

Action research: Preventing pressure ulcers in a community hospital in Wales

KEY WORDS

- ▶ Action research
- ▶ Pressure ulcer
- ▶ Prevention
- ▶ SKIN bundle

Pressure ulcers are expensive adverse events, and a cause of pain and distress. Our main aim was to facilitate implementation of a strategy to reduce avoidable ward-acquired pressure ulcer occurrence in a community hospital setting. A secondary aim was to assess nursing staff's knowledge about pressure ulcer prevention. Action research methodology was used to empower two nursing teams to work towards reducing pressure ulcer occurrence using a SKIN bundle approach. Audits produced data on pressure ulcer prevention knowledge. An education intervention to aid implementation of the strategy was designed and delivered. Audits produced data on the occurrence of pressure ulcers during strategy development and implementation. Knowledge scores increased during the study. The study was context specific, but produced a prevention model with a long-term aim of reducing avoidable ward-acquired pressure ulcer occurrence, which could be adapted to similar settings.

The prevalence of pressure ulcers in Welsh community hospitals has been reported as 26.7% (James et al, 2010). Pressure ulcers are a cause of pain, embarrassment, loss of independence, possible loss of earnings, unmeasured effects on quality of life, depression, social isolation and distress for those affected, and can be life-threatening (Keen, 2009). They are also expensive adverse events that contribute to potentially avoidable costs to health and social care systems (Dealey et al, 2012a; Niederhauser et al, 2012). At 2008/9 prices, the Department of Health (2010) estimated the cost of treating a category 4 pressure ulcer to be £12000–£17000, while Dealey et al (2012a) suggested the case to be £14108. Pressure ulcer incidence is now a key nursing quality indicator (Griffiths et al, 2008; Dealey et al, 2012b).

Successful prevention of pressure ulceration requires that nurses and healthcare support workers (HCSWs) caring for individuals at risk of pressure ulcer development have adequate knowledge about pressure ulcers and prevention interventions (Jones, 2007; Tweed and Tweed, 2008). It follows that in order for nursing teams to provide evidence-based care to prevent pressure ulceration they require knowledge of the recommendations set out in the European Pressure Ulcer Advisory Panel–National Pressure Ulcer Advisory Panel (EPUAP–NPUAP; 2009) guidelines.

Most studies exploring nurses' knowledge about pressure ulcer prevention have used questionnaires to collect data. Many have combined the exploration of knowledge with other factors such as beliefs (Halfens and Eggink, 1995), nurse attitudes (Källman and Suserud, 2009), barriers to the implementation of evidence-based guidelines (Panagiotopoulou and Kerr, 2002), and the determination of whether knowledge is actually applied to practice (Halfens and Eggink, 1995; Maylor and Torrance, 1999; Pancorbo-Hidalgo et al, 2007; Källman and Suserud, 2009). Most of these studies demonstrated that knowledge was often not consistent with evidence-based recommendations. In a qualitative study, Samuriwo (2010) used semistructured interviews and grounded theory to explore the effects of education on nurses' values of pressure ulcer prevention. The study found that prior experience of nursing an individual with a pressure ulcer impacted positively on the benefits of education about pressure ulcer prevention.

Studies reporting on strategies to reduce pressure ulcer occurrence include multifaceted initiatives in Canada (Clarke et al, 2005), Sweden (Gunningberg and Stotts, 2008), the USA (Bales and Padwojski, 2009; Ackerman, 2011), and England (Elliot, 2010). An initiative involving audit in Wales (Morris and Pritchard, 2007), and an

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Box 1. National Patient Safety Agency (2010) definition of avoidable pressure ulceration.

“Avoidable” means that the person receiving care developed a pressure ulcer and the provider of care did not do one of the following: evaluate the person’s clinical condition and pressure ulcer risk factors; plan and implement interventions that are consistent with the person’s needs and goals and recognised standards of practice; monitor and evaluate the impact of the interventions; or revise the interventions as appropriate.

Box 2. SKIN bundle chart.

Date:	
Time:	
S SURFACE	
Functioning properly? Yes/No	
Heel protection effective? Yes/No	
S SKIN INSPECTION	
Sacral / Perineal area red / sore? Yes/No	
Heels red / sore? Yes/No	
Other bony prominences red / sore? Yes/No	
Names of any other red / sore areas:	
K KEEP MOVING (tick one option)	
Repositioned to lie on back	
Repositioned with Right 30 degree tilt	
Repositioned with Left 30 degree tilt	
If Sitting, has been stood or hoisted	
Other position – name: (or mobile)	
I INCONTINENCE	
If fully continent, not needing pads, record NA and proceed to N	
Pad changed? Yes/No	
Perineum cleansed (soap and water)? Yes/No	
Perineum cleansed (cleanser)? Yes/No	
Cavilon Cream (or equivalent) to intact skin? Yes/No	
Cavilon Film (or equivalent) to broken skin? Yes/No	
N NUTRITION	
Oral fluids / food taken? Yes/No	
Supplements taken? Yes/No	
Time/Date next SKIN Bundle Care due:	
Staff/Carer/Patient Signature:	

English project focussing on support and training (McKeeney, 2008), aimed to improve pressure ulcer prevention practices. Gibbons et al (2006), and Gray-Siracusa and Schrier (2011) provided two examples of how a bundle approach to care was used to reduce pressure ulcer occurrence.

Action research has been used in only one project to the authors’ knowledge (Kennedy, 2005) to specifically prevent pressure ulcers. Oldman et al (2003) used action research for developing a clinical prioritisation system to loan pressure redistributing equipment to community patients at risk of pressure ulceration. Although there are a wide range of action research studies published by nurses (Waterman et al, 2001), this methodology has been used little within the specialism of tissue viability.

AIMS

The main aim of this study was to facilitate the effective and sustainable implementation of a strategy aiming to reduce avoidable pressure ulcer occurrence in two community hospital wards in Wales. A secondary aim was to assess the adequacy of the nursing staff’s knowledge about pressure ulcer prevention as recommended by the EPUAP–NPUAP (2009) guidelines.

METHODS

The study used an action research methodology because the main aim was to promote a change in practice among nursing staff and facilitate the sustainable implementation of a strategy to reduce avoidable pressure ulcer occurrence. The National Patient Safety Agency (2010) definition of avoidable pressure ulceration was used (Box 1). The proposed change involved implementing a strategy based on the SKIN bundle concept (Box 2). Action research cycles included planning for a change in practice, action through use of the planned change, data collection on strategy implementation and education delivery by way of audit and reflection to facilitate re-planning. Throughout the action research process, data were collected that informed subsequent cycles. The collaborative, cyclical nature of the methodology facilitated the dissemination of findings integrally within the research process and development of the strategy by all nursing staff within the team. The design is summarised in

Table 1.

The study was originally planned for one ward, with participants including all the qualified nurses and HCSWs working on the ward (Box 3). The total number of nursing staff within this initial sample was 25, with 11 staff working fulltime, 14 part-time (six of the part-time staff working night shifts only). There were 11 HCSWs and 14 nurses. No other healthcare professionals were included.

The same action research process was repeated on a second, similar ward in a neighbouring community hospital where the nursing team had identified that they needed to reduce occurrence of pressure ulceration and had approached the researcher to request that they be able to implement the same SKIN bundle concept. The characteristics of the second ward were the same as the characteristics of the first study ward (see Box 3). The second part of the sample consisted of 10 fulltime staff and 11 part-time staff, four of whom worked night shifts only. On this ward, 10 of the staff were HCSWs and 11 were nurses. This change to initial plans reflected the evolving nature of action research and provided an opportunity for enhanced rigour of the study.

The researcher [DCK], who was already known to the staff as Tissue Viability Clinical Nurse Specialist (TVCNS), facilitated a total of four 1-hour planning workshops on the wards. Draft SKIN bundle documentation was designed, and then later improved. A series of nine audits provided data about the nursing staff’s knowledge on pressure ulcer prevention and pressure ulcer occurrence.

Findings from the audits were used to inform the development of an education intervention and to highlight changes that needed to be made to the SKIN bundle strategy as it was being implemented. Progress reports were written and circulated to foster a collaborative, research based, quality improvement focussed relationship between ward nursing staff, researcher and health board management.

Instruments

Data on pressure ulcer occurrence were collected using an adapted version of the EPUAP data collection tool (Vanderwee et al, 2007), which included identification of the probable setting in which pressure damage originally developed and the risk assessment score the ward team were using, rather than the Braden Scale (<http://bit.ly/16WQqF7>). Although it was recognised that

Table 1. Action research study design.

Cycle 1	Facilitated workshop to plan implementation of SKIN bundle concept. Audit of pressure ulcer prevention knowledge. Audit of pressure ulcer prevalence. Use of SKIN bundle concept with a limited number of patients. Development of relevant education intervention for nursing staff.
Cycle 2	Second facilitated workshop to discuss findings of initial audits, reflections on use of SKIN bundle concept and changes needed. Full use of improved SKIN bundle concept on ward. Delivery of education to nursing staff. Second audit of pressure ulcer prevalence.
Cycle 3	Audit of pressure ulcer prevention knowledge post-education. Third audit of pressure ulcer prevalence. Third facilitated workshop to discuss any further improvements to SKIN bundle concept required.

Box 3. Study ward characteristics.

- ▶▶ Twenty-bed general mixed adult unit caring for a variety of patients requiring hospital care under the medical care of a GP or consultant physician.
- ▶▶ Reasons for hospitalisation varied, and included a need for rehabilitation following recovery from an acute episode of illness or following surgery, palliative care, or stabilisation or control of symptoms associated with a chronic condition.

pressure ulcer incidence is the best measure for providing information about the effectiveness of any newly implemented prevention strategy, this was not possible because of time constraints, so point prevalence audits were used as an alternative means for data collection.

The ward nurses were already required to report pressure ulcer incidents through the health board's Datix system (Datix, 2012). From previous work, the researcher had become aware that reported incidents through the Datix system did not match actual pressure ulcer occurrence. Wounds that were not a result of pressure damage, such as moisture lesions, had been recorded as pressure ulcers. Pressure ulcers had been found by the TVCNS during ward rounds that had not previously been identified by the ward staff and so were not reported through Datix. When pressure ulcers were reported, they were frequently inaccurately categorised. Therefore, the Datix system could not be used to accurately monitor incidence during the course of the study. Due to time constraints, it was not possible for the researcher to validate all incidents of pressure damage.

A custom-designed, self-administered multiple choice questionnaire was used to collect data about pressure ulcer prevention knowledge prior to commencement of, and following, the education intervention. This consisted of ten questions derived from the EPUAP–NPUAP (2009) guidelines. Due to time constraints, extensive pretesting was not a viable option for this study, however compensation for this lack of rigour was sought through strict adherence to the wording of the EPUAP–NPUAP (2009) guidelines.

Ethical considerations

Ethical concerns and research governance were discussed with the administrator of the local ethics committee and the health board's research and development coordinator. As the study was judged to be a practice-based care quality improvement project, formal ethical approval and study registration were not required. All usual ethical principles were observed.

RESULTS

Knowledge audits of nursing staff on the first study ward

Prior to targeted education, completed questionnaires had been returned by 100% of the nursing team. From a possible total of 250 correct responses to the questions, 141 responses were correct (56%). The HCSWs correctly selected 54% of responses and the qualified nurses correctly selected 59%. The range of correct responses from ten questions for HCSWs was 1–8, for qualified nurses it was 3–8. Five HCSWs and six qualified nurses gave only five correct responses or fewer.

Following education, questionnaires were returned by 64% of the nursing team. From a possible total of 160 correct responses by the participating nursing staff in the second audit, 134 were correct (84%). Following education, the HCSWs who participated in the second audit correctly selected 83% of responses. The qualified nurses who participated in the second audit correctly selected 84% of responses.

In the post-education questionnaire two HCSWs scored maximum marks, but no qualified nurses achieved maximum scores. The lowest mark in the second questionnaire was 7, whereas more than half of the respondents scored <7 in the pre-education questionnaire. *Figure 1* illustrates the distribution of correct responses in the first ward before and after the education intervention.

Knowledge audits of nursing staff on the second study ward

Prior to training and education, questionnaires were returned by 100% of the nursing team. From a possible total of 210 correct responses to the questions, 108 (51%) responses were correct. Following education and use of the SKIN bundle for 8 months, questionnaires were returned by 85% of the nursing team. From a possible total of 170 correct responses

in the second questionnaire, there were 151 (89%) correct responses. *Figure 2* illustrates the distribution of correct responses in the second study ward before and after the education intervention.

Audits of pressure ulcer point prevalence on the first study ward

In the initial audit, prior to strategy implementation, there were 17 patients (seven males, 10 females) ranging in age from 69–100 years. Five patients had pressure damage, giving a point prevalence of 29%. Three patients were admitted with pressure damage. Two patients developed sacral nonblanching erythema (category/grade 1 pressure damage) while on the ward that was first identified during the study. Thus, the ward-acquired pressure damage point prevalence was 12%.

In the second audit, there were 15 patients (five males, 10 females), with 12 patients aged ≥ 70 years. Two patients had pressure damage and both incidents were ward acquired, resulting in a ward-acquired point prevalence of 13%.

In the third audit, there were 13 patients (five males, eight females), with 12 patients aged ≥ 70 years. No patients had pressure damage, giving a ward-acquired point prevalence of zero. *Table 2* provides a summary of the patients who were found to have ward-acquired pressure damage during the three point prevalence audits carried out on the first study ward.

Audits of pressure ulcer point prevalence on the second study ward

In the initial audit, prior to strategy implementation, there were 18 patients (eight males, 10 females), 16 of whom were aged ≥ 70 years. Five patients were found to have pressure damage, giving a point prevalence of 28%. Two patients were admitted with pressure damage, three patients developed pressure damage while on the ward. Ward-acquired pressure ulcer point prevalence was therefore 16%.

No patients were being routinely reassessed for risk of pressure ulcer development on a daily basis. Ward routines were providing frequent repositioning, but the audit revealed that none of the high-risk patients' repositioning was being individually planned and documented at the time at which repositioning was occurring.

There were 18 patients in the second audit (seven males, 11 females), 17 of whom were aged ≥ 70 years.

A total of four of the 18 patients had pressure ulcers (both ward- and non-ward acquired), giving a point prevalence of 22%. Only one patient had ward-acquired pressure damage (category 1 on both heels), giving a ward-acquired pressure ulcer point prevalence of 5%. The actual time of pressure damage to the patient's heels was not clear. There was no record of heel pressure damage on admission, but the patient's records showed that category 1 pressure damage to her heels was identified the first day after admission. This audit found that the draft form of the SKIN bundle tool had been used with all high-risk patients, and this had facilitated appropriate, planned, and documented interventions. *Table 3* provides a summary of the patients who were found to have ward-acquired pressure damage during the two point prevalence audits carried out on the second ward. Due to time constraints, the planned third audit was not carried out.

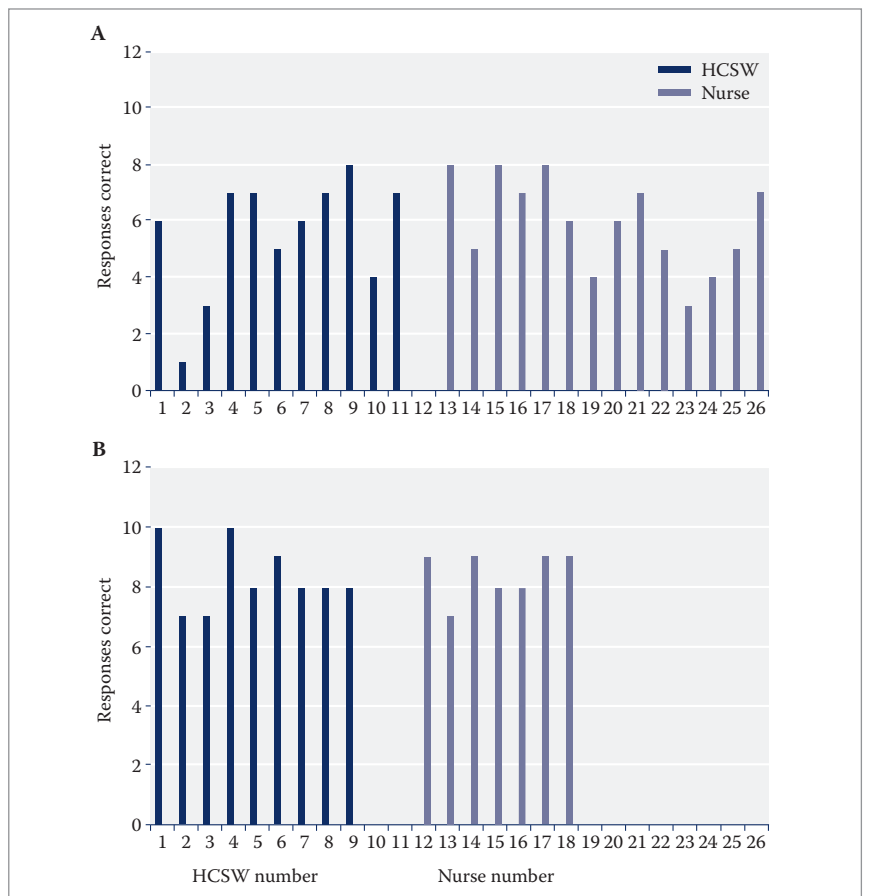


Figure 1. Distribution of correct responses among nursing staff and healthcare support workers (HCSWs) on the first study ward (a) before and (b) after education.

DISCUSSION

Evidence-based guidance (e.g. EPUAP–NPUAP, 2009) may assist practitioners with the integration of research findings and expert knowledge into care. Successful implementation, however, depends on factors such as clinicians’ motivation, a supportive, professional practice environment, commitment from managers, and institutional support. In similarity with the initiatives reported by Kennedy (2005), Bales and Padwojski (2009), and Ackerman (2011), this study included many of the factors required for successful implementation of guidelines but it was small, involving only two nursing teams. On the other hand, the restricted nature and small scale of the study may have contributed to institutional, managerial and clinical support being more easily provided. The study did not measure the extent to which concentrating on reducing pressure damage may have been at the expense of improving quality of care overall, which Griffiths and Maben

(2008) argued may happen. This is an important issue, which needs to be recognised.

Decreasing pressure ulcer occurrence requires identification of individuals at risk so that targeted preventive interventions are provided cost-effectively (Clarke et al, 2005). Bales and Padwojski (2009) suggested that a valid risk assessment tool should be used daily to assist in identification of individuals at risk of pressure ulceration. Initially, there was resistance to daily risk assessment from both nursing teams. Nursing staff perceived that daily re-assessment (changing from weekly re-assessment) would increase their workload intolerably.

During the second action research cycle, pressure ulcer point prevalence data on the original ward and reflective practice on the second ward identified that individuals with a relatively low risk score were developing pressure ulcers, particularly on their heels. Collaboration as part of the action research process enabled review of the way in which pressure ulcer risk assessment was being carried out within the health board. Improvements were subsequently made to the first draft of the SKIN bundle documentation and the way in which it was administered, in particular with respect to heel risk assessment and the timing of reassessment. It appears that engagement of nursing staff through participation in action research and motivation to reduce pressure ulcer occurrence had led to an understanding that frequent reassessment was necessary. The earlier resistance to daily assessment had been overcome.

The same process of reflection and collaboration as part of action research methodology resulted in the SKIN bundle checklist being used flexibly. In developing a process for assessment and preventive interventions delivery, the nursing staff acknowledged that individual patient needs could be accommodated. Re-design of the initial draft SKIN bundle documentation included individualised planning for SKIN bundle application and the inclusion of instructions for use so that the more sophisticated tool continued to be used in a standardised manner, but more appropriately for individual patient needs. A planned, third cycle workshop was no longer required as other community hospitals within the same health board had started implementing the SKIN bundle concept using the second draft of the tool.

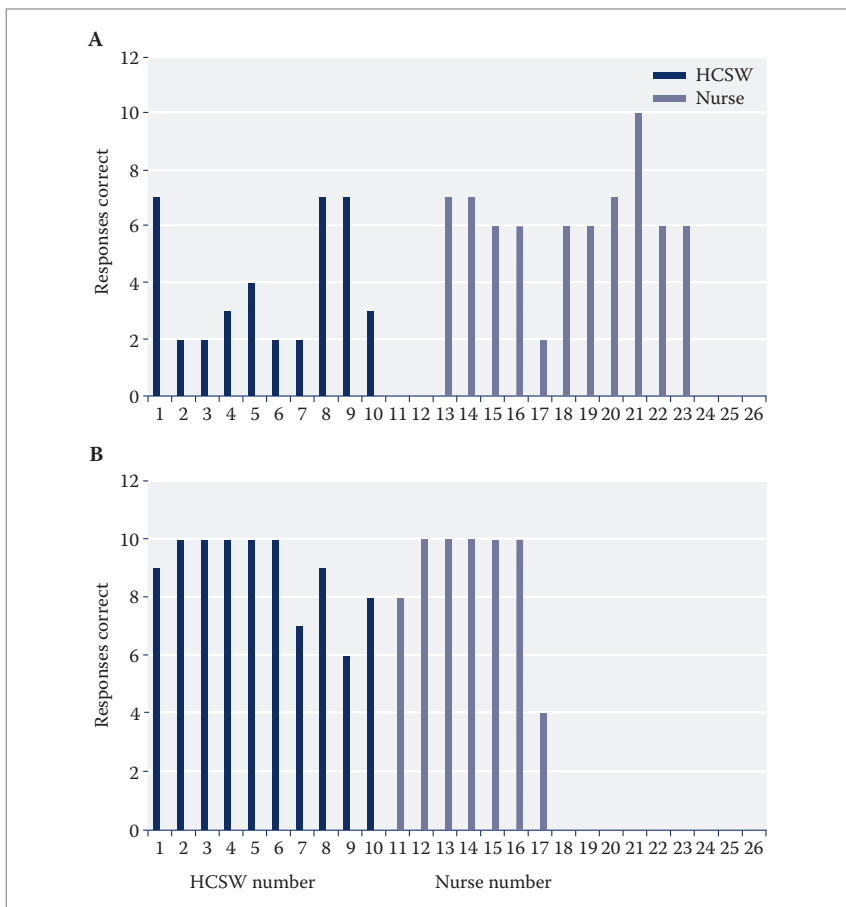


Figure 2. Distribution of correct responses among nursing staff and healthcare support workers (HCSWs) on the second study ward (a) before and (b) after education.

Qualified nurses and unqualified support staff needed to learn and work together with support from managers to change practice and reduce pressure ulcer occurrence. This assertion was supported by Samuriwo (2010), who found that the majority of interventions to prevent pressure ulcers were delegated to HCSWs. The unvalidated instrument used to measure pressure ulcer prevention knowledge in this study had been piloted with four TVCNSs who were familiar with the EPUAP/NPUAP (2009) guidelines and were able to respond to the ten items correctly. Initially, both participating nursing teams were only able to respond correctly to 56% and 51% of the ten questions.

With regards to knowledge scores and different levels of nursing staff, differences were found between the two nursing teams. In the pre-education audit on the original study ward, the HCSWs correctly selected 54% of responses, only slightly less than the qualified nurses who correctly selected 59% of responses. In the equivalent audit on the second ward, there was a greater difference between correct responses by the two groups with the HCSWs answering 39% of their questions correctly and the nurses answering 62% of their questions correctly. Findings on the second ward are similar to findings that have been reported by Maylor and Torrance (1999) and Källman and Suserud (2009) with qualified nurses' level of knowledge being found to be higher than that of their untrained support staff. The reasons for the findings of the present study were not investigated as it was not within the scope of the study to explore the sources of current knowledge within each of the groups.

The only meaningful comparison that can be made between pre-education scores and post-education scores is from that of the HCSW group on the second ward as there was consistency of the participating individuals in both audits. This group of ten HCWSs increased their correct responses from 39% to 89% following education delivered mainly by the ward's tissue viability link nurse, with five participants correctly answering all ten questions. Within the same nursing team, five qualified nurses also answered all ten questions correctly in the post education audit, whereas only one nurse had achieved the maximum score in the pre-education audit. This suggests that with effective, targeted

Table 2. Number of patients with ward-acquired pressure damage (category 1–4) in audits on original study ward.

Audit	Category 1	Category 2	Category 3	Category 4
Initial	2	0	0	0
Second	1	0	1	0
Third	0	0	0	0

Table 3. Number of patients with ward-acquired pressure damage (category 1–4) in audits on second study ward.

Audit	Category 1	Category 2	Category 3	Category 4
Initial	0	3	0	0
Second	1	0	0	0

training the qualified and unqualified members of a nursing team can improve their knowledge about pressure ulcer prevention to an equal standard.

Although research has demonstrated that the use of doughnut-type devices and massage can be damaging to vulnerable tissue (EPUAP/NPUAP, 2009), the pre-education audit in the present study found that many of the nursing staff thought that such interventions were safe practice. This is consistent with findings reported by Halfens and Eggink (1995), Panagiotopoulou and Kerr (2002) and Pancorbo-Hidalgo et al (2007), who all found that a substantial number of nurses incorrectly thought that use of doughnut-type devices and massage to prevent pressure ulceration was good practice. Targeted education provided the opportunity for all nursing staff in the present study to learn about the detrimental effects of these practices and the post-education audits demonstrated that learning had taken place in those team members who continued to participate in data collection.

Knowledge about repositioning was tested through two questions in the present study; one concerning reasons for repositioning, and the other concerning timing. In the pre-education audits, many respondents replied that repositioning of immobile patients should be performed 2-hourly, not recognising that 1-hourly or less frequent repositioning may be necessary depending on the support surface in use. The post-education audits demonstrated that the nursing staff who continued to participate in data collection had developed their knowledge to know that repositioning should also be influenced by the pressure-redistributing qualities of the support surface being used by the individual.

“Knowledge about repositioning was tested through two questions in the present study; one concerning reasons for repositioning, and the other concerning timing.”

Knowledge about support surface selection in the present study may have been influenced by the access the two different ward nursing teams had to pressure redistributing mattresses. In the pre-education audits, low numbers of respondents correctly replied that a partially mobile individual at risk of pressure ulcer development should be provided with a higher-specification foam mattress and equivalent cushion rather than a standard mattress. Most of the remaining respondents believed that such an individual should always be provided with a powered alternating pressure mattress. Both ward nursing teams had a history of not having access to sufficient higher-specification foam mattresses, but having a large supply of powered alternating pressure mattresses. During the course of this study, the second community hospital ward nursing team were experiencing renovation and development processes and this included considering supplying each of their beds with a higher-specification foam mattress to reduce the need for powered alternating pressure mattresses. The second nursing team improved their knowledge about support surface selection markedly more than the original ward nursing team. Kennedy (2005) alluded to the strong link between knowledge that can be used for improving patient outcomes and the work environment.

The second ward nursing team was able to benefit from two additional support mechanisms that had not been available to the team on the original study ward. The health board were already providing them with extra resources by way of facilitation to implement the Transforming Care initiative (NHS Wales, 2010). This was to ensure that improved quality of care in every facet of nursing could continue. This nursing team also included an active tissue viability link nurse who was able to motivate staff with regards to pressure ulcer prevention, deliver education and influence implementation of the SKIN bundle concept within a short space of time. In effect, the second nursing team had a “champion” for the project, a similarity with the successful initiative reported by Bales and Padwojski (2009). The use of champions may assist in implementation of strategies to reduce pressure ulcer occurrence as they may help to bridge the theory practice gap (Bales and Padwojski, 2009) and serve as a resource and mentor to colleagues while liaising between the nursing team and other parties involved in improvement efforts (Niederhauser et al, 2012).

The additional support the nursing staff on the second ward benefitted from may have contributed to the apparent increased level of engagement with training and strategy implementation, and the greater increase in knowledge scores when compared with the nursing team on the original study ward.

The study facilitated a measured improvement in pressure ulcer prevention knowledge and an unmeasured improvement in documentation related to pressure ulcer prevention by the two participating nursing teams. It is not known how well the subsequent improvement in knowledge and hoped-for resulting improvement in quality of care will be sustained. This is a particular concern in light of the identification by Samuriwo (2010) that pressure ulcer prevention education had minimal impact on individual nurse’s knowledge until the individual nurse became involved in caring for a patient with a severe pressure ulcer.

The data collected in this study suggest that there is likely to be a need to educate all nursing teams within the same health board on the recommendations set out in the EPUAP/NPUAP (2009) guidelines. The training resources developed in this study could be used to educate nursing staff throughout the same health board. Successful adoption of the developed SKIN bundle concept across the health board may depend on tissue viability link nurses acting as champions with support from the tissue viability service. These champions may also play an important role in ensuring improvements in practice are maintained. With the appropriate support and development, link nurses could audit each other’s clinical areas. This may, however, put intolerable pressure on link nurses working within teams who are not fully engaged with the initiative and not working within a collaborative framework such as that of action research.

There remain many limitations to the study. Measurement of the nursing staff’s knowledge relied on the same questionnaire being completed prior to and following an education intervention. Use of the same questionnaire for pre- and post-education tests could have enabled comparable measurement, but not all nursing staff had completed a post-education questionnaire before data analysis was performed. This resulted in a sample of staff being audited rather than the full nursing team, reducing external validity.

The questionnaire was self-administered, introducing bias. Accompanying instructions asked participants to complete the questionnaire individually and without consultation of information sources, but this behaviour could not be guaranteed. Reliability of knowledge measurement was further compromised by the length of time it took for each nursing team member to complete a questionnaire, as consultation could have been taking place during that time. A strict time limit could not be applied as the nature of the study required voluntary, unenforced engagement from every team member. In order to encourage full participation by the complete nursing workforce on the ward, the questionnaire was limited to ten items. Although this conferred a shorter completion time, this approach restricted the extent to which knowledge about pressure ulcer prevention could be explored.

The limitations of measuring pressure ulcer occurrence within the patients in this study have to be acknowledged. As it was not possible for the researcher to validate all incidents of pressure damage, point prevalence was used as an alternative measurement, but only five such audits were carried out, limiting data collection to five points in time over an 11 month period, thus reducing validity of the data.

Although interpretation of findings must be cautious, use of the EPUAP data collection methodology described by Vanderwee et al (2007) allowed comparison of data with that of the study by James et al (2010). A pressure ulcer prevalence rate of 26.7% had been reported in Welsh community hospitals (James et al, 2010). The present study used the same methodology for collection of data and initially, findings were comparable (29%; 28%). These findings demonstrated that initial pressure ulcer point prevalence on the two wards participating in the present study was similar to prevalence rates found in other Welsh community hospitals.

CONCLUSION

Action research methodology combining the concurrent collection and analysis of data with collaborative reflection and planning empowered two Welsh community hospital nursing teams to work towards reducing avoidable pressure ulcer occurrence through implementation of a strategy based on the SKIN bundle concept. Although the study was context specific, it produced a prevention

model for reducing pressure ulcer occurrence that could be adapted for similar settings. **WUK**

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DECLARATION OF INTEREST

The authors declare no conflicts of interest.

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“The study facilitated a measured improvement in pressure ulcer prevention knowledge and an unmeasured improvement in documentation related to pressure ulcer prevention.”