HFMA Florida Webinar:

Breaking Through Barriers to Demonstrate the Value of Virtual Care

April 15, 2020

Session Objectives

Participants will come away with an understanding of:

- How Telehealth can make an impact in healthcare
- The challenges and complexities of defining the value of virtual care based on traditional ROI models
- The concept of Value on Investment (VOI)
- How AdvocateAuroraHealth has made a significant impact on the quality of care and the cost of healthcare delivery with their Tele-ICU program over the last decade
- Best practices for implementing telehealth to enable virtual care based on lessons learned from organizations who have been successful
- The short-term and long-term impact of COVID-19 on Telehealth

Agenda

Telehealth Overview

Return on Investment (ROI) Versus Value on Investment (VOI)

Tele-ICU: The Value Proposition

The Impact of COVID-19 on Telehealth

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Telehealth Overview

Telehealth Defined

- Provides patient care and consultation services over distance that uses an audio/video conferencing technology platform to link a patient with a specific need with a clinical provider/physician/specialist at a different location.
- Can be a "game changer" that extends and enriches care capabilities to drive new value and serve patients with more accessible, convenient and flexible care delivery models.
- Helps reduce costs by advancing preventative care models associated with post-acute care, chronic condition management, population health management, and the patient centered medical home.
- Can be used strategically to target higher reimbursement patient areas, shift referral patterns, improve access to care, and serve new/emerging markets.
- Integrates patient data throughout the care continuum.
- Ensures the patient's care needs are the focus rather than the technology or delivery mechanism.
- ***Can directly influence flattening the COVID-19 curve of demand on health systems worldwide, slowing transmission and spreading incidence over a longer time period.***

Telehealth Use Types / Modalities

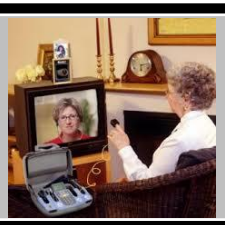
Synchronous

- Live, bi-directional interaction between a patient and care provider
- e.g., video conferencing, patient or provider consultation, health exam, health education & training

Store-and-forward

- Transmission of information to be reviewed / consumed at a later time
- e.g., clinical results, images, education & training, patient portals

Emerging Growth Areas



Remote Monitoring

- Medical data collected from patient in a remote location; consumed by a provider in another location for care and care support
- e.g., biometric data collection for chronically ill patients

Mobile Health / Wearables

- Care supported by mobile devices that promote healthy behaviors, alerts, reminders and care management
- e.g., weight loss, diet, exercise, vital signs monitoring, mental health

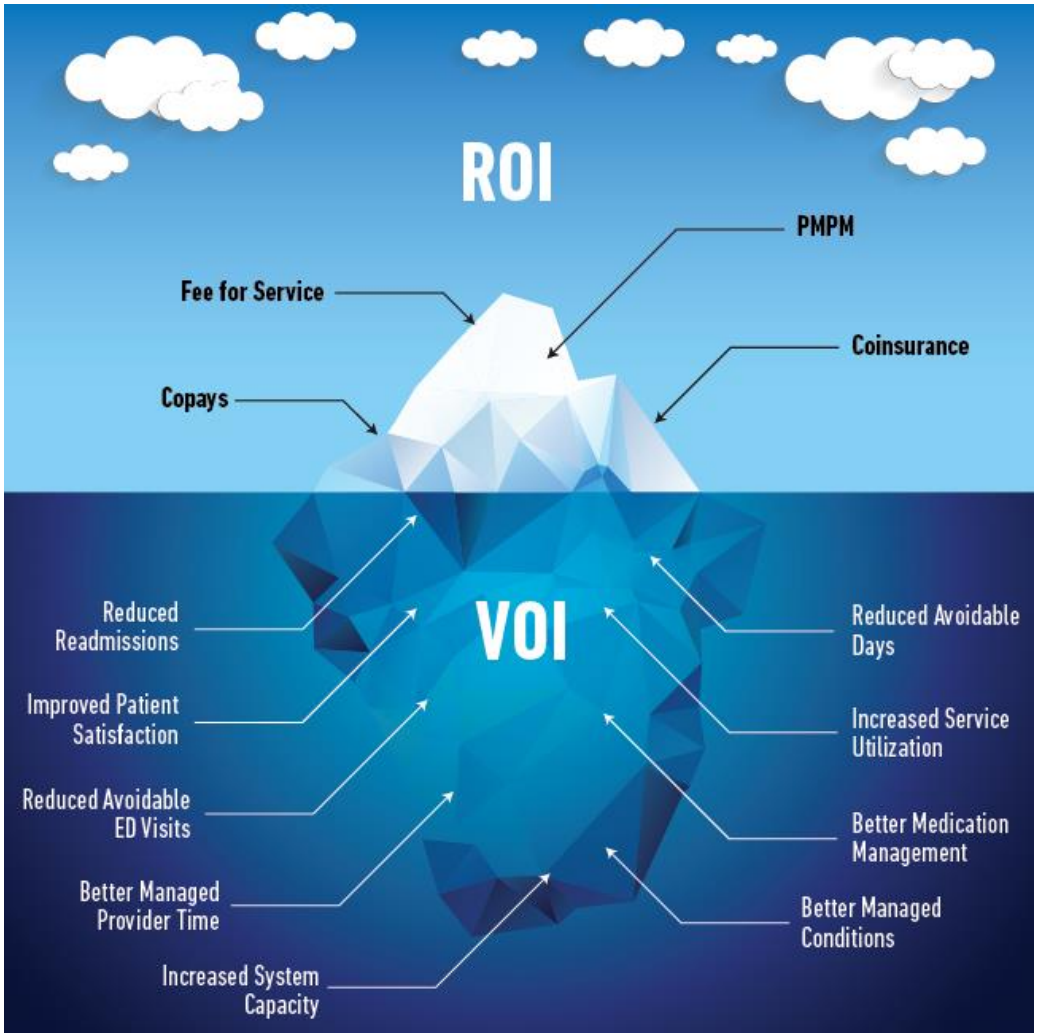
The Challenge with Telehealth ROI

- "Value" is the most ambiguous word in business – it's the importance, worth, or usefulness of something, which depends on who you are asking and if that person understands the question
- Healthcare continues to struggle to define value as the industry slowly transitions from volume to value
- Tradition return on investment (ROI) calculations require the ability to estimate financial gain and the total cost of investment
  - There are many continuous variables in healthcare
  - It's challenging to obtain the data required to analyze costs relative to outcomes
- Telehealth introduces another layer of complexity in demonstrating value
- New inputs and variables that translate to returns in the form of value must be considered

Telehealth Return & Value on Investment (R/VOI)

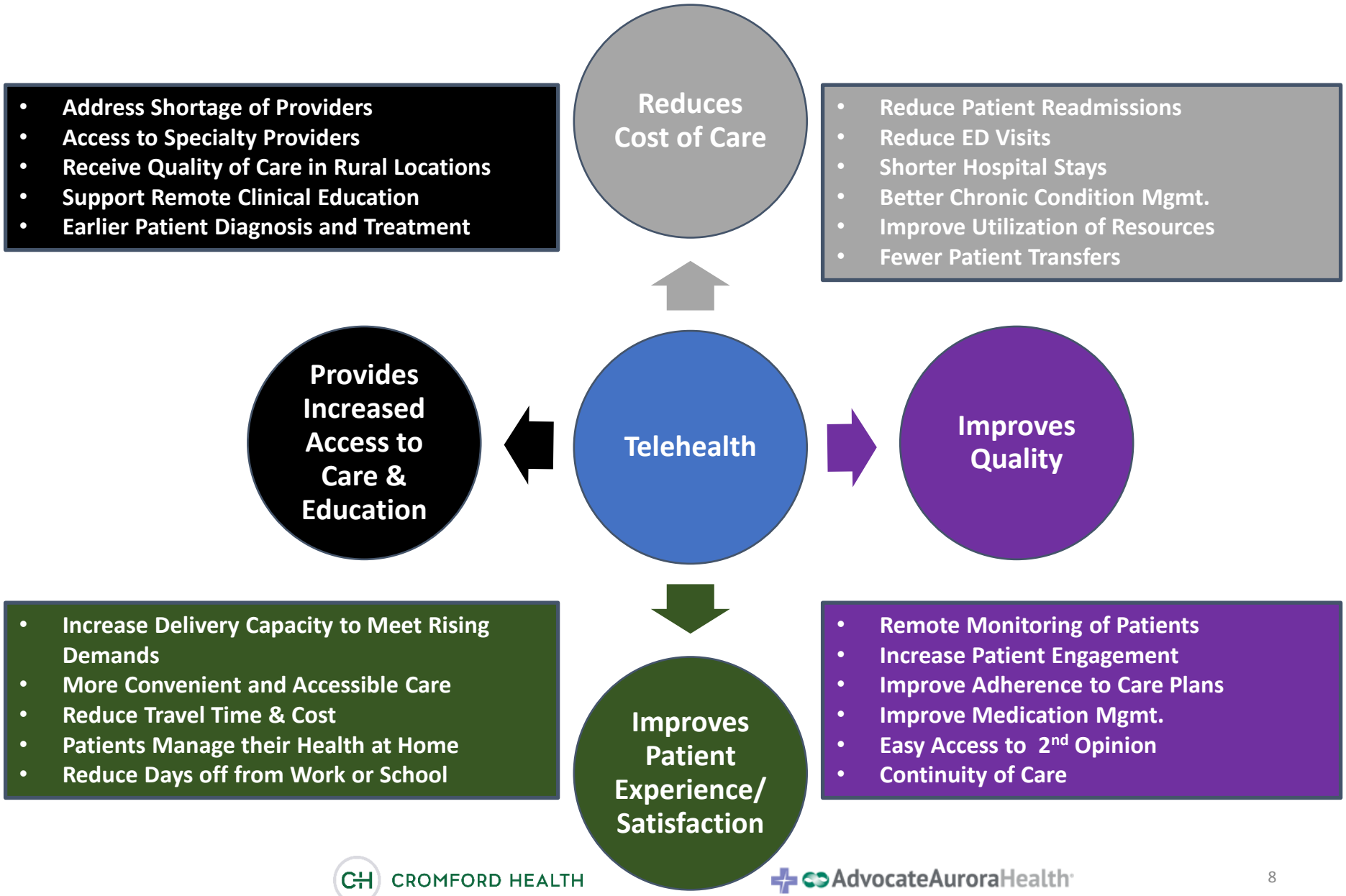
Returns/ Value above and below the surface:

The Iceberg Analogy



Source:
Telehealth Financial Variables and Successful Business Models

Impact of Telehealth on Healthcare



Are you measuring ROI or VOI for your Telehealth program today?

Polling Question

Tele-ICU: The Value Proposition

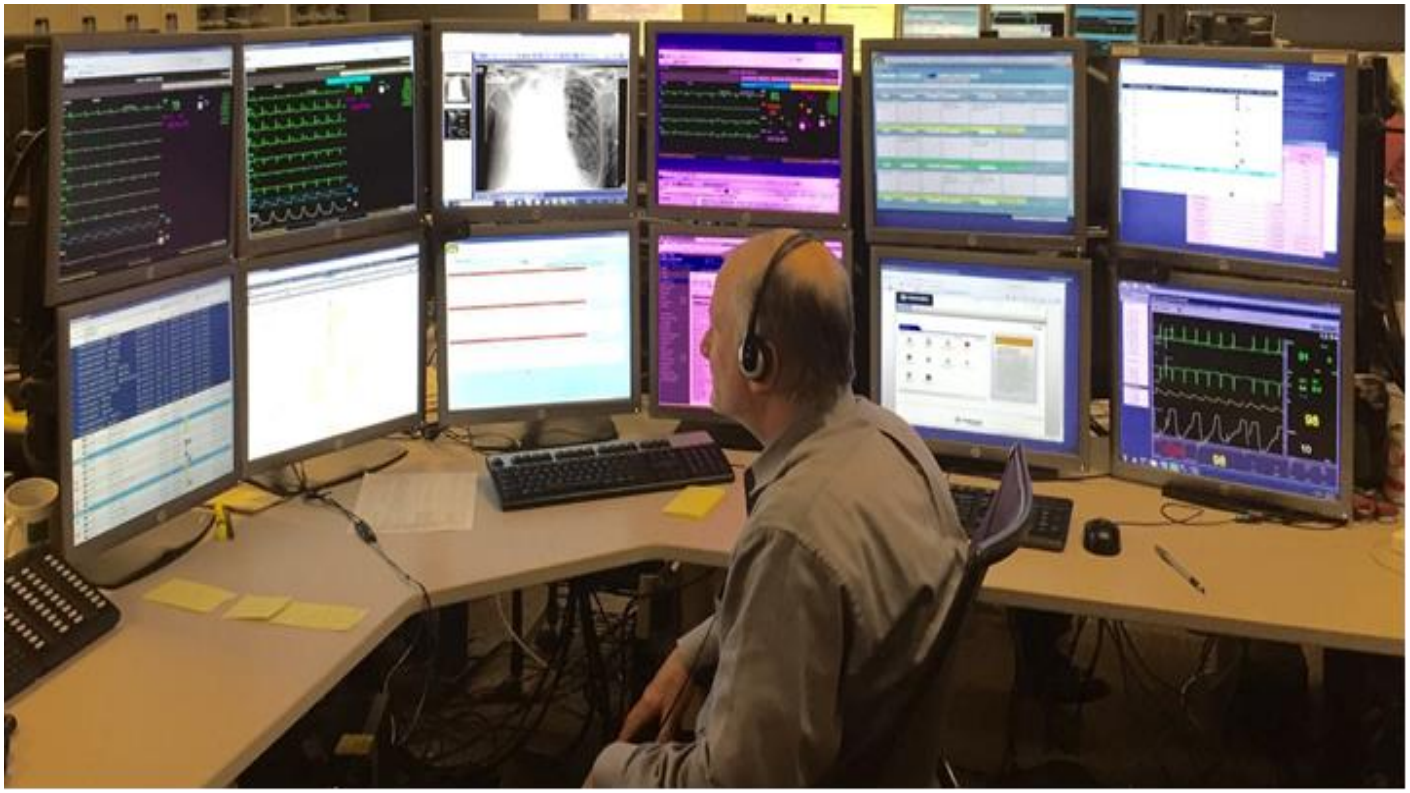
Michael Ries MD, MBA, FCCM, FCCP, FACP

Medical Director of Critical Care, Tele-ICU, Patient Command Center, Advocate Intensivist Partners

April 15, 2020

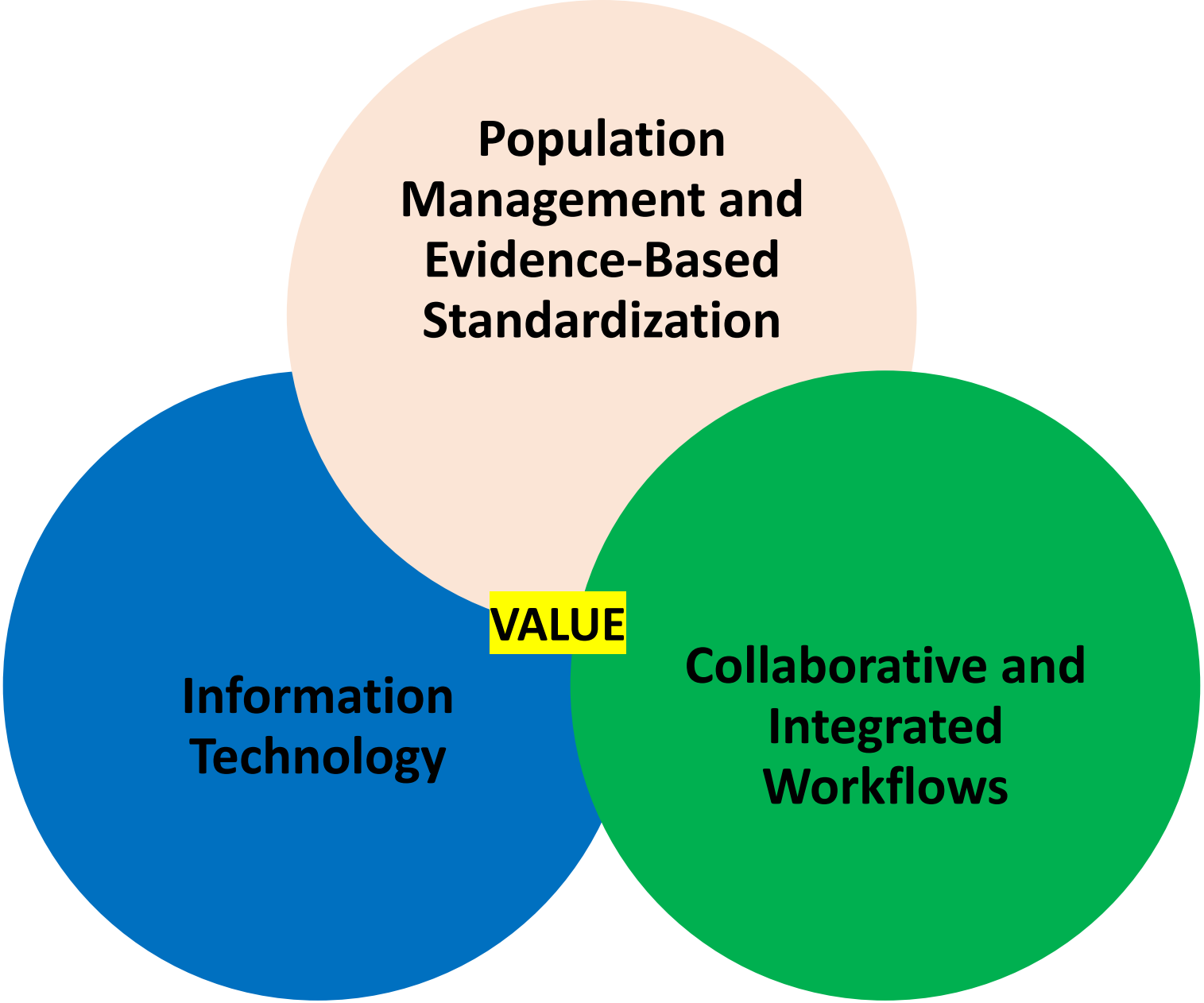
AdvocateAurora Health Tele-ICU

- eICU hubs Chicago and Milwaukee
- One of the largest teleICU programs in US; began in 2003
- 42 teleICU sites across Illinois and Wisconsin
- 700 critical care beds
- 45k ICU admissions per year
- eIntensivist and eRN coverage 24/7/365 with board certified care physicians
- ED Triage Program/eSepsis/
  Nurse Mentoring/Sitter Program
- Added 200 ICU beds covered as part of COVID-19 surge



Goals

- The success of telehealth is determined less by what technologies you have and more by how you use them
- Tele-ICU can achieve clinical and financial benefits across a large healthcare system utilizing implementation science
- Gap analysis affords an opportunity for telemedicine to improve evidence-based practice adherence in the ICU
- Acquiring reliable, risk-adjusted data helps in demonstrating the value
- Tele-ICU is a facilitator of change management as much as an “intervention”
- A key element of a high reliability health care system – the COVID experience


Population Management and Evidence-Based Standardization
VALUE
Information Technology
Collaborative and Integrated Workflows

The Challenge with Tele-ICU ROI

- Lack of clarity of ROI
- Inability to perform activity cost accounting accurately
- Tele-ICU is a non-profitable service from the revenue perspective
- Start up costs: infrastructure, hardware, software licenses, depreciation, insurance, facilities, administration, tele-MD salary, tele-RN salary, support staff, clinician licensing, (IT, data analyst, HCAs, …..)
- Cost can be allayed by decentralizing tele-ICU, vertically integrating the technology (e.g. ED boarders, stepdown, PCCU, eSepsis, RRTs, ….)

Economic evaluation methods for Tele-ICU

- **Cost analysis -** next best alternative
- **Cost-effectiveness analysis -**It compares the economic costs of a program with a non-monetary outcome such as years of life gained or avoided illnesses,
- **Benefit-cost analysis -** Most comprehensive and allows the study of interventions with multiple outcomes. It compares the economic costs and monetized economic benefits of a program to determine whether a program is economically justified and better than alternative uses of the same resources. It allows for direct comparison of programs with disparate outcomes. For this approach, one has to clearly identify all the relevant economic costs and outcomes of a program. The outcomes need to be converted into monetary values and discounted to account for present value of future costs and benefits.

Davalos; Telemedicine and e-Health; 2009, 15 (10): 993-947

CEO/CMO/COO/CFO Value Proposition

- Safety and quality – better patient outcomes and care; hopefully at a lower cost
- Opportunity benefit
- Decrease liability
- Collect risk-adjusted data
- Labor savings but NOT with higher patient to clinician ratio
- Increase revenue/decrease cost (monetize the benefits)
  - Decrease LOS
  - Decrease ventilator days
  - Decrease adverse events
  - Avoid unnecessary transfers – tele-ICU coverage smaller hospitals, eSepsis, …
  - Admit to a lower acuity bed – e.g. tele-ED boarder program
  - Increase ICU capacity
  - Utilize APCs with intensivist oversight → Emory program
  - Increase career longevity (physicians and nurses) – avoid recruiting costs
  - Helps with nurse staffing

CEO/CMO/COO/CFO Value Proposition *(cont'd)*

- Improve documentation – optimizes revenue mainly in a fee for service environment
- Increase AHRQ, … scores
- Reduces bedside clinician distractions
- Drive market indicators
- **"We changed our culture"**

Benefits/ROI/VOI

- **Clinical**
  - ❑ **Reduced mortality**
  - ❑ **LOS**
  - ❑ Reduce adverse events
  - ❑ DVT
  - ❑ Sepsis Mortality
  - ❑ Ventilator days/VAP's
  - ❑ CLABSI's/CAUTIs
  - ❑ Reduce Transfusions
  - ❑ Improve nutrition
  - ❑ Increase mobility
- **Financial**
  - ❑ Leapfrog compliant
  - ❑ Reduced costs ("avoid harm", fewer complications, VAPs, ADE's, sepsis, cost of 24/7 onsite intensivists, admit to a lower acuity level bed, ….)
  - ❑ Reduced LOS
  - ❑ Increased capacity
  - ❑ Reduce unnecessary tests, xrays
  - ❑ Reduce transfers to higher level facility
  - ❑ Decrease liability
- **Other**
  - ❑ Standardize the delivery of ICU care (workflows and protocols)
  - ❑ Leverage scarcity of board-certified intensivists
  - ❑ Facilitate Data Reporting
  - ❑ Process Flow Variability (Gap) Solutions
  - ❑ Avoid sleep deprivation
  - ❑ Housestaff training and satisfaction
  - ❑ Nurse satisfaction
  - ❑ Support of less experienced RN's/Nurse Mentoring
  - ❑ Patient/family satisfaction
  - ❑ Decrease burnout of clinicians
  - ❑ Career longevity - extend Intensivist and critical care nurse career (most experienced)
  - ❑ Decrease clinician interruptions
  - ❑ Protection from communicable diseases
  - ❑ Vertical integration
  - ❑ Resilience

Tele-ICU Beneficiaries

Patient

Physician

Nurse

CEO/CMO/COO/CFO

Regulatory requirements

Payor

It is not the technology, but how you use the technology that matters

What Does Tele-ICU do to Bring Value?

Disease Management

- Acute interventions
- Patient surveillance for proactive intervention

“Population Management” – Evidence-Best Practices

Support Individual Unit Special Needs – Process flow variability through “gap analysis”

Education

- Resident eRounds
- Nurse Mentoring

Leveraging the technology in other care settings

Tele-ICU variables

Type of monitoring: centralized v. decentralized, continuous versus intermittent, camera v. no camera, etc.)

Cost of purchasing, operating, and maintaining the tele-ICU program

Composition of the tele-ICU team (e.g. physicians, nurses, pharmacist, respiratory therapists, medical assistance, etc.)

Participation in the delivery of evidence-base practice workflows

Goals of the tele-ICU program

EMR interfacing and use of supplementary electronic programs (e.g. SharePoint, sequel, excel, ….)

Hours of coverage

Ratio of tele-ICU physicians to patients and nurses to patients

Extent of collaboration/communication between the tele-ICU clinicians and the bedside clinicians and among the ICU telemedicine clinicians themselves

Extent of handovers

Administrative/system support and bedside clinician support/buy-in

Comprehensiveness of workflows in the tele-ICU “hub”

In God we trust; all others bring data

W. Edward Deming

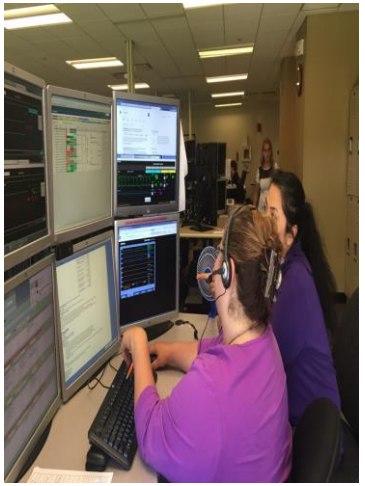
Wisconsin	**APACHE IVa**				
Annual	2015	2016	2017	2018	2019
System	2015Q1 - 2015Q3	2015Q4 - 2016Q3	2016Q4 - 2017Q3	2017Q4 - 2018Q3	2018Q4 - 2019Q3
P-A ICU Mortality **(Lives Saved)**	526	730	486	368	478
P-A ICU LOS (**ICU Days Saved**)	7473	11444	11957	15211	18583

Illinois	**APACHE IVa**				
Annual	2015	2016	2017	2018	2019
System	2014Q4 - 2015Q3	2015Q4 - 2016Q3	2016Q4 - 2017Q3	2017Q4 - 2018Q3	2018Q4 - 2019Q3
P-A ICU Mortality **(Lives Saved)**	828	1203	1288	1790	1476
P-A ICU LOS (**ICU Days Saved**)	22792	29837	30250	33084	31198
P-A Vent Days (**Fewer Vent Days**)	5718	6793	7621	7480	8529

Patient Safety Story

An elderly patient was admitted to the ED with shortness of breath and a decision was made to admit to ICU. While boarding in ED due to lack of ICU bed availability, the patient continued to deteriorate, suffered a cardiac event and ultimately expired.

- A Root Cause Analysis (RCA) ensued with at least four areas of opportunity for improvement identified
- Corrective action resulted in the implementation of four eCareMobile carts, definition of new work flows for ICU boarders including the handover process and continuous patient monitoring (unique in the ED for ICU overflow monitoring)
- Ongoing PDSA revealed an opportunity to utilize change management of both the IT and clinical processes



MICU Admission Boarding in ED Workflow

MICU patient in ED, MICU bed needed

Physician places ICU bed request after "Dr. Done"

Bed request to Bed Board

ED notified by bed board that ICU bed not available

(MICU bed not available if less than 2 open beds)

Desk clerk places patient into "ICU Virtual Hold Bed" ECC5, ECC6, ECC8, ECC9

Patient is admitted as Inpatient status

ED RN notifies ED Attending Physician and/or ED Resident that patient is placed on Cart

eCare Mobile Cart activated & eAlert button pressed by ED RN

ED RN staff notifies eICU RN of admission and provides report:

1. Name
2. Patient ID (MRN)
3. Diagnosis
4. Attending Intensivist
5. ED room number
6. Virtual Unit Admit Date/Time

After report is received the eRN will call the MICU to inform them of the boarding eMobile cart patient
MICU charge RN 41-8558

eICU HCA admits patient into eCareManager
Verifies lab and trended vital signs, enters height, weight and other data per eICU process.
Notifies eRN and ePhysician of admission.

ED staff enters MRN, Pt Name (Last, First) on monitor

Hand-over (Follow Communication Workflow)

eICU — Physician / RN

Intensivist

ED — Attending / Resident / RN

- ED Physician or Resident calls eICU attending to review case
- ED RN calls eICU RN to discuss case
- eICU Intensivist writes brief summary note in chart (Update and summary note to be written as an addendum to the original note)

eICU Clinician camera assesses patient upon notification

eICU Intensivist writes summary note on chart every shift to provide better handover

ED notifies eICU of transfer to MICU bed by eAlert button or phone call

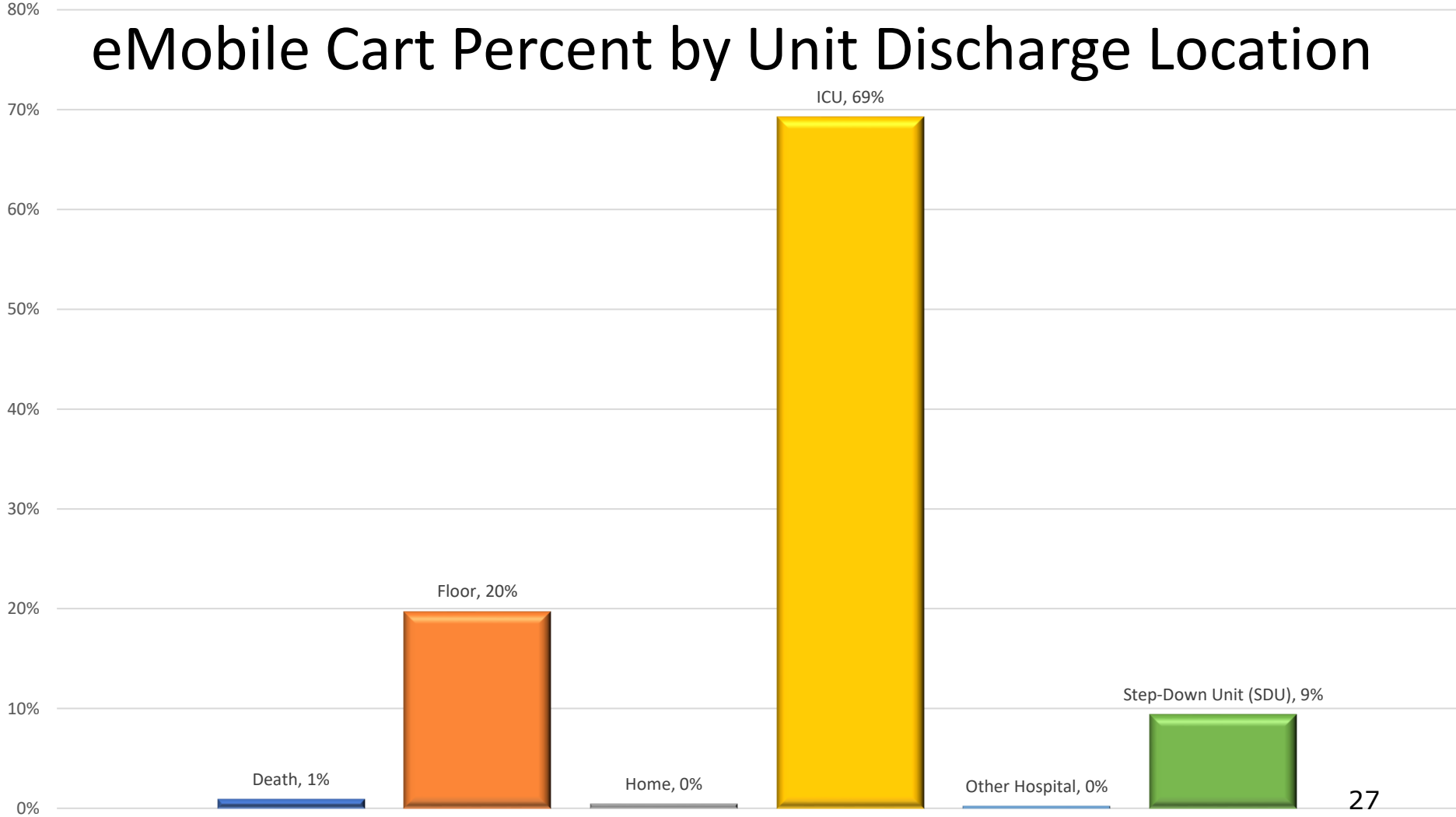
eRN calls MICU RN to handover the patient only if update needs to be provided.
Note: ED RN will provide full report.

eICU intensivist writes brief summary note upon transfer to MSDU and provides hand-over to Attending Physician.

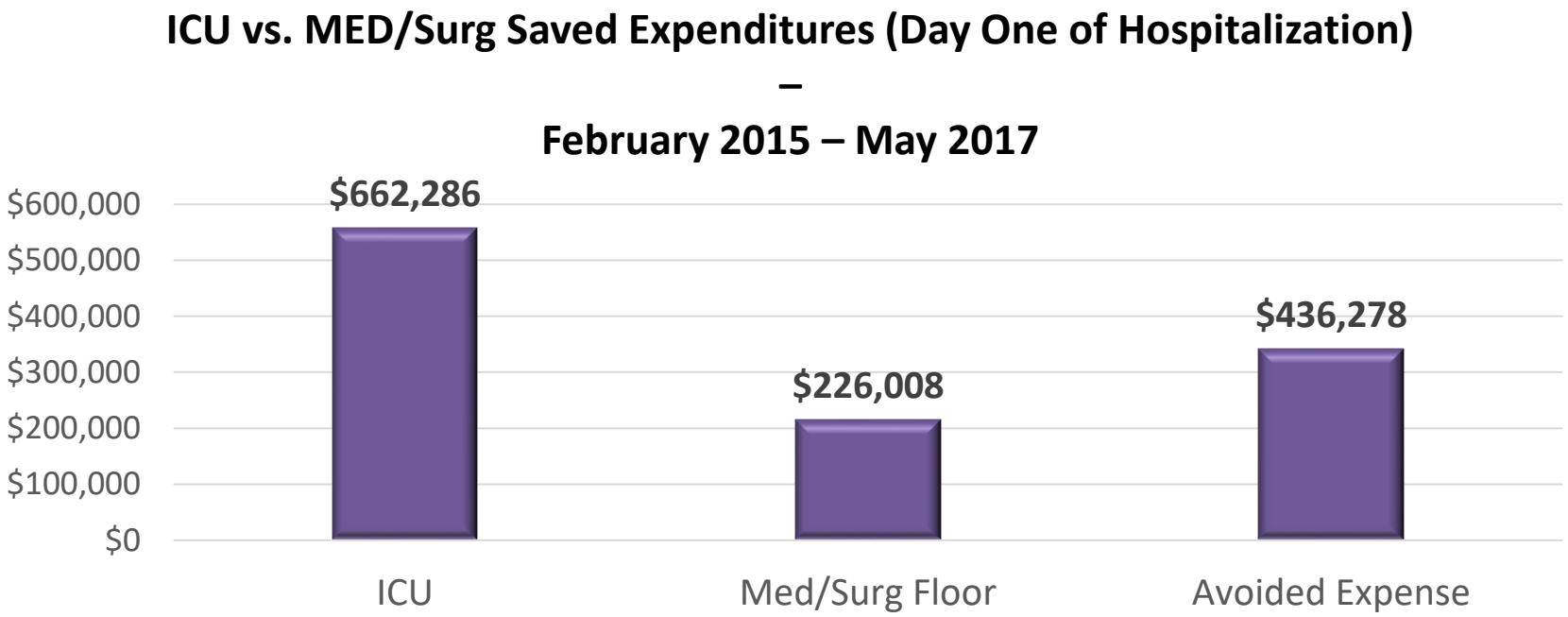
Original Date: 2016.12.20 Modified: 2018.2.27

Cumulative February 2015 through May 2017

eMobile Cart Percent by Unit Discharge Location



CMC ED eMobile Cart Data

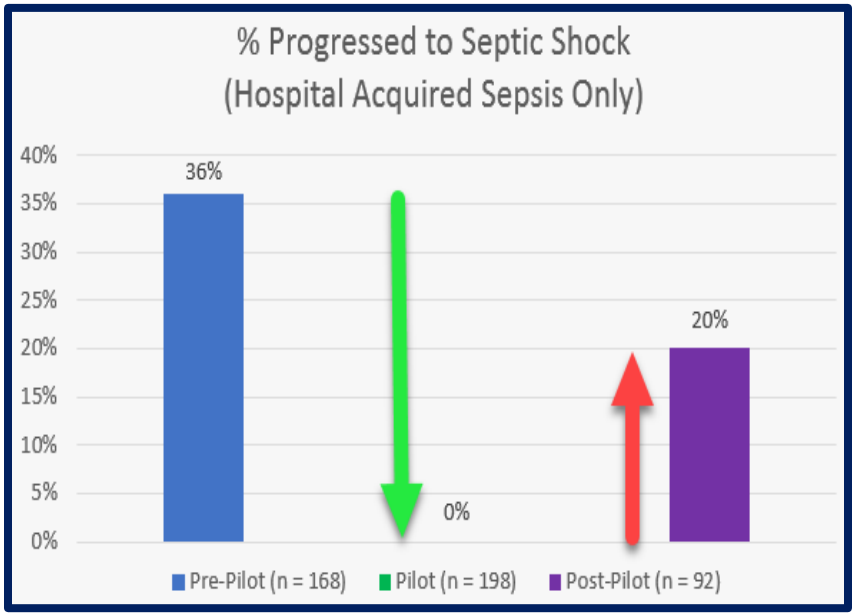


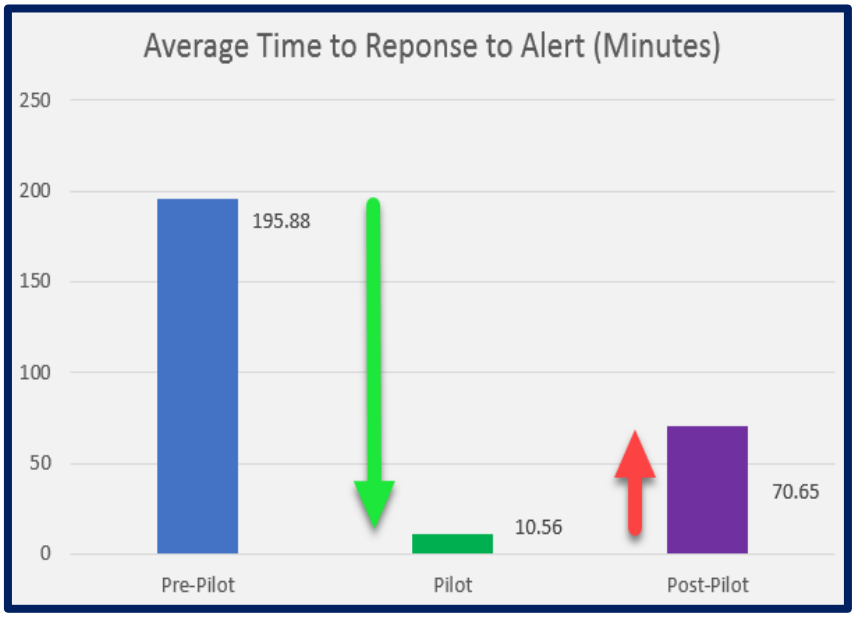
Other Benefits:

- No additional Patient Safety events for ICU/ED boarders
- Shorter LOS indicates improved throughput
- Now covering Step Down boarders as of 7/24/17

e-Sepsis/Deterioration

The eICU – Advocate So Suburban Pilot
The Results – Patients with Sepsis



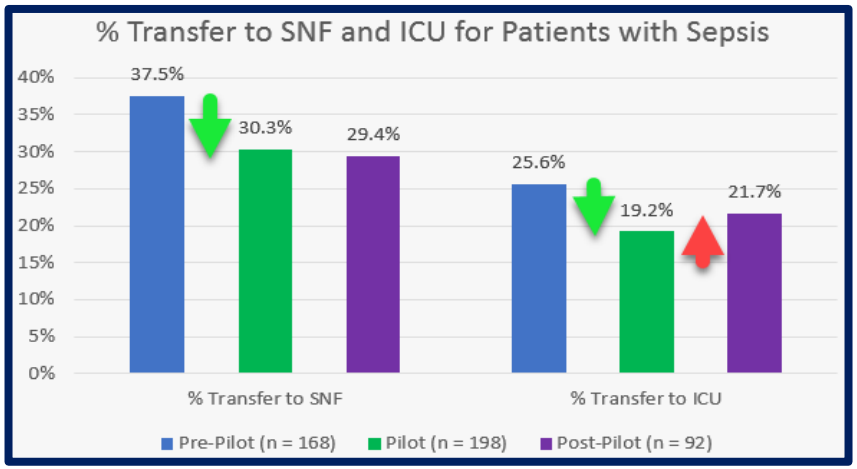


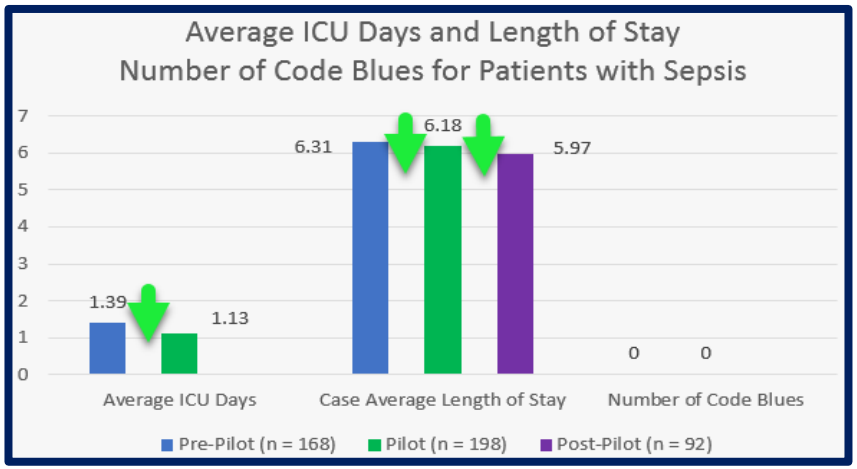
- **During the pilot phase there were no patients that progressed to septic shock.**
- **Average alert response went from > 3 hours to 10 ½ minutes.**

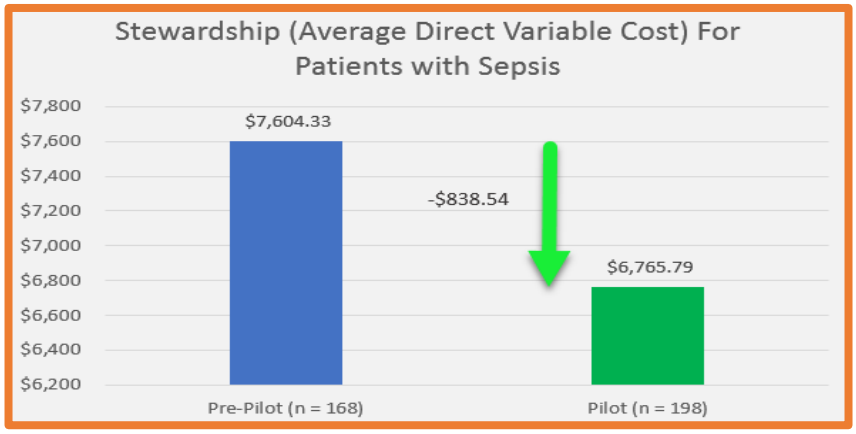
Remember: Mortality rate increases 7.7% per hour in septic shock if antibiotics are not intiiated.

The eICU – Advocate So Suburban Pilot

The Results – Patients with Sepsis







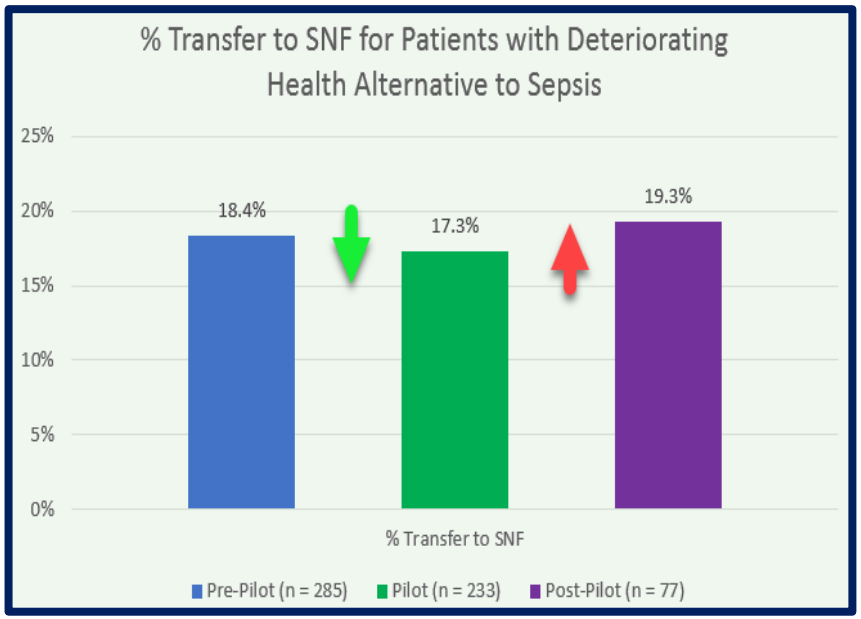
For patients diagnosed with sepsis, during the pilot phase there was a **decrease** in:

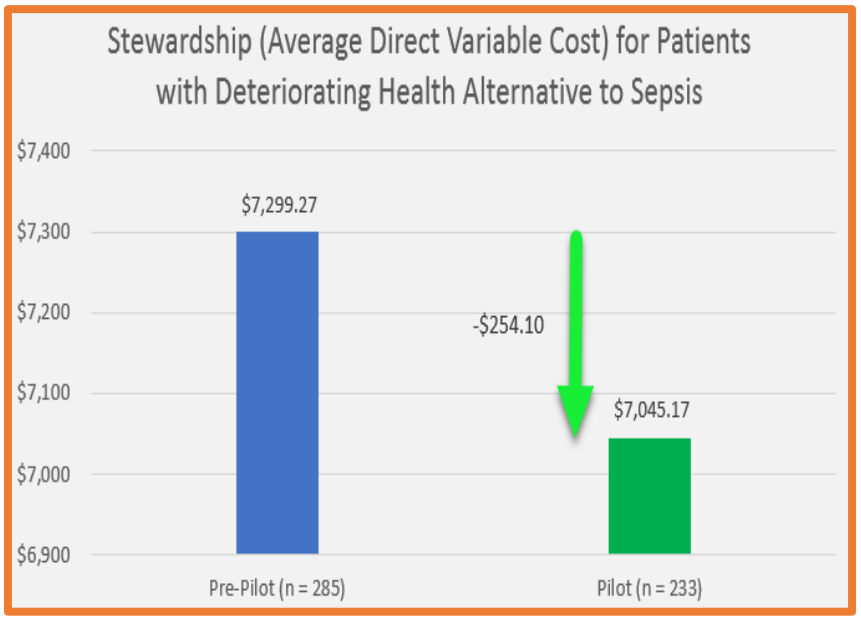
- **Percent transfer to SNF**
- **Percent transfer to ICU**
- **Average ICU days**
- **Average length of stay**
- **Average direct variable costs (-$838/case)**

The eICU – Advocate So Suburban Pilot

Patients with Deteriorating Health *(Other than Sepsis)*

The Results:





<u>Anticipated benefits for expedited management of other cause deterioration</u>:

- **Decrease in transfers to higher level of care**
- **Decrease 'Rapid Response' events**
- **Decrease LOS and improved outcomes**

Tele-ICU Response to COVID-19

Telehealth Opportunities with COVID-19

- Provided expanded Tele-ICU coverage for an additional 200 beds
- Observed patients to avoid unnecessary entry into room by bedside clinicians
- Protected visual and audio monitoring by bedside clinicians at nurse stations
- Protected specialty consultations with cameras at nurse stations
- Observed donning and dopping to avoid broken barriers
- Verbal orders while intensivist in patient rooms
- Multidisciplinary rounds with non-intensivists
- Monitor IVs, ventilator graphics, ECMO, CRRT

Telehealth Opportunities with COVID-19

- ePerfusionists
- Anesthesia machine monitor by centralized anesthesiologist
- Ventilator management with non-intensivists especially for COVID “L” and “H” types of respiratory failure
- Watched patients’ work of breathing for first two hours of HFO and BiLevel NIV
- Triaging of patients based on ICU capacities
- **THINK OUTSIDE THE BOX** for opportunities

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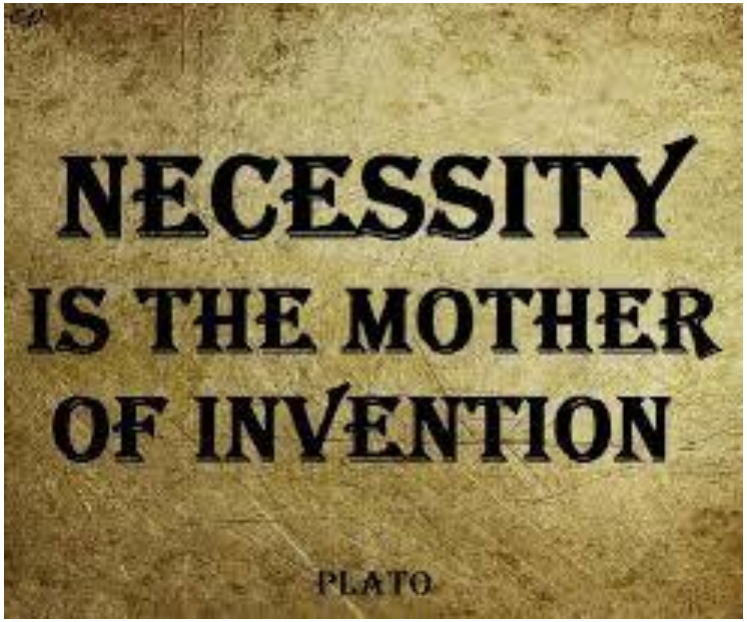
The Impact on Telehealth

Telehealth in Crisis Management

- **Telehealth is now essential** in the fight to stop the spread of COVID-19
- Adoption, policy and reimbursement barriers are nearly non-existent
- Any non-public facing communication platform is now allowed
- Providers who are quarantined due to exposure can continue to work virtually
- ***Telehealth is now a key strategy across all healthcare delivery service lines***



Virtual care will likely become a standard care delivery model in the future. Preparing for the future now is essential to success.

Do you anticipate increasing telehealth operations and resources post COVID-19?

Polling Question

Preparing for the Future of Telehealth

- Now is the Time to Assess and Plan
  - Assemble a Team
  - Assess and Prioritize
  - Capture Data
  - Develop a Roadmap
- Change Leadership
  - Update Strategies
  - Establish / Refine Governance Structures
  - COMMUNICATE
  - Operational Readiness
  - Training and Education
  - Value Management

FCC $200M Telehealth Program

- Immediate support for health care providers and patients across the country promoting Telehealth for low-income consumers.
- Can be used to purchase telecommunications, broadband connectivity, and devices necessary for providing telehealth services.
- Funding applications from healthcare providers will be processed on a rolling basis until funds are exhausted or until the pandemic has subsided.
- Separate $100M Connected Care Pilot Program will be used over 3-yrs to help offset telehealth services provided to low-income patients and veterans.
- Three steps providers can take immediately to prepare to apply:
  - Obtain an eligibility determination from the Universal Service Administrative Company
  - Obtain an FCC Registration Number
  - Register with the System for Award Management
- For more information, see FCC Public Notice released April 8, 2020.

Stay Home
Stay Safe
Save Lives

Thank You!

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The full white paper on this topic along with other telehealth research and insights can be found at https://www.cromfordhealth.com/researchandinsights

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