

The effectiveness of digital imaging and expert remote wound consultation on healing rates in chronic leg and foot ulcers

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Aims of the Study

- To determine the clinical effectiveness of using AMWIS to conduct remote wound care consultations for patients with foot & leg ulcers
- To determine the cost-effectiveness of using AMWIS to conduct remote wound consultations
- To document the changes in wound management resulting from using AMWIS

Hypothesis

The experimental site will have improved base line healing rates and lower costs per patient than the control sites.

Background

The treatment of chronic leg ulcers is dependent on the effective management of the underlying cause, but it is significantly influenced by:

- Knowledge of health professional
- Accurate documentation
- Consultation with wound care experts. (Kantor & Margolis, 2000)

Kimberley isolation

- Higher indigenous population
- Diabetes
- Hansen's disease

Diabetes

- 2000 - 770,000
- 2010 - 950,000
- 7-8 X higher indigenous Australians
- 4th highest in world with type 2 diabetes
- 1998 est. cost \$1billion

Methodology

A 12 month prospective randomised controlled trial

4 study sites

- Broome
- Wyndham
- Derby
- Kununurra



Study population

- Inclusion criteria:
 - Chronic leg or foot ulcer
 - Informed consent
- Exclusion criteria:
 - Chronic wound in other site
 - Acute infection

Measurement

Baseline health assessment

Alfred Medseed Wound Imaging System V1.0 and digital imaging with Kodak DC 440 camera

Ongoing AMWIS wound assessment for duration of wound management

Base-line healing rate (% change in wound size per week)

Time to heal (weeks)

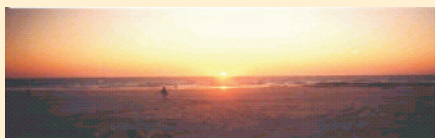
Treatment costs

Data analysis

All patients:

Test	Variable
Descriptive statistics:	Wounds
Linear regression and t tests:	Healing rates*
	Nurses' wound knowledge

* Powered to detect a 12% difference in base-line healing rate between the groups with an Alpha of 0.05 and Beta set at 80%.



Data analysis continued

	Intervention	Control
n	50	43
Age (Mean)	63.5	49.5
Sex (M/F)	24/26	27/16
Wound site		
Leg	21	14
Foot	29	29
Deaths	0	2
Amputations	0	6

Wound types

	Intervention	Control
Venous	7	1
Arterial	1	2
Mixed	1	4
Diabetic	25	11
Traumatic	6	12
Surgical	5	-
Pressure	3	11
Burn	2	2
Total	50	43

Base-line healing rates

Intervention	Control	t	p
+6.82 %	-4.90%	2.57	0.012

Regression

Group	Beta	t	p
Age	-0.310	-2.54	0.013
Sex	0.018	0.142	0.888
	-0.202	-1.73	0.080

Treatment cost comparison

Cost item	Intervention	Control
Treatment	\$508,058	\$577,339
Amputations	0	\$111,360 (6)
Transport	0	\$36,000
Consultations	\$16,800	0
Total	\$524,858	\$724,696

Intervention group cost \$199,838 less than controls



Conclusions

Remote expert consultation is associated with positive base-line healing rates in chronic wounds
 Remote wound consultation using AMWIS is:

- Quick and easy for clinicians
- Well accepted by patients
- Inexpensive compared to transporting patient

Patient adherence with wound management is critical to positive outcome

Need to increase the availability of pressure off-loading devices in the Kimberley region

Limitations

- Lack of data on diabetic control in cohort
 - HbA1c or BG levels
- Patient adherence to wound management
 - Clinic attendance
 - Dressings
- Limited availability of pressure off-loading devices
- High staff turnover

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