Bringing Virtual ICU Support to the Emergency Department (ED) During Times of Patient Boarding

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OBJECTIVES

- Expedite ICU/IMU plan of care for ED patients
- Create capacity in ICU/IMU by downgrading ED patients where possible
- Aligning ICU admit criteria with appropriate bed assignment (right patient, right place)
- Giving support to ED RN with care outside specialty

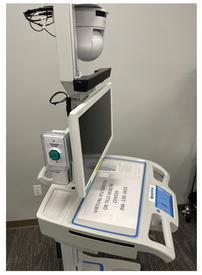
PLANNING/RESEARCH METHODS

A collaborative team consisting of members from the Emergency Department, Telemedicine, ICU/IMU, Centralized Bed Management and Throughput Nurse Practitioners, completed a needs analysis of patients waiting in the ED for ICU/IMU beds. Within this analysis, the group looked at what was needed to best progress the patient's plan of care, opportunities for downgrading patients through targeted and resourced progression of care as well as opportunities for partnering ED staff alongside staff with deeper critical care experience in order to better serve the patients boarding in the ED.

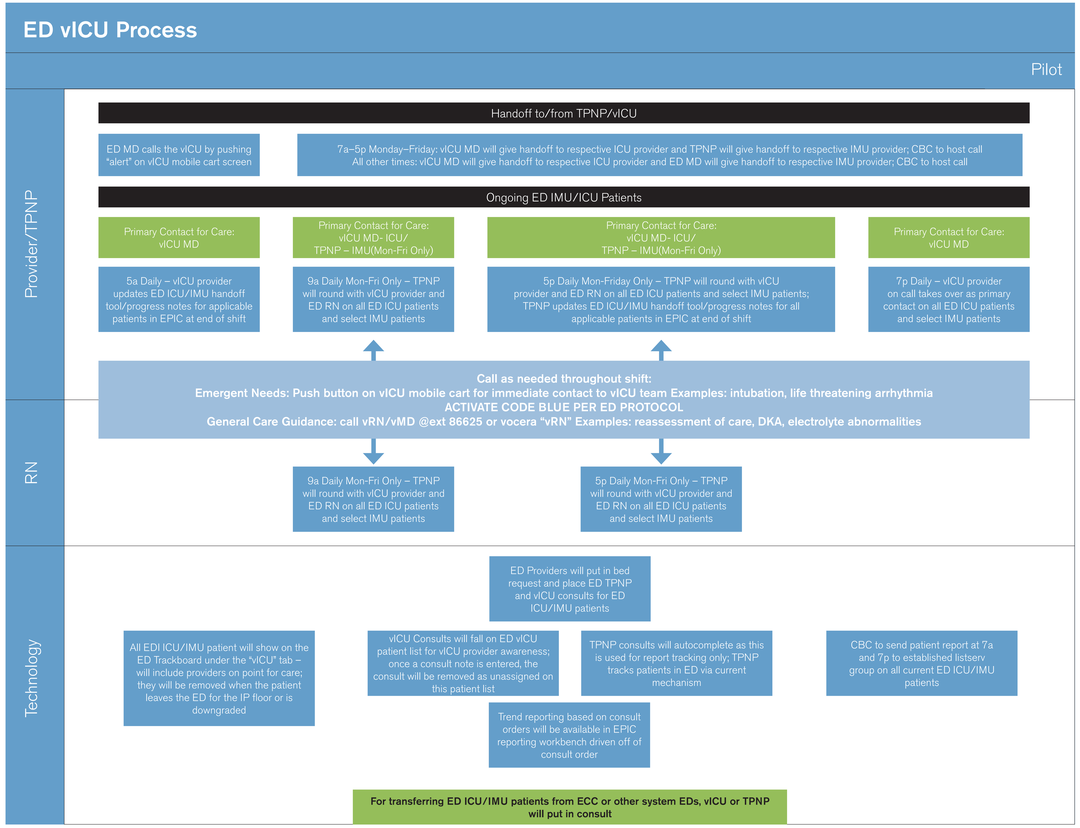
IMPLEMENTATION METHODS

The triad of people, process and technology were the focus of implementation efforts. Improvements included a standardized workflow development between all key players along with education of their roles. Work was done to align the EPIC workflow for quick identification of qualifying ED patients (all ICU/ IMU patients with consults) and an EPIC build for data management of the communication and workflow inclusive of consults, notes and reports. Finally, and most critically impactful, was the integration of virtual care carts with extremely robust technology for ICU providers to see, interact and support local ED staff at bedside with a simple click of a button.

CART PHOTOS



WORKFLOW



TPNP = Throughput Nurse Practitioner; vICU = virtual ICU

ED Contact: x12245/x15050
vICU contact: x 86625 (Vocera: "vRN")

Cart Locations: 1 cart kept in Station 6 Nurses Station;
1 cart kept in Station 1 Nurses Station

RESULTS

During the course of a two-month pilot, an estimated net of 75 new ICU case beds were made. Thirty-one of these were from downgrades in care while in the ED and forty-four of these from ICU length of stay reductions resulted from targeted care plan enhancements. Result was that the hospital experienced stable ED to ICU patient volume despite overall higher patient volumes and was afforded an increase in external ICU transfer volume to an annualized estimated net contribution margin of $4.5M. In addition, from a feedback survey, ED staff reported an 85% top favorability with the added support outside their specialty area in the care their ICU patients.

FINANCIAL MODELING

2 month combined pilot period

	Estimated Net New ICU Cases
ED Downgrades	31
ICU LOS Reduction	44
TOTAL	**75**

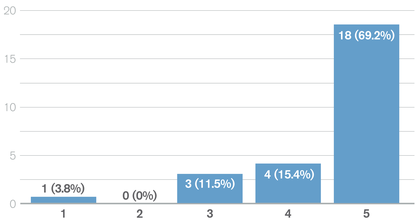
	Estimated Net New ICU Cases
Monthly	$375K
ICU LOS Reduction	$4.5M

Improves capacity for new case acquisition from outside hospitals (~10K contribution margin per case)

SURVEY RESULTS – PROCESS

On a scale of 1–5, please rate your experience with the vICU process:

26 responses

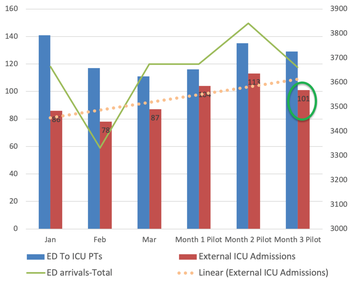


1=Poor, 5=Excellent;

Lowest raters, those 3 and below, commented had not used yet

EXTERNAL ICU ADMISSION TREND

- External ICU Transfer volume
- Stable ED to ICU patient volume despite overall higher patient volumes



Pilot Period Month 1 = April 15 – May 15
Pilot Period Month 2 = May 16 – June 15
Pilot Period Month 3 = June 16 – July 15

FEEDBACK EXCERPTS

- Just wanted to let you know how well that video with the ICU RN and ICU MD went. Had a severe problem with a Intubated pt that dropped bp and had spike in temp. Was maxed out on my drips and both of them walked me through getting the pt stable. Absolutely awesome. They treat you with respect even though your a nurse and did not question anything. They have the information at their fingertips and immediately fixed the problem. Then later on I had closed the gap for dka. I called again and I updated them on the labs and trop and lactic acid and we were able to begin to stop the dka protocol. I did not have to fight with er md's to fix or get involved with this pt. The original md was gone and we usually have to argue with one of the other ones to help out. This video process was absolutely awesome!!!!!! Kudo's on getting this for us. - ED RN
- I had the opportunity to utilize the virtual ICU doctor and I was very impressed and grateful. I had an IMU patient with a potassium level of 1.6. The patient had multiple potassium drips and the ICU doctor helped me manage the medications, as well as placed orders for labs. The doctor was also available to assist me when the patient's heart rhythm would change in and out of AFib. He utilized the camera to watch the EKG rhythm. The system itself was simple to use and very convenient. The ED doctors were busy with multiple patients in the department and the virtual doctor was at my fingertip. This system will be an asset to ED nurses. The doctor was professional and was truly beneficial in the management of my patient. - ED RN
- vICU RN, particularly Mary, calls us and makes sure that patient is ok and always asks if I needed help with any of my patients. – ED RN
- Pt sister and son given a long update via virtual ICU MD; family members very appreciative. All questions answered. – ED RN