Interprofessional Collaboration Saves Lives: Power of Nurse, Doctor, Lab and EHR Talent

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VIDANT HEALTH

BACKGROUND

- In 2015, VMC sepsis pathway was implemented unit by unit with the goal of decreasing mortality related to sepsis.
- One key initiative within the pathway was an automated page to Emergency Response Team (ERT) from lab for all Lactic Acid (LA) values greater than 2.
- The purpose of this alert was to bring resuscitation expertise to the bedside and improve timeliness of evaluation and treatment.

PROJECT AIM

Global Aim

Improve health outcomes for patients (≥18 years) with sepsis

Specific Aim

Decrease sepsis mortality for adult patients at VMC by 10% and sustain results over a two-year period via implementation of a multidisciplinary sepsis pathway

PROJECT DESIGN/STRATEGY

Delay in activation of the systems of care is associated with higher mortality.[1]

Since its implementation across VMC (**11/2015**), the auto-alert system has combined technology with human expertise to improve outcomes for patients.

When the lab obtains a LA value >2, an automated page with relevant patient information is relayed to ERT. This notification prompts ERT to assess the patient and determine if they could benefit from interventions such as:

- IV fluids,
- Vasopressors
- Antibiotics
- Escalation of care to an intermediate or intensive Care Unit

EVALUATION PLAN

- **Mortality** is the most significant outcome measure.
- Another measure is escalation of patient to higher level of care. While escalation of care is not a failure in management, an earlier response can hopefully avoid escalation or reduce the time spent in the higher level of care.
- Outcome Measures (Lagging indicators) include:
  - Observed Mortality
  - LOS
  - ICU Utilization
- Process measures (Leading indicators) include:
  - Interventions:
    - IV fluids, Vasopressors, Antibiotics
  - Number of LA values >2 collected

RESULTS

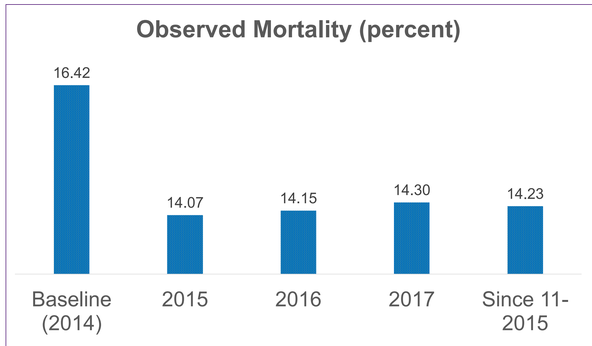

Fig. 1: Trends in observed mortality since inception of project showing sustenance of a 10% improvement in mortality

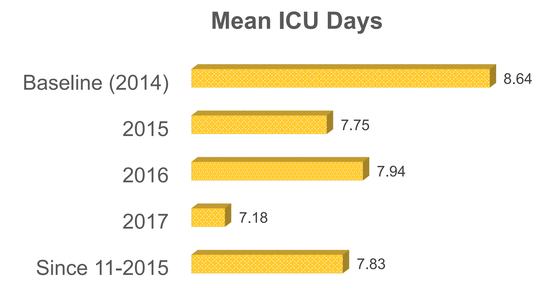

Fig. 2: Trends in Mean ICU days (days spent in ICU) since inception of project showing sustenance of improvement with special focus on 2017 data

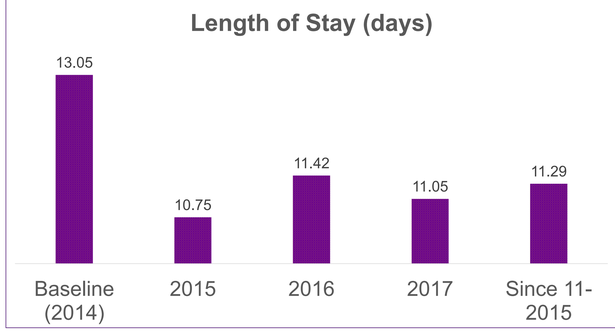

Fig. 3: Trends in observed LOS since inception of project showing sustenance of a 10% improvement in LOS

CONTINUED

	Jan-17	Feb-17	Mar-17	Total
Lactic Acid >2	306	268	362	936
#Patients (HAR #)	140	137	159	436
Interventions	136	122	164	422
Confirmed/Suspected Infection	91	89	122	302
Escalation of Care (IU or ICU)	8	8	15	31
EOL	0	0	1	1

Fig. 4: Example of ERT data collected in early 2017 with special focus on interventions in over 33% of cases

LESSONS LEARNED

- As the auto-alert continued to be utilized, it created a large amount of data for ERT.
- Incorporating dedicated data personnel into the team would allow for improved interpretation of information gathered.

CONCLUSION AND NEXT STEPS

- Our interventions have **reduced** LOS and ICU utilization thereby **decreasing** cost. More importantly, it has **saved lives**. By leveraging technology and interprofessional teams, the lab-ERT auto alert system has added a layer of support for bedside nurses and doctors as they do their best work.
- Results from this intervention are very encouraging and support **further expansion** of the auto-alert system.
- Sustenance of improvement will continue to require education and attention to detail

ACKNOWLEDGEMENTS

Special thanks to the entire sepsis steering committee, VMC laboratory services, Emergency Response Team, Hazel Pennington, Patricia Denton and Dr. Niti Armistead

Note: 2017 data till September

Citations

1. Winters BD, Weaver SJ, Pfoh ER, Yang T, Pham JC, Dy SM. Rapid-response systems as a patient safety strategy: a systematic review. Ann Intern Med. 2013 Mar 5;158(5 Pt 2):417-25. PMID: 23460099

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