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The Expert Patient: The Key to Multi-Disciplinary Wound Care

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Abstract

For many people with a chronic disease- diabetes, cancer or heart disease a wound is their constant companion. These wounds are notoriously difficult to treat. The problems associated with non-healing wounds become amplified when the person lives in a rural or remote area.

Methods:

This study trialled an electronic patient record system to manage the information exchange for patients with chronic wounds in the Midwest of Western Australia. The care settings were out-patient clinics of country hospitals, residential aged care facilities, general practices, a podiatry practice with expert review from an urban domiciliary nursing service.

Results:

The trial demonstrated that by housing the electronic patient wound care record on a password protected web server the patient was able to be in control of their care and when seeing their preferred practitioner their information, treatment and wound healing progress could be accessed at the point of care. Changes in treatment and wound images could be uploaded for review by the expert reviewer. Healing times and unnecessary investigations were reduced.

Objective:

This study was designed to test the utility of a web based multi-use multimedia wound care record.

Background:

Chronic and complex wounds often have prolonged healing times and require frequent assessment and treatment from a health care professional. Their management represents a significant burden on the health care system. The total cost world wide of the treatment of chronic wounds has been estimated at $7 billion US per year (Austin & Santamaria, 2002). Preliminary consultations and a scoping study highlighted that in the Midwest region of Western Australia optimal wound care was impeded by the limited opportunity for seeking appropriate expert review and is compounded by a lack of means for secure clinical data exchange.

Expert review of clinical images and patient history has been a proven method for improving clinical outcomes in the management of chronic lower limb ulcers in rural Western Australia The clinical trial by Santamaria et al. (2004) in the Kimberley region of Western Australia demonstrated that by providing regular expert review via telehealth, significant improvements in healing rates for patients with chronic lower limb ulcers and lower rates of amputation and death could be achieved.

Wound care in the Midwest is provided in a range of settings. A patient's wound may be treated in an out-patient clinic at the hospital or by a domiciliary nurse as well as at their General Practitioner. Timely, accurate and secure exchange of information between the public and private sectors and between the tertiary,

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secondary and primary care sectors has proved difficult in Western Australia and elsewhere (Harrison et al. 1996; Seldon et al. 2000). To date information exchange between health care providers in the Midwest has been fragmented and paper based. Where electronic records do exist such as in general practice, there is no interoperability across systems.

The trial used the model of the patient held record and linking the patient data to their medicare number as a way of providing the range of relevant practitioners with point of care access to the current information needed to provide appropriate wound care for the patient regardless of the setting. Linking the patient with expert review on a regular basis put control of the wound and wound healing in the patient domain.

Methods:

The trial introduced the computer software program AMWIS in ten health care sites in the region. AMWIS enables health care providers to describe and annotate a digital picture of a wound and record patient information. It offers a complete record of wound care and provides objective measurement of wound healing. Health care providers can take a photo of a wound, load it into computer with patient information and request feedback from a clinical expert who also has AMWIS loaded on a computer with internet access. Another feature of AMWIS is the reporting module which enables users to graph wound perimeters over various consultation dates (Santamaria and Clayton, 2000).

This trial adapted AMWIS to store the records on a central MS SQL wound database, following National E-Health Transition Authority (NEHTA) guidelines. The central server data base also enabled all healthcare providers caring for the same patient to have immediate updated information.

A flow chart of the trial protocol was developed to provide sites with a concise methodology to follow (Figure 1). All patients presenting to the participating sites with wounds were assessed for eligibility. All wounds that had been present for three weeks or longer, or were likely to have a healing time of longer than three weeks were eligible to join the trial. If patient consent was given, relevant medical information, including history, assessment and treatment was entered into AMWIS, along with a digital image of the wound. Each time the health care provider treated the wound the file was required to be updated. Health care providers were instructed to email the expert reviewer fortnightly to request input into the wound care. The expert reviewer was then able to access the server containing patient information, view the most recent photograph and treatment regime, and add her advice to the record.

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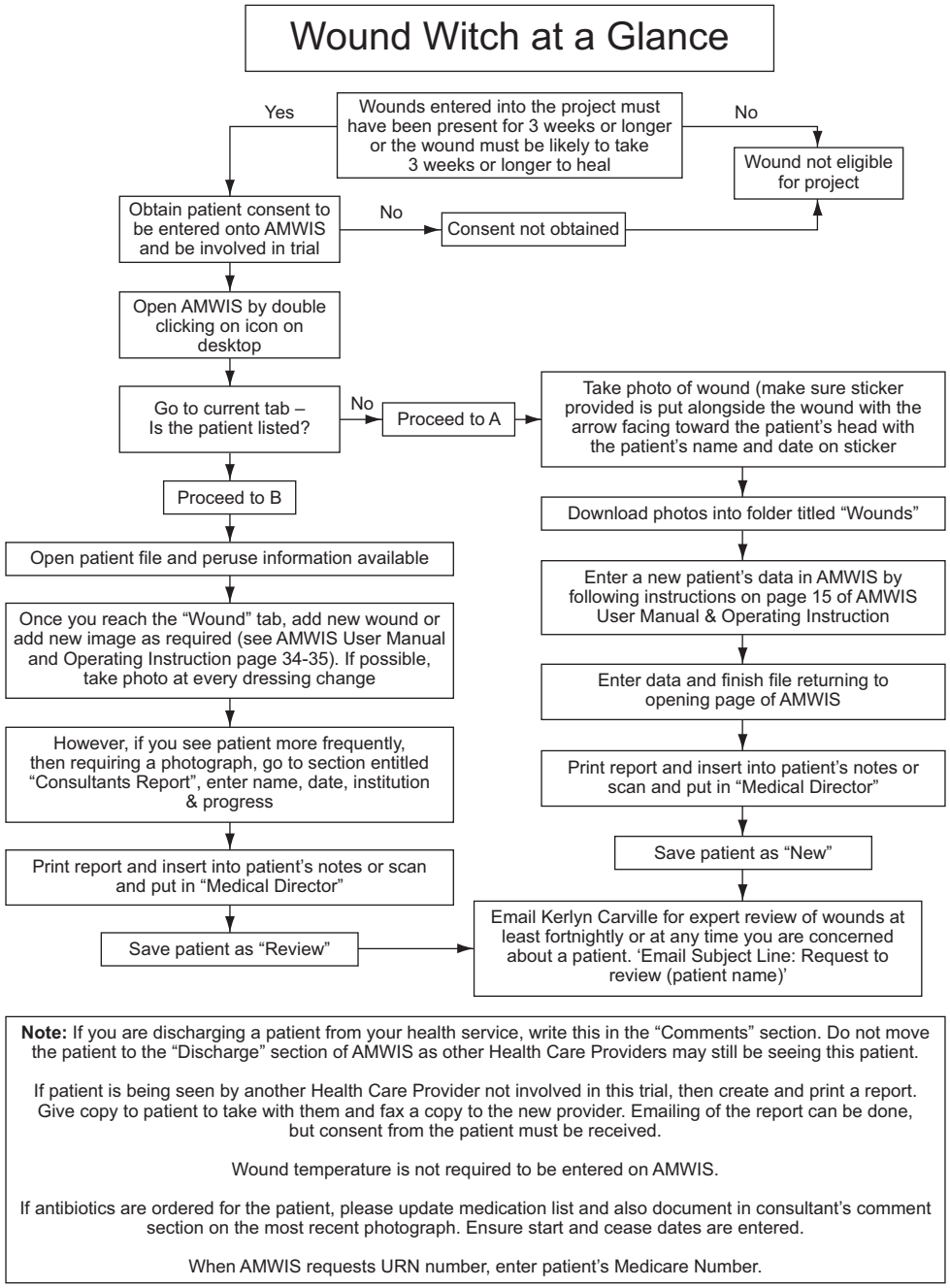

Figure 1. *Trial Protocols*

Results:

The total number of chronic wounds remained fairly constant during the trial, the majority of them being cared for in the aged care setting, by the domiciliary nursing service and the hospital in the home service. Although the local private podiatry clinic was included as part the trial, they did not participate in the shared care of the enrolled patients. General practices seemed an important target for the trial at the outset but the trial demonstrated that in the Midwest their chronic wound case load is small.

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Type of service	Site	Wounds at baseline	Wounds entered during trial
Aged Care	Facility 1	11	9
	Facility 2	8	8
West Australian Country Health Services sites	Rural site 1	5	4
	Rural site 2	4	1
	Rural site 3	6	1
	Remote site	2	0
	Hospital in the Home site	3	5
Private or not for profit organisations	General practitioner surgery 1	3	0
	General practitioner surgery 2	3	2
	Domiciliary Care	6	11
Total		51	41

Table 1. *Participating sites*

Discussion:

The trial highlighted the relevance of service and funding models for the early adoption of eHealth innovations such as ours. The two most successful sites faced a very similar burden of caring for patients with chronic wounds. Wound care management is a more salient feature of everyday practice in residential aged care homes and domiciliary services. Their patients are at much greater risk of acquiring a chronic wound. In addition, individual practitioners are likely to see the same patients over an extended period, engaging a greater sense of responsibility for resolving the wound.

The out-patient services in hospitals and clinics also potentially face high rates of chronic wounds and, with appropriate management support and some minimum level of staffing, are likely to be able to be able to alter their practices. Our plans for the continuation of the trial will be to test that hypothesis.

In addition to their case load, residential, domiciliary and out-patient care services also have a similar funding model. These services are funded for provision of services to a number of patients not for individual consults. Any practice that enables patients to be treated more efficiently and effectively 'buys' the staff more time to care for other patients or health issues. The feedback from two of the high use sites has stressed that cost saving is a feature of continuing use.

The fee-for-service model in General Practice means that they are faced with the very different drivers when managing chronic and complex wounds. The costs associated with wound care need to be absorbed by the practice. The cost of the nurses' time, and the training required for a nurse to use a program such as AMWIS are also borne by the practice. If wound care was a substantial part of a practice nurses duties, an electronic record such as AMWIS would probably result in cost savings by freeing nurses' time as well as potentially improving healing rates. However, the typical general practice in the Midwest did not have many clients with chronic wounds. Having on hand the range of dressings and the additional equipment recommended by the expert wound care consultant for a small case load makes providing chronic and complex wound care in the general practice setting unfinancially viable. With such small numbers, clients under their care may be better encouraged to use other health services such as out-patient or domiciliary care services, which are funded to conduct that type of time-consuming on-going care.

The trial demonstrated the effectiveness of using a password protected web based multimedia health record

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linked to the patient's medicare number in allowing communication between primary care providers in the same or multiple sites and between primary care providers and the expert reviewer. It highlighted the importance of the providing expert advice to the patient and not just the provider so that the patient could decide their preferred practitioner.

The trial highlighted the following shared care issues that will need to be addressed in future trials: At present there is no way to identify what health care provider entered the information. We recommend a practitioner identifier be introduced to the program so that follow-up communication can occur and tracking of wound care providers is transparent. We also recommend that an alert that recognises no expert user input over fourteen days and alerts health care providers will promote improved wound management. Finally In recognition that some patients are seen by multiple providers, an automated email should be sent to relevant providers when new data is entered. This will improve communication and avoid potential duplication of effort in following up the patient.

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