

The Dressing Bank™ – a system for providing access, equity and cost-effectiveness for advanced wound dressings in the acute care setting

McInnes WA

Abstract

At the Queen Elizabeth Hospital in South Australia, the cost of wound care products and the duplication of supplies in individual clinical areas was a growing problem. New technologies, the introduction of new products on the market as well as trends in clinical areas were contributing to spiralling costs. Other issues included inequity of resources, waste and a diverse range of advanced wound dressings that were often used inappropriately.

The solution, a sub-store using a banking system called "The Dressing Bank™", that houses advanced wound care products. This system has been in place for 4 years, allowing equity in access, cost-effectiveness, quality control and ongoing evaluation of wound products to achieve a coordinated approach across the organisation.

Introduction

The Queen Elizabeth Hospital, located in the Western suburbs of Adelaide, is currently a 350-bed, acute care facility with an increasingly older population focus. This includes clients with chronic disease and multiple comorbidities, all of which have a significant impact on wound healing¹. In order to achieve the best outcomes in wound healing, it is important that clinicians not only develop sound assessment skills but knowledge in the area of wound management that is evidence-based, taking into consideration cost-effectiveness.

Technologically advanced wound dressing products have led to improved outcomes in wound healing and management; however, they have added to spiralling costs, confusion amongst clinicians, indiscriminate use, waste and variations in access². A review of the literature found that access to advanced dressing products differs across the world; dependant on contracts, tenders, formularies, public, private, acute care, primary care and organisational needs. Frequently there are delays in access to speciality wound products even with formularies in place. Often non-stock items are ordered as needed for individual clients or may require medical officer or speciality nurse prescription prior to being dispensed, leading to further delays³⁻⁵.

Wendy McInnes RN, BN

The Queen Elizabeth Hospital,
28 Woodville Rd, Woodville West SA 5011

Background

The surge of new, technologically advanced wound healing products on the market led to an explosion of indiscriminate and uncoordinated usage along with an escalation in cost and waste throughout the organisation. Product preferences in clinical areas surfaced, indicating inappropriate trends and clinician confusion of product function and purpose. There was an inequality of resources. Some clinical areas had the bare minimum of basic products, while others carried a diverse range, including advanced products that were often inappropriately used. Repeatedly, those areas who did not have the product resources would 'borrow' from those who did, adding to the budget of the supporting clinical area. Delays in access led to excessive ordering of non-stock, advanced wound products which were repeatedly locked away or placed in secret cupboards. These stockpiles were common. Products were left to pass their use-by date, without allowing sharing amongst other clinical areas, contributing to waste and spiralling budgetary costs. New organisational boundaries needed to be set, with transparent goals for financial and clinical decisions. These decisions, made as a team, would ensure equitable access and the best outcomes for clients with a wound; outcomes that were cost-effective and evidence-based^{5,6}. Browne, Grocott & Cowley⁷ describe the importance of including stakeholders in the choice of purchasing speciality wound products for organisations and formularies. This approach leads to a coordinated, cost-effective system that is able to be centrally evaluated⁷. This coordinated, quality controlled approach enables regular

review of practice to manage the needs of clients, clinicians and the organisation, as required^{4,5,7,8}.

A search of the literature was undertaken to examine the evidence, concepts and promotion of best practice, which would demonstrate how clinicians may gain equitable access to speciality dressing products for clients in a cost-effective way within acute care organisations. There were familiar themes within the literature, which included the use of tenders, contracts and formularies to guide decisions on wound product selection for organisations. Access, however, was often limited to pharmacy dispensary with speciality products on script requiring a medical officer or specialist nurse to sign for issue³⁻⁵. While there are many studies that examine the cost of healing wounds and performance of dressing products, purpose and function⁹, there is not much literature surrounding actual access to products. Gaps in the literature demonstrate a lack in evidence or research into actual access at the bedside in acute care services, which would allow clinicians and their clients with wounds access to advanced wound management products in a timely manner that is cost-effective.

*The Australian Standards for Wound Management*¹⁰ outline in Standard 2, Professional Practice, that clinicians need to efficiently and effectively manage their resources as well as stated on page 6 of the document¹⁰:

Advocate for access and equity of appropriate wound management products, devices and resources.

Using this as the framework for change and improvement of practice, the concept of a substore using a banking system was put forward. The substore needed to provide

- An efficient process of ordering expensive, non-stock items.
- A coordinated approach across the organisation.
- Ease of access for clinicians to reduce wasting time and resources.
- Equity to all clients and staff.
- Cost-effectiveness with value for money.
- Sustainability.

The concept was presented to the hospital's Wound Advisory Group, the organisation's senior executive team, finance and supply. Approval to address the issues utilising the model of a sub-store using a banking system was authorised with the substore subsequently named the Dressing Bank™.

Establishment of the Dressing Bank™

This new and innovative approach was intended to eradicate secret stockpiles of expensive speciality products in the clinical areas and facilitate improvement of clinicians' wound assessment skills. Evidence-based tools were developed for use in conjunction with the Dressing Bank™, including a legally approved wound assessment and documentation chart.

The Dressing Bank™ allowed clinicians 24-hour-a-day access to a formulary of advanced wound products, housed in a centralised location within the organisation, without excessive burden or expenditure to clinical areas⁴. Clinicians were able to withdraw one or as many as a box of dressings with the capacity to return them all or individual, unopened dressings, abiding by infection control guidelines, for a refund if the client went home or they were no longer required.

This new approach would eliminate waste, ensure monitoring of advanced wound dressings and their expiry dates, allow for equity of access as well as provide a safety net to guarantee stock and range was controlled within the organisation⁴. The decision about which products were stocked in the Dressing Bank™ was allocated to a small subgroup of stakeholders from the Wound Advisory Group. A current stock and order list was presented from the supply department and a process of evaluation and elimination was undertaken.

Often companies supplied their own evaluation forms for appraisal of product performance in the clinical area. These provided valuable feedback to both the Wound Advisory Group as well as the company^{11,12}. While price was certainly a large component it was not considered alone; rather along with the effectiveness of function, wear time, ease of application and removal, as well as the evidence^{12,13}. Other things taken into consideration for evaluation included the indications and contraindications, conformability, comfort and pain at dressing change.

As the needs of people across the acute care setting varied, it was important that each clinical area maintained a standard stock of products that covered a basic range. This included a hydrogel, a low-adherent dressing, an alginate, a hydrocolloid, a film and absorbent pad. These products were considered first-line management in the acute care setting. The supplementary Dressing Bank™ could then be accessed for advanced wound management products that clinicians required as part of their tool kit for more complex wound management issues or as needed for client discharge into the community.

Initially, the Dressing Bank™ included selected ranges and sizes of products that could be categorised under the headings of:

- Skin tear management.
- Rehydration/debriding agents.
- Odour control.
- Exudate management including VAC therapy consumables.
- Antimicrobials.
- Compression therapy.
- Miscellaneous.

Each clinical area manager was sent a list of dressing product items that would form part of their basic clinical area stock and a list of items that were to be located in the new Dressing Bank™. The Dressing Bank™ products were to be counted and documented by the clinical managers for return on a specific date for which they were reimbursed into their cost centre.

The initial Dressing Bank™ opened in August 2005 and was set up in the ostomy appliance closet area by using the returned items from the clinical areas. This saved money in the preliminary set-up costs as an independent budget had not been created. The finance department had decided stock would be ordered on the vascular department cost centre and reimbursed via cost centre transfers as items were withdrawn.

As a banking system was to be used to make withdrawals and return unused dressings to the Dressing Bank™ a method for capturing this was required. A paper-based system was developed that required the clinician to attach and document:

- The patient label.
- The date.
- The clinical area or cost centre.
- The dressing product, including the catalogue number.
- The number of individual dressings.
- The type of wound it is for.
- A rationale for product choice.
- Clinician's name and signature.

This model- and paper-based data system allowed for the identification of problems, inappropriate use of products and clinical areas that required extra education and support

with wound management. It also enabled reimbursement via cost centre transfer from the Dressing Bank™ to the specific clinical area for which the dressing was intended.

A flyer was distributed to all clinical areas along with an access key with Wound Advisory Group members providing education. A wound assessment and documentation tool was developed and rolled out as an adjunct to the Dressing Bank™ as well as a resource folder located in the Dressing Bank™ to help clinicians make evidence-based, informed decisions.

Discussion

Wound management practices, protocols, guidelines and pathways have continued to be developed by the Wound Advisory Group and speciality nurses and the Dressing Bank™ has also grown and developed. While the Dressing Bank™ has enabled improved equity in resources to clients, the Wound Advisory Group ensures ongoing evaluation of the ranges available. With such competition in the market, this ensures quality control over the wound products used throughout the organisation^{4,5}.

The Dressing Bank™ maintains a service for all clinical areas of the organisation; however, it was not demographically viable for Emergency Services or the outpatients department, who use larger proportions of speciality products. They do, however, have the options of making withdrawals if they run out, or require a product for a client that they do not stock.

The Dressing Bank™ has moved from its humble beginnings in the closet to a large, centralised location and has adapted to the needs of clients, clinicians and the organisation, by including adjunct equipment such as postoperative shoes, arm or sling orthosis splints and scrotal supports. Other categories have been added to the original ones, which include ranges of products that help with skin management, pressure ulcer management and thigh-length, anti-embolic stockings (clinical areas stock below knee).

This quality improvement system has added value to the perceptions of clients, who no longer need to wait days for their special dressing or adjunct equipment to arrive or be found somewhere in the hospital. In these technologically advanced times, people have the expectation of efficiency, quality and immediacy from healthcare organisations¹². The timely access to clinicians avoids the commonly-felt nursing issues, such as wasting time and energy looking for speciality products or ringing other clinical areas to beg, borrow or steal what is required¹⁴. It also saves money as clinical areas that use small amounts of specific products have the advantage of purchasing via withdrawal of one dressing at a time, rather

than needing to order independent stock and pay freight charges on top.

Paper-based system

Commencing the process with a paper system that includes the type of wound as well as the reason for withdrawal of the product has allowed for the evaluation of effectiveness, identification of complex wounds, monitoring trends and clinical auditing⁷. Clinical auditing and staff development are included by Browne, Grocott & Cowley⁷ as two of the five domains required for clinical governance; the other three are clinical effectiveness, risk management and quality assurance. The paper system, however, is time-consuming for staff who check the catalogue numbers and undocumented stock as well as completing cost centre transfers. It was identified by Sains¹⁴ that paper-based systems often become unmanageable over time as things grow.

We are currently in the process of designing an electronic system that will allow for auditing as well as stock control. This will permit clinicians to scan the bar code on the client label and the barcode on the dressing, type in the

quantity required and the cost transfer will be automatic. The electronic system will allow levels of stock to be set, reordering automatically when they fall below a specific level. The current system requires a store person to physically go to the Dressing Bank™ on a weekly basis and do a stocktake, producing an electronic order form, which must be signed off. This does, however, have its benefits, as stock is able to be adjusted dependant on the different types of complex wounds throughout the organisation at that time, which is monitored via the documentation sheets; a feedback system.

It can be argued that the Dressing Bank™ also adds value to the people ordering stock as well as the suppliers¹³. No longer are orders for non-stock, speciality wound products arriving on an ad hoc basis. The orders are coordinated to maximise stock control, bulk purchasing for reduction in pricing as well as decreased delivery fees.

Adjunct resources

The paper-based documentation has allowed problems to be identified early, which can be pursued with the clinician or client directly, the manager or the clinical area



Hydrotul

Integrating wound care knowledge and technology for effective wound management

Hydrotul is a hydroactive, non-occlusive tulle dressing, impregnated with a non-medicated triglyceride ointment, which contains carboxymethyl cellulose (CMC) for moist wound healing.

- **Open weaved honeycomb structure** prevents the accumulation of exudate and reduces the risk of maceration to the wound and surrounding area.
- **CMC particles** have been specifically designed to attract and bind with water and/or proteins. These particles store and retain the exudate forming a gel at the wound surface to create a moist environment for accelerated wound healing.
- **Low adherent, gel forming** wound contact layer designed to prevent maceration and to reduce pain and trauma for patients during and between dressing changes.
- **Cost and time effective** Hydrotul has high absorbency levels and can stay in situ for 5-7 days to encourage undisturbed wound healing therefore, providing a saving on product costs, treatment time and physical labour.

Applications

- Abrasions
- Skin tears where sub-cutaneous tissue is exposed
- Venous leg ulcers
- Arterial ulcers
- Decubitus ulcers



For further information or to receive a Hydrotul information kit call 1300 720 983.

Table 1. Small snapshot of cost savings.

	2004–2005 Pre-Dressing Bank	2005–2006 Opened August 05 ¹	2006–2007	2007–2008	2008–yr to date March 2009
4-layered compression	\$22,872	\$17,208	\$11,796	\$13,706	\$10,912
Acticoat 3 10x10cm	\$14,421	\$4,576	\$10,821	\$5,008	\$4,927
Acticoat 3 10x20cm	\$2,970	\$1,578	\$2,251	\$1,004	\$0
Acticoat 7 10x12.5	\$18,764	\$15,652	\$2,860	\$2,570	\$2,999

with implementation of further education and in-service as required. Guidelines for the assessment and management of skin tears and pressures ulcers have been developed from identification of issues and a specific wound management guideline database is currently being placed on the organisation's intranet. Formal education, including basic and advanced wound care programmes, have also been developed from the outcomes of audits and identification of issues. Company representatives do provide education to clinical areas, with value-added services such as charts, studies and teaching material, but are asked to only educate on the products we use in the organisation to reduce clinician confusion¹¹. Boundaries are in place for new products, which are channelled via the Wound Advisory Group to appropriate clinical areas for evaluation and results are then fed back to the overarching Product Evaluation Committee⁵.

Cost reduction

While costs and savings do fluctuate, dependant on the types of wounds, overall this organised system ensures costs for speciality wound products are minimised. Table 1 depicts a snapshot of cost savings on a small range of products. Prior to the Dressing Bank™, clinical areas (Outpatient and Emergency Services excluded) spent A\$22,872 on one brand of four-layered compression. With the implementation of the Dressing Bank, this has been significantly reduced over the last 3 years.

Topical negative pressure is another example of savings. In our organisation equipment is hired as required and, prior to the Dressing Bank™, each clinical area would purchase its own consumables. Often the client would be discharged, leaving unused consumables that would not be shared by other clinical areas. If the specific area did not require the consumables for a period of time, they would often expire. With the introduction of the Dressing Bank™, consumables for topical negative pressure are stored ready for withdrawal 24-hours-a-day by all areas of the organisation, including theatre and Hospital @ Home. The graph in Table 2

demonstrates that, even when usage of topical negative pressure increased in the years 2007–2008, consumable costs remain relatively low compared with usage. If each clinical area were to purchase the consumables themselves, the costs would be considerably higher.

Cost savings and usage trends do have many variables which include the age of clients along with their comorbidities, the number and type of wounds as well as medical and nursing staff preference^{12,13}. Medical rotations along with market trends also influence usage; however, limiting the formulary helps to contain costs^{4,14}. While the Dressing Bank™ stocks a range of advanced products that cover a variety of wound types, clinicians are encouraged to consider the more basic ward stock as a first line. Speciality items, however, are often requested by medical officers or required for discharge into the community. Considerations for use of speciality items also include purpose and function of the product, frequency of changes, cost-effectiveness and appropriateness^{4,5,9}.

Staff evaluation

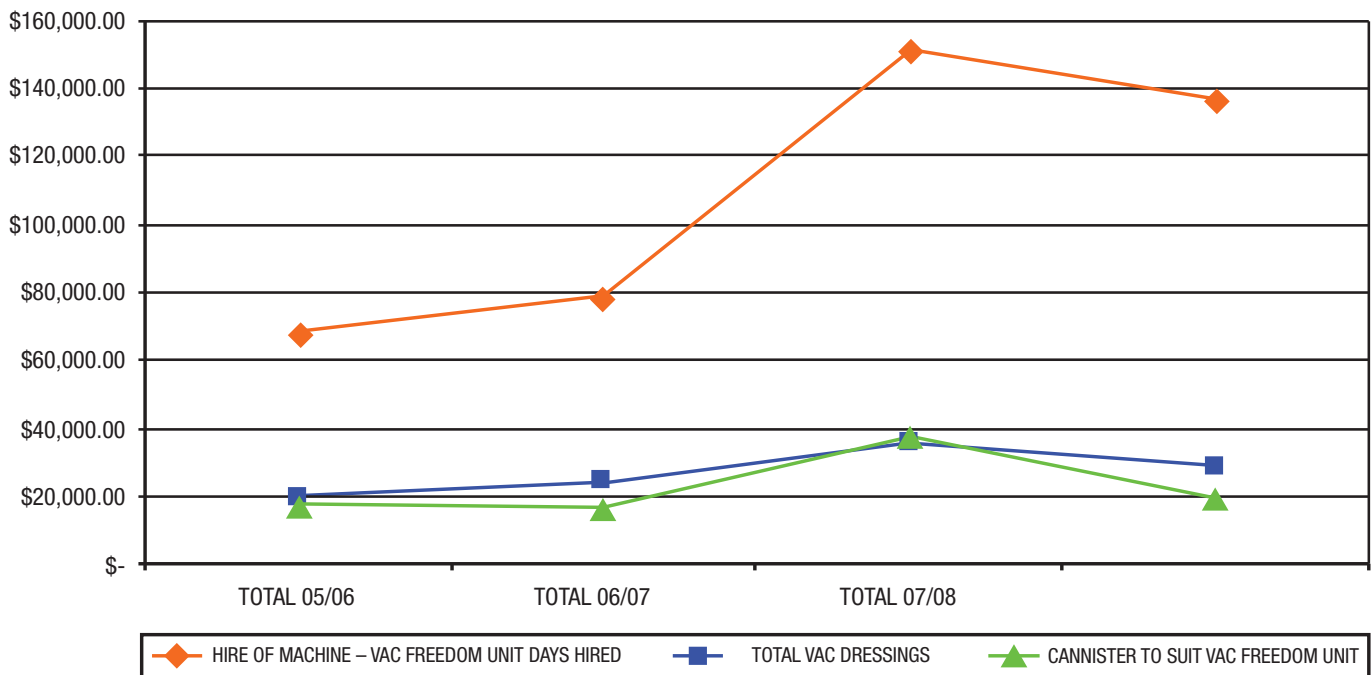
An initial staff survey, undertaken in 2006, of 100 nurses and again repeated in 2009 can be seen in Table 3. In 2006 100% of clinicians were aware of the Dressing Bank™, knew where it was and had made a withdrawal. Three years later there were two new staff to the organisation out of the 100 clinicians surveyed who were unaware of the Dressing Bank™, indicating an orientation issue. There had been an increase from 64% to 85%, documenting the reason for choosing a product and an increase in those happy with the resources available to 88%. We are hoping that the wound management site currently being placed on the intranet will address the issue of access to resources.

Lessons learnt

The Dressing Bank™ model is being explored for implementation by other organisations across Australia with some organisations varying the concept to suit their own needs. The Dressing Bank™ has been in progress for 4 years

Table 2. Cost of vacuum-assisted closure hire compared to the consumables.

VAC FREEDOM AND DRESSING DOLLARS 05/06 TO 07/08



at The Queen Elizabeth Hospital and there have been many lessons learnt along the way.

Do your homework

Involvement of the stakeholders, multidisciplinary teams, supply, finance and IT early is important for the system to be sustainable⁵⁻⁷. Examine current products, actual usage and trends. How will it be managed, who will manage it and will it fit within their workload? Who will

be ultimately responsible and which budget will it come from? How will you finance the system and do you already have the space and resources in place? How will you evaluate its effectiveness? Who will order stock, stock shelves, tidy up when products end up everywhere and throw empty boxes away? It all sounds simple, but it is these little things that were found to be the most challenging and annoying.

Table 3. Staff survey 2006 and repeated 2009.

Question	Survey results 2006 (n=100)	Survey results 2009 (n=100)
Do you know where the Dressing Bank is?	100%	98%
Have you made a withdrawal from the Dressing Bank?	100%	97%
If so, did you find it easy to access?	98%	96%
Is it easy to find the products on the shelf?	88%	93%
Do you mostly document the reason for choosing a product?	64%	85%
Do you find the resources available sufficient to help you with your choice of dressing	76%	88%

Be flexible

Dressing Bank™ stock is variable and does require monitoring and changes as the needs of clients, clinicians and the organisation change. Clinicians, supply and finance departments need to work together as one to ensure the best outcomes for all³⁻⁶. It is important, also, to set organisational boundaries and efficient processes for control of the formulary in order to maintain the Dressing Bank™^{6,7}. A member of our Wound Advisory subgroup reports to the organisation's Product Evaluation Committee to ensure that new products to the hospital are evaluated and approved before being introduced.

Find space

Finding space to house the initial Dressing Bank™ was relatively easy; however, as it grew it became more untidy and difficult to find items as space was limited. This was identified from the comments in the staff survey in 2006. We were able to acquire a large equipment room in the Orthopaedic or Plastics clinical area, where speciality items and ostomy appliances were moved. An electronic swipe card system now allows clinicians access 24-hours-a-day, 7 days a week to advanced wound products, adjunct equipment and ostomy appliances.

The layout

There were a couple of barriers to the actual layout of products in the Dressing Bank™. Initially the store person wanted the products congregated in number order, so that it was easier to carry out a stocktake. We wanted it in the categories we had designated to make it easier for clinicians to find products. This ensured that if a specific antimicrobial was needed it was easy to go to the antimicrobial shelves; if a four-layered compression kit was needed, it was located on the shelves that contain the compression therapy products. Communication is everything⁵.

Initial stock

Collecting stock from the clinical areas to use in the initial stages took effort from the managers and people collecting products, as well as supply who do the cost-centre transfers. Once we had all the products, however, we were able to assess our needs. It was amazing to see what was returned; hundreds of thousands of dollars worth of stock as well as individual random items. One type of silver dressing worth over \$5,000 was returned from one clinical area alone, which would have gone out of date before being used had it stayed in there.

Get IT support early

Attainment of support by information technology (IT) earlier is one of the most valuable lessons we learnt. The electronic

system relies on the hardware, software and system support. It has taken four years to implement the electronic Dressing Bank™ system and, when operational, it is envisaged that much time will be saved. The paper-based system did allow for easy auditing and control in the initial set-up stages; however, we look forward to the advent of an electronic system that will allow for concentrated reporting.

Conclusion

It is envisaged that the Dressing Bank™ will continue to grow and develop through assessment and changes in line with client, clinician and organisational needs. With development of new technologies and increased speciality products on the market, the Dressing Bank™, along with the processes we have put in place, ensure a sustainable containment of costs, yet provide equitable access to a formulary of advanced wound products in the acute care setting.

References

1. Harding K, Gray D, Timmons J & Hurd T. Evolution or revolution? Adapting to complexity in wound management. *Int Wound J* 2007; **4(2 Suppl)**:15-12S.
2. Weller C & Sussman G. Wound Dressings Update. *J Pharm Pract Res* 2006; **36(4)**:318-324.
3. Stevens H & Henderson V. Alternative ways of managing access to wound products. *Br J Community Nurs* 2004; **11(9 Suppl)**:19S-20S.
4. Morgan D. Setting up wound dressing guidelines: avoiding the pitfalls. *Worldwide Wounds* [Internet] 2000 [cited 25 April 2009] Available from: <http://www.worldwidewounds.com/2000/sept/David-Morgan/Wound-Dressing-Guidelines.html>
5. Campling N, Grocott P & Cowley S. Disconnection: the user voice within the wound dressing supply chain. *J Nurs Manag* 2008; **16**:204-213.
6. Glover D. Promoting best practice in the procurement of wound products *J Wound Care*. 2006; **15(1 Suppl)**:5S-6S.
7. Browne N, Grocott P & Cowley S. The wound dressing supply chain within England's National Health Service: unravelling the context for users. *J Nurs Manag* 2004; **12**:51-61.
8. Shepherd M. Establishing a formulary for interactive wound-care products. *J Wound Care*. 2006; **15(1 Suppl)**:20S-21S.
9. Thomas S. A structured approach to the selection of dressings. *Worldwide Wounds* [Internet]. 1997 [cited 25 April 2009]; Available from: <http://www.worldwidewounds.com/1997/july/Thomas-Guide/Dress-Select.html>
10. Australian Wound Management Association. Standards for Wound Management [Internet]. 2002 [cited 25 April 2009]; Published by Australian Wound Management Inc., Australia. Available from: http://www.awma.com.au/publications/2007/awma_standards.pdf
11. Harbit M & Driggers Z. Clinicians and Product Sales Representatives: Developing a Relationship that Works. *Ostomy Wound Manage* [Internet]. 2002 [cited 25 April 2009]; **48(2)** Available from: <http://www.o-wm.com/article/163>
12. Teot L, Cherry G, Denis C, Dervaux B, Duncan G, Gottrup F *et al*. Reimbursement of dressings a WUWHS statement. *Int Wound J* 2006; **3(4)**: 296-301.
13. Teague L & Mahoney J. Cost-effective wound care: how the advanced practice nursing role can positively affect outcomes in an acute-care setting. *Wound Care Canada* [Internet]. **1(2)**:32-33 Available from: http://www.cawc.net/open/wcc/2-1/Teague_V2_Iss1.pdf
14. Sains K. Formularies: types, uses, pros and cons. *Practice Nurse* 2008; **36(8)**:17-20.