A vision for a nurse-led wound management service: innovating from the inside out
A vision for a nurse-led wound management service: innovating from the inside out

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Nurse Maude and the NZ Institute of Community Health Care

Nurse Maude, is a community based health service provider, located in Christchurch, New Zealand. The service was established more than 100 years ago as a district nursing service. In 2009, it has a staff of 218 nurses and 631 health care workers who offer extensive nursing and home care services throughout Canterbury. They receive about 1,200 referrals per month into their service from a variety of sources, including hospitals, medical specialists and general practitioners. These services are aimed at supporting people with either short term or long term health problems to stay in their homes during episodes of health care need. Nurse Maude also offers specialist nursing services, which include continence, stomal, diabetes, wound management, acute demand and palliative care. These services are provided in the patient’s home, on-site or for hospital in-patients.

In mid 2007, the Nurse Maude Foundation seeded funding for the establishment of a research centre, the New Zealand Institute of Community Health Care (NZICHC). The Institute was designed to provide advice and support for nurses interested in developing and completing clinical research with a focus on improving health outcomes for consumers of community health services. The Institute has a Director, Administrator and Research Nurse to provide research services for Nurse Maude staff. The centre has developed collaborative research partnerships with tertiary education providers and with external researchers. The Institute is also involved in consultancy work to support workforce and service development and professional development. These activities are designed to foster a centre of excellence for research and development projects that will lead to tangible improvements in community health care.
Foreword

Wound care, and in particular leg ulcer management, is often seen as representative of district nursing practice. Of course the role demands a lot more than that, but even considering leg ulcer care alone, the complexity and difficulties in effectively addressing what so often is a debilitating and very painful condition is underestimated.

Cathy Hammond and Jackie Walker have shown the possibilities when the reality of many shortcomings of existing service models were identified and addressed, be these a lack of evidence based practice, insufficient resources, and in particular, poor understanding of the true cost to society and service providers alike.

The Ministry of Health is pleased to be able to support the dissemination of the work of these dedicated nurses and acknowledge the crucial work being done by Nurse Maude and the NZ Institute of Community Health Care in developing innovative solutions to health care delivery.

Dr Mark Jones
Chief Nurse
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Introduction

Many people, particularly the elderly, suffer from venous leg ulcers which cause reduced mobility, pain, social isolation, depression and poor quality of life (Heinen et al., 2006). The prevalence for leg ulceration in New Zealand is 39 per 100,000 population (Walker, Rodgers, Birchall, Norton, & MacMahon, 2002). Management of leg ulcers has improved dramatically since the introduction of compression bandaging in the 1990’s. Previously, leg ulcers had been managed with traditional products requiring frequent dressings, but healing rates were poor with frequent recurrence and infection. Leg ulcers under this regime could be present for upwards of twenty years and many patients required hospitalisation and plastic surgery. This report will profile the ongoing development and evaluation of a specialist wound management service within Nurse Maude. It will describe the vision for the service and the current interplay of specialist clinical expertise, research, innovative technology and education.

1998 - Beginning the vision

Nurse Maude, is a community based health service provider, located in Christchurch, New Zealand. The service was established more than 100 years ago as a district nursing service. It currently has 218 nurses and 631 health support workers who offer extensive nursing and home care services throughout Canterbury. In 1998, Nurse Maude commenced a quality improvement project to improve the standard of wound care through research, education and best practice. The goals included: increasing the District Nurses’ knowledge base in wound care, particularly assessment and management of wounds; raising awareness and accountability for clinical practice; and ensuring resources were used effectively. Cathy Hammond was employed by Nurse Maude as a Wound Care Nurse Specialist to drive the project and help the vision to become a reality. An outcome of the project was the identification of a number of issues relating to the management of Leg Ulcers in the Canterbury region. These included:

- The continued use of outdated practices which did not promote healing
- Limited access for patients to effective treatment that would heal their ulcer
- Lack of a coordinated approach to leg ulcer management
- A shortage of education for nurses across the primary sector leading to high risk procedures being carried out without adequate training or supervision
- Significant potential cost savings from use of compression therapy unrealised
- Lack of a preventative maintenance programme to prevent recurrence of leg ulcers
The project was linked to a National Waiting Times Project, the “Varicose Veins” project at Christchurch Hospital, which aimed to improve management of venous diseases and reduce hospital waiting lists for varicose vein surgery and for first specialist assessments for venous disease. Conservative management provided in the community via a specialist service would address some of the aims of the Varicose Veins project.

The vision for this innovation was to provide conservative leg ulcer management in the community via an integrated pathway of care. To achieve this, the development of a clinical pathway and leg ulcer assessment clinic were undertaken. Cathy proposed that care be based on clinical guidelines from the United Kingdom (SIGN, 1998), and then New Zealand guidelines became the basis of practice when they were published (NZ Guidelines Group, 1999). Based on published literature and the overseas experience Cathy gained, it was believed a clinic would:

- Provide access for a larger number of clients to specialist assessment
- Provide a learning environment for the training of nurses in compression therapy
- Provide the opportunity to standardise and monitor care
- Provide the opportunity to develop multidisciplinary assessment and treatment

The vision gets underway

Reconnaissance

A project team, comprising key staff within the Nurse Maude organisation, was established to lead, advise, consult with others, and implement the project. In the first phase, the international literature was reviewed, assessing the strength of evidence that supported compression therapy over traditional treatment (Carr, Phillips & Possnett, 1999). Benchmark healing rates were set at 55% to be healed by 12 weeks, 76% to be healed by 24 weeks and 90% to be healed by 36 weeks. The issues, the problems being experienced and possible solutions were discussed with clinical experts and the management team. An estimated cost per client of compression therapy was compared to traditional wound care.

From this, several solutions were developed to progress the project. These were to:

- Develop an integrated clinical pathway with professional collaboration to achieve excellent client outcomes
- Establish service delivery options (Nurse Led assessment clinic in conjunction with Vascular Surgery Department and District Nursing service)
- Implement NZ Leg ulcer management guidelines
- Establish a preventative programme

The expected benefits were: improved healing rates; maintenance of healing; reduced waiting lists for Vascular Surgery outpatients; sustainable leg ulcer treatment options and longer term cost savings.
Comprehensive training programme

As part of implementing the integrated clinical pathway for leg ulcer management, a staged comprehensive training programme was developed for District Nurses. This covered: basic wound care, compression bandaging, assessment and management of leg ulcers. The training was competency assessed and nurses needed to be credentialed before undertaking compression bandaging on patients. Nurses were required to maintain competency and recertify annually. A post graduate certificate in Wound Care, in collaboration with Christchurch Polytechnic Institute of Technology, was developed to provide a pathway for further wound care knowledge. As the project progressed, an educational package for Competency Assessors was developed and also a training package for Support Workers to apply compression hosiery for the patient.

Systems development

The Leg Ulcer clinic was set up in June 2000 on the Nurse Maude site in Merivale, Christchurch. Setting up this new service involved the review of all wound assessment tools, patient documentation, referral forms and admission pathways, patient management systems and audit processes. Many changes were made to documentation, more clerical staff were introduced to support clinical staff, and the skill mix in the clinic was changed. A plan for evaluating the service was developed using data (e.g. healing rates, origin of referrals, number of infections, client satisfaction etc). Assessment criteria were set for when a client needed to be referred by the District Nurse. A client information booklet about compression bandaging was produced and an adverse event reporting system developed.

Outcomes of the project 2000 - 2004

Healing rates

Leg ulcer healing rates were not formally researched at Nurse Maude prior to the implementation of compression therapy. However, researchers in an Auckland study interviewed 241 leg ulcer patients. They reported that those patients with recurrent leg ulcers had lived with their condition for an average of fifteen years, with an average time to healing for their last ulcer of thirteen months (Walker, et al., 2002). Data on healing rates compared to international benchmarks was collected from 2000 to 2004 (Table 1 next page). The first audit from 2000 - 2004 included the majority of clients assessed in the clinic and then cared for in the community by District Nurses. This data showed that the benchmarks for healing rates of leg ulcers at 12 weeks, 24 and 32 weeks were generally being met.
Table 1
2000 - 2004: Healing rates compared with international benchmark data

<table>
<thead>
<tr>
<th></th>
<th>Benchmark</th>
<th>3/00 to 3/02 191 clients</th>
<th>5/02 to 6/03 128 clients</th>
<th>7/03 to 6/04 140 clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healed by 12 weeks</td>
<td>55%</td>
<td>64%</td>
<td>57%</td>
<td>54%</td>
</tr>
<tr>
<td>Healed by 24 weeks</td>
<td>76%</td>
<td>86%</td>
<td>78%</td>
<td>87%</td>
</tr>
<tr>
<td>Healed by 32 weeks</td>
<td>90%</td>
<td>93%</td>
<td>92%</td>
<td>93%</td>
</tr>
</tbody>
</table>

Cost effectiveness of traditional management and compression therapy

The annual cost of traditional nursing care was compared to compression therapy (Table 2). Components of traditional care included an initial clinical assessment, District Nursing visits three times per week, crepe bandages and wound care products. Compression therapy for 12 weeks included a 2 hour initial specialist nurse assessment, 21 District Nursing visits, compression bandages and wound care products. This provided 80% less cost per annum than the cost of traditional visits. The ongoing prevention programme following healing of the ulcer was costed at two half hour District Nursing visits.

Table 2
2000 - 2004: Cost effectiveness of two services

<table>
<thead>
<tr>
<th>Type of care</th>
<th>Length</th>
<th>Proportional cost related to traditional care</th>
<th>Number of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional care</td>
<td>52 weeks</td>
<td>100%</td>
<td>156 visits</td>
</tr>
<tr>
<td>Compression therapy to heal</td>
<td>12 weeks</td>
<td>20%</td>
<td>22 visits</td>
</tr>
<tr>
<td>Compression therapy to heal</td>
<td>24 weeks</td>
<td>33%</td>
<td>34 visits</td>
</tr>
<tr>
<td>Compression therapy to heal</td>
<td>36 weeks</td>
<td>41%</td>
<td>42 visits</td>
</tr>
</tbody>
</table>
The provision of conservative management for leg ulcers did contribute to the reduction in waiting lists for the Vascular Service, with 600 patients who were waiting in January 2000, dropping to 200 patients waiting in May 2004. Implementing the clinical pathway for leg ulcer management facilitated the provision of expert advice and assessment from the vascular surgeon and others in the multi-disciplinary team. The numbers of patients seen by the vascular surgeon increased from 24 in 2000 to 44 in 2004. In conclusion, the project to establish a nurse-led leg ulcer clinic did have significant positive outcomes for patients and provided a cost-effective, evidence-based clinical management pathway.

2005 - 2009 Further developing the vision

As with any successful initiative, the service has evolved and broadened its’ focus. In 2008, it was renamed the ‘Specialist Wound Management service’ and now receives referrals for any patient who has a complex wound. Referrals primarily come from medical centres, aged care facilities, district nurses, and hospital based specialists (e.g. vascular surgeons, dermatologists, plastic surgeons, infectious disease specialists and oncologists). Patients initially have a comprehensive assessment by a specialist wound nurse, they are provided with tailored education about wound healing and a written plan of care is identified. The integrated clinical pathway (see Figure 1) is used for leg ulcer management and the specialist nurse can refer patients directly to the: vascular service; hyperbaric service; dietician, lymphoedema specialist and community diabetes service. Once the patient’s wound/ulcer stabilises, either the patient is treated in the Clinic or is referred to Nurse Maude District Nursing for management at home. The District Nursing service is crucial to ongoing effective wound management. An ‘outreach’ service is provided by the Wound Management CNS, through wound assessment, advice and consultation re complex wound management. District Nurses can re-refer patients back to the Wound Clinic. Regular monitoring of all patients is carried out to ensure progress is maintained and problems are identified early and treated appropriately.

As the service has grown, a clinical manager position was established to provide operational support and leadership. This role has diverted operational matters away from the Wound Clinical Nurse Specialist/ Nurse Educator and the clinic nurses, so they can focus on clinical practice, education, audit and research. Another significant benefit achieved by the clinical manager has been reducing patient waiting list times for initial assessment from 8 weeks down to 2 weeks, through working smarter and improving systems. A significant initiative in 2009 was the move to a larger building on the Nurse Maude site, which was re-fitted to meet the needs of the speciality nursing clinics (e.g. stomal, continence and wound management). Bringing all the wound management nurses together in one area has the potential for cross fertilisation of ideas, sharing of expertise and promotion of case review. Each large clinic room is set up with an electric bed and a consistent selection of wound products and compression bandages, providing a beneficial environment for both patients and nurses.
Figure 1
Clinical Pathway for Leg Ulcer Management
In mid 2007, the Nurse Maude Foundation seeded funding for the establishment of a research centre, the New Zealand Institute of Community Health Care. This centre was designed to provide advice and support for nurses interested in developing and completing clinical research with a focus on improving health outcomes for consumers of community health services. This closely aligned with the Specialist Wound Management Service’s vision to participate in research to produce New Zealand based evidence and promote best practice in wound management.

Since 2000, the service has been involved in numerous research projects, trialling both new wound care products and innovative technology to assess wounds. In 2009, the service established a dedicated research clinic, coordinated by Cathy Hammond and Alison Wescombe (Research Nurse) in partnership with the New Zealand Institute of Community Health Care. This exciting development has strengthened the service’s capability, knowledge and experience to undertake clinical trials and wound management research. Being involved in research has had many benefits, with nurses more aware of evidence based practice, and developing a focus of clinical inquiry into their ‘everyday’ practice. Participating in research has validated and valued their wound care expertise and enhanced their professional development. It has also enhanced Cathy Hammond’s drive and commitment to become a Nurse Practitioner, where clinical inquiry and research based practice underpin such a role.

A future vision

There is international evidence that nurse-led clinics make a difference to patient outcomes (Cullum, Spillsbury and Richardson, 2005). In a specialist wound management service, the monitoring of healing rates, infection rates, rates of clients in compression and in hosiery, waiting times, and referral rates are crucial data to provide such evidence (East & Hammond, 2005). The development of the Silhouette Mobile™ Wound assessment tool (Hammond, 2008; Romanelli, Dini, Rogers, Hammond, 2008) collects both patient characteristics and wound assessment data, which is stored centrally, and can be accessed to generate reports, undertake audits and research. This device, currently used in the specialist clinic, will be an essential tool for future research projects. Mobile wound assessment technology, such as Silhouette Mobile™ will assist in the development of complex wound assessment data, providing the ability to regularly audit patient characteristics and the management of wounds in the future.

Cathy Hammond’s vision towards becoming a Nurse Practitioner will also extend and strengthen the nursing role in assessing and managing complex wounds at the Wound Management Clinic. The advanced knowledge, skills and clinical expertise held by Nurse Practitioners benefit patients in many ways, particularly ensuring that patients access the right services through interdisciplinary referral and collaboration. This role will also facilitate the development of nursing services in wound management that respond to the population needs of patients in the Canterbury District Health Board area.
Conclusion

The specialist wound management service has developed into an innovative, responsive service due to the vision of a number of key people within Nurse Maude. With a commitment to improve ulcer healing rates, a project to establish a leg ulcer clinic run by nurses was commenced. This project involved many staff, who played their part over many years, to enable this vision to become a reality. The re-launching of the service in 2008 has improved access for patients with complex wounds, irrespective of aetiology, from different settings in Canterbury. The focus on providing ongoing education and a consultancy service for health professionals also ensures a high level of wound care management. The commitment to excellence and a dedicated research unit provides the foundation for further development and enhancement of the service.
References


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