

# Probing the literature: Recommended practice for the use of wound probes

Flowers C • Pilgrim J • Carville K

The traditional wound probes are long slender metal instruments, which are commonly used by nurses in the management of wounds to assess cavities or sinus tracts and as instruments to introduce wound packing agents. Indiscriminate use of wound probes can lead to pain and tissue trauma. A review of the published literature was instigated to inform the development of guidelines to regulate the use of wound probes within a community nursing service. The review located limited literature, and no research-based studies, which might aid the development of guidelines for the use of wound probes. The need to extend the investigation beyond published sources and to initiate dialogue with other agencies, clinicians, and manufacturers is recommended prior to the development of much needed guidelines.

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## Introduction

Metal wound probes (Figure 1) are used by medical practitioners or podiatrists to explore tissues or lay open a sinus. Nurses tend to use them as assessment instruments to determine the size and shape of a wound cavity or the direction of sinus tracts. Metal probes may also be favoured

instruments for inserting dressing materials into undermined wound cavities or sinus tracking, the aim being to ensure the dressing material comes into contact with the base of the wound and any dead space is eliminated. However, the indiscriminate use of wound probes can lead to tissue trauma, which inhibits healing.

Royal District Nursing Service (RDNS) in Victoria is a domiciliary nursing agency and nurses in the employ of RDNS are reported to use wound probes for assessment or wound packing purposes. Currently, there are no guidelines or education programs in place to guide nurses in the appropriate use of wound probes, and the genesis and degree of nurses knowledge and experience in regard to this practice is unknown. Whilst there is an expectation by RDNS that nurses within their employ are competently using wound probes, the lack of instructions supplied by manufacturers and the lack of recognised guidelines, inhibit evaluation of clinical practice.

In 2004, the RDNS Wound Care Clinical Leadership Group (CLG), which is comprised of wound care clinical experts who identify and research clinical issues within the organisation, determined a need for evidence-based guidelines on the use of wound probes. A review of published literature was undertaken and sought to provide information that would inform the development of a policy, guidelines, in-service education, and a process for determining clinical competence in the use of wound probes within the organisation.

## Method

A search of evidence-based and other research databases was conducted in July 2004. The databases from the Joanna Briggs Institute, the Cochrane Library, and Database of Reviews for Effectiveness (DARE) were searched using the key terms,

### Charne Flowers

BA (Hons), GDip (AppSocStat)  
Researcher, Royal District Nursing Service (RDNS)  
Helen Macpherson Smith Institute of Community  
Health

### Jenny Pilgrim

MNStud, BAppSci (AdvNurs)  
Educator, Royal District Nursing Service (RDNS)  
Helen Macpherson Smith Institute of Community  
Health  
31 Alma Road St Kilda, Victoria 3182  
Ph: 613 9536 5222  
Fax: 613 9536 5300

### Keryln Carville

RN PhD  
Associate Professor Domiciliary Nursing, Silver  
Chain Nursing Association

Name & Address of Institute to which work should  
be attributed:

Royal District Nursing Service  
Helen Macpherson Smith Institute of Community  
Health  
31 Alma Road, St Kilda, Vic 3182.

\* Correspondence to Jenny Pilgrim

'wound', 'probe', and 'undermining'. None of the databases revealed systematic reviews or other investigations relevant to the use of wound probes.

CINAHL (1982 to July Week 2 2004) and Medline (1966 to July Week 3 2004) databases were searched using the following key terms: 'wound', 'probe', 'undermining', 'wound depth', 'wound width', 'wound tracts', and 'wound sinuses'. Terms were used singularly and in combination to refine the search history. The actual term 'wound probe' resulted in only one éhitf and the use of wound probes was peripheral in the study described. The combination of 'wound' and 'probe' or 'probing' produced search results of 354 and 274 respectively, however, few articles described or evaluated the use of wound probes and again the use of wound probes was peripheral in these articles. Only one article by Butcher (2002) appeared to be relevant and was sourced. A manual search of this article's reference list did not identify other relevant studies or work pertaining to the use of wound probes. A review of wound management textbooks for references and guidance of clinical practice pertaining to wound probes was also undertaken. Only one text made reference to the use of wound probes in wound care. In addition, a web-based search using the 'Google' search engine was conducted using the key terms 'wound probe' and 'probing'. No information was located that was relevant to the objective of this investigation.

## Results

The paper by Butcher (2002) provided an overview of clinical experience, in regards to the management of wound sinuses. It referred, only briefly, to the use of wound probes as outlined below:

*Finally, the sinus should be gently explored with a fine malleable probe to assess depth, direction and multiplicity of the tracts present. Soft polythene [sic] catheters are increasingly replacing traditional silver probes for this task. Cotton-tipped swabs and applicators should be avoided when probing the wound to avoid the risk of leaving cotton fibres in the depths of the sinus<sup>1</sup>.*

Wound management textbooks were limited in their mention and guidance on wound probe use. The only text to specifically mention a 'probe' made the following comment; "The depth of a wound may be measured by using a gloved finger, spatula or probe"<sup>2</sup>. A number of textbooks referred to the use of cotton-tipped applicators to measure wound depth<sup>2-5</sup> with no reference to any precautions that might apply when inserting a cotton-tipped applicator into a wound. One text suggested the use of forceps to determine the extent of undermining in a pressure ulcer<sup>6</sup>. Again there is no reference to precautions that might apply.

## Discussion

The scant literature on the use of wound probes is, perhaps, surprising considering their commonality and potential for causing trauma in wounds. Although some authors have suggested that cotton-tipped applicators can be used as wound measurement instruments<sup>2</sup>, others have suggested if they are used they should be dampened to avoid retained foreign bodies<sup>3</sup>. This also raises an important consideration when using a dry cotton-tipped applicator for collecting wound swabs for pathological culture and sensitivity.

According to Butcher (2002) clinicians are favouring the use of polyurethane as a safer alternative (Figure 2). However, soft polyurethane catheters can curl or kink when inserted into sinus tracts and accurate assessment can be compromised. The authors of this paper agree with Butcher (2002) in regard to the risk of retained cotton fibres when dry cotton-tipped applicators are used. Anecdotal evidence also exists in regard to the breakage of long wooden cotton-tipped applicators in wounds and it would appear that general purpose, long, paper-rolled cotton-tipped applicators are no longer available in Australia.

A limitation of this literature review is that it has confined its search to published and electronic literature. While an exploration of the personal use of wound probes amongst community nurses was not a strong feature of this review, the collective experience of clinicians from a variety of health care settings could provide valuable insight into clinical practice. A survey of service providers likely to be utilising wound probes is a recommended step beyond this review. Already, communication with three other domiciliary nursing organisations in Australia demonstrates varied practice and recommendations into their use of wound probes. Each service was informally asked to indicate<sup>1</sup> if their nurses have access to or use wound probes and<sup>2</sup> do they have a policy on the use of wound probes. Like RDNS (Victoria), all agencies used wound probes and none had a specific policy pertaining to the use of wound probes. Already, communication with three other domiciliary nursing organisations in Australia demonstrates varied practice and recommendations into their use of wound probes.

The Royal District Nursing Service in South Australia (personal communication) stated that metal wound probes are prudently used for assessment and wound packing purposes.

Silver Chain Nursing Association in Western Australia (personal communication) stated that although metal wound probes were available, their use was not encouraged for assessment or wound packing purposes unless the depth of a sinus is visible and there is no perceived risk of injury to

tissues. Prudent use of sterile Nelathon catheters has been adopted for sinus tract assessment and when the wound bed is clearly visible, a 10cm sterile, dampened paper-rolled, stemmed, cotton-tipped applicator may be used. Silver Chain reported that they are currently evaluating recent alternatives to metal probes; plastic round ended probes (Sorbsan Plastic Medical Probe by UNO™) and rolled paper and foam-tipped wound probes (Visitrack™ by Smith & Nephew) (Figure 3). Both of these latter instruments incorporate a measurement scale along the probe which facilitates assessment.

Blue Care Nursing Service in Queensland (personal communication) indicated there was no specific policy on the use of wound probes. In the absence of a specific policy, care practice is guided by either the Joanna Briggs Institute or Tabbner's Nursing Care (2005). However, no explicit direction on the use of wound probes is available from either of these sources<sup>4</sup>. Informal practice standards were reported to utilise a Nelaton female catheter as a measurement instrument as the softer material reduces potential trauma to the wound and does not leave fibrous debris. The Visitrack™ wound probe by Smith & Nephew was also reported to be a useful instrument.

The Royal District Nursing Service (Victoria) Wound Care Clinical Leadership Group is, however, keen to explore further consultation with Australian and international wound management associations, recognised expert clinicians and wound probe manufacturers prior to the development of organisational wound probe guidelines. To date, this group and the authors have devised an inventory of potential uses for wound probes to clarify the perceived role of probes in wound care (see Table 1) and to assist in the development of these guidelines.

Research evaluating the use of wound probes is required. In the first instance, case studies that outline the use of wound probes for assessment and dressing procedures would provide insight into experiences of clients and nurses, as well as identifying suspected detrimental or advantageous effects in using a wound probe in wound healing. A comparison of probe types and materials in these case studies will provide some early insights to inform guideline development as well as highlight directions for further research using more rigorous and controlled methods.

## Conclusion

The indiscriminate use of wound probes can result in tissue trauma and pain, which can compromise healing outcomes. The need to establish consistent and best-practice guidelines involving the use of wound probes has been identified. At present the dearth of published studies or guidelines suggests that a consensus for best practice must be obtained

from other sources such as a wide variety of health care agencies, manufacturers and expert practitioner opinion. Despite the perceived risks associated with the use of metal wound probes, they continue to be used as assessment and wound packing instruments although there are potentially safer alternatives now available. It would seem reasonable that there should be clear guidelines directing use of wound probes by individual clinicians and organisations, supported by an education program. It is hoped that this paper highlights the need for collaborative and multidisciplinary discussion in regards to what constitutes best practice for the use of probes in wound management.

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Royal District Nursing Service (Victoria) Wound Care Clinical Leadership Group members: Judith Grant, Paul Heland, Jo Hosking, Suzanne Kapp, Michelle Playne, Vicki Sayers, and Pam Smedley.

Royal District Nursing Service (Victoria), Helen Macpherson Smith Institute of Community Health Research and Development Department.

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Table 1. Scenarios where information about the role of the wound probe is required

Area of use	Reason for use	Questions to be answered
Assessment	<ol style="list-style-type: none"> <li>To determine the size and shape of a wound cavity</li> <li>To determine if there is exposed bone</li> </ol>	<ol style="list-style-type: none"> <li>Does one need to assess the size and shape of a wound cavity to treat it?</li> <li>In what cases would such assessment not occur (e.g. a fistula, potential trauma)?</li> <li>What is the role of sinograms with respect to assessment?</li> <li>Determine if a metal probe is the safest instrument for assessment or required to identify exposed bone.</li> <li>Determine if a soft probe is the safest instrument (e.g. the depth of wound is not clearly defined) and kinking of the catheter is not a concern.</li> <li>Determine if a commercial wound measurement probe is the safest and most practical option (e.g. fragile wound).</li> </ol>
Dressing	<ol style="list-style-type: none"> <li>To pack a wound</li> </ol>	<ol style="list-style-type: none"> <li>Is a metal, soft catheter or commercial probe the desirable instrument for insertion of wound packing agents?</li> <li>What are the step-by-step instructions for packing a wound?</li> </ol>
	<ol style="list-style-type: none"> <li>Is an aseptic or clean, non-touch technique required?</li> <li>What precautions need to be considered when using wound probes as packing instruments?</li> </ol>	



Figure 1: Metal probe

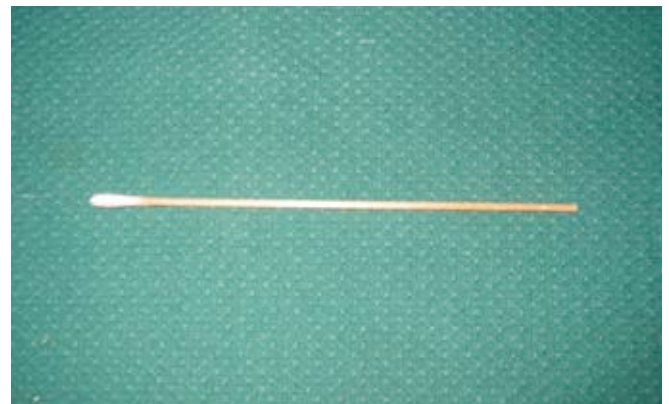


Figure 2: Cotton-tipped applicator

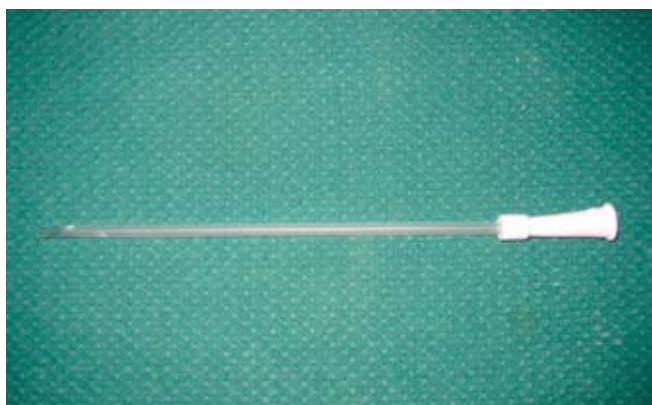


Figure 3: Polyurethane catheter



Figure 4: Upper: Sorbsan(tm) medical probe  
Lower: Visitrak(tm) instrument