to the surveys, this was the sole limitation to the conduct of the audits.

In an environment where collaborative effort in research and larger scale studies becomes the norm, this survey has illustrated how these objectives can be obtained with limited or no funding. While the AWTVNF were able to agree common data collection methods and to successfully collect data there were limitations upon the surveys. This is perhaps best seen in the inability to survey all community hospital patients while the single focus upon orthopaedic patients in acute care was itself a response to the lack of resource available to the project team. While limited in nature, these surveys present clear benefits to health care in Wales through providing a focus for activity among clinicians with interest in pressure ulcer prevention and treatment while the data serve as a baseline against which progress in pressure ulcer prevention may be judged in future years.

ACKNOWLEDGEMENTS

The authors would like to thank all members of the AWTVNF for their support in data collection during the two surveys. We would also like to thank the Welsh Wound Network for support in data entry and analysis.

REFERENCES

1 Vowden KR, Vowden P. The prevalence, management, equipment provision and outcome for patients with pressure ulceration identified in a wound care survey within one English health care district. J Tissue Viability 2009;18:20–6

2 Lindholm C, Sterner E, Romanelli M, Pina E, Torra y Bou J, Hietanen H, Iivanainen A, Gunningberg L, Hommel A, Klang B, Dealey C. Hip fracture and pressure ulcers – the Pan-European Pressure Ulcer Study – intrinsic and extrinsic risk factors. Int Wound J 2008;5:315–28.

3 Srinivasaiah N, Dugdall, H, Barrett S, Drew PJ. A point prevalence survey of wounds in north-east England. J Wound Care 2007;16:413–9.

4 Vanderwee K, Clark M, Dealey C, Gunningberg L, Defloor T. Pressure ulcer prevalence in Europe: a pilot study. J Eval Clin Pract 2007;13:227–35.

5 Raghavan P, Raza WA, Ahmed YS, Chamberlain MA. Presence of pressure sores in a community sample of spinal injured patients. Clin Rehabil 2003;17:879–84.

6 Kaltenthaler E, Withfield MD, Walters SJ, Akehurst RL, Paisley S. UK, USA and Canada: how do their pressure ulcer prevalence and incidence data compare? J Wound Care 2001;10:530–35.

7 Williams S, Watret L, Pell J. Case-mix adjusted incidence of pressure ulcers in acute medical and surgical wards. J Tissue Viability 2001;11:139–42.

8 Whitfield MD, Kaltenthaler EC, Akehurst AL, Walters SJ, Paisley S. How effective are prevention strategies in reducing the prevalence of pressure ulcers? J Wound Care 2000;9:261–6.

9 Clark M, Benbow M, Butcher M, Gebhardt K, Teasley G, Zoller J. Collecting pressure ulcer prevention and management outcomes. Br J Nurs 2002;11:230, 232, 234.

10 O'Dea K. The prevalence of pressure damage in acute care hospital patients in the UK. J Wound Care 1999;8:192–4.

11 Baharestani MM, Black JM, Carville K, Clark M, Cuddigan JE, Dealey C, Defloor T, Harding KG, Lahmann NA, Lubbers MJ, Lyder CH, Ohura T, Orsted HL, Reger SI, Romanelli M, Sanada H. Dilemmas in measuring and using pressure ulcer prevalence and incidence: an international consensus. Int Wound J 2009;6:97–104.

12 David J, Chapman RG, Chapman EJ, Lockett B. An investigation of the current methods used in nursing for the care of patients with established pressure sores. Harrow: Nursing Practice Research Unit, 1983.

13 European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. Prevention and treatment of pressure ulcers: quick reference guide. Washington, DC: National Pressure Ulcer Advisory Panel, 2009.

14 Waterlow J. Pressure sores: a risk assessment card. Nurs Times 1985;81:49–55.

15 Lowthian P. The practical assessment of pressure sore risk. Care Sci Practice 1987;5:3–7.

16 Torrance C, Tranter G. National demonstration project: pressure damage. Presented at the 2nd EPUAP Open Meeting, Oxford, 1998.

17 Braden B, Bergstrom N. A conceptual schema for the study of the etiology of pressure sores. Rehabil Nurs 1987;12:8–12.

18 Norton D, McLaren R, Exton-Smith AN. An investigation of geriatric nursing problems in hospitals. London: National Corporation for the Care of Old People, 1962, reprinted 1975.