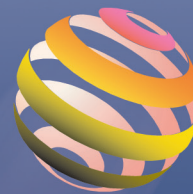


Applied Wound Management:

Part 3. Use in practice



Wounds UK

 **Systagenix**
WOUND MANAGEMENT

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Editorial by *David Gray*

From decision making and communication, to education and clinical audit, Applied Wound Management (AWM) has a variety of applications as a wound assessment tool. Since its inception AWM has been adopted by many practitioners across the UK and has helped them to improve their clinical practice. This supplement presents the work of some of these clinicians and includes projects from a variety of clinical areas. The supplement authors all recognised AWM as a tool that could help to facilitate effective wound care and adapted it to meet their local needs. They were then approached to present their own experiences in this supplement. This is how we always hoped AWM would be used — as a flexible tool that allows each practitioner or clinical area to improve the delivery of care.

As the world economy struggles to recover from the recent financial crisis, it would be easy to be swayed by reports of green shoots of recovery and experts who offer reassurance that the worst is behind us. However, while financial institutions are returning to business as usual, it is likely that the impact of the credit crunch will reverberate through our public services for many years to come. The NHS will need to revisit spending plans and consider where it can reduce costs. Any reassessment of expenditure will involve tissue viability services and it is important that we are able to present a coherent case, which supports the provision of wound care.

AWM can be a very powerful ally in the battle to quantify the impact of a particular service or treatment as it provides a baseline of performance against which all treatments can be evaluated. For example, in Aberdeen we identified that it took a mean of 39 days to move a necrotic heel from black to red on the Wound Healing Continuum using our standard approach. However, by using a more expensive therapy we were able to reduce the treatment time to one day. We justified the increased cost by demonstrating a reduced wound healing time, which saved on dressing materials and nursing hours. AWM was able to demonstrate that both of these options provide value for money and clinicians now have access to both. As a result, the deciding factor in any necrotic heel treatment decision in Aberdeen is now the clinical need of the patient, not the cost of the treatment.

AWM will continue to be available free of charge to all practitioners and I hope that you will continue to use it to facilitate the delivery of high quality care to patients. It is also a vital tool in helping clinicians from other specialties understand the benefits of effective modern wound management. The practitioners featured in this supplement deserve to be congratulated for their pioneering work and in future publications I look forward to reading about the work of many others across the UK who are making use of AWM in their own practice.

An introduction to Applied Wound Management and its use in the assessment of wounds

Various techniques have been developed for assessing and grading the healing progress of wounds and WBP and TIME are now recognised as accepted paradigms in wound management. However, Applied Wound Management (AWM) seeks to further develop the area of wound assessment by supplying a framework that provides a systematic and practical approach. This article examines the principles of AWM, outlining how the the Wound Healing Continuum, Wound Infection Continuum and Wound Exudate Continuum can help clinicians assess wounds and thereby provide accurate dressing choices.

David Gray, Richard White, Pam Cooper, Andrew Kingsley, Trudie Young

KEY WORDS

Wound assessment
Applied Wound Management
Continuums
Healing
Exudate
Infection

Wound management is a constantly evolving speciality in which new products, knowledge and therapies are continually being developed. In the last decade, significant advances in the field have resulted in the introduction of Wound Bed Preparation (WBP) (Schultz et al, 2003; Jones, 2004) and the TIME concept (Dowsett and Ayello, 2004), which promote the adoption of a systematic approach to wound management.

The key principles underlying these concepts (debridement, control of bioburden and exudate management) have been recognised as good practice for some time (Sibbald et al, 2000; Dealey, 2005). However, WBP

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seeks to incorporate these issues into a systematic approach leading to appropriate dressing selection — a significant paradigm shift that has been acknowledged and accepted by those working in the field of tissue viability (Jones, 2004).

Applied Wound Management (AWM) is a clinically focused system of wound assessment and its use can help to inform wound management decision-making.

Within the UK, little is known of the true extent of wound healing by secondary intention. However, a recent comprehensive trust-wide audit by Vowden and Vowden (2009a,b) identified a pressure ulcer prevalence figure of 0.74 per 1,000 population (95% CI 0.6–0.8) (the audit identified 482 people with open leg ulcers of varying aetiology within one English healthcare district).

National healing rates for pressure ulcers and leg ulcers are not readily accessible, if they exist at all. The Applied Wound Management framework allows the categorisation of the majority of wounds healing by secondary intention and if applied in a clinical setting can facilitate clinical audit — this could produce valuable data, which could be used to define the true extent of wound healing by secondary intention in the UK.

Applied Wound Management

AWM was first introduced in 2005 as a framework, which utilises three different continuums, each relating to a key wound parameter:

- ▶▶ Healing
- ▶▶ Infection
- ▶▶ Exudate (Gray et al, 2005).

Healing

Along with return of function and acceptable cosmetic appearance, healing is seen as the ultimate aim of wound care. However, due to skin failure and co-morbidities, such as peripheral vascular disease, for some individuals this is not achievable.

Nevertheless, the science of wound healing has progressed and there are now tests that can assist with the assessment of wound status. Specific biochemical tests which identify the causes of delayed healing would be an improvement on those currently available, but they are still in the developmental stage. Eventually, it is hoped that these diagnostic tests will be able to indicate whether or not a specific intervention is suitable or is being effective (World Union of Wound Healing Societies [WUWHS], 2008a). This is exceptionally important, because as the emergence of new therapies continues, the economic burden of hard-to-heal wounds could spiral out of control (Romanelli et al, 2008).

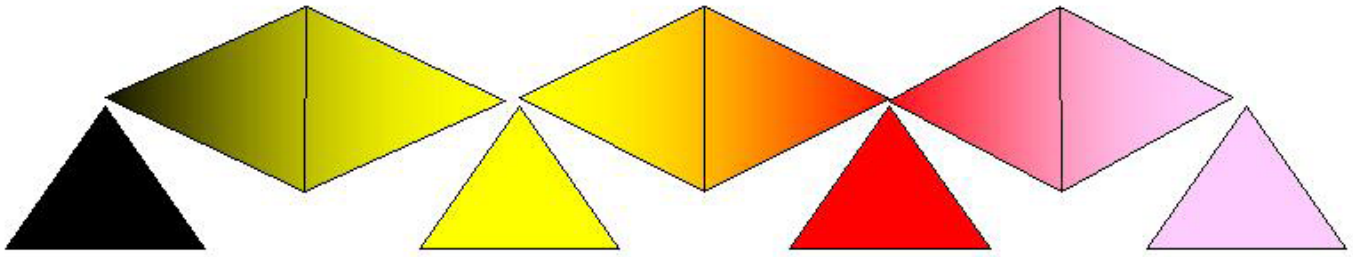


Figure 1. The Wound Healing Continuum.

When using AWM, the wound's progress towards healing is linked to the colours of tissues in the wound bed and these are represented as a colour-based continuum. This is a recognised wound-related indicator that can signal healing difficulties (Vowden et al, 2008).

Infection

Wound infection and the nature of its role in delaying healing have long been debated in wound care literature (Bowler and Davies, 1999; Bowler et al, 2001). However, the importance of wound infection has come to the fore with the publication of two position papers on its identification and management (European Wound Management Association, 2005; 2006), and an *International Consensus on Wound Infection in Clinical Practice* (WUWHS, 2008).

One of the main drivers in this field has been the emergence of biofilms as a reason for the failure of some wounds to progress along the healing trajectory (Association for the Advancement of Wound Care, 2008). This focus on the clinical impact of wound infection has led to the development of wound infection continuums. These provide a framework that allows clinicians to track the regression or progression of wounds as infection arises and is subsequently treated.

This focus on infection is also evident in the growing range of antimicrobial dressings, which includes silver dressings and honey preparations, along with products containing polyhexamethylene

biguanide (PHMB) or dialkylcarbamoyl chloride. Within AWM, infection is subdivided into named stages representing various host responses to the wound bioburden, each identified by clinical clues (Figure 2).

Exudate

Exudate is the term applied to fluid found at the wound bed and its inclusion in wound assessment is essential (WUWHS, 2007). Exudate assessment is thought to be the way forward in distinguishing between healing and non-healing wounds (Moore et al, 2007).

The components of exudate can vary and depend on the health of the wound environment. In acute wounds, exudate facilitates healing and contains growth factors and other elements essential for the healing process (Baker and Leaper, 2000). Intact skin has to regenerate itself as it is worn away during normal daily activities. This process requires the worn out tissue to be broken down by proteinases and replaced with new tissue produced by fibroblast cells. However, in chronic wounds there is an excess of proteinases and a decrease in the tissue inhibitors, which are required to keep the proteinase activity under control (Moore et al, 2007). Therefore, exudate is viewed as an indicator of wound chronicity (Trudgian, 2005).

Exudate is a key component of moist wound healing and is required to assist the movement of the epithelial cells from the wound edge. The process of re-epithelialisation is complete when the wound bed has an

entirely new epithelial layer covering the granulation tissue. The moist environment provided by the exudate facilitates enhanced movement of the epithelial cells and thus faster wound closure.

The amount of exudate produced will vary during the lifespan of a wound. Whenever there is inflammation at the wound bed due to initial injury, subsequent trauma or infection, vasodilation will occur and consequently there will be an increase in exudate volume. Other factors that influence exudate production include oedema, presence of a sinus or fistulae and the anatomical location of the wound (WUWHS, 2007). As well as assessing the physical impact of wound exudate on the healing process, it is important to assess its impact on the individual's quality of life, i.e. pain, maceration of peri-wound skin and social isolation (Dowsett, 2008; Leonard and Vuolo, 2009).

Regardless of the wound type, individuals will have unique exudate profiles. Within AWM, wound exudate is represented by volume and consistency parameters, and each can be graded according to a 'matrix' continuum (Figure 3).

By assessing the parameters of healing, exudate and infection, AWM provides a clinically focused system for wound assessment, which subsequently aids clinical decision making. This practical application to everyday wound care enables the clinician to approach wound assessment logically and systematically.

The Wound Healing Continuum (WHC)

The WHC (Figure 1) is an aid to understanding the type of tissue present in the wound bed and thus the wound's progress towards healing (Gray et al, 2005). When using, the key is to determine which type of tissue is of primary importance. As the continuum is followed from left to right, i.e. from black to pink, it correlates with the colours seen in a healing wound (Krasner, 1995). Not all wounds will naturally progress in this fashion, but even where a wound deteriorates or oscillates between healing and stasis, the WHC will still be capable of recording its status.

Not all wounds will exhibit black tissue during their lifetime. This is acknowledged in the imminent *International Pressure Ulcer Prevention and Treatment Guidelines* (see: www.pressureulcerguidelines.org) in which the description of pressure ulcers has changed from grade to category. This change reinforces the fact that not all pressure ulcers progress in a linear fashion — therefore not all category one ulcers will develop into a category four.

When using the WHC, the clinician should first identify the colour that is furthest to the left of the continuum, for example, if the wound bed contains yellow slough and red granulation tissue, it would be defined as a 'red/yellow wound'. In this instance, the management plan should focus on removal of the yellow sloughy tissue and promotion of the red granulation tissue. As this objective is achieved, so the wound can progress along the continuum towards the right and the 'pink/healing status'.

The Wound Infection Continuum (WIC)

The WIC (Figure 2) is an aid to understanding the level of bacteria present in the wound (the bioburden), and the level of host response (Kingsley, 2001; White et al, 2002). It describes the effects of increasing bacterial numbers in wound tissue, using conceptual names for increasingly severe forms of wound bioburden (Kingsley et al, 2009). There are four stages that also progress from left to right, with 'severe spreading wound infection' on the far left. The continuum moves to the right through the stages of 'local

infection' and 'critical colonisation' to 'colonisation'. Infection that spreads along the continuum, i.e. rapidly increasing cellulitis, can be a life-threatening condition.

The principle visible clinical cue indicating infection is advancing redness (greater than 2cm around the wound margin), which may be accompanied by other signs and symptoms, notably pain. The infected wound often includes very high exudate levels, malodour, and in the surrounding tissues, heat, swelling and blistering.

Local infection is characterised by less than 2cm of redness around the wound margin, sometimes with symptoms similar to spreading infection but to a lesser degree (Kingsley, 2003).

It is important to understand that bacterial colonisation, which is a state of manageable bioburden, is normal in wounds healing by secondary intention and does not hinder progression towards wound closure (Bowler, 2002). Therefore, the term 'colonisation' on the infection

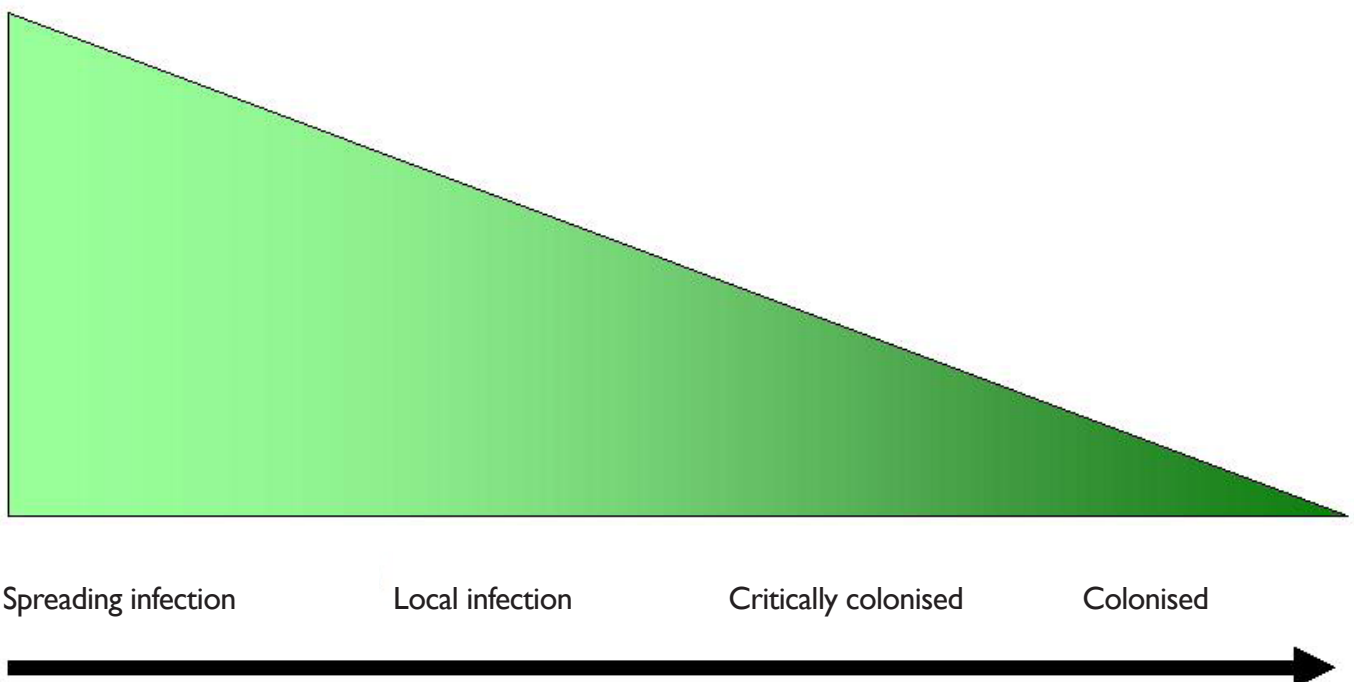


Figure 2. The Wound Infection Continuum.

continuum describes a wound that is free of untoward or unexpected symptoms (for example, tenacious slough, excessive wetness, malodour, dull granulation tissue, etc) and is actively improving.

A clearly visible reduction in wound surface area over a two-week period would suggest an acceptable level of colonisation (Flanagan, 2003).

The WIC represents a simple sliding scale that can be used as an aid to clinical decision making when assessing the level of bacterial colonisation of a wound (Cutting, 2003; Scanlon, 2005). A wound may never move from the furthest point on the right on the continuum ('colonisation'), during the entire treatment period up to healing. However, where a patient is identified as having a wound that has localised or spreading infection, consideration should be given to addressing this when developing a wound management plan.

The Wound Exudate Continuum (WEC)

The WEC (Figure 3) is an aid to estimating both the volume and viscosity of wound exudate. Traditionally, wound exudate has been considered in terms of its volume with minimal thought given to its viscosity. However, the viscosity of the exudate can be an important indicator of the wound's status (Vowden and Vowden, 2004).

The grading for both viscosity and volume is high, medium and low. This allows wound exudate to be categorised by score, i.e. a low volume of medium viscosity would be a 'low/med' category and would score four, placing it in the low exudate portion of the continuum. Any score falling in the green zone should be seen as advantageous to wound healing. Any score in the amber zone would only cause concern if the previous recording had been green, but not if the previous recording had been red — in this case, an amber reading would demonstrate a move toward healing. A score in the red zone should

be investigated further as it may indicate local or spreading infection.

To use the WEC, the clinician must assess the exudate in the wound and on the dressing. The number of dressing changes over a 48-hour period should also be considered. Any wound assessed as having both a high viscosity and a high volume of wound exudate would score a full 10 points and be regarded as a cause for serious concern. Any wound scoring six points would be regarded as requiring regular review.

It might be that the findings are entirely consistent with the treatment applied, i.e. the liquefying of wound slough. In this case, the wound may have previously scored in the red zone and, as such, a score of six would indicate an improvement. If a wound had previously scored between two and four points, but was then graded in the amber zone (i.e. scoring six points) this could be seen as a precursor to the development of a wound infection and should be acted upon accordingly.

Using AWM in the clinical setting

Most wounds can be categorised into one of six different types:

- ▶▶ Pressure ulcer

- ▶▶ Leg ulcer
- ▶▶ Diabetic foot ulcer
- ▶▶ Surgical wound
- ▶▶ Trauma wound
- ▶▶ Complex wound.

Before embarking on a care plan for a person with a wound, it is vital that the cause of the wound is identified and treated if required, i.e. all venous leg ulcers should be assessed using national and international guidelines (RCN, 2006; World Union of Wound Healing Societies, 2008b). Failure to do so can lead to delayed healing and potentially damaging complications.

Following the application of the three continuums, the wound can be defined in terms of tissue/colour (WHC), bioburden/host response (WIC) and exudate volume/consistency (WEC).

It is at this stage that consideration must be given to the aetiology of the wound. Such an assessment would, for example, in the case of a heel pressure ulcer, necessitate a very different form of management than a diabetic foot ulcer. Each wound would require treatment/management relevant to the underlying pathology, despite recording the same initial

	Viscosity		
Volume	High 5	Medium 3	Low 1
High 5			
Medium 3			
Low 1			

Figure 3. The Wound Exudate Continuum.

Table 1
Using Applied Wound Management

Wound Continuum	Treatment objectives	Patient assessment	Wound type	Management plan	Treatment
Healing=Black Infection=colonised Exudate=low/low	Debride Maintain Hydrate	A frail individual with a poor overall condition due to CVA. Poor prognosis	Pressure ulcer to heel	Rehydrate and debride necrotic tissue on heel	Hydrocolloid: change every 5–7 days, or sheet hydrogel change every 2–3 days, or amorphous hydrogel change every 2 days
				Prevent further damage by utilising a heel protector device	Heel protector in situ at all times
Healing=Yellow/red	Debride /promote granulation	As above	As above	Debride tissue while promoting	Alginate/hydrofibre with antimicrobial properties or Cadexomer iodine or honey ointment
Infection=locally infected	Reduce bacterial load			Manage local infection/ prevent spreading infection	Absorb exudate
Exudate=Low/medium					Absorbent foam dressing to cover

results following AWM assessment using the three continuums (*Table 1*).

To summarise, when using AWM the clinician is aiming to assess the following:

- ▶▶ Healing (WHC)
- ▶▶ Bioburden (WIC)
- ▶▶ Exudate (WEC)
- ▶▶ Wound type/aetiology
- ▶▶ Underlying pathology.

Discussion

It is imperative to have a formal and systematic approach to wound assessment. Stremitzer et al (2007) found a great variation between nurses and physicians when assessing the same wounds. The disparity was so great that it was more varied than in any other field of medical diagnostics. Taking into account the fact that quality wound management is based on accurate assessment, discrepancies can lead to sub-optimal wound care, delayed healing and an inappropriate use of scarce resources.

The *Best Practice Statement: Optimising Wound Care* (Fletcher et al,

2008) emphasises the importance of wound assessment as the first step in a course of action, which is followed by establishing a diagnosis, agreeing treatment objectives, documenting a treatment plan and timescale, implementation of the plan, and ongoing review. AWM is a vehicle that can strengthen this assessment process and provide a sound basis for any subsequent care pathway.

At the centre of the AWM framework is the WHC. This has attempted to address the shortcomings of previous colour-based assessment tools by recognising the variance in colour and requires the clinician to rate the wound according to the colour closest to the left of the continuum.

The WIC is aimed at providing a structure and logic to wound bioburden assessment and as with the WHC, the aim is to move the wound status to the right of the continuum. The WEC addresses exudate as an indicator of the wound condition

and requires that the user rate both the viscosity and volume of the exudate. Once this assessment has been completed, the exudate rating will fall into one of three categories, giving an indication as to the wound's underlying condition.

When all three continuum ratings are taken together they provide the clinician with a clear, logical and coherent assessment of a wound's condition. Only when these three components are considered together can the clinician design an appropriate management plan.

Conclusions

The principles of WBP and TIME are now recognised as accepted paradigms in wound management and it is up to those active in the field to interpret these concepts in a manner relevant to their own clinical practice.

The AWM framework is the authors' response to the need to develop a more systematic and practical approach to wound

assessment. It can be of benefit to those less familiar with wound healing/management by introducing a systematic approach to decision making.

For the specialist clinician, utilising the AWM framework facilitates clinical audit while the supporting software can generate relevant clinical data. Whatever a clinician's level of knowledge, the AWM system can help to arrive at systematic clinical decisions, which can only be of benefit to patients.

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Using Applied Wound Management (AWM) as an audit tool within a primary care trust

In NHS East Riding of Yorkshire Primary Care Trust, Applied Wound Management (AWM) has been used successfully in wound care assessment for several years. When a decision was made to carry out a pilot audit of local wound care practice to determine if dressing use was appropriate and cost-effective, the AWM documentation was adapted to produce an audit form that was familiar to the participating district nurses. The tool was successfully used in the pilot and results of the audit revealed strengths in practice but also weaknesses, helping tissue viability nurse specialists to identify areas of future training and education of staff.

Simon Barrett

KEY WORDS

Applied Wound Management
Audit
Audit form
Cost-effectiveness
Dressing selection

Holistic wound assessment enables the clinician to focus the plan of care, set appropriate treatment goals and apply relevant wound care products to promote progress towards wound healing (Briggs and Banks, 1995; Williams, 1997). Applied Wound Management (AWM) can be used to enable a systematic approach to wound assessment and the identification of treatment objectives, and its use can help to promote continuity of care. When an accurate wound assessment has been carried out using the continuums of healing, infection and exudate, findings can be documented in a quick and easy manner, allowing other practitioners

to update themselves with previous assessments and identify why a certain treatment was implemented (Benbow, 1995; Gray et al, 2006). By ensuring that the local formulary appears in AWM documentation, variances in treatments can be reduced and guidance provided to less expert practitioners. The use of AWM in this way can facilitate high-quality care across a wide range of practice settings, by improving communication in the areas of assessment, documentation and treatment (Gray et al, 2006).

AWM has...successfully supported clinical decision making and improved communication between practitioners and the TVNS.

AWM and the NHS East Riding of Yorkshire Primary Care Trust

AWM has been used successfully by NHS East Riding of Yorkshire Primary Care Trust (ERYPCT) in everyday practice for over four years. The trust is geographically very large, with a population nearing ½ a million people, and covers both towns and rural districts.

Fletcher (2008) noted that although many healthcare providers employ specialist nurses to drive their

tissue viability services, the majority of patients are cared for by non-specialist general clinicians. Indeed, ERYPCT employs only one tissue viability nurse specialist (TVNS) to oversee the wound care service of the trust. As a result, the TVNS relies heavily on the practitioners in the area being very autonomous, making decisions regarding care, and referring on when appropriate. The use of AWM has enabled this way of working to succeed as it has successfully supported clinical decision making, improved wound assessment, levels of knowledge, skills and documentation and communication between practitioners and the TVNS.

The patient evaluation forms used within the trust have the three AWM continuums across the top of the page so that wound assessment can be approached easily and systematically, with findings recorded in a logical manner. These charts also appear across the top of the wound care formulary, providing the practitioner with guidance on appropriate product selection. Since the AWM continuums have been included in the formulary as a visual aid, adherence to the formulary has improved year upon year. Due to the successful use of the AWM documentation, its adaption into a wound audit tool seemed like a logical step.

The audit

The way in which primary care trusts (PCT) are procuring, purchasing and prescribing dressings is currently under review by procurement hubs in an attempt to reduce costs and the waste of products so that the overall delivery of wound care is improved. With this in mind, ERYPCT decided to carry out a pilot audit of wound care practice to determine if wound dressings were being used appropriately and in a cost-effective manner.

Inappropriate wound assessment can result in inappropriate wound management and misuse of products, resulting in delayed healing. This places an incredible burden on NHS resources and can have a significant and detrimental effect on the patient's life (Williams, 1997; Briggs and Flemming, 2007). It was hoped that the audit would identify good areas of practice as well as those that needed further support and education, with

a view to reducing nursing time and addressing expenditure and improving patient care.

Methods

Three district nurse (DN) bases were selected as pilot sites for the audit evaluation.

Two town DN bases, Hessle and Bridlington, and one rural base, Brough, which serves a number of rural villages, were selected to determine if the audit could be successful in various locations in the PCT, and because the nurses in these bases were keen to embrace change and participate. The wound audit tool was incorporating the AWM assessment charts and documentation as all DN staff were familiar, confident and competent in using it. The form was developed by the TVNS in collaboration with a community staff nurse and hard copies were distributed to each DN base. A meeting was also held at each

centre to explain how to use and complete the form alongside existing documentation for the duration of the audit. The forms were collected from each base and returned to the TVNS on a weekly basis by a liaison officer who then analysed the data manually.

The audit form (Figure 1) collected information on wound type, size, and location. It also recorded the type of primary and secondary dressings used, and any bandage systems, including compression therapy. The audit tool also incorporated the three AWM continuums of healing, infection and exudate for ease of documentation, providing guidance on the descriptors to be used to ensure all DNs were using common terminology. The audit form also collected information regarding the reason why the dressings applied were selected, if the patient was a new or existing patient and the source of referral. The form also

Type of Wound : Please use the following descriptions ONLY when Describing 'Type of Wound'

Please use the following when describing "Healing"			
Necrotic	Sloughy		
Granulating			
Epithelializing			

Pressure Ulcer Grade 1 or PU1
Pressure Ulcer Grade 2 or PU2
Pressure Ulcer Grade 3 or PU3
Pressure Ulcer Grade 4 or PU4
Leg Ulcer * Art or Ven or Unknown
Weeping Oedema or WO
Cellulitis or Cell
Diabetic Foot or DF

Skin Tear or ST
Burn
Surgical Wound or SW
Fungating Wound or FW
Pilonidal Sinus or PS
Traumatic Injury/Minor Abrasion
Abscess
Tube Entry Site or TES

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday

Please use the following when describing "Exudate"			
No re	Lo w	Me dium	Hi gh
No	Lo	Me	Hi

Other : with specification

Please use the following when describing "Infection"				
Spreading Infection	Local Infection	Critically Contaminated	Colonized	Contaminated

PLEASE PRINT CLEARLY

Wound #	Type of Wound	Healing	Exudate	Size & Location of Wound	Infection	Primary Dressing	Secondary Dressing
One							
Two							
Three							
Four							
Five							

Figure 1. Section of the AWM audit tool.

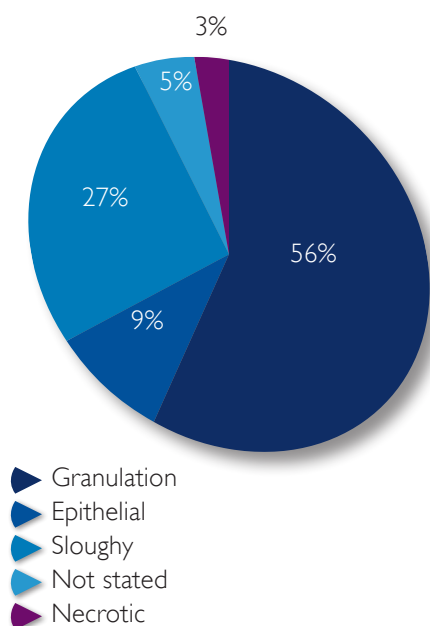


Figure 2. Percentage of tissue types seen in the 1006 wounds audited.

asked for practitioner designation, frequency of dressing change and length of time the dressing(s) were used for.

The DNs completed a new audit form in addition to usual documentation at each dressing change for the three-month period of the audit or until wound healing occurred, depending on which took place first.

Results

A large volume of data was generated from the use of the audit tool, and an analysis of some of the results are presented below.

During the three-month period, there were 7060 wound care contacts made by the district nurses resulting in 21180 individual dressings used, which equates to an average of three dressings used per visit. This relatively low figure is due to a number of wounds that healed before the audit was completed.

Wound types

Of the 1006 wounds audited, in excess of 30% were caused by leg ulceration (venous=22%; arterial=3%

and mixed aetiology=5%). The second most prevalent wound type was pressure ulcers, accounting for 21% of all wounds seen, with grade 2 ulceration being the most common type encountered. Surgical wounds and skin tears accounted for 12% and 11%, respectively. Diabetic foot ulcers accounted for 3% of all wounds seen, and the remaining 26% were made up of a variety of wound types, including abrasions, tube sites, a pilonidal sinus, an abscess, a fungating wound and burns.

Formulary compliance

The audit revealed that there was a 95% compliance with the trust formulary for wound care dressing selection. The 5% of dressings that were used but not listed on the formulary were prescribed for justifiable reasons.

Tissue type

Of the 1006 wounds audited, 56% were classed as granulating, 27% as sloughy, 9% as epithelialising and 3% as necrotic. The tissue type of 5% of wounds were not stated (Figure 2).

Exudate volume

The largest documented group were those wounds producing a medium volume of exudate (39% of all wounds). Wounds with low volume accounted for 35% of the wounds and 7% were documented as producing no exudate. High levels of exudate were recorded for 17% of the wound population, while no data was recorded for 2% (Figure 3).

Infection

The majority of wounds (31%) were assessed as being colonised using the Wound Infection Continuum. Twenty-nine per cent of wounds were classified as contaminated and 17% of the wounds were not classified. Sixteen per cent of the wounds seen were considered to be critically colonised, 6% locally infected and 1% as having spreading infection (Figure 4).

Products most frequently applied

The most frequently used dressings were foams and absorbents, which

accounted for 19% of the trust's wound care spend, followed by antimicrobials, which accounted for 12%, and hydrofibres, which accounted for 8%.

Thirty-three per cent of the most frequently applied interactive dressings were antimicrobials,

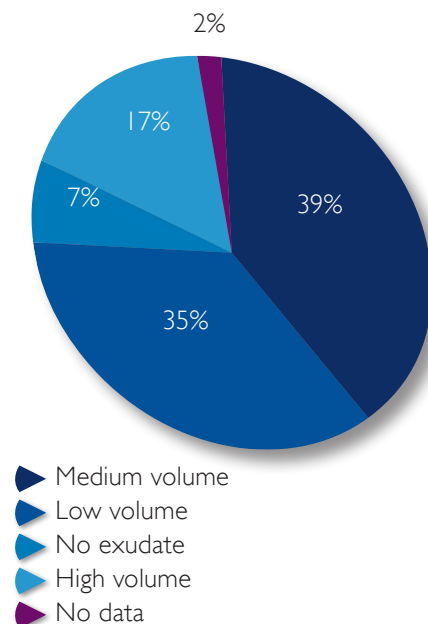


Figure 3. Volume of exudate seen in the wounds audited.

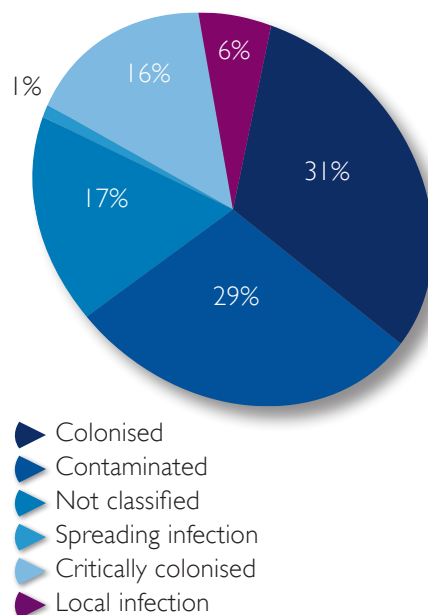


Figure 4. Wound categorised by bioburden status.

compared to the number of wounds requiring an antimicrobial as 23%. Wool and retention bandages made up 31% of dressings used during the audit period.

Compression bandaging accounted for only 3% of dressing spend in the three bases.

Discussion

The audit findings presented above raised a number of issues relating to local wound care practice and the use of dressings.

The audit clearly identified that the majority of nurses were successfully using the continuums to assess wounds and to document their status. It also allowed the TVNS to compare dressing selection in relation to tissue type, to ensure that the dressings selected were appropriate for the wound bed needs.

Recognition of the most commonly encountered wound types enabled the TVNS to direct future education at the management of leg ulcers, especially those of a venous nature, in order to ensure that all practitioners are able to identify leg ulcers of varying aetiology, perform Doppler assessment, and apply compression bandaging in order to classify and treat leg ulcers appropriately. Pressure ulcer prevention measures and the grading of pressure ulcers was also highlighted as an area for future education, as was the management of skin tears and surgical wounds. The audit also identified a need to improve diabetic foot ulcer care due to the high risk of complications associated with this wound type.

The exudate results indicated that 17% of all wounds seen were producing high volumes of exudate. This correlated with the finding that absorbent dressings were the most frequently used dressing type during the audit period. However, the number of heavily exuding wounds and the high number of leg ulcers treated (31% of all wounds seen) further indicated a need

to provide more training and education on the use of compression bandage systems as discussed earlier, since expenditure on compression bandages was only 3% of the wound care budget. However, this figure does not take into account the expenditure on hosiery kits, stockings and graduated tubigrip all of which are commonly used in the trust. This may reflect a change in method of managing VLU due to an ageing population that cannot tolerate full compression due to comorbidities, and the influence of patient choice on the compression system used.

Having a district nurse workforce that can identify when a wound is in need of antimicrobial intervention will help with the appropriate selection of dressings. The infection results indicate that 23% of wounds seen during the audit required treatment with an antimicrobial product, yet 33% of dressings used were antimicrobial, indicating that in some cases, these products were being used inappropriately, and highlighting a need for education.

The audit also revealed that 7% of wounds would have benefited from treatment with antibiotics as they were identified as having local or spreading infection. In future audits it would be useful to compare this data to the quantity of antibiotics prescribed.

It is interesting to note that no data was available for 17% of the wounds, which may be a reflection of the fact that the Wound Infection Continuum is considered to be more difficult for new staff to use, especially if training has not been received in its application.

Overall, the results show that the nurses were adhering to the formulary, although the audit did not indicate that the dressings were being used appropriately, and indeed, some ritualistic practice was identified through the audit, which may otherwise have gone undetected. This practice can be corrected through the provision of further education.

Conclusion

AWM has proved its ability as an audit tool in this initial three-centre pilot, the results of which revealed much in respect of current trends in local wound care practice in the trust. It allowed areas of strength in practice to be highlighted, including improved documentation and communication between team members, and identified existing weaknesses, enabling the trust to develop training and education initiatives to improve practice in these areas.

The pilot audit was successful and was rolled out over the whole trust (consisting of 14 district nurse bases) over a six-month period, the findings of which will be published in the future. The AWM tool continues to be used as part of routine audit in the trust, and AWM is included on all wound-related trust documentation.

The author is grateful to all the district nursing staff included in the pilot audit and to Emma Trotter (DN) and David Clough (Amcare) for their input into the design of the audit form, and the district nurses in the East Riding PCT for their support.

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Can nurses' knowledge of wound care be improved by a systematic approach to wound management?

Despite the availability of education and training in wound care in the author's trust, she noticed that theory was not being translated into practice. Baseline wound care knowledge was assessed, then a new systematic approach to wound care was implemented using Applied Wound Management (AWM) in an attempt to improve wound care provision. An evaluation was then carried out to determine the effects of AWM on practice and dressing expenditure over a four-month period. Results indicate that the use of AWM can indeed have a positive effect on the wound assessment and dressing provision of generalist nurses.

Jeanette Timmins

KEY WORDS

Wound care knowledge
Applied Wound Management
Wound evaluation
Service Provision

Wound assessment involves accurate evaluation of both the patient and their wound. Failure to carry out such an assessment or to ensure that the management plan is appropriate can result in delayed healing and/or serious complications (Gray et al, 2006).

Older people have a higher prevalence of wounds because they have an impaired inflammatory response to an injury (Horan and Ashcroft, 1997). They also have very compromised healing due to ageing, co-morbidity and poor nutrition. As a result, clinicians who are responsible for delivering wound care to older patients should have up-to-date knowledge of research-based wound

management techniques in order to deal with the complexities and challenges that chronic wounds present, and should adopt a systematic approach to wound management.

A standardised method of evaluation facilitates accurate assessment of the wound as it provides a baseline against which progress can be measured. Similarly, precise and accurate documentation of the wound's progress/deterioration form the basis of professional practice in wound management (Gray et al, 2006).

Background

The author had previously run formal study days on wound bed preparation for nurses in her trust as well as more practical study days on different types of wound dressings and how to apply them. She recognised that although attendance was very good and that nurses learnt on the day, they did not always use their new knowledge to change their practice.

The author did not know how to bridge this gap between theory and practice and was becoming frustrated as many nurses were using inappropriate dressings, resulting in delayed healing for patients and increasing costs in terms of dressing expenditure and nursing time for the trust. Furthermore the ward staff were being continually provided with

education, guidelines and wound management protocols but they were not always being put into practice. As a result patients were not receiving the most cost-effective and clinically targeted wound care — a problem that had often been seen by the author when patients were referred to her for wound assessment and advice.

For a tissue viability nurse, the steps required to prepare a wound bed for healing are obvious; however, the majority of nurses do not have this knowledge. It is difficult to bridge this gap between theory and practice in a consistent way that ensures nurses are able to assess a wound and identify the most appropriate and cost-effective treatment.

Wound care guidelines that gave clear instructions and advice on which dressing to choose for a particular wound type were available in each ward of the trust but they were not being used regularly. Also, the documentation did not allow nurses to identify treatment objectives and recognise why they were selecting a particular dressing. As a result, some nurses appeared to be simply continuing the dressing regimen that had been applied by the previous nurse. Patients could receive the same dressing regimen for weeks, despite the fact that wound conditions may have changed.

Another problem was that each dressing change could involve a completely new product — changes were carried out by different nurses who used the product they preferred rather than what might be required for a particular wound. The wound assessment tool used at the time did not allow nurses to easily identify the barriers to healing or highlight exactly what the aims of treatment were for a wound at a particular time.

An assessment framework that provided a systematic approach to the management of complex wounds was required to help nurses identify whether a wound was healing, static or deteriorating. This framework would enable clinicians to identify the correct treatment aims for a wound and therefore choose the most appropriate dressing.

Applied Wound Management

Applied Wound Management (AWM) provides a decision-making framework, which allows both the specialist nurse or the nurse with very little wound care knowledge to follow a logical approach to improve wound management.

The framework is based around wound assessment and the treatment of the barriers to healing. The Wound Exudate Continuum allows the nurse to identify the volume and viscosity of exudate produced and allocate it a score. The nurse then considers whether the wound is infected or not, using the Wound Infection Continuum. There are descriptors which guide the nurse in deciding whether the wound should be categorised as 'colonised', 'critically colonised' or 'infected'. This allows the clinician to identify at a glance whether a wound is healing or deteriorating.

The colours on the Wound Healing Continuum represent different tissue types and it is easy for clinicians to correlate this with the actual appearance of the wound.

Having the wound assessment chart on the front of the AWM

documentation is extremely helpful as nurses can tell at a glance if a wound is improving or deteriorating from the plotted score.

After learning about AWM, the author recognised that it could be a way of changing practice and reducing inconsistencies in the trust's wound care delivery, as well as helping nurses to rationalise their choice of products.

Study aims

The purpose of this study was to assess:

- ▶▶ The nurses' baseline knowledge of basic wound management (pre-audit evaluation)
- ▶▶ The effect on practice of training and education in AWM
- ▶▶ The effect on dressing usage and costs over the four-month post training period, compared with the equivalent time period one year previously
- ▶▶ Nurses' knowledge following the training (post-audit evaluation)

Method

The Drug and Therapeutic Committee were contacted for approval of the study and 20 medicine of the elderly wards and two infectious disease wards agreed to take part in the audit. This meant that altogether, a total of 104 nurses participated in the pre-audit and 66 in the post audit.

In the pre-audit evaluation, nurses' current wound management knowledge was tested using a questionnaire and a case study.

The questionnaire assessed the nurses' wound care-related knowledge with 10 questions:

- ▶▶ What does the term wound bed preparation mean?
- ▶▶ What is sloughy tissue?
- ▶▶ How should sloughy tissue be treated?
- ▶▶ What are the signs of infection in acute wounds?
- ▶▶ What are the signs of infection in chronic wounds?
- ▶▶ What are the typical signs of inflammation?
- ▶▶ What is critical colonisation?

- ▶▶ How should critical colonisation be managed?
- ▶▶ What local factors should be documented when assessing a wound?
- ▶▶ What systemic factors should be documented when assessing a wound?

The case study was used for the identification of treatment objectives and dressing selection. It included the following basic information:

- ▶▶ The patient was 70-year-old female
- ▶▶ She had a grade 5 pressure ulcer on her buttock
- ▶▶ The pressure ulcer was foul smelling and of a four-month duration
- ▶▶ The exudate levels were high, requiring twice-daily dressing changes.

The nurses were then asked the following questions in relation to the case study:

- ▶▶ Describe your treatment objective
- ▶▶ State your dressing choice
- ▶▶ Explain your rationale for the dressing selected
- ▶▶ Say how often you believe the dressing would need to be renewed
- ▶▶ List any additional treatments that you need to consider.

After the questionnaires were completed, study days were held, which covered topics such as wound bed preparation, the difference between chronic and acute wound healing, wound infection and dressing selection. The study days also introduced the new wound assessment form and the dressing choice chart and nurses were shown how to complete them. There were also twice-weekly training sessions for nurses who were unable to attend study days — these sessions were ongoing throughout the audit.

New wound assessment forms were introduced into the hospital and the tissue viability nurse was available to provide guidance on product selection. The tissue viability nurse and link nurses monitored the use of the new wound charts each week to ensure compliance. The pharmacy department kept a record of the monthly expenditure on wound management products.

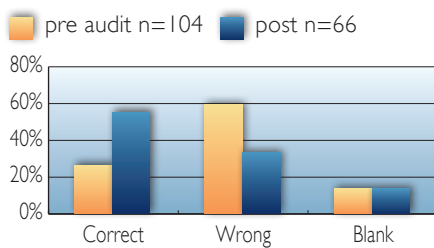


Figure 1. Post audit questionnaire results: What does the term wound bed preparation mean?

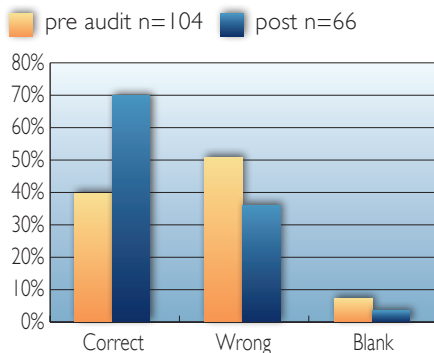


Figure 2. Post audit questionnaire results: What is sloughy tissue?

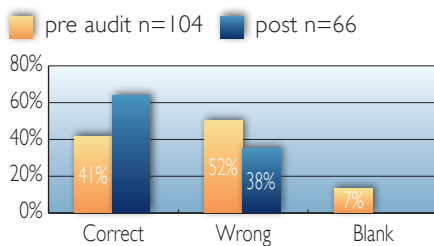


Figure 3. Post audit questionnaire results: How should sloughy tissue be treated?

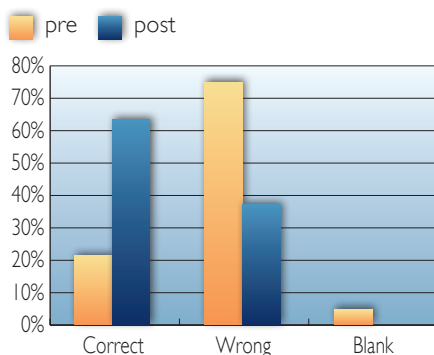


Figure 4. Post audit questionnaire results: What are the signs of infection in acute wounds?

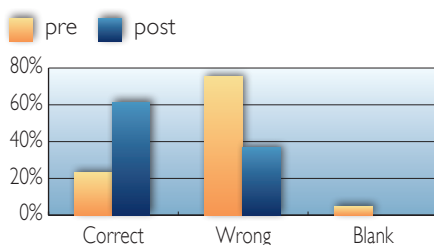


Figure 5. Post audit questionnaire results: What are the signs of infection in chronic wounds?

Table 1 Dressing expenditure before and during the trial

Pre trial	Month 1	Month 2	Month 3	Month 4	Total expenditure
	£11,435	£11,194	£11,284	£10,667	£44,580
During trial	Month 1	Month 2	Month 3	Month 4	Total expenditure
	£7,883	£9,202	£9,451	£9,280	£35,816

Results

Questionnaire results

After the four-month period the nurses were asked to repeat the same questionnaire and the results were compared (Figures 1–10). The results showed that the nurses' knowledge had increased significantly and there were substantial cost savings in expenditure on dressings, which was in a large part due to changes in practice (Table 1).

Case study results

All of the question papers were assessed. If the case study was answered fully, or in part, it was accepted as an 'answered' example.

The researchers believed that the complete answers should cover the following:

- ▶ Objectives of treatment: needed to include mention of debridement, management of infection and odour; and management of exudate
- ▶ Dressing choice: needed to include mention of a dressing regimen that managed the above issues
- ▶ Rationale for dressing choice: needed to refer to the selected dressing regimen and relate to the ideal objective of treatment
- ▶ Frequency of dressing changes: needed to indicate reasonable assumptions with reference to the information provided and also in relation to the suggested dressing regimen
- ▶ Additional treatments to be considered: needed to suggest broad systemic issues such as pressure relief, positional changes,

mobility/immobility, nutritional status, systemic antibiotics, medical/tissue viability referral.

Answers were graded as inappropriate if the nurses had outlined none of the above, superficial if they included some of the required information, and appropriate if all aspects of the above were covered. Answers not provided were noted as blank.

There was a significant improvement in nurses' knowledge once the AWM framework had been implemented (Table 2).

Discussion

Following the initial questionnaire and before training in AWM, an alarming number of nurses in the author's trust appeared to have limited knowledge about the assessment and management of wounds. If these results are representative of the provision of wound care services across the UK, then there either needs to be more time allocated to nurses for regular education and updates on wound management, or it will be necessary to ensure that wound care is entirely provided by, or at least supervised by, tissue viability specialists. If neither of these options is adopted, there will continue to be huge amounts of waste, both in terms of time and resources.

In this study, 40% of nurses pre-audit indicated that their treatment objective was to 'heal the wound'; 19% focused on infection within the wound; 17% on debridement; and 12% on

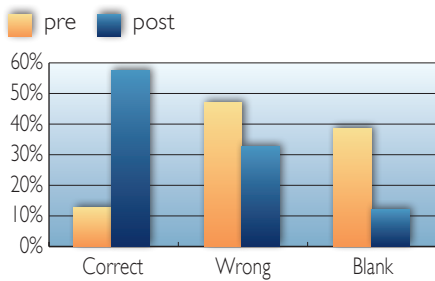


Figure 6. Questionnaire results: What is critical colonisation?

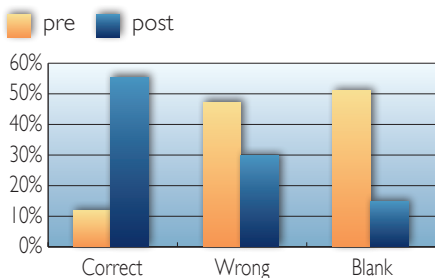


Figure 7. Post audit questionnaire results: How should critical colonisation be managed?

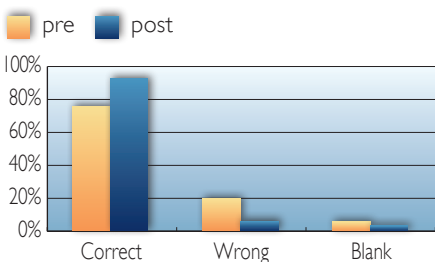


Figure 8. Post audit questionnaire results: What are the typical signs of inflammation?

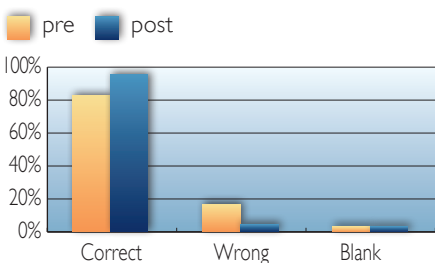


Figure 9. Post audit questionnaire results: What local factors should be documented when assessing a wound?

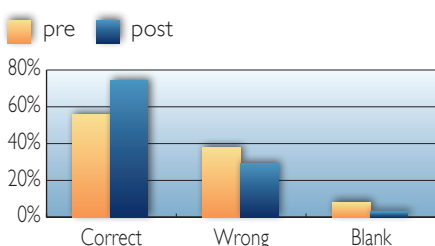


Figure 10. Post audit questionnaire results: What systemic factors should be documented when assessing a wound?

Table 2 Case study results pre and post-audit

	PRE AUDIT FIGURES				POST AUDIT FIGURES				
	Yes	No							
Answered	Yes	81			66				
Answered	No	23			0				
Objectives of treatment	Inappropriate	Pre	Post	Superficial answer	Pre	Post	Appropriate	Pre	Post
		17%	12%	78%	60%	1%	26%	4%	2%
Dressing choice	Inappropriate	Pre	Post	Superficial answer	Pre	Post	Appropriate	Pre	Post
		53%	17%	18%	6%	20%	73%	9%	4%
Frequency of dressing change	Inappropriate	Pre	Post	Superficial answer	Pre	Post	Appropriate	Pre	Post
		41%	8%	4%	23%	40%	69%	15%	0%
Rationale for dressing choice	Inappropriate	Pre	Post	Superficial answer	Pre	Post	Appropriate	Pre	Post
		28%	12%	44%	39%	6%	37%	22%	12%
Additional treatments required	Inappropriate	Pre	Post	Superficial answer	Pre	Post	Appropriate	Pre	Post
		30%	15%	35%	45%	7%	19%	28%	21%

managing odour. None of the answers indicated an awareness of the need to manage all of the issues detailed in the case study. Combined with the fact that 60% of the nurses' product choices were inappropriate, it is clear that there is a problem with generalist nurses treating wounds without specialist guidance. Only 19% of product selection pre-audit was appropriate and, interestingly this did not correlate with a good rationale, indicating that it owed more to luck than judgement. Similarly, only 3% of respondents gave adequate consideration to the additional needs of the patient in relation to pressure relief, nutrition and specialist support.

Conclusion

One way of improving on the results found in this study is to provide nurses with a structured assessment tool that guides them towards the issues within the wound. If this is supported by clear direction on product selection, it may help to reduce the impact of some of the issues raised. However; this cannot be introduced without adequate educational support.

The majority of wounds in a medicine of the elderly setting are chronic and patients have compromised healing due to the physiology of ageing and co-morbidity issues. It is the author's opinion that making education more practical and providing a simple framework for the assessment and management of wounds, such as AWM, can change practice on a large scale.

AWM promotes a structured approach to wound assessment, which can be understood by all clinicians and can reduce variations in practice. This study has shown that improvement in wound care is possible and substantial savings can be made if the right framework is used.

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The introduction and evaluation of Applied Wound Management in nurse education

This short report considers the use of Applied Wound Management (AWM) and its key components, the Wound Healing Continuum (WHC), the Wound Infection Continuum (WIC) and the Wound Exudate Continuum (WEC), in a variety of nursing groups, including healthcare assistants and pre-registration students. A description of techniques used to introduce the tool will be included, together with a summary of student evaluations collected over a period of several years. The report also provides a case history, which details the experiences of two student nurses who adapted AWM for use in their own trust.

Jacqueline Padmore

KEY WORDS

Wounds
Education
Applied Wound Management
Infection
Exudate

Ideally, any educational activity should meet the learning needs of the practitioner as well as the patient's needs in the clinical setting. Therefore, it is important that any skills learnt are applicable to practice (Murray and Trudgian, 2005).

Studies have shown that many nurses have a limited understanding of wound management (Edwards et al, 2005). As an educationalist who lectures on a variety of specialist modules for both qualified nurses and healthcare assistants (HCAs), as well as providing more generic sessions for pre-registration nurses, the author wanted to find a way of addressing this lack of knowledge.

Background

In the author's university, a typical teaching profile in any academic year would include the delivery of wound

management sessions to the following groups of students:

- ▶ Pre-registration nursing students (diploma and degree), at any point in their three-year training course
- ▶ Experienced HCAs working in a community or acute setting, or a GP practice
- ▶ Post-registration nurses involved in specialist tissue viability modules (as part of a degree course)
- ▶ Nurses working in acute and community settings who are undertaking revision. This group could include mental health nurses, prison nurses and those working in nursing homes, patients' homes, community hospitals and the acute sector.

Clearly, such a wide range of students demands a flexible approach to teaching. However, the aim of each session is to provide each nurse with an understanding of the wound healing process and the management of the patient and their wound — naturally this also needs to be tailored to the nurse's capability and role.

An emphasis is placed on student-centred learning — sessions are interactive and students are encouraged to ask questions (Murray and Trudgian, 2005). Students are often surprised to find out that there is no one nationally accepted wound

assessment tool and that practice varies considerably even in one geographic area, such as south-west England.

Therefore, the author decided to use a wound assessment method that is both systematic and transferable to most local assessment tools. Applied Wound Management (AWM) was chosen because it is easy to understand and students can be taught to use it in a relatively short period of time (most sessions last approximately an hour and a half). Depending on the abilities of each student and how much their knowledge needs to be further developed, this initial session can be supplemented by the use of quizzes, group discussion of case histories, and informal and formal feedback.

The author generally begins with a session considering the physiology of wound healing. This is tailored to the needs of the group, ranging from an in-depth understanding to a fairly low key overview. In all cases, each stage of wound healing is linked to photographs and the students are encouraged to participate in a class discussion where the lecturer acts as a facilitator (Biggs, 2002). This begins with questions such as:

- ▶ Which stage of healing is this wound?
- ▶ How do you know?

▶▶ What is happening in this wound?’

Once the students have reached a good understanding of the physiology of wound healing, the concept of the Wound Healing Continuum (WHC) is introduced. The students are given time to familiarise themselves with the colours in the continuum and become more confident in their responses to the initial questions. Students seem to enjoy this approach, which allows them to build on their existing wound care knowledge (Biggs, 2002).

The Wound Infection Continuum (WIC) and Wound Exudate Continuum (WEC) are introduced when the students have grasped the concepts of the WHC. Students generally find the WIC and the WEC more difficult to understand, as they are less visual and therefore not as easy to link to a particular wound. As a general rule, nurses with more experience in wound care tend to grasp the WIC more quickly, whereas the WEC is less popular among all groups because it is felt to be rather abstract and nurses cannot immediately see its relevance, although they usually acknowledge the problems of exudate management.

What has been popular across all the groups is the ease with which the relevant posters, pocket guides and aide-mémoires can be downloaded from the Wounds UK website. This is especially useful in areas that are not supported by local trust guidelines, such as nursing homes (in some instances). In recent years physical health has become a priority in mental health care (Department of Health, 2006), and students find the material easy to understand and utilise in conjunction with their own trust guidelines. Practice nurses also find the posters useful and are keen to disseminate what they have learnt among their colleagues. Practice nurses often comment that as they often work in isolation with a heavy workload and a quick turnover of patients, having a visual aide-mémoire is invaluable.

Case report

Two students who participated in the author's course several years ago identified that the wound documentation in their trust was confusing and needed updating. As the nursing staff changed with each shift, there was an inconsistency in wound evaluation and little continuity of care.

The course demonstrated that there were effective assessment processes for continuing wound care — in particular, they were impressed by applied wound management (AWM). With the approval of the clinical nurse specialists in tissue viability, the two students considered what areas needed to change and decided (after obtaining permission from Wounds UK) to adapt AWM for use in the surgical wards at their place of work.

This led to the development of a wound care assessment form to be used on the wards. The aims of the project were:

- ▶▶ To make wound assessment objective rather than subjective
- ▶▶ To facilitate improved communication through accurate record-keeping because the assessment of any wound needs to be measurable, recordable and repeatable.

An assessment tool was devised, which used the original Wound Healing Continuum (WHC) and modified the Wound Infection Continuum (WIC) and the Wound Exudate Continuum (WEC) — the WIC was simplified to incorporate a 'yes-no' answer system with regards to signs of infection and swabbing; the WEC was modified to provide a timeframe for strikethrough onto dressings.

At this stage, the project was again modified and discussed with the tissue viability team before being ratified by the trust. The whole process, from inception to the documentation being trialled on two surgical wards, took about three months. The results of the students' project included:

- ▶▶ The standardisation of wound assessment
- ▶▶ Improved assessment and reassessment of wounds.

Following these positive results, the project was rolled out over the whole trust, although a clinical nurse specialist did comment that they needed more time to train nurses to use the system properly, and the perennial problems of cost and support had to be resolved. Nevertheless, at a Quality First conference, the students achieved first prize. Needless to say, they also did very well in their assignments.

The theoretical assignment of the post-registration level 6 (degree) modules requires students to write a 3,000-word essay considering an aspect of tissue viability that could be changed in their practice. Confusion about wound care documentation means that this is often a popular choice for nurses to focus on. The students are not required to introduce the change as there is not time to do so within the confines of the module, however, some are particularly keen to make an impact on practice and a 'success story' often follows (see *Case report*).

Evaluation

The following comments are representative of a typical session where the AWM has been considered in conjunction with the physiology of wound healing. The students' own words have been used, and a variety of students from the learning groups have been randomly selected:

'I've heard of AWM but haven't been through it before as we have today. It's very straightforward and I like the WHC because it's so visual.'

'I've heard of the WHC but not used it, it's easy to understand and I should think would be easy to implement into practice.'

'I like the way it can be used to define stages of wound healing, thus assisting assessment of wounds and follow on treatment.'

'It's easy to remember, but I think the WEC is too subjective to be much use in practice. It does alert you to

be aware if the wound slips back though.'

'I've used AWM before in the community. It's a good aide-mémoire, even for experienced nurses.'

'I like the WHC because it's easier to use for staff with all levels of knowledge and education, rather than trying to remember specific stages of the healing process. It's easy to use when trying to describe wounds.'

'I think it's particularly good for new staff and those with little experience of wounds.'

'I struggled a bit with the WIC, but I think I have to do more work on the different stages of contamination/colonisation and infection. I liked the colour-coding of the WHC. Maybe it would be easier if we had changing colours on the WIC?'

'Really straightforward! I'm going to try and introduce it into my GP practice.'

'I'm really rusty on wound care. This has made it simple and I feel more confident now. Thanks!'

Conclusion

AWM is an exciting concept that can easily be adapted for use in practice.

The system's ease of use is generally appreciated by students, as are the readily available aide-mémoires provided by Wounds UK.

From an educator's point of view, AWM is simple to use as a core element for teaching wound care and can be easily stepped-up or down depending on the level of knowledge within the group. Incorporating the students' various needs ensures that the learning experience is meaningful, and as a result, there are demonstrable benefits for patient care.

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Comment

Margaret Wickham is a Practice Education Facilitator who covers Morayshire, Scotland. She provided the following comment about her experience of implementing AWM.

'Part of my role as practice education facilitator is to support student nurses on clinical placements. Many of the students I encounter express a need for more information on wound management. This, along with my previous role as Clinical Development Nurse for Tissue Viability in Grampian Primary Care Trust, presented the opportunity to maximise tissue viability education for student nurses, helping them to link theory to practice.

'AWM promotes a systematic approach to wound assessment and clinical decision-making and was being used in some clinical areas in NHS Grampian, including certain wards in Aberdeen Royal Infirmary and Woodend Hospital, and some community hospitals. There were also attempts being made to roll-out the system trust-wide to promote a uniform approach to wound management. The qualified nurses were happy with the system, therefore it seemed logical to roll it out to student nurses as well.

'In Stage 1 of their training, student nurses are invited to a study day on the work of nurses within specialist settings, including an hour-long session on tissue viability. Students are also provided with information on the emergence of modern wound management and how it was developed from work carried out by Winter (1974). They are then introduced to the importance of a systematic approach to wound management and AWM.

'Initially, the educators explain the concept of the WHC and describe how the colour system identifies those areas of wound bed tissue that need to be managed in order to promote wound healing. Various photographs of different

wound types are presented, which correspond with the colours of the continuum and demonstrate how the continuum works in practice. With this knowledge, student nurses and their mentors can discuss options for managing tissue within the wound bed. Discussion of the WEC promotes an understanding of the implications of the quantity and viscosity of exudate present in a wound.

'The WIC is then introduced and the importance of differentiating between local and systemic inflammation and infection is emphasised, along with the importance of appropriate treatment. This provides the students with a suitable framework, which enables them to examine the main factors

AWM promotes a systematic approach to wound assessment and clinical decision-making...we encourage students to take their knowledge of AWM to the different clinical areas and encourage its use among the registered nurses.

involved in wound healing. The educators then describe how assessment findings can lead to the selection of an appropriate dressing. The more experienced students are presented with photographs of wounds and a box containing assorted dressings. They are then asked to pick a dressing to manage each wound, and to justify this choice. These sessions allow students to discuss their choices with clinical staff in a supportive environment.

'At the end of the study day, the students complete an evaluation sheet and the session on tissue viability is always highly rated — indeed it is often singled out for special mention in the comments section.

'I hope that the specialist session on tissue viability means that students

enter future placements having the ability to discuss treatment options with registered nurses. We encourage students to take their knowledge of AWM to the different clinical areas and encourage the registered nurses there to contact the Moray Wound Interest Group for further information if they are not familiar with the system. Treatment selection is our main focus.

'When it comes to Stage 3, students are on their final placements before qualifying as nurses. They may shortly find themselves working on wards or in community areas where they will be responsible for patients with wounds. At this stage, the concept of simulation can play an important role in experiential learning. Students benefit from the opportunity to practise their skills in a supportive, risk-free environment and we therefore provide a second hour-long session where students are given photographs of different wounds and asked to discuss treatment options, including dressing choices, using the AWM framework. This simulated learning gives the students confidence as they know that there is a system available to help with their decision-making.

'The students' evaluations of these sessions have also been very positive. Students rate the sessions on a scale of 1–4, with 1 being 'very good' and 4 being 'not good'. Over the last three years, the tissue viability session has been rated at 1 approximately 70% of the time, and at 2 approximately 30% of the time.

'The latest of these study days are about to take place in November and we are hoping that they will prove as beneficial to student nurses as those we have run in the past.'

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