

The Case for Remote Patient Monitoring

Remote Patient Monitoring

Research consistently demonstrates that remote patient monitoring or telemonitoring drives better outcomes and less tendency for hospital readmission resulting in large savings in chronic patient populations. A review of the evidence included here leans toward large meta-analyses and systematic reviews to ensure a broader view of outcomes. Links are provided rather than traditional reference list for easier access. Nationally, great strides are being made to improve access and outcomes in the nation's veteran population with many conditions that involve supporting better patient self-management. Several states have seen cost savings in demonstration projects involving remote patient monitoring. With regard to home telemonitoring for high-risk pregnancy, less evidence exists for improved outcomes but is more a question of improved access in large remote and rural areas.

Study	Diagnosis	Patient populations	Conclusions	Successful Strategies
Meta-analysis – Nakamura, Koga, Hiroshi ¹	Chronic heart failure	3337 patients, 2003 – 2013 (US)	Reduction in mortality	Rapid response, high measurement frequency, medication management
Systematic review & meta-analysis – Clark, Inglis, Stewart ²	Chronic heart failure	4264 patients	Improved clinical outcomes; admission rates reduced by 21%	Rapid response by nurse and follow-up by primary care
Meta-analysis - Tao, Calvin ³	Diabetes, type 1 & 2	3582	Reduction in A1c, younger patients showed better improvement	Web-based applications; allow patient data entry; no location restrictions

Systematic review & meta-analysis – Polisena, et al ⁴	Diabetes	5069 patients	Consistent evidence of improved glycemic control	Monitoring combined with nurse management, follow-up
Retrospective Analysis – Darkins, et al ⁵	Multiple chronic conditions including CHF, COPD, mood disorders, HIV, diabetes, MS, Schizophrenia	4999 veteran patients	Significant declines in admissions & ED visits, decreased costs	Coordinated operations with IT, staff training & quality processes; bio-psychosocial model
Literature review – Urquhart, et al ⁶	Pregnancy, monitoring for pre-term labor	6008 patients	Increased access, but no significant difference in maternal or perinatal outcomes or pre-term labor	Home uterine monitoring

State Demonstration Projects⁷

Colorado demonstration – CHF, COPD, Diabetes, HTN

- Reduction in 30 day rehospitalizations - 62%
- Lowered rehospitalizations - 6.3% compared to 18% for those receiving traditional home care.
- Decreased emergency department - 283 visits in the year preceding the study to 21 visits in the study year.
- Cost savings is between \$1,000 and \$1,500 of total costs per patient.

Kansas – chronically ill

- Hospitalization rates were reduced by 38% with annual cost savings of \$26,298 per patient. Nursing home deferral rates were 6.1% compared to a control group at 7.7%;
- Cost of the telehealth intervention was \$6/client/day

New York – “at risk” patients

- Oneonta-based At Home Care, Inc. – For 900 patients enrolled annually, a 7% decrease in hospital readmissions and annual savings of \$466,200.
- Patchogue-based Brookhaven Memorial Hospital Home Health Agency – For 181 COPD patients annually, a 19% reduction in hospital readmissions and annual savings of

\$254,486. For 92 pneumonia patients enrolled annually, a 26% reduction in hospital readmissions and annual savings of \$177,008.

- New York City-based Metropolitan Jewish Health System Home Care – For 300 patients annually; a 4% decrease in hospital readmissions and annual savings of \$88,800.
- Albany-based St. Peter’s Home Care – For 213 patients annually enrolled a 6.5% reduction in hospital readmissions and annual savings of \$102,453.

Washington – chronically ill

- \$1,726,276 savings from reduced hospital admissions, going from 25% to 18%.
- \$86,480 savings from reduced emergent care usage, going from 17% to 12%.

About TexLa Telehealth Resource Center

The TexLa Telehealth Resource Center is a program of the F. Marie Hall Institute for Rural and Community Health at the Texas Tech University Health Sciences Center. The TexLa TRC is a federally funded program designed to expand telehealth capacity and usage in Texas and Louisiana to improve health care access, quality, and outcomes. We provide education and guidance to health care organizations in Telehealth planning, implementation, management, and sustainability and aim to educate policy makers about legislative and regulatory barriers to the use of Telehealth in Texas and Louisiana.

¹ <http://jtt.sagepub.com/content/20/1/11.short?rss=1&ssource=mfr>

² <http://www.ncbi.nlm.nih.gov/pubmed/17426062>

³ <http://jtt.sagepub.com/content/early/2013/05/19/1357633X13479701>

⁴ <http://onlinelibrary.wiley.com/doi/10.1111/j.1463-1326.2009.01057.x/full>

⁵ <http://www.ncbi.nlm.nih.gov/pubmed/24841071>

⁶ <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006172.pub3/abstract>

⁷ [American Telemedicine Association. State Best Practice: Remote Patient Monitoring and Home Video Visits](#)