

**Prepared by Michael Edwards, PhD, Consultant for Northeast Telehealth Resource Center, Oct. 2014**

- Armer JM, Harris K, Dusold JM. Application of the Concerns-Based Adoption Model to the installation of telemedicine in a rural Missouri nursing home. *J. Nurses Staff Dev.* 20(1):42-49, 2004.
- Biglan KM, Voss TS, Deuel LM, Miller D, Eason S, Fagnano M, George BP, Appler A, Polanowicz J, Viti L, Smith S, Joseph A, Dorsey ER. Telemedicine for the care of nursing home residents with Parkinson's disease. *Movement Disorders* 24(7):1073-1076, 2009.
- Catic AG, Mattison ML, Bakaev I, Morgan M, Monti SM, Lipsitz L. ECHO-AGE: An Innovative Model of Geriatric Care for Long-Term Care Residents With Dementia and Behavioral Issues. *J. Amer. Med. Dir. Assoc.* [online before print], 2014
- Chan WM, Woo J, Hui E, Hjelm NM. The role of telenursing in the provision of geriatric outreach services to residential homes in Hong Kong. *J. Telemed. Telecare* 7(1):38-46, 2001.
- Chang JY, Chen LK, Chang CC. Perspectives and expectations for telemedicine opportunities from families of nursing home residents and caregivers in nursing homes. *Int. J. Med. Inform.* 78(7):494-502, 2009
- Daly JM, Jogerst G, Park JY, Kang YD, Bae T. A nursing home telehealth system: keeping residents connected. *J. Gerontol. Nurs.* 31(8):46-51, 2005.
- Fenton J, Raskin A, Gruber-Baldini AL, Menon AS, Zimmerman S, Kaup B, Loreck D, Ruskin PE, Magaziner J. Some predictors of psychiatric consultation in nursing home residents. *Amer. J. Geriatr. Psychiatry.* 12(3):297-304, 2004.
- Fontecha J, Hervás R, Bravo J, Navarro FJ. A mobile and ubiquitous approach for supporting frailty assessment in elderly people. *J. Med. Internet Res.* 15(9): e197, 2013 [htm](#)
- Grabowski DC, O'Malley AJ. Use of telemedicine can reduce hospitalizations of nursing home residents and generate savings for medicare. *Health Affairs* 33(2):244-250, 2014.
- Grob P, Weintraub D, Sayles D, Raskin A, Ruskin PE. Psychiatric assessment of a nursing home population using audiovisual telecommunication. *J. Geriatr. Psychiat. Neurol.* 14: 63-65, 2001.
- Guilfoyle C, Wootton R, Hassall S, Offer J, Warren M, Smith D, Eddie M. User satisfaction with allied health services delivered to residential facilities via videoconferencing. *J. Telemed. Telecare.* 9 (Suppl 1):S52-54, 2003.
- Guilfoyle C, Wootton R, Hassall S, Offer J, Warren M, Smith D, Eddie M. Videoconferencing in facilities providing care for elderly people. *J. Telemed. Telecare* 8 (Suppl 3):S3:22-24, 2002 .
- Guilfoyle C, Wootton R, Hassall S, Offer J, Warren M, Smith D. Preliminary experience of allied health assessments delivered face to face and by videoconference to a residential facility for elderly people. *J Telemed Telecare.* 9(4):230-233, 2003.
- Hassall S, Wootton R, Guilfoyle C. The cost of allied health assessments delivered by videoconference to a residential facility for elderly people. *J Telemed Telecare* 9(4):234-237, 2003.
- Hensel BK, Oliver DP, Demiris G, Willis L. A telehealth case study of videophone use between family members. *AMIA Annu Symp Proc.* 948, 2006. [htm](#)
- Hui E, Woo J, Hjelm M, Zhang YT, Tsui HT. Telemedicine: a pilot study in nursing home residents. *Gerontology* 47(2):82-87, 2001
- Janardhanan L, Leow YH, Chio MT, Kim Y, Soh CB. Experience with the implementation of a web-based teledermatology system in a nursing home in Singapore. *J. Telemed. Telecare.* 14(8):404-409, 2008
- Johnston D, Jones BN 3rd. Telepsychiatry consultations to a rural nursing facility: a 2-year experience. *J Geriatr Psychiatry Neurol.* 14(2):72-75, 2001.
- Jones BN 3rd, Johnston D, Reboussin B, McCall WV. Reliability of telepsychiatry assessments: subjective versus observational ratings. *J. Geriatr. Psychiatry Neurol.* 14(2):66-71, 2001
- Jones BN 3rd, Ruskin PE. Telemedicine and geriatric psychiatry: directions for future research and policy. *J Geriatr Psychiatry Neurol.* 14(2):59-62, 2001.
- King C, Workman B. The use of videoconferencing to deliver clinical pain management services to the residents of nursing homes. *J. Telemed. Telecare* 10 (Suppl. 1):100-101, 2004
- Laflamme MR, Wilcox DC, Sullivan J, Schadow G, Lindbergh D, Warvel J, Buchanan H, Ising T, Abernathy G, Perkins SM, Daggy J, Frankel RM, Dexter P, McDonald CJ, Weiner M. A pilot study of usefulness of clinician-patient videoconferencing for making routine medical decisions in the nursing home. *J. Amer. Geriatr. Soc.* 53(8):1380-1385, 2005.

- Lyketsos CG, Roques C, Hovanec L, Jones BN 3rd. Telemedicine use and the reduction of psychiatric admissions from a long-term care facility. *J. Geriatr. Psychiatry Neurol.* 14(2):76-79, 2001.
- Mickus MA, Luz CC. Televisits: sustaining long distance family relationships among institutionalized elders through technology. *Aging Ment. Health* 6:387-396, 2002
- Oliver DP, Demiris G, Hensel B. A promising technology to reduce social isolation of nursing home residents. *J. Nurs. Care Qual.* 21(4):302-305, 2006.
- Onor ML, Trevisiol M, Urciuoli O, et al. Effectiveness of telecare in elderly populations-a comparison of three settings. *Telemed. eHealth* 14(2):164-169, 2008
- Pan E, Cusack C, Hook J, Vincent A, Kaelber DC, Bates DW, Middleton B. The value of provider-to-provider telehealth. *Telemed. eHealth* 14(5):446-453, 2008.
- Rabinowitz T, Murphy KM, Amour JL, Ricci MA, Caputo MP, Newhouse PA. Benefits of a telepsychiatry consultation service for rural nursing home residents. *Telemed. eHealth* 16(1):34-40, 2010 [pdf](#)
- Sävenstedt S, Brulin C, Sandman PO. Family members' narrated experiences of communicating via video-phone with patients with dementia staying at a nursing home. *J. Telemed. Telecare* 9(4):216-220, 2003.
- Sävenstedt S, Bucht G, Norberg L, Sandman PO. Nurse-doctor interaction in teleconsultations between a hospital and a geriatric nursing home. *J. Telemed. Telecare* 8(1):11-18, 2002.
- Sävenstedt S, Zingmark K, Sandman PO. Being present in a distant room: aspects of teleconsultations with older people in a nursing home. *Qual. Health Res.* 14(8):1046-1057, 2004.
- Stern A, Mitsakakis N, Paulden M, Alibhai S, Wong J, Tomlinson G, Brooker AS, Krahn M, Zwarenstein M. Pressure ulcer multidisciplinary teams via telemedicine: a pragmatic cluster randomized stepped wedge trial in long term care. *BMC Health Serv. Res.* 14:83, 2014 [htm](#)
- Tsai H-H, Tsai Y-F. Changes in depressive symptoms, social support, and loneliness over 1 year after a minimum 3-month videoconference program for older nursing home residents. *J. Med. Internet Res.* 13(4): e93, 2011 [htm](#)
- Vowden K, Vowden P. A pilot study on the potential of remote support to enhance wound care for nursing-home patients. *J. Wound Care* 22(9):481-488, 2013.
- Wakefield BJ, Buresh KA, Flanagan JR, Kienzie MG. Interactive video specialty consultations in long-term care. *J. Amer. Geriatr. Soc.* 52(5):789-793, 2004.
- Weiner M, Schadow G, McDonald CJ. Videoconferencing between nursing-home residents and off-site clinicians. *Amer. J. Nursing* 104(6):44-45, 2004
- Weiner M, Schadow G, Lindbergh D, Warvel J, Abernathy G, Dexter P, McDonald CJ. Secure Internet video conferencing for assessing acute medical problems in a nursing facility. *Proc. AMIA Symp.* 751-755, 2001.
- Weiner M, Schadow G, Lindbergh D, Warvel J, Abernathy G, Perkins SM, Fyffe J, Dexter PR, McDonald CJ. Clinicians' and patients' experiences and satisfaction with unscheduled, nighttime, Internet-based video conferencing for assessing acute medical problems in a nursing facility. *AMIA Annu Symp Proc.* 709-713, 2003. [htm](#)
- Weiner M, Schadow G, Lindbergh D, Warvel J, Abernathy G, Perkins SM, Daggy J, Dexter PR, McDonald CJ. Developing and using a televideo application in a nursing facility. Indiana University, 2003 [pdf](#)
- Yeung A, Johnson DP, Trinh NH, Weng WC, Kvedar J, Fava M. Feasibility and effectiveness of telepsychiatry services for chinese immigrants in a nursing home. *Telemed. eHealth* 15(4):336-341, 2009
- Zelickson BD, Homan L. Teledermatology in the nursing home. *Arch. Dermatol.* 133(2):171-174, 1997.
- Zelickson BD. Teledermatology in the nursing home. *Curr. Probl. Dermatol.* 32:167-171, 2003.

# Abstracts



1.

[Health Aff \(Millwood\)](#). 2014 Feb;33(2):244-50. doi: 10.1377/hlthaff.2013.0922.

[Use of telemedicine can reduce hospitalizations of nursing home residents and generate savings for medicare.](#)

[Grabowski DC](#), [O'Malley AJ](#).

## Abstract

Hospitalizations of nursing home residents are frequent and result in complications, morbidity, and Medicare expenditures of more than a billion dollars annually. The lack of a physician presence at many nursing homes during off hours might contribute to inappropriate hospitalizations. Findings from our controlled study of eleven nursing homes provide the first indications that switching from on-call to telemedicine physician coverage during off hours could reduce hospitalizations and therefore generate cost savings to Medicare in excess of the facility's investment in the service. But those savings were evident only at the study nursing homes that used the telemedicine service to a greater extent, compared to the other study facilities. Telemedicine service providers and nursing home leaders might need to take additional steps to encourage buy-in to the use of telemedicine at facilities with such services. At the same time, closer alignment of the stakeholders that bear the costs of telemedicine and those that might realize savings because of its use could offer further incentives for the adoption of telemedicine.



[BMC Health Serv Res](#). 2014 Feb 24;14:83. doi: 10.1186/1472-6963-14-83.

[Pressure ulcer multidisciplinary teams via telemedicine: a pragmatic cluster randomized stepped wedge trial in long term care.](#)

[Stern A](#)<sup>1</sup>, [Mitsakakis N](#), [Paulden M](#), [Alibhai S](#), [Wong J](#), [Tomlinson G](#), [Brooker AS](#), [Krahn M](#), [Zwarenstein M](#).

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## Abstract

### BACKGROUND:

The study was conducted to determine the clinical and cost effectiveness of enhanced multi-disciplinary teams (EMDTs) vs. 'usual care' for the treatment of pressure ulcers in long term care (LTC) facilities in Ontario, Canada

### METHODS:

We conducted a multi-method study: a pragmatic cluster randomized stepped-wedge trial, ethnographic observation and in-depth interviews, and an economic evaluation. Long term care facilities (clusters) were randomly allocated to start dates of the intervention. An advance practice nurse (APN) with expertise in skin and wound care visited intervention facilities to educate staff on pressure ulcer prevention and treatment, supported by an off-site hospital based expert multi-disciplinary wound care team via email, telephone, or video link as needed. The primary outcome was rate of reduction in pressure ulcer surface area (cm<sup>2</sup>/day) measured on before and after standard photographs by an assessor blinded to facility allocation. Secondary outcomes were time to healing, probability of healing, pressure ulcer incidence, pressure ulcer prevalence, wound pain, hospitalization, emergency department visits, utility, and cost.

### RESULTS:

12 of 15 eligible LTC facilities were randomly selected to participate and randomized to start date of the intervention following the stepped wedge design. 137 residents with a total of 259 pressure ulcers (stage 2 or greater) were recruited over the 17 month study period. No statistically significant differences were found between control and intervention periods on any of the primary or secondary outcomes. The economic evaluation demonstrated a mean reduction in direct care costs of \$650 per resident compared to 'usual care'. The qualitative study suggested that onsite support by APN wound specialists was welcomed, and is responsible for reduced costs through discontinuation of expensive non evidence based treatments. Insufficient allocation of nursing home staff time to wound care may explain the lack of impact on healing.

### CONCLUSION:

Enhanced multi-disciplinary wound care teams were cost effective, with most benefit through cost reduction initiated by APNs, but did not improve the treatment of pressure ulcers in nursing homes. Policy makers

should consider the potential yield of strengthening evidence based primary care within LTC facilities, through outreach by APNs.

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[Related citations](#)



[J Am Med Dir Assoc.](#) 2014 Oct 8. pii: S1525-8610(14)00547-7. doi: 10.1016/j.jamda.2014.08.014. [Epub ahead of print]

**[ECHO-AGE: An Innovative Model of Geriatric Care for Long-Term Care Residents With Dementia and Behavioral Issues.](#)**

[Catic AG](#)<sup>1</sup>, [Mattison ML](#)<sup>2</sup>, [Bakaev I](#)<sup>3</sup>, [Morgan M](#)<sup>4</sup>, [Monti SM](#)<sup>5</sup>, [Lipsitz L](#)<sup>6</sup>.

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**Abstract**

**OBJECTIVES:**

To design, implement, and assess the pilot phase of an innovative, remote case-based video-consultation program called ECHO-AGE that links experts in the management of behavior disorders in patients with dementia to nursing home care providers.

**DESIGN:**

Pilot study involving surveying of participating long-term care sites regarding utility of recommendations and resident outcomes.

**SETTING:**

Eleven long-term care sites in Massachusetts and Maine.

**PARTICIPANTS:**

An interprofessional specialty team at a tertiary care center and staff from 11 long-term care sites.

**INTERVENTION:**

Long-term care sites presented challenging cases regarding residents with dementia and/or delirium related behavioral issues to specialists via video-conferencing.

**METHODS:**

Baseline resident characteristics and follow-up data regarding compliance with ECHO-AGE recommendations, resident improvement, hospitalization, and mortality were collected from the long-term care sites.

**RESULTS:**

Forty-seven residents, with a mean age of 82 years, were presented during the ECHO-AGE pilot period. Eighty-three percent of residents had a history of dementia and 44% were taking antipsychotic medications. The most common reasons for presentation were agitation, intrusiveness, and paranoia. Behavioral plans were recommended in 72.3% of patients. Suggestions for medication adjustments were also frequent. ECHO-AGE recommendations were completely or partially followed in 88.6% of residents. When recommendations were followed, sites were much more likely to report clinical improvement (74% vs 20%,  $P < .03$ ). Hospitalization was also less common among residents for whom recommendations were followed.

**CONCLUSIONS:**

The results suggest that a case-based video-consultation program can be successful in improving the care of elders with dementia and/or delirium related behavioral issues by linking specialists with long-term care providers.

**KEYWORDS:**

Long-term care; dementia; telemedicine

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[Related citations](#)



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[J Wound Care](#). 2013 Sep;22(9):481-8.

[A pilot study on the potential of remote support to enhance wound care for nursing-home patients.](#)

[Vowden K<sup>1</sup>](#), [Vowden P](#).

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**Abstract**

**OBJECTIVE:**

To evaluate the effectiveness of a telehealth system, using digital pen-and-paper technology and a modified smartphone, to remotely monitor and support the effectiveness of wound management in nursing home residents.

**METHOD:**

A randomised controlled pilot study was conducted in selected nursing homes in Bradford, which were randomised to either the control or evaluation group. All patients with a wound of any aetiology or severity, resident in the selected nursing homes were considered eligible to participate in the study. Residents in the control homes who had, or developed, a wound during the study period, continued to receive unsupported care directed by the nursing home staff (defined as 'standard care'), while those in the evaluation homes received standard care supported by input from the remote experts.

**RESULTS:**

Thirty-nine patients with a wound were identified in the 16 participating Bradford nursing homes. Analysis of individual patient management pathways suggested that the system provided improved patient outcomes and that it may offer cost savings by improving dressing product selection, decreasing inappropriate onward referral and speeding healing. Despite initial anxiety related to the technology most nursing-home staff found the system of value and many were keen to see the trial continue to form part of routine patient management.

**CONCLUSION:**

The current study supports the potential value of telemedicine in wound care and indicates the value that such a system may have to nursing-home staff and patients.

**DECLARATION OF INTEREST:**

This study was funded by a Regional Innovation Fund grant from the Yorkshire and Humberside Strategic Health Authority. The authors have no conflict of interest to declare with respect to the article or its contents.



[J Med Internet Res](#). 2013 Sep 4;15(9):e197. doi: 10.2196/jmir.2529.

[A mobile and ubiquitous approach for supporting frailty assessment in elderly people.](#)

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**Abstract**

**BACKGROUND:**

Frailty is a health condition related to aging and dependence. A reduction in or delay of the frailty state can improve the quality of life of the elderly. However, providing frailty assessments can be difficult because



many factors must be taken into account. Usually, measurement of these factors is performed in a noncentralized manner. Additionally, the lack of quantitative methods for analysis makes it impossible for the diagnosis to be as complete or as objective as it should be.

#### **OBJECTIVE:**

To develop a centralized mobile system to conduct elderly frailty assessments in an accurate and objective way using mobile phone capabilities.

#### **METHODS:**

The diagnosis of frailty includes two fundamental aspects: the analysis of gait activity as the main predictor of functional disorders, and the study of a set of frailty risk factors from patient records. Thus, our system has several stages including gathering information about gait using accelerometer-enabled mobile devices, collecting values of frailty factors, performing analysis through similarity comparisons with previous data, and displaying the results for frailty on the mobile devices in a formalized way.

#### **RESULTS:**

We developed a general mechanism to assess the frailty state of a group of elders by using mobile devices as supporting tools. In collaboration with geriatricians, two studies were carried out on a group of 20 elderly patients (10 men and 10 women), previously selected from a nursing home. Frailty risk factors for each patient were collected at three different times over the period of a year. In the first study, data from the group of patients were used to determine the frailty state of a new incoming patient. The results were valuable for determining the degree of frailty of a specific patient in relation to other patients in an elderly population. The most representative similarity degrees were between 73.4% and 71.6% considering 61 frailty factors from 64 patient instances. Additionally, from the provided results, a physician could group the elders by their degree of similarity influencing their care and treatment. In the second study, the same mobile tool was used to analyze the frailty syndrome from a nutritional viewpoint on 10 patients of the initial group during 1 year. Data were acquired at three different times, corresponding to three assessments: initial, spontaneous, and after protein supplementation. The subsequent analysis revealed a general deterioration of the subset of elders from the initial assessment to the spontaneous assessment and also an improvement of biochemical and anthropometric parameters in men and women from the spontaneous assessment to the assessment after the administration of a protein supplement.

#### **CONCLUSIONS:**

The problem of creating a general frailty index is still unsolved. However, in recent years, there has been an increase in the amount of research on this subject. Our studies took advantage of mobile device features (accelerometer sensors, wireless communication capabilities, and processing capacities among others) to develop a new method that achieves an objective assessment of frailty based on similarity results for an elderly population, providing an essential support for physicians.

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[Related citations](#)



[J Telemed Telecare](#). 2013 Feb;19(2):95-100. doi: 10.1258/jtt.2012.120605. Epub 2013 Feb 22.

[An evaluation of preventive sensor technology for dementia care.](#)

[Nijhof N<sup>1</sup>](#), [van Gemert-Pijnen LJ](#), [Woolrych R](#), [Sixsmith A](#).

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#### **Abstract**

We evaluated a commercially-available monitoring system for older people with dementia living at home. The system was designed to detect problems before they require crisis intervention. Fourteen clients from two healthcare organisations in the Netherlands used the system over a 9-month period. The formal and informal caregivers were interviewed, project group meetings were observed, nurse diaries were analysed and a cost analysis performed. Clients and informal caregivers reported enhanced feelings of safety and security as a result of having the system installed in the home. The system appeared to reduce the burden of care on the informal caregiver and had the potential to allow people to live at home for longer. There were financial savings for clients staying at home with the technology compared with the costs of staying in a nursing home: for 10 clients living at home for 2 months, the savings were 23,665 euro. The study showed that the

monitoring system represents a potentially useful early warning system to detect a situation before it requires emergency intervention.

[Related citations](#)



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[J Telemed Telecare](#). 2012 Sep;18(6):357-61. doi: 10.1258/jtt.2012.120305. Epub 2012 Aug 21.

[Remote monitoring of nursing home residents using a humanoid robot.](#)

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#### **Abstract**

We studied the feasibility of using a humanoid robot as an assistant in the monitoring of nursing home residents. The robot can receive alarms via its wireless Internet connection and navigate independently to the room where the alarm originated. Once it has entered the room, the robot can transmit near real time images to the staff and also open a voice connection between the resident and the remote caregivers. This way the remote caregiver is able to check the situation in the room, and take appropriate actions. We tested the prototype robot in three private nursing homes in the Finnish county of South Ostrobothnia. During the testing, 2-4 alarms were produced by each participant and there were 29 alarms in total. The robot was able to navigate correctly to the room from which the alarm was sent and open the speech connection, as well as transmit images via the wireless Internet connection. The experiments provided evidence of the feasibility of using autonomous robots as assistants to nursing home staff in remote monitoring. The response from the nursing home residents was uniformly positive.

[Related citations](#)



[Mov Disord](#). 2010 Aug 15;25(11):1652-9. doi: 10.1002/mds.23145.

[Increasing access to specialty care: a pilot, randomized controlled trial of telemedicine for Parkinson's disease.](#)

[Dorsey ER<sup>1</sup>](#), [Deuel LM](#), [Voss TS](#), [Finnigan K](#), [George BP](#), [Eason S](#), [Miller D](#), [Reminick JI](#), [Appler A](#), [Polanowicz J](#), [Viti L](#), [Smith S](#), [Joseph A](#), [Biglan KM](#).

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#### **Abstract**

We conducted a randomized, controlled pilot trial to evaluate the feasibility of providing subspecialty care via telemedicine for patients with Parkinson's disease residing in a remote community located approximately 130 miles from an academic movement disorders clinic. Study participants were randomized to receive telemedicine care with a movement disorder specialist at the University of Rochester or to receive their usual care. Participants in the telemedicine group received three telemedicine visits over six months. Feasibility, as measured by the completion of telemedicine visits, was the primary outcome measure. Secondary measures were quality of life, patient satisfaction, and clinical outcomes. Ten participants residing in the community were randomized to receive telemedicine care (n = 6) or their usual care (n = 4). Four nursing home patients were assigned to telemedicine. Those receiving telemedicine completed 97% (29 of 30) of their telemedicine visits as scheduled. At the study's conclusion, 13 of 14 study participants opted to receive specialty care via telemedicine. Compared with usual care, those randomized to telemedicine had significant improvements in quality of life (3.4 point improvement vs. 10.3 point worsening on the Parkinson's Disease Questionnaire 39; P = 0.04) and motor performance (0.3 point improvement vs. 6.5 point worsening on the Unified Parkinson's Disease Rating Scale, motor subscale; P = 0.03). Relative to baseline, nursing home patients experienced trends toward improvement in quality of life and patient satisfaction. Providing subspecialty care via telemedicine for individuals with Parkinson's disease living remotely is feasible.

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20533449

[PubMed - indexed for MEDLINE]

[Related citations](#)



[Telemed J E Health](#). 2009 May;15(4):336-41. doi: 10.1089/tmj.2008.0138.

[Feasibility and effectiveness of telepsychiatry services for chinese immigrants in a nursing home.](#)

[Yeung A](#)<sup>1</sup>, [Johnson DP](#), [Trinh NH](#), [Weng WC](#), [Kvedar J](#), [Fava M](#).

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**Abstract**

This study investigates the feasibility and effectiveness of providing telepsychiatry services to Chinese immigrants in a nursing home. The psychiatrist interviewed patients face-to-face for the initial consultation, and encouraged them to participate in this study to receive telepsychiatry-based follow-up visits. The feasibility and outcomes of telepsychiatry visits and satisfaction of the subjects, their families, and the nursing home staff were assessed. Nine monolingual Chinese immigrants, 8 women and 1 man, ranging from 54 to 88 years of age, were enrolled. The main reasons for psychiatric consultation were mood and behavioral problems. Eight of the 9 (88.9%) subjects participated in videoconference follow-up visits, and 1 subject (11.1%) declined. Among the 8 subjects, 6 were referred for psychiatric intervention, 1 for differential diagnosis, and 1 for suicide assessment. At the end of the study, all 6 subjects referred for intervention had greatly improved; the subjects, their families, and the nursing staff were highly satisfied with the telepsychiatry service. It is feasible to provide psychiatry consultations to ethnic immigrants in a nursing home despite the fact that many of them are unfamiliar with the technology and suffer from dementia and psychotic symptoms. Telepsychiatry provides an efficient way for ethnic elders in nursing homes to connect with mental health professionals with the appropriate language and cultural background, regardless of location. Telepsychiatry may decrease the disparities in treatment of mental illnesses among ethnic immigrants in nursing homes.

*Mary Ann Liebert,*

[Mov Disord](#). 2009 May 15;24(7):1073-6. doi: 10.1002/mds.22498.

[Telemedicine for the care of nursing home residents with Parkinson's disease.](#)

[Biglan KM](#)<sup>1</sup>, [Voss TS](#), [Deuel LM](#), [Miller D](#), [Eason S](#), [Fagnano M](#), [George BP](#), [Appler A](#), [Polanowicz J](#), [Viti L](#), [Smith S](#), [Joseph A](#), [Dorsey ER](#).

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**Abstract**

Individuals with Parkinson's disease (PD) often require nursing home care, where access to neurologists is limited. Telemedicine uses information and communication technologies to provide health care to individuals who are geographically separate from providers. We present a video report of a nursing home resident with PD who received telemedicine visits over 8 months from a movement disorders specialist. The visits resulted in improvements in motor and cognitive symptoms and suggest that telemedicine may be useful for delivering care to this population.

(c) 2009 Movement Disorder Society.

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19353687

[PubMed - indexed for MEDLINE]

[Related citations](#)



[Int J Med Inform](#). 2009 Jul;78(7):494-502. doi: 10.1016/j.ijmedinf.2009.02.009. Epub 2009 Mar 31.

[Perspectives and expectations for telemedicine opportunities from families of nursing home residents and caregivers in nursing homes.](#)

[Chang JY](#)<sup>1</sup>, [Chen LK](#), [Chang CC](#).



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### **Abstract**

#### **BACKGROUND:**

This study assessed current perspectives and expectations for telemedicine by nursing home caregivers and families of nursing home patients in Taipei, Taiwan.

#### **METHODS:**

A total of 116 interviews were conducted with family members (n=37) and caregivers (n=79) using an original, four-part questionnaire devised to assess the expectations and concerns related to prospective telemedicine opportunities, including consumer attitude, knowledge of and interest in medicine, concerns and worries about telemedicine, and anticipated benefits of telemedicine.

#### **RESULTS:**

Statistical significance between the two groups was observed in sex, age, and educational level (all  $p < 0.001$ ). Most respondents had heard about telemedicine before participation and showed some interest in telemedicine implementation. More than 70.0% of subjects in both groups had perceptions of telemonitoring of patients, notifications of health abnormalities, teleconferencing between physicians and family members, obtaining test/exam results and face-to-face consultation through telenetworks. Both groups hoped for information and education through telemedicine. More caregivers were concerned about increased costs ( $p = 0.020$ ), poor hardware quality ( $p < 0.001$ ), poor security, confidentiality, and reliability ( $p = 0.036$ ), inconvenience to patients ( $p = 0.006$ ), associated moral and ethical issues ( $p = 0.006$ ), and uncertainty about responsibility ( $p = 0.022$ ). The two groups did not differ in expectations concerning benefits of telemedicine. More than 60% of family members or caregivers expected improved efficiency and quality of hospital and nursing home health care, greater rapport between nursing homes and either staff or patients, reduced overall medical costs of caregiving, and reduced staff/caregiver working hours. The acceptable cost was anything up to \$15.30 USD per month.

#### **CONCLUSIONS:**

Nursing home caregivers and families of nursing home patients are highly interested in telemedicine; however, they are only willing to pay a slightly higher cost of nursing care for this service. The challenge for the future in this industry is to balance peoples' demands and telemedicine's associated costs. Results of this study suggest that caregivers and families of nursing home residents favour telemedicine implementation to provide enhanced care coordination in nursing homes when economic circumstances are favourable.



[J Telemed Telecare](#). 2008;14(8):404-9. doi: 10.1258/jtt.2008.080105.

### **Experience with the implementation of a web-based teledermatology system in a nursing home in Singapore.**

[Janardhanan L](#)<sup>1</sup>, [Leow YH](#), [Chio MT](#), [Kim Y](#), [Soh CB](#).

### **Author information**

- <sup>1</sup>Biomedical Engineering Research Centre, Nanyang Technological University, Singapore.

### **Abstract**

We introduced a web-based teledermatology system, the distributed personal health information management system (DPHIMS), into a nursing home in Singapore. The introduction was conducted in two phases. Five staff nurses in Phase 1 and nine nurse aides in Phase 2 performed the data entry and uploaded digital images of the resident's skin condition. By the end of Phase 2, there were 50 residents registered with DPHIMS. The average age of the participants was 82 years and 84% were women. There were 31 first-time referral requests registered in the system during Phase 2. The average time taken to complete a referral request was 86 minutes. The average time taken by the dermatologist to prepare and submit a diagnosis/treatment report was 11 minutes. An online survey form was given to the nurses and the dermatologists to gauge their level of satisfaction and their experience of using DPHIMS. All the nurses said they would readily recommend DPHIMS to other nurses. Overall, the dermatologists felt that DPHIMS was helpful in obtaining specialist care for the residents. However, some skin conditions required a face-to-face consultation. Thus a mixture of face-to-face consultations and consultations via teledermatology may be necessary to provide complete diagnosis and treatment to patients. Our experience suggests that understanding and addressing the organizational concerns is as important as solving the technical problems.



[Telemed J E Health](#). 2010 Jan-Feb;16(1):34-40.

**Benefits of a telepsychiatry consultation service for rural nursing home residents.**

[Rabinowitz T](#), [Murphy KM](#), [Amour JL](#), [Ricci MA](#), [Caputo MP](#), [Newhouse PA](#).

**Source**

Department of Psychiatry, University of Vermont College of Medicine and Fletcher Allen Health Care, Burlington, Vermont 05401, USA. Terry.rabinowitz@vtmednet.org

**Abstract**

Psychiatric care for nursing home residents is difficult to obtain, especially in rural areas, and this deficiency may lead to significant morbidity or death. Providing this service by videoconference may be a helpful, cost-effective, and acceptable alternative to face-to-face treatment. We analyzed data for 278 telepsychiatry encounters for 106 nursing home residents to estimate potential cost and time savings associated with this modality compared to in-person care. A total of 843.5 hours (105.4 8-hour work days) of travel time was saved compared to in-person consultation for each of the 278 encounters if they had occurred separately. If four resident visits were possible for each trip, the time saved would decrease to 26.4 workdays. Travel distance saved was 43,000 miles; 10,750 miles if four visits per trip occurred. More than \$3,700 would be spent on gasoline for 278 separate encounters; decreased to \$925 for four visits per roundtrip. Personnel cost savings estimates ranged from \$33,739 to \$67,477. Physician costs associated with additional travel time ranged from \$84,347 to \$253,040 for 278 encounters, or from \$21,087 to \$63,260 for four encounters per visit. The telepsychiatry approach was enthusiastically accepted by virtually all residents, family members, and nursing home personnel, and led to successful patient management. Providing psychiatric care to rural nursing home residents by videoconference is cost effective and appears to be a medically acceptable alternative to face-to-face care. In addition, this approach will allow many nursing homes to provide essential care that would not otherwise be available.

[Mov Disord](#). 2009 May 15;24(7):1073-6.

**Telemedicine for the care of nursing home residents with Parkinson's disease.**

[Biglan KM](#), [Voss TS](#), [Deuel LM](#), [Miller D](#), [Eason S](#), [Fagnano M](#), [George BP](#), [Appler A](#), [Polanowicz J](#), [Viti L](#), [Smith S](#), [Joseph A](#), [Dorsey ER](#).

**Source**

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**Abstract**

Individuals with Parkinson's disease (PD) often require nursing home care, where access to neurologists is limited. Telemedicine uses information and communication technologies to provide health care to individuals who are geographically separate from providers. We present a video report of a nursing home resident with PD who received telemedicine visits over 8 months from a movement disorders specialist. The visits resulted in improvements in motor and cognitive symptoms and suggest that telemedicine may be useful for delivering care to this population.

[J Gerontol Nurs](#). 2005 Aug;31(8):46-51.

[Related Articles](#), [Links](#)

**A nursing home telehealth system: keeping residents connected.**

[Daly JM](#), [Jogerst G](#), [Park JY](#), [Kang YD](#), [Bae T](#).

Department of Family Medicine, University of Iowa, Iowa City 52240, USA.

Live video and detailed images of nursing home residents can be transmitted in real time via the Internet. This telehealth system allows residents and long-term care health professionals to connect with experts not available on-site. Electronic stethoscope, otoscope, dermascope, dentalscope, and electrocardiogram are available for use via the Internet. Impediments to implementing telehealth systems in long-term care include costs and the lack of reimbursement for telehealth services. Reimbursement for telemedicine in nursing homes is limited by originating site, current procedural terminology codes, and facility location.

[J Nurs Care Qual](#). 2006 Oct-Dec;21(4):302-5.

[Related Articles](#), [Links](#)

**A promising technology to reduce social isolation of nursing home residents.**

[Oliver DP](#), [Demiris G](#), [Hensel B](#).

School of Social Work, University of Missouri, Columbia, MO 65211, USA. [oliverdr@missouri.edu](mailto:oliverdr@missouri.edu)



2: [Scand J Caring Sci](#). 2005 Dec;19(4):317-24.

[Related Articles](#), [Links](#)



**Establishing joint attention in remote talks with the elderly about health: a study of nurses' conversation with elderly persons in teleconsultations.**

[Sävenstedt S](#), [Zingmark K](#), [Hydén LC](#), [Brulin C](#).

Department of Nursing, Umeå University, Sweden. [stefan.savenstedt@ltu.se](mailto:stefan.savenstedt@ltu.se)

This study is a contribution to the sparsely studied field of nurses' teleconsultations with frail elderly people. The aim was to describe how talk and interaction are accomplished and by what means problems are handled that emerge from the fact that the communication is conducted via videoconferencing techniques. Recordings were made of 22 sessions of teleconsultation between nurses and elderly nursing home residents aided by enrolled nurses. The data were analysed with a qualitative method inspired by conversation and discourse analysis. The findings indicate that in order to create a joint attention the participants often had to verbally confirm and reconfirm that contact had been established. The triad of participants played a special part in maintaining the joint attention through compensating for the contextual aspect of the medium's limitations and the demented elderly person's communication problems. 'Talks about the communication' and passages of social talk took place when the nurse or the staff member wanted to re-establish and maintain joint attention. The joint attention seemed connected to a special sort of eye contact and gaze and to the type of camera projection that was used. One conclusion was that to create joint attention in nurses' teleconsultations with frail elderly people, the limitations in transferring communication cues and the limitations of what the camera can reveal of the general context could, to some extent, be made up for by verbal communication within the triad of participants. Another conclusion was that these limitations in the context of interaction in some situations also seemed to be an advantage for the demented elderly and contributed to increased attention.



3: [Telemed J E Health](#). 2008 Jun;14(5):446-53.

*Mary Ann Liebert,*

**The value of provider-to-provider telehealth.**

[Pan E](#), [Cusack C](#), [Hook J](#), [Vincent A](#), [Kaelber DC](#), [Bates DW](#), [Middleton B](#).

Division of General Medicine and Primary Care, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA. [epan@partners.org](mailto:epan@partners.org)

Telehealth has great potential to improve access to care, but its adoption in routine healthcare has been slow. The lack of clarity about the value of telehealth implementations has been one reason cited for this slow adoption. The Center for Information Technology Leadership has examined the value of telehealth encounters in which there is a provider both with the patient and at a distance from the patient. We considered three models of telehealth: store-and-forward, real-time video, and hybrid systems. Evidence from the literature was extrapolated using a computer simulation, which found that the hybrid model was the most cost effective. The simulation predicted savings of \$4.3 billion per year if hybrid telehealth systems were implemented in emergency rooms, prisons, nursing home facilities, and physician offices across the United States. We also conducted a sensitivity analysis to determine which factors most influence costs and savings. Payers, providers, and policymakers should work together to remove the barriers to the adoption of telehealth so that this cost savings can be realized in the U.S. healthcare system.

4: [Telemed J E Health](#). 2008 Mar;14(2):164-9.

[Related Articles](#), [Links](#)

*Mary Ann Liebert,*

**Effectiveness of telecare in elderly populations-a comparison of three settings.**

[Onor ML](#), [Trevisiol M](#), [Urciuoli O](#), [Misan S](#), [Bertossi F](#), [Tirone G](#), [Aguglia E](#), [Pascolo-Fabrizi E](#).

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The primary aim of this study was to assess the level of satisfaction with 3 types of formal care systems of the elderly: (1) a day care center, (2) a nursing home, and (3) telecare service in a group of oldest frail elderly, and to describe the characteristics of the population using the services. The study involved a population of 162 oldest elderly using 3 different types of formal care services. Study participants were asked to complete a questionnaire, investigating socio-demographic characteristics and degree of overall satisfaction with the service, as well as eliciting possible suggestions for improvement. In our study, nearly all subjects using the telecare service were satisfied or very satisfied (98.5%), as compared to 75.3% of those residing in a nursing home, and 76.5% of those attending the day care center. This result confirms the findings of previous studies on elderly subjects satisfaction with telecare services. Telecare, therefore, seems to be the service achieving the greatest levels of satisfaction, a service that can also be used by low-income subjects, by whom it is also perceived as a source of social support.

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5: [AMIA Annu Symp Proc](#). 2006:948.

[Related Articles](#), [Links](#)



**A telehealth case study of videophone use between family members.**

[Hensel BK](#), [Oliver DP](#), [Demiris G](#), [Willis L](#).

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This case study extends beyond the institution-centric provider-patient dyad to examine telehealth communication between a nursing home resident and a geographically distant family member. The participants communicated regularly for three months by videophone. They found technical performance and usability acceptable and were generally satisfied with this application of telehealth technology. They assumed a strong role in self-remedying technical and usability problems they experienced. Potential implications associated with such use of telehealth technology by residence-based patients and their significant others, and the self-directedness displayed by participants in this case study, are discussed.

[J Am Geriatr Soc](#). 2004 May;52(5):789-93.

[Related Articles](#), [Links](#)



**Interactive video specialty consultations in long-term care.**

[Wakefield BJ](#), [Buresh KA](#), [Flanagan JR](#), [Kienzle MG](#).

Iowa City VA Medical Center, Iowa City, Iowa, USA. Bonnie.wakefield@med.va.gov

**OBJECTIVES:** To assess provider and resident satisfaction with and outcomes of specialist physician consultations provided via interactive video to residents of a long-term care (LTC) center. **DESIGN:** Cross-sectional survey. **SETTING:** Two Veterans Affairs Medical Centers (VAMC) and a state LTC center. **PARTICIPANTS:** Physicians (n=12) at the VAMC and nurses (n=30) and residents (n=62) at the LTC center. **Intervention:** Interactive video conferencing to provide physician specialty visits to residents at the LTC center. **MEASUREMENTS:** Satisfaction ratings and record review to determine changes in treatment plan and follow-up care. **RESULTS:** Data were collected on 76 individual consultations in six clinics. The most frequent outcome was a change in treatment plan with the resident remaining at the LTC setting (n=29, 38%) or no change in treatment (n=26, 34%). Physicians' ratings were 78% good to excellent for usefulness in developing a diagnosis, 87% good to excellent for usefulness in developing a treatment plan, 79% good to

excellent for quality of transmission, and 86% good to excellent satisfaction with the consult format. Overall, 72% of residents were satisfied with the consult format, and 92% felt that it was easier to obtain medical care via telemedicine. Nurses felt that the telemedicine clinics were a good use of their time and skills (100%).  
CONCLUSION: There was a high rate of physician, patient, and nurse satisfaction with interactive video conferencing. Care delivered to residents of LTC settings via video conferencing offers a number of potential advantages, including avoidance of travel for patient and provider and potentially greater continuity of care.

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6: [Qual Health Res.](#) 2004 Oct;14(8):1046-57.

[Related Articles, Links](#)



**Being present in a distant room: aspects of teleconsultations with older people in a nursing home.**

[Sävenstedt S](#), [Zingmark K](#), [Sandman PO](#).

Umeå University, Sweden.

In a telecare project in Northern Sweden, videophones have been used to facilitate teleconsultations between nurses and elders at a nursing home. The authors designed this study to elucidate qualities in the communication in the professional encounter between nurses and elders assisted by nursing staff in the teleconsultations. They interviewed 2 registered nurses and 5 nursing staff members with long experience of using videophones in the telecare project, out of 20 staff members, and analyzed them using a phenomenological-hermeneutic method. In a comprehensive interpretation, teleconsultations could be understood as glimpses of the experience of being in the other's room with a feeling of providing nursing presence. This was attained when aspects such as familiarity, safety, transparency, and interest were promoted.

Publication Types:

- [Research Support, Non-U.S. Gov't](#)

[J Am Geriatr Soc.](#) 2005 Aug;53(8):1380-5.

[Related Articles, Links](#)



**A pilot study of usefulness of clinician-patient videoconferencing for making routine medical decisions in the nursing home.**

[Laflamme MR](#), [Wilcox DC](#), [Sullivan J](#), [Schadow G](#), [Lindbergh D](#), [Warvel J](#), [Buchanan H](#), [Ising T](#), [Abernathy G](#), [Perkins SM](#), [Daggy J](#), [Frankel RM](#), [Dexter P](#), [McDonald CJ](#), [Weiner M](#).

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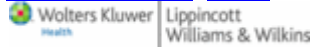
OBJECTIVES: To pilot and assess the role of videoconferencing in clinicians' medical decision-making and their interactions with nursing home residents (NHRs). DESIGN: Paired virtual and bedside examinations. Face-to-face (FTF) examination of NHRs by off-site clinicians immediately followed videoconferencing between the same clinician-NHR pair. SETTING: A 240-bed, county-managed, urban nursing home. PARTICIPANTS: NHRs (n=35) and clinicians (n=3) receiving or providing routine care between 2002 and 2003. MEASUREMENTS: Orders generated by clinicians, clinicians' ratings of videoconferencing, and coded review of video encounters. After both examinations, clinicians rated the encounters and generated orders necessary for NHRs. Orders were categorized and counted according to timing (before or after the FTF visit). Clinician-NHR interactions were assessed using coding videos with a 31-item instrument. RESULTS: For 71% of the encounters, clinicians stated that videoconferencing facilitated their assessment. Difficulties included sound quality (19%) and participants' familiarity with videoconferencing (7%). Although NHRs were alert in 50% of encounters, 62% of alert NHRs did not indicate understanding of the recommended treatment. CONCLUSION: FTF examination was superior for most assessments, but videoconferencing was judged to be valuable, especially for wound care. Even when NHRs were alert, informed medical decision-making by NHRs with their clinicians was limited. Enhancing videoconferencing quality and providing more training about informed decision-making using videoconferencing might improve the effectiveness of the technology.

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- 7: [J Nurses Staff Dev](#). 2004 Jan-Feb;20(1):42-9.

[Related Articles](#), [Links](#)



**Application of the Concerns-Based Adoption Model to the installation of telemedicine in a rural Missouri nursing home.**

[Armer JM](#), [Harris K](#), [Dusold JM](#).

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The Concerns-Based Adoption Model (C-BAM) was developed in education for the purpose of implementing innovations and change within the school/college system. This study used the principles of the C-BAM and, for the first time, applied them to the process (implementation/training) and product (computer) of the telemedicine technologies in a rural nursing home setting in Missouri. Three rural counties of the 23 Missouri Telemedicine Network sites were chosen to pilot implementation of the computer as one mode of telemedicine technology. One rural nursing home was enlisted for an in-depth study to examine how telemedicine would affect communication between and among community health professionals. Methodological triangulation was used to study individuals' concerns about and utilization of telemedicine through interviews, participant observations, chart reviews, and the Stages of Concern (SOC) survey. Responses to the SOC over time are reported here. The participants consisted of nursing home employees: administration, nursing, housekeeping, and dietary. Forty-three of 52 employees participated in the SOC survey at Time 1 (preimplementation). Twelve months later, 40 participated in the SOC survey at Time 2. While the majority of respondents expressed awareness of the technology, they also expressed a high concern for informational and personal implications. Concern scores in all subscales decreased at Time 2. Findings from this study provided feedback for the implementation and training phases of the project. Most importantly, findings support the appropriateness of this educational model to the healthcare setting.

PMID: 15076128 [PubMed - indexed for MEDLINE]

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- 8: [AMIA Annu Symp Proc](#). 2003:709-13.



**Clinicians' and patients' experiences and satisfaction with unscheduled, nighttime, Internet-based video conferencing for assessing acute medical problems in a nursing facility.**

[Weiner M](#), [Shadow G](#), [Lindbergh D](#), [Warvel J](#), [Abernathy G](#), [Perkins SM](#), [Fyffe J](#), [Dexter PR](#), [McDonald CJ](#).

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Videoconferencing between patients and their physicians can increase patients' access to healthcare. Unscheduled videoconferencing can benefit patients with acute medical problems but has not been studied extensively. We conducted a clinical trial of unscheduled, nighttime videoconferencing in a nursing home, where on-call physicians usually provide care by telephone from remote locations. Although most calls for medical problems did not lead to videoconferencing, physicians and nursing-home residents were satisfied with videoconferencing when it did occur, and physicians reported that making medical decisions was easier with videoconferencing. Videoconferencing was most often conducted to assess residents with changes in mental status, abnormal laboratory values, or falls. Physicians often lacked immediate access to videoconferencing equipment when medical problems with residents occurred. This application could benefit from improved access and portability of equipment.

- 9: [Curr Probl Dermatol](#). 2003;32:167-71.

**Teledermatology in the nursing home.**

[Zelickson BD](#).

Department of Dermatology, University of Minnesota, Minneapolis, Minn., USA. zelic002@umn.edu

[J Telemed Telecare](#). 2003;9(4):216-20.

[Related Articles](#), [Links](#)



**Family members' narrated experiences of communicating via video-phone with patients with dementia staying at a nursing home.**

[Sävenstedt S](#), [Brulin C](#), [Sandman PO](#).

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We studied the experience of family members who communicated via video-phones with elderly demented patients who were either staying at a home for temporary respite care or living in a nursing home. The study was based on qualitative data from seven interviews. The interviewees each had three or more months' experience with a video-phone. The open interviews were transcribed. Content analysis showed that video-phone conversations made the relatives of patients at nursing homes more involved in the caring process and that conversation via the video-phone was a different way of communicating. Video-phone conversations with demented patients were in some cases more focused and of better quality than face-to-face conversations. In most cases the video-phone conversations required the assistance of staff at the home in order to be meaningful. Video-phones have the potential to become useful tools for family members caring for elderly relatives.



10: [Proc AMIA Symp.](#) 2001:751-5.

**Secure Internet video conferencing for assessing acute medical problems in a nursing facility.**

[Weiner M](#), [Schadow G](#), [Lindbergh D](#), [Warvel J](#), [Abernathy G](#), [Dexter P](#), [McDonald CJ](#).

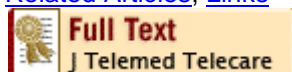
The Regenstrief Institute for Health Care, Center for Aging Research, Division of General Internal Medicine and Geriatrics, Indiana University, Indianapolis, IN, USA.

Although video-based teleconferencing is becoming more widespread in the medical profession, especially for scheduled consultations, applications for rapid assessment of acute medical problems are rare. Use of such a video system in a nursing facility may be especially beneficial, because physicians are often not immediately available to evaluate patients. We have assembled and tested a portable, wireless conferencing system to prepare for a randomized trial of the system's influence on resource utilization and satisfaction. The system includes a rolling cart with video conferencing hardware and software, a remotely controllable digital camera, light, wireless network, and battery. A semi-automated paging system informs physicians of patient's study status and indications for conferencing. Data transmission occurs wirelessly in the nursing home and then through Internet cables to the physician's home. This provides sufficient bandwidth to support quality motion images. IPsec secures communications. Despite human and technical challenges, this system is affordable and functional.



11: [J Telemed Telecare.](#) 2002;8(1):11-8.

[Related Articles](#), [Links](#)



**Nurse-doctor interaction in teleconsultations between a hospital and a geriatric nursing home.**

[Sävenstedt S](#), [Bucht G](#), [Norberg L](#), [Sandman PO](#).

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The aim of the present study was to elucidate both the interaction between a doctor and five registered nurses and the problems or tasks dealt with in teleconsultations between a university clinic for geriatric medicine and a nursing home for the elderly in northern Sweden. The interaction and problems or tasks were studied through analyses of video-recorded teleconsultations and through open interviews with the participating staff. The results indicated that teleconsultations between a geriatrician and the nurses at a nursing home for the elderly can be a useful tool for providing medical services. Teleconsultations alter both the 'power-control' and 'practice spheres' for the doctor and the nurses, and must be based on mutual trust. The use of teleconsultations gives the nurse a larger role as the presenter of medical problems, and gives

the doctor the role of remote consultant.

PMID: 11809079 [PubMed - indexed for MEDLINE]

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12: [Gerontology](#). 2001 Mar-Apr;47(2):82-7.

[Related Articles](#), [Links](#)



**Telemedicine: a pilot study in nursing home residents.**

[Hui E](#), [Woo J](#), [Hjelm M](#), [Zhang YT](#), [Tsui HT](#).

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BACKGROUND: Telemedicine has been applied successfully in various fields of medicine. This mode of health care delivery may potentially be useful in supporting frail nursing home residents who require multidisciplinary geriatric services. OBJECTIVE: To assess the feasibility of telemedicine in providing geriatric services to nursing home residents, and whether this mode of care resulted in increased productivity and savings. METHODS: A local 200-bed nursing home supported by the Community Geriatric Assessment Team (CGAT) was recruited. Over a 1-year period, teleconferencing was used to replace conventional geriatric outreach services. The feasibility of telemedicine was evaluated by participating specialists. Productivity gains, consumption of hospital services and user satisfaction were measured. RESULTS: Telemedicine was adequate for service delivery in up to 99% of cases, depending on the specialty. A greater number of clients were served and follow-up intervals were shortened. The service was cheaper than conventional outreach or clinic activities, and acceptable to users and clients. In particular, savings were made through a 9% reduction in visits to the Accidents and Emergency Department and in 11% fewer admissions to acute hospital wards. CONCLUSION: telemedicine is a feasible means of delivering multidisciplinary care to frail nursing home residents, and may result in increased productivity and significant savings.

Publication Types:

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13: [J Telemed Telecare](#). 2001;7(1):38-46.



**The role of telenursing in the provision of geriatric outreach services to residential homes in Hong Kong.**

[Chan WM](#), [Woo J](#), [Hui E](#), [Hjelm NM](#).

Department of Medicine and Therapeutics, Chinese University of Hong Kong, Shatin NT, China.

A residential nursing home in Hong Kong was linked to the community geriatric assessment team based in a regional hospital using videoconferencing equipment operating at 384 kbit/s. The feasibility of providing nursing services and their acceptability to users were evaluated over 12 months. There were 198 occupants of the nursing home and their mean age was 82 years (range 60-101). Services included patient education regarding the use of a metered dose inhaler, wound management and a falls prevention programme, together with assessment of clients' need for infirmary care and the risk of aspiration. The acceptability of the system to the clients and nursing home staff was also assessed. It was found that 89% of such services could be carried out via telemedicine, and only 11% required on-site visits. There was an increase in the proportion of patients correctly using inhalers as well as a reduction in the number of falls. More consultations were conducted by the nurse (an increase of 76% per month) and an additional 8.4 patients per month could be attended to by the nurse compared with 5 patients when on-site visits were used. Acceptability to clients and nursing home staff was good. The problem of lack of resources to support elderly residential care institutions makes service delivery via telemedicine appear economically attractive, as well as facilitating improvements in the quality of long-term care.

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14: [Arch Dermatol](#). 1997 Feb;133(2):171-4.

[Related Articles](#), [Links](#)

### **Teledermatology in the nursing home.**

[Zelickson BD](#), [Homan L](#).

Department of Dermatology, University of Minnesota, Minneapolis, USA.

**OBJECTIVE:** To examine a still-image store-and-forward teledermatology system for use in the care of nursing home residents. **DESIGN:** Diagnosis and treatment plans made from a teledermatology system were compared with those made from an on-site dermatology consultation. **SETTING:** This study involved the dermatologic care of nursing home residents. **PATIENTS:** Dermatologic consultations sent to the senior author's office from the participating nursing home were eligible for the study. In a consecutive manner, 29 residents with a total of 30 skin conditions were enrolled. **INTERVENTION:** A nurse collected and sent the histories and images using the teledermatology system. A diagnosis and treatment plan was determined by examining a transmitted still image and patient history alone and in combination by 2 to 3 dermatologists independently. An independent dermatologist made an on-site dermatologic consultation within 2 days after the images had been collected. **MAIN OUTCOME MEASUREMENT:** The diagnosis and treatment plans made from the teledermatology system were compared with those made by the on-site dermatologist. **RESULTS:** Twenty-nine patients with 30 skin conditions were enrolled in the study. Correct diagnoses were made for 60 (67%) of 90, 51 (85%) of 60, and 53 (88%) of 60 patients given the history alone, image alone, and both, respectively. The correct treatment plan was seen in 63 (70%) of 90, 52 (87%) of 60, and 54 (90%) of 60 patients given the history alone, image alone, and both, respectively. No incorrect diagnoses or treatment plans would have given rise to substantial morbidity. The dermatologists felt comfortable in making a diagnosis and treatment plan in all cases in which they had access to both the image and patient history. **CONCLUSION:** This study provides evidence that nursing home teledermatology consults may replace some on-site consultations by offering quality care in a cost-effective manner.

[J Telemed Telecare](#). 2003;9 Suppl 1:S52-4.

### **User satisfaction with allied health services delivered to residential facilities via videoconferencing.**

[Guilfoyle C](#), [Wootton R](#), [Hassall S](#), [Offer J](#), [Warren M](#), [Smith D](#), [Eddie M](#).

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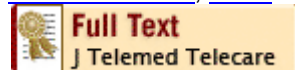
We have investigated the role of videoconferencing in allied health service provision to high-care clients in rural residential facilities. Videoconferencing equipment was set up at a rural aged-care facility and a metropolitan allied health centre; ISDN transmission at 384 kbit/s was used to link the equipment. Twelve residents were assessed by both videoconference and face to face across five allied health disciplines (a total of 120 assessments). User satisfaction was measured using questionnaires and focus groups. Face-to-face assessment took significantly longer than videoconferencing assessment. However, the mean satisfaction ratings for face-to-face assessments were higher than for videoconferencing and the majority of the staff preferred the face-to-face format. Videoconferencing was particularly useful for consultations and the initial stages of the assessment process. A number of issues relating to the videoconferencing equipment, to the environment in which assessments were performed and to the clients themselves need to be addressed in order for this form of service delivery to be effective.

PMID: 12952723 [PubMed - indexed for MEDLINE]



**2: [J Telemed Telecare](#)**. 2003;9(4):234-7.

[Related Articles](#), [Links](#)



### **The cost of allied health assessments delivered by videoconference to a residential facility for elderly people.**

[Hassall S](#), [Wootton R](#), [Guilfoyle C](#).

Blue Care, Brisbane, Australia.

We calculated the cost of providing allied health assessments to high-dependency residents of a rural facility for elderly people. The costs of conducting assessments via videoconferencing were compared with the costs of conducting assessments face to face. The observed costs in a three-month pilot trial were used to

estimate the annual costs. Given an annual workload of 1000 occasions of service, each videoconference assessment would cost dollar 84.93, compared with dollar 90.25 for face-to-face assessments. Allied health assessments delivered by videoconferencing became cheaper at workloads of approximately 850 occasions of service annually. Additional increases in the workload further improved the financial viability of this approach to service delivery.

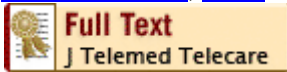
PMID: 12952696 [PubMed - indexed for MEDLINE]

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3: [J Telemed Telecare](#). 2003;9(4):230-3.

[Related Articles](#), [Links](#)



**Preliminary experience of allied health assessments delivered face to face and by videoconference to a residential facility for elderly people.**

[Guilfoyle C](#), [Wootton R](#), [Hassall S](#), [Offer J](#), [Warren M](#), [Smith D](#).

Blue Care, Brisbane, Australia.

We investigated whether allied health assessments carried out via videoconferencing were comparable to assessments carried out face to face. Five allied health therapists (in dietetics, occupational therapy, physiotherapy, podiatry and speech pathology) conducted an assessment of 12 high-dependency residents both face to face and by videoconferencing. On a five-point Likert scale, the therapists' mean ratings for the efficiency and suitability of videoconferencing for assessment were significantly lower than for face to face. Their mean rating for the adequacy of their care plans was also significantly lower for videoconferencing than for face to face. However, in each case the dietician's assessments did not differ significantly between the two modalities. In 35 cases out of 60, two independent raters agreed that the therapists' care plans after the videoconferencing and face-to-face assessments were the same. However, the level of agreement between raters was only moderate ( $\kappa=0.31$ ). Despite the therapists' (natural) preference for face-to-face working, care plans formulated via videoconferencing were reasonably similar to those formulated in face-to-face assessment. Allied health assessments carried out by videoconferencing would therefore seem to be feasible.

PMID: 12952695 [PubMed - indexed for MEDLINE]

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4: [J Telemed Telecare](#). 2002;8 Suppl 3:S3:22-4.

[Related Articles](#), [Links](#)

**Videoconferencing in facilities providing care for elderly people.**

[Guilfoyle C](#), [Wootton R](#), [Hassall S](#), [Offer J](#), [Warren M](#), [Smith D](#), [Eddie M](#).

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Two studies were conducted to test the feasibility of delivering care by videoconferencing to facilities providing care for elderly people. Both used equipment connected by ISDN lines at 384 kbit/s. During the first study, no consultations, care plans or assessments were conducted. During the second study, 120 assessments were conducted in just over two weeks, both face to face and by videoconference. Why was one project so successful and the other not? The reasons related to ownership, planning, participants and location. A comparison of the two projects highlights some of the considerations necessary to ensure the success of any telehealth project.

[J Geriatr Psychiatry Neurol](#). 2001 Summer;14(2):72-5.

[Related Articles](#), [Links](#)

**Telepsychiatry consultations to a rural nursing facility: a 2-year experience.**

[Johnston D](#), [Jones BN 3rd](#).

Department of Psychiatry and Behavioral Medicine, Wake Forest University School of Medicine, Winston-Salem, North Carolina 27157, USA.

This report describes the operation of a telepsychiatry consultation service provided from an academic medical center to a skilled nursing facility in a rural setting. Seventy-one consultations via low-cost ISDN videoconferencing equipment were provided over the 2-year period to 40 patients. The average duration of



the consultation period was about 3 months. A wide variety of diagnostic conditions were encountered, with the majority being either depression or dementia-related behavior problems. Advantages of the program included the ability to respond promptly to rural patients' clinical needs, the flexibility to consult more frequently if clinically indicated, and more efficient use of the consultant's time, as travel time was eliminated. The program is an example of how telepsychiatry can successfully expand access to mental health services to residents of long-term care facilities.

[J Geriatr Psychiatry Neurol](#). 2001 Summer;14(2):76-9.

[Related Articles](#), [Links](#)

#### **Telemedicine use and the reduction of psychiatric admissions from a long-term care facility.**

[Lyketsos CG](#), [Roques C](#), [Hovanec L](#), [Jones BN 3rd](#).

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Copper Ridge is a long-term care facility that provides care for persons with dementia and their families from early diagnosis to end of life. A low-cost videoconferencing system was employed in the development of a comprehensive, integrated continuum of care for Copper Ridge residents by bridging long-term care with inpatient psychiatric care at Johns Hopkins Hospital. In this article, we discuss the Copper Ridge/Johns Hopkins telemedicine project and how its operation appears to have brought about a reduction in psychiatric admissions. Telemedicine projects using inexpensive technology over standard telephone lines can be successfully used in long-term care settings.



**2:** [J Geriatr Psychiatry Neurol](#). 2001 Summer;14(2):66-71.

#### **Reliability of telepsychiatry assessments: subjective versus observational ratings.**

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Geriatric patients in underserved areas could benefit from the use of telecommunications to expand access to mental health services. It is important to determine the clinical limitations of using videoconferencing for psychiatric assessments, particularly in the elderly. The goal of this study was to test the hypothesis that videoconferencing ratings based on visual observations of behavior would be less reliable than ratings based on patients' verbal reports of symptoms. Videoconferencing assessments of 30 geriatric patients using low-bandwidth (ISDN) equipment were compared to gold standard face-to-face assessments. The Brief Psychiatric Rating Scale (BPRS) was dichotomized into subjective items based on patients' verbal reports and observational items based on visual ratings of behavior. Reliability of the BPRS subjective items was consistently higher than for the observational items. Future studies should emphasize the accuracy of telemedicine ratings that require visual observation of behavior, which is crucial to clinical assessment of psychogeriatric conditions.



**3:** [J Geriatr Psychiatry Neurol](#). 2001 Summer;14(2):59-62.

[Related Articles](#), [Links](#)

#### **Telemedicine and geriatric psychiatry: directions for future research and policy.**

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The use of telecommunications to provide mental health services at a distance has grown rapidly in the past 10 years. The overall experience has been positive, but evaluations and reliability studies have been preliminary. A fundamental question of what constitutes adequate technology for telepsychiatry remains unanswered. As technology and equipment capability change rapidly, a more important question may be what clinical decisions and behavioral observations are required to produce high standards of distance mental health care. Geriatric patients may have sensory impairments and unique aspects to their psychiatric problems that can make telemental health assessments more challenging. It is not clear what model of telepsychiatry constitutes the best practice for geriatric psychiatry. Future research and program evaluations should address these questions to guide the use of telepsychiatry in productive directions.

## **The use of videoconferencing to deliver clinical pain management services to the residents of nursing homes**

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Few telehealth projects have been developed for service delivery to the residents of nursing homes<sup>1,2</sup>. We have tested the feasibility of using videoconferencing to improve access to specialist pain management services for those with arthritis. Nineteen residents with an average age of 83 years from three aged-care facilities in metropolitan Melbourne participated in the trial.

Three distinct videoconferencing systems were developed for bedside service delivery based on the available infrastructure, physical layout and needs of the residents in the facilities. These were:

- desktop PC to laptop PC, using commercial videoconferencing units to communicate over a local-area network (LAN);
- the same configuration as above extended by the use of a wireless LAN
- commercial analogue video-phones for communicating over the ordinary telephone network.

The systems were used to conduct all aspects of a standard clinical consultation with the exception of a physical examination. Clear visual data contributed clinically useful information, as did a relative or a registered nurse with accurate knowledge of the resident.

Residents, nursing staff and clinicians were pleased with the teleconsultations. The benefits of the trial included cost savings from fewer transfers to the pain clinic. For the residents, benefits included increased access to geriatric services, less pain and fewer transfers to the pain clinic. For nursing staff, benefits included professional development (from participating in consultations), occupational health and safety benefits from fewer transfers of residents to the pain clinic, quality-of-care benefits from access to residents' medical data during consultations for discussion with the specialist, and the ability to act as an advocate for the resident both during and after the consultation. Benefits for the geriatrician included time and travel savings, and increased access to nursing home residents.

### **References**

1. Chan WM, Woo J, Hui E, Hjelm NM. The role of telenursing in the provision of geriatric outreach services to residential homes in Hong Kong. *Journal of Telemedicine and Telecare* 2001;7:38–46
2. Guilfoyle C, Wootton R, Hassall S, et al. Videoconferencing in facilities providing care for elderly people. *Journal of Telemedicine and Telecare* 2002;8 (suppl. 3):22–4