

Implementation of a preventative pressure management framework

B McErlean BN • J Prendergast • S Sandison • L Jeffers • A Milne
J Cotton • W Humphreys

Summary

This article describes the quality improvement and audit processes used by one hospital to: examine pressure prevention practices and rates of pressure ulcer development; develop and implement an organisational pressure prevention framework in response to the audit results found; and evaluate the outcomes. The developed framework supports the principles of clinical governance. The early identification of risk is then communicated to all subsequent health care workers, resulting in the implementation of appropriate preventative interventions.

Point prevalence monitoring is the main organisational evaluation mechanism used and, whilst methodological differences existed between the first and subsequent audits, there still remains enough evidence to support the notion that the framework has been successful in achieving its goal. The hospital has seen an increase in the identification of the patient at risk on admission and the implementation of appropriate preventative interventions; this has led to a reduction in the incidence and severity of pressure ulcers. However, the brief of the working party is not complete. The working party plans to undertake a piece of research in 2002 to validate the risk assessment tool developed and also to develop a mechanism to link the identified risk with the casemix profile of the patient.

Introduction

The worldwide move towards clinical governance within hospitals^{1,2} and the institution of clinical risk management programmes³ have served as an impetus for organisations to review processes of care in an endeavour to ensure that standards and practices are based on the most rigorous evidence available and that services produce measurable benefits.

Repatriation General Hospital (RGH) is a 250 bed facility which draws approximately 50 per cent of its patients from the community of war veterans and 50 per cent from the general community in the southern metropolitan area of Adelaide. The average patient age at the hospital is 72 and is

significantly older than patients of similar casemix in other metropolitan teaching hospitals.

It is known that pressure ulcer incidence occurs more often in the elderly^{4,5}. Preventative pressure management has for many years served as a quality of care indicator, as the development of pressure ulcers is largely felt to be preventable^{6,7}. However, pressure ulcer rates continue to be a problem and produce costs to both the individual concerned and the organisation. The cost to the individual can be measured in terms of the resultant pain, decreased mobility and activity, loss of independence and even possibly social isolation^{4,8}. The financial costs are also high. Porter and Cooter estimated that 60,000 Australians will develop a pressure ulcer each year⁹. The costs of managing a pressure ulcer in Australia – for dressings and nursing time – range from \$61,230 (Stage 5, Torrance classification)¹⁰ to \$586 per month for a stage 2 ulcer¹¹.

A skin integrity pressure ulcer prevalence/incidence audit in December 2000 clearly indicated a need for nursing services at RGH to closely examine current care practices in relation to pressure ulcer prevention as our incidence/prevalence rates were higher than benchmarks identified in the literature¹²⁻¹⁴.

Beth McErlean BN Grad Dip Nursing Acute Care
Management Support Consultant
Nursing Services
Repatriation General Hospital
Daws Road, Daw Park, SA 5042
Tel: (08) 8276 9666

A working party was commissioned to examine the issues and develop an effective management framework aimed at identifying patients at risk and initiating appropriate treatments to reduce pressure ulcer incidence.

Baseline data

In December 2000 the stomal therapist and vascular clinical nurse consultant undertook a pressure ulcer prevalence/incidence audit examining all patients admitted in the hospital on one day. Audit tools included the Braden risk assessment tool, a pressure ulcer severity scale¹⁵, direct observation of the patient's skin and a review of the clinical record and care plan. Verbal consent was obtained prior to all skin inspections and two patients refused (n=216). Whilst no mechanism was in place to monitor inter-rater reliability of the audit staff, the members of the audit team had over 10 years' experience in wound assessment.

Results demonstrated a 29.6 per cent prevalence and 20.6 per cent incidence of pressure ulcer development. It is difficult to compare results between hospitals due to varying casemix profiles; however, prevalence rates in Australian acute public health institutions have been quoted as ranging from 4.5-27 per cent¹²⁻¹⁴.

The incidence rate was calculated by examining admission documentation for reported evidence—a lack of documentation of the ulcer on admission to the hospital confirmed that it was hospital acquired. It may be possible that the incidence rate was over-estimated due to the reliance on admission documentation, that is, the ulcer may have been present on admission but not recorded.

The major sites of hospital acquired ulcer development included the heel (45.7 per cent) and the sacrum (33.9 per cent) and 49 per cent of the ulcers were stage 1 whilst 46 per cent were stage 2 (Table 1).

A broad risk distribution was identified; 32 per cent were identified at low risk, 23 per cent medium, 17 per cent high and only 5 per cent were identified at very high risk. The auditors noted that only 40 per cent of 'at risk' patients had

been identified by staff in the medical record or on the care plan. In addition, communication of the risk and planned interventions to others was not clearly identified and there was no mechanism in place to evaluate the success of those interventions. An equipment audit undertaken at the same time identified a lack of pressure prevention equipment to effectively manage the patient risk profile.

Gaining support

Gaining organisational commitment for the project was not difficult. The hospital executive and Board had recently developed a clinical governance framework for the organisation in which they had voiced their public support for the elimination of pressure ulcers¹⁶. This commitment was demonstrated by the release of \$25,000 from operational budgets for the purchase of pressure relieving/reducing equipment.

The nursing executive team also identified the issue as a key strategic area for nursing for the year 2001/2002¹⁷ and provided leadership through the formation of a working party. The working party was composed of both nursing clinicians and wound specialists as the components of the framework developed needed to be integrated within clinical practice, i.e. work in reality and be grounded within evidence and the principles of 'best practice'.

Framework development

The intent of the framework was clear – minimise the risks to the patient population at RGH by the development of useful and workable mechanisms to accurately identify and communicate the risk to all health care workers. Accurate identification and communication would lead to the implementation of appropriate evidence based interventions relevant to the identified risk factors which would reduce the potential risk to the patient. The successful outcome would be a reduction in incidence and healing of the community acquired ulcers. This concept of focusing on reducing the risk to the patient is a central tenant of the clinical governance framework, and hence is the basis of the pressure prevention framework at RGH³.

Framework components

Risk identification

The preliminary audit showed that 25 per cent of patients identified at low risk of developing a pressure ulcer had, on skin inspection, actually developed one. This factor led the working party to re-consider the use of tools that classified patients into risk levels. Further investigation of developed assessment tools led the working party to the work of Brenda

Table 1. Stage of hospital acquired pressure ulcers December 2000 – December 2001.

Audit dates	1 %	2 %	3 %	4 %	Total %
Dec 2000	49.10	46.00	5.08	0	20.60
Aug 2001	59.20	37.03	3.70	0	14.30
Dec 2001	78.50	21.40	3.57	0	17.30

Ramstadius¹⁸ who had developed a tool which identified the primary cause of pressure ulcers, unrelieved pressure, and then offered the nurse a number of preventative interventions aimed at reducing the primary cause. A scaling system was not used as Ramstadius believed that giving equal weight to variables such as incontinence, patient weight and nutritional status confused the nurse as to the primary cause of pressure ulcer development. The working party concurred that as this notion fitted with the conceptual framework under development, accurate identification of the risk factor would then allow the implementation of the appropriate intervention.

A review of the literature^{6,12} indicated that the risks related to pressure ulcer development needed to be identified on admission. On discussions with staff, it became clear that a separate risk assessment tool would simply add to the volume of documentation and consequently be under-utilised. At the same time, two organisational groups were reviewing the nursing admission assessment process and developing a falls risk assessment tool.

Following consultation, it was determined that all groups would combine to develop a nursing admission assessment tool which incorporated an admission risk assessment screen. The major risk factors linked to pressure ulcer development were incorporated into the tool^{4,6,7,12} (Table 2).

Risk communication

Identification of risk alone at one point in time will not ensure the continued implementation of pressure prevention strategies across all shifts during the patient’s admission. The group recognised that sustainable mechanisms needed to be

developed to communicate the risk and the obvious choice was the ‘nursing’ care plan.

This plan of care resides at the bottom of the patient’s bed and describes all the nursing activities required as reviewed by staff each shift. Following wide consultation and review, a generic care plan was developed for all acute wards that met the individual needs of specific specialties and provided the nurse with care strategies related to the specific risks associated with pressure ulcer development.

Interventions linked to risk

The working party undertook a number of activities including an extensive literature review^{5, 12, 19-25}, obtained recently developed pressure ulcer prevention guidelines from both the Australian Wound Management Association²⁶ and the Wound Care Association of NSW²⁷, benchmarked with other hospitals within Adelaide^{28,29} and identified current practice issues at RGH³⁰.

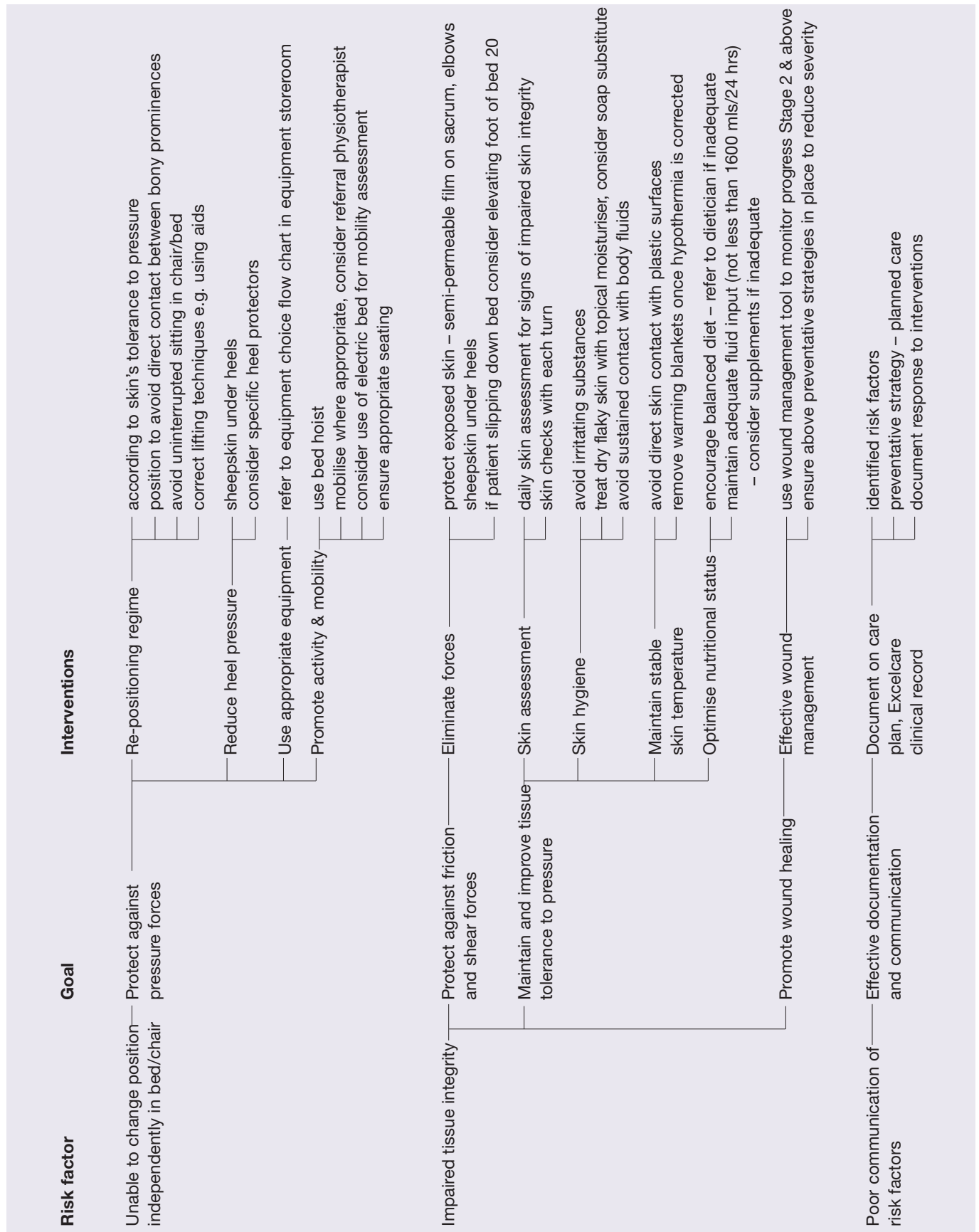
The recommended interventions are based on the best possible evidence and are designed to assist the care giver link the identified risk factor(s) with the care requirements in order to reduce the pressure ulcer risk to the patient. All recommended preventative strategies are presented for consideration on a flow chart which links the causative factors with the goal of care and related interventions (Figure 1). This flowchart is located in each patient’s green folder underneath the nursing care plan.

The audit in December 2000 identified a lack of pressure relieving/reducing equipment for those patients identified at

Table 2. Pressure risk assessment (pressure risk assessment screen incorporated into admission nursing assessment tool).

Skin (tick applicable) Risk factors associated with pressure ulcer development		
Difficulty in changing own position in bed/chair	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Prolonged exposure to friction on pressure points	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Existing pressure ulcers or redness of pressure points	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Prolonged exposure to moisture on pressure points	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Risk of developing pressure ulcers		
If yes, implement appropriate strategies associated with identified risk factors.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
On inspection, skin is	Location and stage of broken skin	
Intact	Fragile	_____
Dry	Clammy	_____
Discoloured	Broken	_____
Lesions	Wound	_____
Nail irregularities		_____
If present, commence wound management tool, Stage 3 or 4 pressure ulcers, refer to wound management consultant.		

Figure 1. Flowchart of pressure ulcer preventative strategies (refer to Unit of Care 61 for additional detail).



risk and varied equipment types which either did not meet infection control standards or were not recommended for use. Following a review of the literature^{5,12,26,31}, market availability³²⁻⁴ and staff preference, an equipment choice chart was developed which clearly described the recommended equipment deemed most appropriate for the individual. All unsuitable equipment was removed and a 5 year equipment purchasing plan was developed and endorsed by the organisation.

Documentation

A goal of documentation is to facilitate communication and continuity of care between staff and across health care settings³⁵. The audit undertaken in December 2000 identified that documentation of the ulcer presence and progress was scant for both hospital acquired and those that had been identified on admission. Each ward quality improvement committee was charged with the responsibility of developing sustainable mechanisms to communicate risk factors and interventions. It was recommended that all individuals at risk of developing pressure ulcers should have their identified risk status – management plan, referrals and the individual's response to treatment – recorded in the medical record on a regular basis.

Implementation issues/costs

The responsibility for implementing the developed framework across the organisation was delegated to the working party. A formal educational session on the physiology of pressure ulcer development and a description of the components of the framework was provided to all unit nurse managers prior to the provision of information sessions in all wards. The provision of this additional information to the unit nurse manager was felt to be vital to the continued sustainment of the framework, as this group are the drivers of standards of practice within their wards. They therefore needed to both understand and approve the chosen components in order for the framework to work in clinical practice.

Development of the framework was costly in terms of staff time. It is estimated development and implementation cost \$45,000. However, the organisation has seen tangible and positive outcomes as a result.

Evaluation of success

The framework utilises point prevalence/incidence monitoring as its main organisational measure of success and audits were subsequently held in August and December of 2001³⁶.

There were two major methodological differences between the first and subsequent audits which do need to be

acknowledged. Firstly, the risk assessment tool used was the RGH developed tool which identifies the major causes of pressure ulcer development (Table 2) and, secondly, one auditor in each ward was trained by the wound specialists to undertake the audit. Whilst individual training was given to each auditor, there was no mechanism in place to check the skill level or manage the issue of inter-rater reliability.

The primary aim of the working party was to develop sustainable local practice review mechanisms within each ward. It was felt important that ward staff reviewed their own practice and then each ward reviewed their own results and identified opportunities for improvement – the development of a quality improvement approach to nursing practice.

Subsequent audits identified a stable prevalence and reduced but varied incidence rate, 20.6 per cent in December 2000, 14.3 per cent in August 2001 and finally 17.3 per cent in December 2001. The results demonstrated a reduction in the stages of hospital acquired pressure ulcers. Forty nine per cent of ulcers were identified as stage 2 in December 2000, reducing to 21 per cent in December 2001 (Table 1). The location of hospital acquired ulcers had also altered in subsequent audits. There was noted to be a steady decline of sacral and heel ulcers but an increase in ulcers located on elbows.

Subsequent audits also showed a decreasing risk profile; 76.9 per cent of patients were identified at risk in December 2000, 64.5 per cent in August 2001 and 59.9 per cent in December 2001. An examination of the nursing admission assessment form, care plan and Excelcare (computerised care plan) showed an improvement in the identification and communication of the risk to other health care workers. Risk assessment on admission had risen from 83 per cent in August 2001 to 93 per cent in December. Documentation of the level of risk on the care plan also rose from 87 per cent in August to 100 per cent in December.

The implementation of appropriate preventative intervention associated with the identified risk factors had also improved in subsequent audits. This rose from 44 per cent in the initial audit to 79 per cent in December 2001.

Discussion

The working party aimed to develop and implement a sustainable organisational preventative pressure risk management framework and the results indicate that this goal has, in the main, been achieved. The results clearly indicate that staff are assessing the risk of pressure ulcer development on admission, communicating that risk to

others and implementing appropriate preventative interventions; with continued auditing and practice review cycles these figures can only improve.

The disparity seen between the slight reduction in pressure ulcer incidence and the reduction in the severity of hospital acquired ulcers suggests that auditors may have confused reactive hyperaemia with stage 1 pressure ulcers. At the next audit planned for April 2002, the wound specialists will undertake a check skin inspection on all patients identified with stage 1 pressure ulcers in an attempt to answer this question. Mechanisms have also been put in place to check the inter-rater reliability of auditors prior to the commencement of the next audit.

The reduced risk profile between audits may have, in part, been due to changing the risk assessment tool used in the data gathering process as well as the changing casemix profile of patients seen. The working party intends undertaking further research in 2002 in order to validate the RGH's risk assessment tool, and develop a mechanism to link RGH's casemix profile with the identified risk factors in an attempt to risk-adjust results.

Maintaining the gains made are vital to the continued success of the developed framework. Commitment continues to be required in terms of both financial and human resources to ensure staff continue to have both the knowledge and equipment necessary to minimise the risks associated with pressure ulcer development. This is understood and accepted by both the organisational executive team and nursing services.

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Further reading

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