



Center for  
**Connected  
Health Policy**  
The National Telehealth Policy Resource Center

## Palliative Care Research Catalogue

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August 2018

To increase and organize the evidence for the use of telehealth, the Center for Connected Health Policy (CCHP) has been examining published studies that have been designed to measure the use of telehealth in achieving one or more of the goals of the Triple Aim. CCHP has been cataloguing studies published in peer reviewed journals that meet certain criteria. This catalogue of palliative care studies is one result.

CCHP employed several search parameters when selecting palliative care studies. All studies selected were published post 2010, have a sample size of no less than 50 (for studies with control groups, there needed to be a minimum of at least 30 subjects per group), and had a primary focus on the outcomes, quality, and or costs of a selected telehealth modality.

Due in part to the nature of palliative care cases, no constraints were placed on the study period. The lack of U.S. studies with a large enough sample size also led to the inclusion of international studies without restricted sample size to initially create this catalogue and are included at the end of the catalogue.

PubMed, Science Direct, EBSCO, NEJM, ProQuest, ResearchGate, JSTOR, CINAHL, WorldCat, and Medline were used in the peer-reviewed articles search. If CCHP was unable to obtain a copy of the full article, it was not included in the catalogue. Search terms included but were not limited to: telehealth and palliative, telehomecare, telemedicine and palliative care, telehealth and progressive disease, technology and palliative care, telehealth and chronic disease, and palliative care.

This catalogue was prepared by Julianne Draeger and the work supervised by Mei Wa Kwong and Christine Calouro. This catalogue was updated in July 2018 by McKenna Thompson.

## Control Trial Summaries:

<b>Basch, E., Deal, A. M., Dueck, A. C., Scher, H. I., Kris, M. G., Hudis, C., &amp; Schrag, D. (2017). Overall Survival Results of a Trial Assessing Patient-Reported Outcomes for Symptom Monitoring During Routine Cancer Treatment. <i>Jama</i>, 318, 2, 197-198.</b>						
<b>State/Country</b>	<b>Sample Size</b>	<b>Telehealth Modality Type</b>	<b>Method</b>	<b>Outcome</b>	<b>Quality</b>	<b>Cost</b>
NY	766	Remote Patient Monitoring	Randomized Clinical Trial	x	x	
<b>Summary</b>						
<p>Symptoms are common among patients receiving treatment for advanced cancers, yet are undetected by clinicians up to half the time. There is growing interest in integrating electronic patient-reported outcomes (PROs) into routine oncology practice for symptom monitoring, but evidence demonstrating clinical benefit has been limited.</p> <p>We assessed overall survival associated with electronic patient-reported symptom monitoring vs usual care based on follow-up from a randomized clinical trial.</p>						
<p><b>Access:</b> <a href="https://www.ncbi.nlm.nih.gov/pubmed/28586821">https://www.ncbi.nlm.nih.gov/pubmed/28586821</a></p>						

**Gustafson, D. H., DuBenske, L. L., Atwood, A. K., Chih, M. Y., Johnson, R. A., McTavish, F., Quanbeck, A., Shah, D. (2017). Reducing Symptom Distress in Patients With Advanced Cancer Using an e-Alert System for Caregivers: Pooled Analysis of Two Randomized Clinical Trials. *Journal of Medical Internet Research*, 19, 11.)**

State/Country	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
Northeastern, Midwestern, Southwestern US	235	Remote Patient Monitoring	Pooled Analysis of two Randomized Clinical Trials	x	x	

### Summary

**Background:** Symptom distress in patients toward the end of life can change rapidly. Family caregivers have the potential to help patients manage those symptoms, as well as their own stress, if they are equipped with the proper resources. Electronic health (eHealth) systems may be able to provide those resources. Very sick patients may not be able to use such systems themselves to report their symptoms but family caregivers could.

**Objective:** The aim of this paper was to assess the effects on cancer patient symptom distress of an eHealth system that alerts clinicians to significant changes in the patient's symptoms, as reported by a family caregiver.

**Methods:** A pooled analysis from two randomized clinical trials (NCT00214162 and NCT00365963) compared outcomes at 12 months for two unblinded groups: a control group (Comprehensive Health Enhancement Support System [CHESS]-Only) that gave caregivers access to CHESS, an online support system, and an experimental group (CHESS+CR [Clinician Report]), which also had CHESS but with a CR that automatically alerted clinicians if symptoms exceeded a predetermined threshold of severity. Participants were dyads (n=235) of patients with advanced lung, breast, or prostate cancer and their respective family caregivers from 5 oncology clinics in the United States of America. The proportion of improved patient threshold symptoms was compared between groups using area-under-the-curve analysis and binomial proportion tests. The proportion of threshold symptoms out of all reported symptoms was also examined.

**Results:** When severe caregiver-reported symptoms were shared with clinicians, the symptoms were more likely to be subsequently reported as improved than when the symptoms were not shared with clinicians ( $P<.001$ ). Fewer symptom reports were completed in the group of caregivers whose reports went to clinicians than in the CHESS-Only group ( $P<.001$ ), perhaps because caregivers, knowing their reports might be sent to a doctor, feared they might be bothering the clinician.

Access: <https://www.ncbi.nlm.nih.gov/pubmed/29138131>

### Retrospective Study Summaries:

Lustbader, D., Mudra, M., Romano, C., Lukoski, E., Chang, A., Mittelberger, J., Scherr, T., Cooper, D. (2017). The Impact of a Home-Based Palliative Care Program in an Accountable Care Organization. *Journal of Palliative Medicine*, 20, 1.)

State/Country	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
NY	651	Live Video	Retrospective Analysis	x	x	x

#### Summary

**Background:** People with advanced illness usually want their healthcare where they live—at home—not in the hospital. Innovative models of palliative care that better meet the needs of seriously ill people at lower cost should be explored.

**Objectives:** We evaluated the impact of a home-based palliative care (HBPC) program implemented within an Accountable Care Organization (ACO) on cost and resource utilization.

**Methods:** This was a retrospective analysis to quantify cost savings associated with a HBPC program in a Medicare Shared Savings Program ACO where total cost of care is available. We studied 651 decedents; 82 enrolled in a HBPC program compared to 569 receiving usual care in three New York counties who died between October 1, 2014, and March 31, 2016. We also compared hospital admissions, ER visits, and hospice utilization rates in the final months of life.

**Results:** The cost per patient during the final three months of life was \$12,000 lower with HBPC than with usual care (\$20,420 vs. \$32,420;  $p = 0.0002$ ); largely driven by a 35% reduction in Medicare Part A (\$16,892 vs. \$26,171;  $p = 0.0037$ ). HBPC also resulted in a 37% reduction

in Medicare Part B in the final three months of life compared to usual care (\$3,114 vs. \$4,913;  $p = 0.0008$ ). Hospital admissions were reduced by 34% in the final month of life for patients enrolled in HBPC. The number of admissions per 1000 beneficiaries per year was 3073 with HBPC and 4640 with usual care ( $p = 0.0221$ ). HBPC resulted in a 35% increased hospice enrollment rate ( $p = 0.0005$ ) and a 240% increased median hospice length of stay compared to usual care (34 days vs. 10 days;  $p < 0.0001$ ).

**Conclusion:** HBPC within an ACO was associated with significant cost savings, fewer hospitalizations, and increased hospice use in the final months of life.

**Access:** <https://www.ncbi.nlm.nih.gov/pubmed/27574868>

#### International Summaries:

**Bradford, N.K., Armfield, N.R., Young, J., Herbert, A., Mott, C., Smith, A.C. (2014). Principles of a paediatric palliative care consultation can be achieved with home telemedicine. *Journal of Telemedicine and Telecare*, 20(7), 360-364.**

Location	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
Queensland, AUS	100	Live Video	Retrospective Review		X	

#### Summary

We compared the records of paediatric palliative consultations undertaken face-to-face, with telemedicine consultations undertaken in patients' homes. A convenience sample of consecutive paediatric palliative care patients was identified from the hospital's palliative care database. A total of 100 consultations was reviewed (50 telemedicine consultations during home visits and 50 face-to-face consultations) according to 14 established principles and components of a paediatric palliative care consultation. In the telemedicine group there was a higher proportion of patients in a stable condition (58% vs 7%), and a lower proportion of patients in terminal phase (2% vs 17%). Discussion about pain and anorexia were significantly more common in the telemedicine group. Discussion about follow up was

significantly more common in the telemedicine group (86% vs 56%), whilst resuscitation planning was more common in deteriorating patients receiving inpatient care. All other components and principles of a palliative care consultation were documented equally regardless of method of consultation. The findings confirm that palliative consultations via telemedicine are just as effective as face-to-face consultations in terms of the documented components of the consultation.

**Access:**

<https://www.ncbi.nlm.nih.gov/pubmed/?term=Principles+of+a+paediatric+palliative+care+consultation+can+be+achieved+with+home+telemedicine>

**Hennemann-Krause, L., Lopes, A.J., Araujo, J.A., Petersen, E.M., Nunes, R.A. (2014). The Assessment of Telemedicine to Support Outpatient Palliative Care in Advanced Cancer. *Palliative and Supportive Care*, 14(4), 1025-1030.**

Location	Sample Size	Telehealth Modality Type	Method	Outcome	Quality	Cost
Rio de Janeiro, BRA	12	Live Video	Prospective, Longitudinal, Qualitative, Descriptive, Case Series Study	X	X	

**Summary**

**Objective:** To examine telemedicine as a form of home and additional support for traditional outpatient care as a way to remotely monitor and manage the symptoms of patients with advanced cancer.

**Methods:** In total, 12 patients were monitored through monthly consultations with a multidisciplinary healthcare team and weekly web conferences. To evaluate and treat pain and other symptoms, the Edmonton Symptom Assessment System (ESAS) was applied during all remote or in-person interviews.

**Results:** During monitoring, the team contacted the patients on 305 occasions: there were 89 consultations at the hospital, 19 in-person assistances to

the family (without the patient), 77 web conferences, 38 telephone calls, 80 emails, and 2 home visits. The mean monitoring time until death was  $195 \pm 175.1$  days. Eight patients who completed the ESAS in all interviews had lower mean distress symptom scores according to web conferences than in person.

**Significance of results:** Telemedicine allowed greater access to the healthcare system, reduced the need to employ emergency services, improved assessment/control of symptoms, and provided greater orientation and confidence in the care given by family members through early and proactive interventions. Web conferences proved to be a good adjuvant to home monitoring of symptoms, complementing in-person assistance.

**Access:**

<https://www.researchgate.net/publication/265093636> The assessment of telemedicine to support outpatient palliative care in advanced cancer