Implementation of a successful electronic wound documentation system in rural Victoria, Australia: a subject of collaboration and community engagement

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Key words
E-health; Engagement; Implementation; Wound care

Abstract
To describe the steps needed for successful implementation of an e-health programme (the Mobile Wound Care system) in rural Victoria, Australia and to provide recommendations for future e-health initiatives. Wound care is a major burden on the health care system. Optimal wound care was found to be impeded by issues that included limited access to health care providers, incomplete and inconsistent documentation and limited access to expert review. This study conducted a trial of the use of a shared electronic wound reporting and imaging system in combination with an expert remote wound consultation service for the management of patients with chronic and acute wounds in Gippsland. The trial sites included four rural Home and Community Health Care providers. Considerable effort was put into designing a best practice e-health care programme. Managers and clinicians at regional and local levels supported this trial to address an area of health care considered priority. Various issues contributing to the successful implementation of the wound care project were identified: the training model, quality of data collected, demands associated with multiple sites across a vast geographic region, computer access, hardware and computer literacy.

Introduction
Chronic wound care is costing the Australian health care system $2.6 billion and is the second-most billed Medicare item by general practitioners (GPs); yet chronic wounds are still causing unnecessary burden and reducing quality of life (1).

Wound documentation is extremely crucial in health care (2,3). The treatment plan and follow-up of patients’ wounds are generally compared with the baseline information originally prepared when the patient is first seen. The scope of wound documentation varies from one health care setting to another. Generally, specific information documented includes the types of wounds and its location, depth, stage if applicable, size, exudate, odour, wound edges, surrounding skin, infection signs and management and treatment plan (4). These wound parameters may seem to be overwhelming, however, a well-trained wound clinician should be able to prepare the documentation quickly and accurately (4,5). In

Key Messages
- successful collaboration of the Mobile Wound Care (MWC) project relied on three main stages: these were identified as connect and communicate, collaboration and consolidation
- the key issues identified for the success of the implementation of the project were the following: the training model, quality of data collected, participating sites access, computer access, hardware and literacy and staff and management commitment to the project
- the implementation of the MWC project has allowed the regional wound consultant to access every client file and liaise directly with participating sites across a vast area of rural Victoria
Despite this, nursing documentation of wound care is often inconsistent and sparse (1,2).

Factors that may affect thorough documentation of wounds include but are not limited to: time constraints, inexperience of wound clinicians, staff shortage, absence of expert resources, lack of clinical guidelines, limited exposure to recent wound management training and education and health care setting policies (6).

Electronic documentation has been used widely across the health care system to manage patients’ health information in various settings such as aged care facilities, pharmacies, hospitals and primary care (7–9).

There are numerous advantages of implementing electronic documentation. Electronic documentation ensures that the correct and most current consumer health information is electronically available to the right person, at the right place and time to enable informed care and treatment decisions. It supports clinicians to work more efficiently as an interconnected team, overcoming fragmentation and duplication of service delivery. It assists teams to electronically communicate and exchange information, to provide better coordinated health care across the continuum of care and finally and most importantly, it improves the quality, safety and efficiency of current clinical practices. Electronic documentation provides better access to clinical evidence and clinical decision support tools (9,10).

The Mobile Wound Care™ (MWC) is a web-based system that enables clinicians to record consistent wound data about their clients, their wounds, the assessment parameters and management plans. This electronic documentation provided by the MWC system enables communication across the clinical continuum, as it allows clinicians to monitor progress or deterioration of their clients’ wounds. A flow chart detailing the data entry steps is shown in Figure 1.

To achieve more consistent and complete wound documentation and improve client outcomes, the MWC system was implemented at various sites in the south-east of rural Victoria, Australia. This article discusses the challenges faced during the implementation stage of the project.

Objectives

The main objectives of this study were firstly to describe the steps needed for the successful implementation of the MWC system across various sites in rural Victoria, Australia and secondly to provide useful recommendations for future e-health initiatives.

Methods

Ethics approval was obtained from the various participating sites across the south-east of Victoria. The project is a multi-centre initiative that has four major district sites contributing to gather a regional wound profile data.

Several meetings were held with various managers and clinicians from the participating regional organisations to discuss the early stages of the project implementation. This ensured the proposed project was feasible.

A few general information sessions were held for all potential sites in the Gippsland region to discuss the benefits and requirements for the sites participating in the project.

Clinicians, managers and participating staff were offered an orientation session on the MWC system to familiarise themselves with the use of the programme, including data entry and management.

Following the training session, the MWC website was made a desktop icon in the computers at all participating sites where patients were treated or at work stations where nurses could enter the required data after patient visits. The MWC programme offers the advantage of storing patient data, wound assessment, care plan interventions and track healing stages with an inbuilt digital image option to be downloaded if necessary.

Training was then carried out at each site immediately after the initial education session run by the programme administrators for the site managers. A ‘train-the-trainer’ model was then used at each participating site to familiarise all district nurses involved in patient care on the use of the MWC system. The regional wound consultant and the training officer were available to manage enquiries arising from the participating sites related to data entry as well as wound management strategies.

A project advisory group was established and consisted of a member of the funding body of the programme (Department of Health), several members of the organisations involved, the regional wound consultant and members of the research team. The objective of the committee was to discuss any issues arising from the project implementation and data quality.

A number of requirements were set by the project advisory committee for the potential participating sites before the installation of the MWC system and these were: availability of IT/laptops/computers, participation in training, liaison with others, the appointment of a facilitator within the organisation, commitment to data collection of a high level and improvement through evidence-based practice.
Results

The MWC system was successfully implemented at four district nursing sites across the Gippsland region.

The successful implementation of the project was dependent on key factors that only became apparent during the auditing of the collected data. The key issues identified for the success of the implementation of the project were the following:

1. The training model
2. Quality of data collected
3. Participating sites access
4. Computer access, hardware and literacy
5. Staff and management commitment to the project

1. The training model

An efficient training model was devised in response to the need of the study participants. Initially each site identified a leader in its nursing group. This person was given a full study day to attend training on MWC. A web-based training site that mirrored the live scene was set up and each leader was given access to the level required to train other staff. Each site then had 3 weeks to train the nursing staff that would be entering the data at their site. Several sites expressed the need for extra training support, so the regional wound consultant travelled to these sites to coordinate and undertake extra training.

2. Quality of data

The quality of the data entered was crucial for accurate analysis of the results. Entering the right data in the correct fields was the major factor that influenced the data quality. Onsite education and training and newsletters ensured the staff had a clear understanding of data entries. For many nurses this was an introduction to research and the high demand of research with regard to accuracy and timeliness of data entry. This was a large impost on an already time-stressed profession, in an under-resourced field. At numerous sites computers needed to be upgraded or supplied. Some nurses were not computer literate and required extra support. Several site visits and updates were required to generate a standard of data entry that was complete and consistent. Eventually clinical coordinators were appointed at each site to conduct ongoing audits of the data and identify staff members who required extra assistance and support to meet the data entry requirements. The buy-in of local staff proved to be the most productive means of achieving quality data.

3. Participating sites access

The vast geographic area that comprised this project proved to be a considerable strain on the project resources. Site travel times varied from 15 minutes to 4 hours. This made training time quite demanding. At commencement there were seven high care Public Sector Residential Aged Care units and seven District Nursing Services. The small numbers of wounds and the disproportionally high training needs in the smaller sites meant that these services had to be excluded on an ongoing basis. One site withdrew as it felt the extra demands on staff time and the level of computer literacy of staff for their site too great. The remaining four sites represented 95% of the wounds that were in the data base. As such they were a reasonable representation of wound population of Gippsland.

4. Computer access, hardware and literacy

The MWC system requires both access to computers and the web. All organisations participating in the research had access to the regional network and therefore the web, computers and operating systems in many sites. Access to online computers is essential for the smooth operating of the MWC system especially during peak data entry times. Several of the desktop computers in the district nursing services made the operations within MWC quite slow and this translated to a longer period of time required to enter data. Several sites, once this issue was identified, updated their computers and this correspondingly decreased data entry time. Three of the four district nursing sites use a data management system that includes time allocation for each intervention. Clients with wounds are all on MWC and are allocated 15 minutes. By doing this, the extra burden of data entry is calculated into the workload. This recognition of the time required, assisted the research and improved the concordance of staff entering data. MWC is designed to be a point-of-care system but in Gippsland for the purpose of research the introduction of laptops was not taken up as it was cost prohibitive and no budget was included for hardware.

The computer literacy of staff varied across the region. Several staff and some organisations had not required computer literacy of nurses as ward clerks or administrative personnel undertook these roles. To their credit, all are now proficient in all aspects of data entry. In three sites, the MWC research commenced simultaneously or subsequently to the introduction of other data entry programmes used for funding and staff allocation. There was a steep learning curve for many staff. Ongoing training and support was required and easy to follow updates and newsletters kept all involved up to date.

Computer literacy was not the only literacy required. As stated earlier, nursing documentation can be sparse. Nursing documentation regarding wound management is also often inadequate (11). Many nurses were not familiar with the terminology used to describe clinical symptoms. In order to describe the wound, nurses need to understand what each alternative tick box means. For this reason only the appropriate medical terms were used to describe tissue types. For example, haemosiderin staining is often called venous staining. Because the staff have to describe the wound and the surrounding skin as part of the data entry, it had the effect of improving the standard of documentation. Everyone uses the same descriptions and if unsure a definition can be supplied by ticking the query box with each term. So instead of reading 'wound dressed as per care plan' all clients had a comprehensive evaluation of their wound documented electronically.

5. Staff management and commitment to the project

The staff and executive of the four ongoing sites have demonstrated a real commitment to the research. When given the option of de-identifying data and when comparing the sites’ healing times and costs, the Directors of Nursing were unanimous in their decisions to label all sites by name. They
have chosen to look at the results critically and to use these to benchmark and compare practice and practice outcomes for clients within the Gippsland region.

The staff members entering the wound data for the clients have maintained a high level of data quality. They have been rewarded with minimal incentives such as chocolates and champagne when the audits have been outstanding and were given a certificate of achievement when the research won the Victorian Health Industry Association research award in 2011. But by far the greatest influence to the success of the project has been the appointment of clinical coordinators at each site. These staff members know each member personally and understand better than anyone the day to day issues of providing home and community care. They have each worked out ways to ensure day entry is not omitted and are able to perform audits on their data and feedback results to staff at a local level. The commitment of these staff has decreased the time required for the regional Clinical Consultant to travel to each site and allowed her time to be used to clinical practice and expert consultations regionally.

Discussion

The MWC has been successfully implemented across various sites in rural Victoria. There were a few key issues to the success of the above system which was identified by the advisory committee as the project progressed, namely the training model, the quality of the data, participating sites access and computer access, hardware and literacy and staff and management commitment to the project.

In essence, the successful collaboration of the MWC project relied on three main stages. These were identified as connect and communicate, collaboration and consolidation as shown in Figure 2.

The first stage is identified as connect and communicate in which the focus is on establishing the fundamentals of e-health and providing the basic connections that allow information sharing to occur between the sites and the regional clinical consultant. This initial stage is also very crucial to the onset of the project as it provides the basic scaffolding to the project initiation. This initial stage is likely to identify the necessary equipment needed to facilitate data entry and the training model needed to accompany it. Funding for the purchase of equipment, up-skilling staff and training them is necessary for the success of this stage to ensure compliance with data entry and for overcoming problems with software and hardware.

The collaboration stage focus moves from basic communication to collaboration between the nurses and the wound consultant. This is to ensure appropriate data entry and help is received when needed. Regular data audits are valuable at this stage of the implementation as it identifies the gaps needed to address staff training, motivation and education. Moreover, this stage identifies the willingness and readiness of staff to change their daily practices to the new advanced model of electronic documentation and using the latest evidence-based practice guidelines to monitor their clients.

The consolidation stage is the third and final stage of the implementation process. It can be achieved only when e-health becomes part of ‘business as usual’ for district nurses. This stage is usually productive as it yields reliable and accurate patient data that can be evaluated and used for research purposes to advance the current clinical practice guidelines.

The successful implementation of the MWC programme enabled better communication amongst all project stakeholders, accurate documentation of patients’ and wound data, better management of patient wounds, implementation and evaluation of new protocols for management of wounds such as skin tears and evidence-based practice data detailing wound healing times and costs.

Recommendations

Several recommendations were suggested in this article to improve the outcome of implementing an electronic wound care system in health settings and these included: providing reliable computer equipment, more formal staff training, staff motivation, the availability of written guidelines on how to use the MWC, regular audits of the data entered, funding to backfill staff while on training and expansion of the MWC to all sites treating wounds in the Gippsland region.

Conclusion

The successful implementation of the MWC project has allowed the regional wound consultant to access every client file and liaise directly with participating sites across Gippsland, a region of some 42,538 km². Advice is timely, clinical reviews are prioritised and unnecessary travel time is avoided.

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References