



New England Healthcare Institute



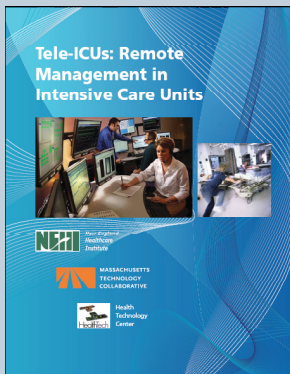
MASSACHUSETTS TECHNOLOGY COLLABORATIVE



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Study in Brief:

Tele-ICUs: Remote Management in Intensive Care Units was published by The New England Healthcare Institute (NEHI) in partnership with the Massachusetts Technology Collaborative (MTC) and the Health Technology Center. The report examines the potential for Tele-ICU systems to reduce mortality and length of stay, assesses the barriers to its adoption and reports the findings of early adopter hospitals.



To read the full report, visit www.nehi.net.

Tele-ICUs

Remote Management in Intensive Care Units

PROBLEM: A LACK OF INTENSIVISTS

Intensive Care Units (ICUs) are where the most fragile and complex patients are treated. Approximately 200,000 patients die in U.S. ICUs each year, with mortality rates among ICU patients averaging 10-20% in most hospitals. Given the high stakes involved, quality of care in ICUs is critical – yet evidence suggests that quality varies widely across hospitals. A key reason for the variation is the lack of intensivists, health professionals trained in intensive care medicine. There are about 6,000 critical care specialists in the U.S., fewer than 4,000 of whom practice in adult ICUs, which means that there is less than one intensivist for each ICU.

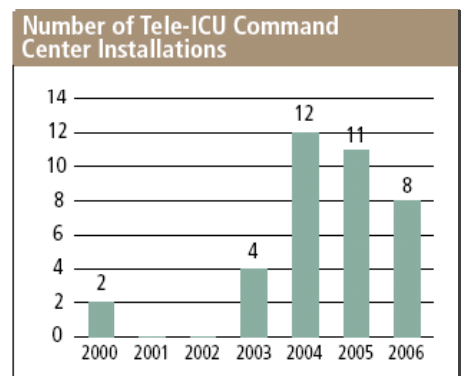
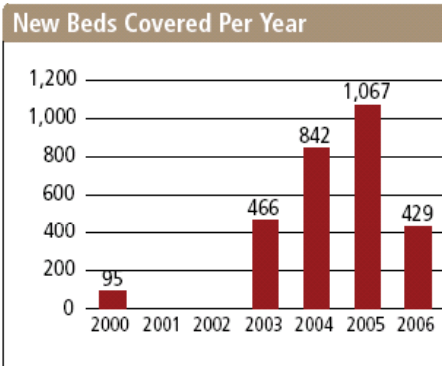
PROPOSED SOLUTION: TELE-ICUS

Tele-ICUs allow fewer intensivists to cover more patients. One physician and four nurses in a remote command center can oversee the care of up to 75 ICU patients in distant ICUs. These clinicians are aided by “smart” databases that track patients’ clinical values and give alerts for appropriate treatment. Continuous, real-time audio, video and electronic reports of vital signs connect the command center to the patients’ bedsides.

BARRIERS TO TELE-ICU ADOPTION

Despite its benefits, there are several barriers to widespread adoption of Tele-ICU systems.

- **Cost:** Capital costs for a new command center range from \$2 million to \$5 million, and annual operating costs are about \$2 million.
- **Organizational Resistance:** Physicians often fear loss of autonomy and resist delegating patient management to the command center intensivists. In addition, Tele-ICU adoption requires restructuring hospital organization for compatibility.
- **Intellectual Property:** Health system leaders do not want to invest millions in Tele-ICU technology with overly burdensome patent restrictions that may inhibit later development.
- **Reimbursement:** Physician fees for command center intensivists are not currently reimbursed by insurers and must be paid for by the command center hospital as part of the operating expense.





New England Healthcare Institute

About NEHI

The New England Healthcare Institute (NEHI) is an independent, nonprofit research and health policy organization dedicated to transforming health care for the benefit of patients and their families.

Visit www.nehi.net



About MTC

The Massachusetts Technology Collaborative (MTC) is the state's development agency for renewable energy and the innovation economy. MTC works to stimulate economic activity in communities throughout the Commonwealth.

Visit www.mtpc.org



About HealthTech

The Health Technology Center is a non-profit research organization and expert network that offers its partner hospitals proprietary reports, decision support tools, and educational events for adopting care delivery innovations and deploying emerging technologies.

Visit www.healthtechcenter.org

THE CASE FOR TELE-ICU

A case for Tele-ICUs has been made by measuring the outcomes associated with ICUs with intensivists and those using traditional staffing. Most of the studies found a significant decrease in ICU mortality and length of stay when there was an intensivist present. The Leapfrog Group estimated that if the standards for ICU physician staffing were met in 84 percent of adult admissions that occur in urban hospitals, the in-hospital mortality rates could be reduced by 30 percent and about 53,000 adult deaths could be avoided.

Internal Benefits of Tele-ICUs

- Reduced ICU complication rates
- Efficient delivery of care
- Improved productivity of clinical staff
- Improved staff morale and decreased turnover
- Enhanced training opportunities

External Benefits of Tele-ICUs

- Increased perception of quality of care
- Ability to meet Leapfrog standards
- Increased revenue
- Reimbursement for services
- Grants to acquire Tele-ICU systems or services

EARLY ADOPTER FINDINGS

Tele-ICUs first came in to use in 2000, and since then 39 command centers have been installed covering 3,850 beds or about 4 percent of all adult ICU beds. The early adopters' results have varied, but there is a general trend toward decreases in patient mortality and length of stay. There has not been a definitive study to determine the overall impact of Tele-ICUs on patient mortality or length of stay.

NEHI, MTC AND UMASS: IMPROVING CARE, PROVING ROI

NEHI, in partnership with the Massachusetts Technology Collaborative and the University of Massachusetts Medical School, is currently conducting research aimed at changing community hospitals' approach to critical care delivery by examining the extent to which adopting tele-ICU technology improves quality of care for patients, benefits physicians and nurses, and saves money. The study is collecting data from two community hospitals both before and after tele-ICU implementation to measure patient acuity scores, mortality ratios, ICU and hospital length of stay (LOS), cost per case, rates of compliance with clinical practice guidelines and rates of intensive care complications.

NEHI believes that the results of this study, with release targeted for 2009, will demonstrate the value of tele-ICUs – clinically, financially and organizationally – to community hospitals and, in turn, will help extend intensivist care to more patients who need it.

“This is a technology that enables us to practice better medicine.” Wendy Everett, ScD, NEHI President