Intermountain Health

TeleHealth Critical Care

Problem

Staffing a community hospital Intensive Care Unit (ICU) is challenging. Critical care physicians are concentrated in large, tertiary care centers, contributing to shortages in community and rural hospitals[1]. But with smaller ICUs and lower average daily census, these hospitals often find that recruiting and retaining specialty-trained physicians doesn't make financial sense. Instead, they may rely on local physicians to manage higher acuity patients, which can contribute to physician stress, burnout, and recruiting difficulties. In the end, many patients transfer to urban hospitals and that results in lost revenue, patient care disruption, and dissatisfaction for local care facilities and families.

Solution

In 2014, Intermountain Health began the TeleHealth Critical Care Program for critically ill patients. The program is focused on providing safe, effective care, building local skills, and ensuring continuity of practice standards across all sites. The TeleHealth team offers an extra layer of support to front-line clinicians, keeps critically ill patients close to home, and supports patient transfers when warranted.

The TeleHealth Critical Care team uses technology to extend specialized knowledge and skills to help critically ill patients, regardless of location. The team is made up of:

- Critical care physicians and advance practice providers (APPs) who provide consultation, evaluation, and treatment recommendations in telehealth-enabled ICUs2-5.
- Experienced critical care registered nurses who actively monitor patients round-the-clock by reviewing charts and observing trends, collaborate with bedside nurses, and educate staff, patients, and families.
- Pharmacists who consult with physicians to ensure medications are safe and effective at the lowest possible cost, as well as verifying that medicines are prepared and dispensed correctly.

The team is located at Intermountain's Virtual Hospital in Murray, Utah and provides support 24 hours a day, 365 days a year to approximately 260 ICU rooms at more than 35 hospitals throughout the Intermountain West.

Results

With the support of the TeleHealth Critical Care Program, community and rural hospitals have seen reduced mortality rates, improved care practices, reduced strain on local physicians, and economic benefits for facilities and patients.

Clinical Benefits and Outcomes

Hospitals benefit from improved safety, consistent care models, and reduced complications, mortality, length of stay and costs, while continuing to provide care close to home[6, 7]. The program ensures extra coverage during times of high demand or low staffing and offers continuity of care between shifts.

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Over the last five years of TeleHealth Critical Care Program support, Intermountain Health community hospital ICUs with less than 10 beds have seen statistically significant (P=0.02) reductions in average ICU mortality rates, from 3.00% to 1.98%.

Clinician and Patient Satisfaction

The program is a benefit to local physicians who:

- Gain access to critical care experts for clinical care, triage, pre-transport stabilization, clinical monitoring, education, and additional resources.
- Have assurance that intensivist-managed critical care via telehealth is equivalent to the care provided by an in-person intensivist.
- Retain patients rather than transfer them to tertiary centers, and maintain established physicianpatient relationships.

Patients and their families prefer high-quality healthcare that is both affordable and close to home. The program allows them to:

- Remain close to family, friends, and loved ones.
- Reduce the burdens and cost of transportation, lodging, and meals.
- Ensure family members lose less work time and pay while remaining connected to patients.

Communities benefit by gaining additional healthcare services and decreasing CO2 emissions from avoided travel.

Economic Benefits to Community Hospitals

- Local facilities provide specialized services without hiring full-time, critical care trained physicians and team members.
- An overall lower cost of providing high-cost critical care patient management
- Revenue may be retained locally from lab work, imaging, medications, and procedures.
- Telehealth support during a low frequency, high-risk event (or the prolonged high-intensity care during the COVID-19 pandemic) can reduce provider overload and burnout, thereby reducing staff turnover and staffing costs.
- Partnering with Intermountain Healthcare may enhance a facility's reputation for providing an improved quality of care[8].

Examples of Program Use

Care models may vary, from focused usage (i.e. after-hours coverage only) to more comprehensive use (24 hours a day, 365 days a year)[9]. [General medicine and cardiac services admissions make up approximately 80% of patients managed in Intermountain's community hospital ICUs. The remaining admissions come from surgery and surgical subspecialties, neurology and spine, OB/GYN, and hematology/oncology (Appendix 1).]

A Collaborative Approach is Key

Every ICU has unique staffing and patient population challenges. With access to clinical guidelines and protocols, as well as focus on Zero Patient Harm initiatives, the telehealth team strives for collaborative, cooperative, and open communication in order to build trusting relationships. We partner with strategic use of technology, proactive monitoring and rounding as well as effective communication to provide the best care possible. Shift rounding by critical care registered nurses alerts bedside teams to concerning patient trends and reduces failure to rescue events[7].

About Intermountain Health

Intermountain Health is a team of nearly 60,000 caregivers who serve the healthcare needs of people across the Intermountain West, primarily in Utah, Idaho, Nevada, Colorado, Montana, Wyoming, and Kansas. We are an integrated, non-profit health system based in Salt Lake City, with clinics, a medical group, affiliate networks, hospitals, homecare, telehealth, health insurance plans, and other services, along with wholly owned subsidiaries including SelectHealth, Saltzer Health, Castell, Tellica, and Classic Air Medical.

References

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Appendix 1

These codes represent the top 10 diagnoses by volume admitted to Intermountain community hospital ICUs and managed by the TeleHealth Critical Care team. Altogether, these cases represent approximately 50% of all medical admissions to community hospital ICUs.

APR-DRG CODE	DIAGNOSIS
720, 871, 872	Septicemia w & w/o MCC
917, 918	Poisoning & toxic drugs
189, 190, 853	Pulmonary Edema & Resp failure; COPD w/CC
420	Heptobillary System
378	GI Hemorrhage
193, 194	Simple pneumonia & Pleurisy
638, 639	Diabetes w & w/o CC/MCC
812	RBC disorder
304	Hypertension w/ MCC
201	Pneumothorax