

Telemedicine Program for Chronic Wound Management: An Integrative Literature Review

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BACKGROUND AND SIGNIFICANCE

- Chronic wounds (pressure ulcers, diabetic, arterial, and venous ulcers) are a challenge to older adults and the health system.
- Chronic wounds result in significant costs due to frequent follow-up visits required to manage wound healing.
- Affects approximately 6.5 million people in the United States with an annual health care cost of \$10 billion (Gould et al., 2015; Yim et al., 2014).
- Poorly managed chronic wounds affect the quality of life of older adults who are at risk for multiple health complications.
- Chronic wound management is a major health issue regardless of the setting, which creates a growing need to coordinate wound management between inpatient, outpatient, long term care, and home care settings (Terry et al., 2009).



PROBLEM STATEMENT

Older adults with chronic wounds may reside at home where access to health professionals with wound care expertise is limited and access inconvenient. In response to improving health care delivery among home-bound patients with chronic wounds, telemedicine technology has evolved in the area of chronic wound management.

PURPOSE

This integrated literature review examines the use of telemedicine programs and their success in managing patients with chronic wounds living at home and receiving home health services.

METHOD

- ❖ Integrated literature review (Ganong model, 1987)
- ❖ Comprehensive search of CINAHL, PubMed, and MEDLINE: “telemedicine” OR “telehealth” OR “telemonitoring” OR “teledermatology” OR “teleconsultation” AND “chronic wounds” OR “ulcers” OR “wound care” OR “wound management”

Inclusion Criteria: 9 out of 88 studies met the criteria

- Adults age 50 years and above
- Home health setting
- Telemedicine intervention
- Chronic wounds

Exclusion Criteria:

- Children, adolescents, adults 49 years and younger
- No telemedicine intervention
- Not research based
- Nursing homes, assisted living setting
- Receiving treatments in clinics or hospitals
- Commentaries, expert opinions or editorials

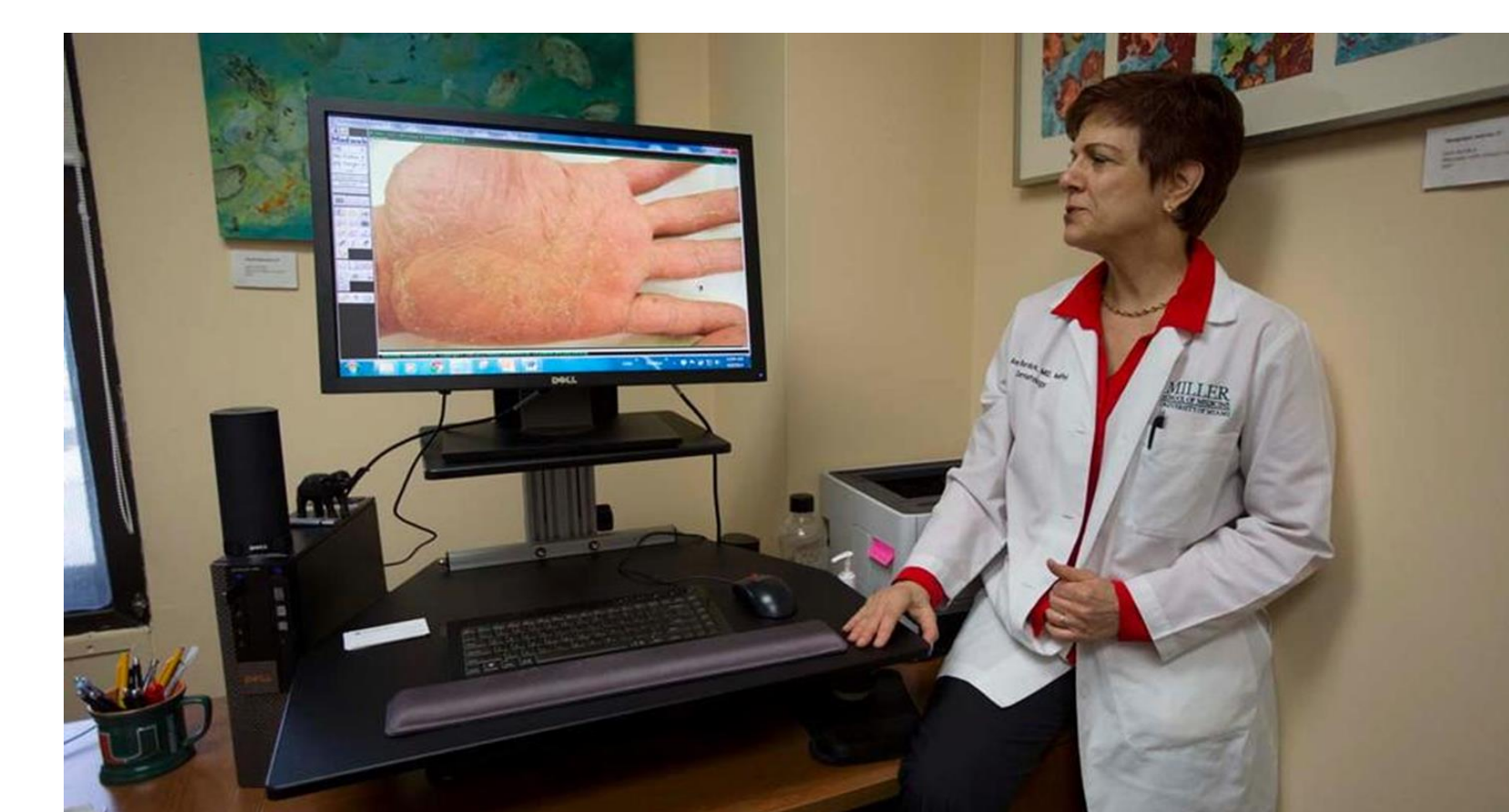


SYNTHESIS OF FINDINGS

- Telemedicine technology creates the possibility of immediate access to wound image and direct interaction between the nurses and physicians for improved quality of life of patients.
- Telemedicine benefits include: improved coordination of care, improved clinical outcomes, effective use of resources, increased patient satisfaction, and improved quality of care.

SYNTHESIS OF LITERATURE

Author	Findings	Limitations
Baer, et al. (2004)	85% overall agreement on ulcer type; 75% and 71% agreement on stage and status of the ulcers between the home care nurse and the remote wound assessment.	Different treatment agreements between the home care and remote nurse.
Binder, et al. (2007)	<ul style="list-style-type: none"> • 32 of 45 ulcers treated at home decreased in size within 3 months; 14 healed completely. • Wound experts provided assessment of wound status and recommendations within 24 hours. • 9 out of 16 patients were very satisfied. • All 7 home care nurses were satisfied and believed that the quality of their treatment was improved. 	The poor quality of some of the digital images in the study would have affected the expert wound recommendations.
Braun, et al. (2005)	<ul style="list-style-type: none"> • Overall physician agreement of the wound status between remote and face-to-face evaluations was good. • In 50 wound cases (82%), 2 out of 3 of the physicians were satisfied with remote consultation. 	<ul style="list-style-type: none"> • The image quality and resolution of mobile telephone camera. • Small sample size.
Hofmann-Wellenhof et al. (2006)	<ul style="list-style-type: none"> • Significant decreases in the number of visits to wound care center. • 11 of the 14 patients were satisfied with telemedicine in wound care. • 9 out of 14 thought teleconsultation was able to replace face-to-face consultation in wound centers with wound experts and physicians. • All home care nurses acknowledged that their time was saved and the quality of their treatment was improved by telemedicine. 	None
Hungjin et al. (2003)	<ul style="list-style-type: none"> • Percentage agreement between the telemedicine and in-person assessment of all visit data was similar. • 95% confidence interval in the ability of telemedicine system to differentiate accurately between the presence and absence of a true wound condition. 	<ul style="list-style-type: none"> • Variation in wound types, specialty, physicians judgment, and years of experience of physicians. • Different sample type.
Litzinger et al. (2007)	<ul style="list-style-type: none"> • Increased communication with the physicians resulted in decreased healing times for wounds. • Overall savings of 421.2 hours of nursing visits. • 74% strongly agree that telemedicine wound care consultation was beneficial for the patient. • 83% strongly agreed that using video teleconferencing improved the productivity and efficiency of the home-health care professionals. 	<ul style="list-style-type: none"> • Study was a case design, not experimental. • Wound characteristics were diverse making the use of control group difficult. • Small sample size.
Visco et al. (2001)	<ul style="list-style-type: none"> • 96% decrease in wound volume (length X width X depth) within 7 months. • Timely adjustments of treatment plan. • Self-report of physicians and nurses of improved communications, collaboration, and documentation related to the wound. • Decrease in wound care visits to wound care visits to the wound center. 	<ul style="list-style-type: none"> • Small sample size. • Costs of treatment were not collected.
Wilbright et al. (2004)	<ul style="list-style-type: none"> • No difference was found in the wound healing time between telemedicine group and on-site group. • No difference between percent of ulcers healed in telemedicine group and the on-site group. 	Small sample.
Wilkins et al. (2007)	<ul style="list-style-type: none"> • 28 out of 37 (76%) wounds decreased in wound size. • 58% average decrease in wound size over 40.2 days. • Response time for consultation was 1 to 7 days (mean= 2.61 days) with change in diagnosis and treatment plan. • 95.5% found telemedicine consultations more convenient than traveling to tertiary care wound center. • 98.2% of patient satisfaction and high degree of provider satisfaction. 	Case series with no control group.



IMPLICATIONS/CONCLUSION

IMPLICATIONS TO PRACTICE

Clinicians should:

- Incorporate multidisciplinary approach as a mainstream to monitoring, treating chronic wound patients.
- Provide education for patients with chronic wounds in order to promote self care and prevent recurrence.
- Implement special training for health professionals in recording and transmitting wound images.

IMPLICATIONS TO EDUCATION

Nursing educators should:

- Facilitate the utilization of up-to-date technology in home wound care management.
- Provide education for health care professionals and patients on telemedicine technology in relation to wound care.

IMPLICATIONS TO RESEARCH

Future research should focus on:

- Effectiveness of real-time interactive telemedicine with randomized controlled trial to establish better understanding of the benefit of telemedicine in chronic wound treatments.

IMPLICATIONS TO HEALTHCARE POLICY

Health policies should be developed:

- To evaluate cost effectiveness of telemedicine programs under the Medicare prospective payment system and managed care plans.

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