Dartmouth-Hitchcock Connected Care

Critical Access to Critical Care: Utilizing Connected Care Partnerships to Support Rural Healthcare Teams

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Connected Care
Dartmouth-Hitchcock Medical Center

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We are an Academic Health System

6 campuses
29 clinical locations
20 affiliate and alliance hospitals
Serving a population of 2 million
Serving a Broad and Rural Region

• 396 Licensed Beds
• NCI Comprehensive Cancer Center
• Level 1 Trauma Center
• Comprehensive Full-Service Children’s Hospital (CHaD)
• Medical, Surgical, Neurologic, Cardiovascular, Neonatal and Pediatric ICU
• Helicopter and Critical Care Ground Transport Service (DHART)
Current Telemedicine Services

- Emergency
- Urgent Care
- ICU
- Neurology
- Specialty
- Pharmacy
- Psychiatry
D-H TeleHealth Locations

TelePharmacy
TeleEmergency
TeleNeurology
TeleICU
TelePsychiatry
TeleUrgent Care
TeleSpecialty
TeleEmergency

With just the push of a button, D-H TeleEmergency can be life-saving.
What is TeleEmergency?

• At the push of a button, board-certified emergency physicians and experienced emergency nurses join your bedside team

• Utilizing high-quality, two-way, interactive audio and video, local medical personnel receive the support and assistance needed in critical situations 24 hours per day, year round

• Through a robust implementation process, our TeleEmergency staff are trained specifically on your site to serve as an extension of your bedside team
“Wired” Emergency Room

- Microphone
- Call Button
- Monitor Codec & Camera
Impact of TeleEmergency

• Reduces transfers
• Continuous support for “never” events
• Provides consistent, high-quality clinical documentation
• Decreases expenditures for hiring locum tenens
• Reduces door-to-physician time, when local ER providers aren’t immediately available
• Quality programs assist with improving outcomes based on national benchmarking data
• Staff has access to virtual education programs
## TeleEmergency – Levels of Support

### Local team determines level of involvement

<table>
<thead>
<tr>
<th>Nurse Only</th>
<th>Physician</th>
<th>Transfer Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nursing documentation and support</td>
<td>• Physician services (from consult/second opinion to managing complete care)</td>
<td>• Hub physician will work with local Critical Care Transport and the relevant Transfer Center</td>
</tr>
<tr>
<td>• Assistance with running codes and very sick patients</td>
<td>• Procedural support</td>
<td>• Arrange for transport, accepting facility and accepting MD</td>
</tr>
<tr>
<td>• Medication questions</td>
<td>• EHR review</td>
<td>• Doc-to-Doc and Nurse-to-Nurse report</td>
</tr>
<tr>
<td>• Procedural assistance</td>
<td>• The local provider makes all final decisions regarding patient</td>
<td></td>
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</table>
Benefits of TeleEmergency

Staff Satisfaction

- Able to focus on patient care
- Have second set of eyes in critical situations, ability to get second opinion immediately
- Supported with best practices
- Minimized professional/regional isolation
- Educational opportunities
- Receive real-time quality reporting based on national benchmarking data
- Improves comfort with difficult decisions (pronouncing a patient, pediatric case, complex cases)

D-H TeleEmergency Customer Site Satisfaction

- How likely are you to use the TeleEmergency Service again?
  Rating Scale: 0 (unlikely) - 5 (very likely)
  Overall experience with the TeleEmergency Service: 4.8

- Professionalism and ease of working with the TeleEmergency staff
  Rating Scale: 0 (poor) - 5 (excellent)
  Overall experience with the TeleEmergency Service: 4.9

*Based off 163 unique
Benefits of TeleEmergency

Patient

- Bedside providers can focus on care
- Overall satisfaction rises with coordinated care
- Ability to stay closer to home
- Reduction in expenses if able to avoid transfer
- Faster response times lead to better outcomes

Hospital

- Improved documentation leads to better coding/accurate billing
- Quality program improvement (stroke, airway, cardiac, sepsis)
- Adjust staffing levels to average (not surges/provider absences)
- Educational classes are virtual and free
- Reduced attrition
TeleEmergency - Initiating Service

Push The Button

- Identify Who You Are
- Tell What Room Patient Is In
- Advise of Chief Complaint
- Communicate Initial Level of Support
TeleEmergency – Bedside Interaction

• Care for your patient as you normally would
  – We remain muted in the background
  – The hub staff will attempt to limit interruptions

• Narrate your care interventions
  – IV insertion
  – Labs drawn
  – Medications administered
  – IV Fluids

*Narrating allows TeleEmergency RN to document thoroughly*
TeleEmergency Call – Wrap Up

• Bedside Team can end video call at any point

• Bedside Team can re-initiate video call at any time

• Within 10 minutes you will receive a fax with all the documentation

• Primary RN review it, sign it, upload it to EMR per hospital policy
TeleEmergency Impact

Ten patients rushed to critical access hospital due to carbon monoxide poisoning in the middle of the night. TeleEmergency helped triage patients, arrange transfers, and assisted with early interventions.

Critically-ill infant in acute distress presented to critical access hospital. TeleEmergency engaged and over the next three hours supported local ED clinical team, while arranging and waiting for rotor wing to transport infant to DHMC PICU.

Patient presented at critical access hospital with throat tightness and inability to breathe sitting up. After initial evaluation by TeleEmergency, ENT specialist at DHMC came to the hub, completed an examination with high def. equipment. Patient was ordered IV steroids and was discharged later that evening.

Patient seen at critical access clinic is sent to that hospital’s ED for evaluation of cardiac issues. Patient codes in the ED, and TeleEmergency is activated to assist with resuscitation and transfer to cardiac ICU.

G3/P2 mother at 38 weeks gestation presented at critical access hospital in active labor. Baby was delivered in the ED with the assistance of the TeleEmergency MD and RN.
TeleICU Service

*Enables hospitals to provide outstanding care for their critically-ill patients while remaining local.*
What is Tele-ICU?

Tele-ICU works through the continuous exchange of patient data and two-way video communications in collaboration with hospital-based critical care teams. The service complements the available care by providing real-time analysis and surveillance of critically-ill patients.

The tele-ICU intensivist-led team and the ICU bedside team can instantly collaborate on emergent patient conditions to ensure optimal patient safety and best practice outcomes.

TeleICU powerfully augments - it does not replace the bedside team, offering support to increasingly scarce clinical resources.
TeleICU In Room Technology

- Two-Way Video Camera Functionality
  - Does not record
  - Turns around when not in use
  - TeleICU staff will appear on the monitor when utilizing Two-Way

- Speakers/microphone placed by patient bed

- TeleICU Button
  - Immediate connection to TeleICU staff
  - Variety of reasons to push the button
    - Patient Admission
    - Intubation/Extubation
    - Change in Patient Status
Collaborative Care

Reasons hospital bedside staff may push the button or call into TeleICU Hub

• Patient Arrives to ICU
• Intubating/Extubating
• Cardiac/Respiratory Arrests
• Emergency Situation
• Placement of Invasive Lines
• Initiation of IV Drips
• Patient Concern
• New Admission (discuss plan of care)
• Nurse-to-Nurse Communication
• Physician-to-Physician Communication
• Anytime
Innovative software provides real-time monitoring of all patients, predictive analytics, software, protocol adherence and measurement, and post-consult analytics and data.

Interfaces from the hospital EMR directly link to the software to provide continuous up-to-date information on patients.

Software trends over the last 4 hours what has been happening; patient that is going to code will have critical changes occurring in a period of 4 hours prior to the event: *TeleICU has visibility and can assist with early intervention.*
Who Benefits From Tele-ICU?

The Patient
- Reduced rates of medical complications and mortality
- Shorter ICU and post-ICU floor lengths of stay
- Comforted by the security an extra layer of care providers
- Ability to stay closer to home/avoid transfer

Clinical Staff (Physician/Nurse)
- Increased focus on patients
- Rapid response to patient needs
- Preserves physician autonomy
- Improved lifestyle

Hospital
- Cost Positive Solution
- Increased case mix index and average daily census
- Reduced nursing turnover
- Improved physician retention and recruitment (less burnout)
General TeleICU Program - Impact

<table>
<thead>
<tr>
<th>Evidence-Based Measure</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Reduced Mortality Rates</td>
<td>26%</td>
</tr>
<tr>
<td>Decreased Length of Stay</td>
<td>30%</td>
</tr>
<tr>
<td>Reduction in Patients Requiring Transfer</td>
<td>37%</td>
</tr>
<tr>
<td>Reduction in Leakage</td>
<td>50%</td>
</tr>
<tr>
<td>Patient and Family Experience</td>
<td></td>
</tr>
<tr>
<td>Avg. ICU Cost Savings Per Patient</td>
<td>$5,000</td>
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**Other Program Benefits**
- Best practice compliance
- Increase in ICU throughput across network
- Regional bed usage/load balancing
- Optimization of bedside resources
- Physician/RN staff retention
- Patients stay local for care

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4. TeleICU project with University of Massachusetts Medical Center. NEHI Research Update. November 17, 2008.
Local Bedside Experience

- Bedside physicians/nurses feel supported by the service
  - Post TeleICU Implementation RN survey reflects improvement in staff satisfaction
  - Benefit to having “second set of eyes”
- Clinical practices have changed for the positive
  - Physicians identified TeleICU as their “safety net” and have been changing their approach to patient care

### TeleICU – Community Hospital Evidence

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<tr>
<th></th>
<th>Predicted</th>
<th>Average Actual</th>
<th>% Improvement</th>
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<tbody>
<tr>
<td><strong>Average Daily Census</strong></td>
<td>2.1 (Baseline)</td>
<td>5.2</td>
<td><strong>148%</strong></td>
</tr>
<tr>
<td><strong>ICU - LOS</strong></td>
<td>3.40</td>
<td>1.78</td>
<td><strong>48%</strong></td>
</tr>
<tr>
<td><strong>Vent Days</strong></td>
<td>3.21</td>
<td>2.51</td>
<td><strong>22%</strong></td>
</tr>
<tr>
<td><strong>ICU Mortality</strong></td>
<td>3.2</td>
<td>2.20</td>
<td><strong>28%</strong></td>
</tr>
<tr>
<td><strong>VTE Compliance</strong></td>
<td>83.8 (Baseline)</td>
<td>100%</td>
<td><strong>19%</strong></td>
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Critical Access hospital has patient on vasopressors. With TeleICU available to help manage the patient, put in orders, request labs and consult on intensive care, the patient is able to stay close to home and avoid transfer.

Community Hospital has a patient showing signs of renal failure and preparing to transport. Through collaboration with TeleICU, alternative care plan was executed, transfer was cancelled and patient recovered quickly.

TeleICU analytics begin to show negative trends for a patient. Immediate consult with hospital bedside staff and orders being placed, resulted in early intervention and avoidance of patient coding.

Patient bit by poisonous snake, no night physician staffing. TeleICU immediately put in orders, worked with bedside staffing and through immediate intervention, patient life was saved and transfer was avoided.

Elderly woman with acute pneumonia requested to stay at local hospital and not be transferred. TeleICU was able to treat and manage her locally.
Questions?
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