Creating a System Wide Safety Net for Critical Care

Corey Scurlock MD, MBA

https://equummedical.com/
Contact Us: info@equummedical.com

December 16, 2021

EQUUM Medical
ACUTE CARE TELEHEALTH

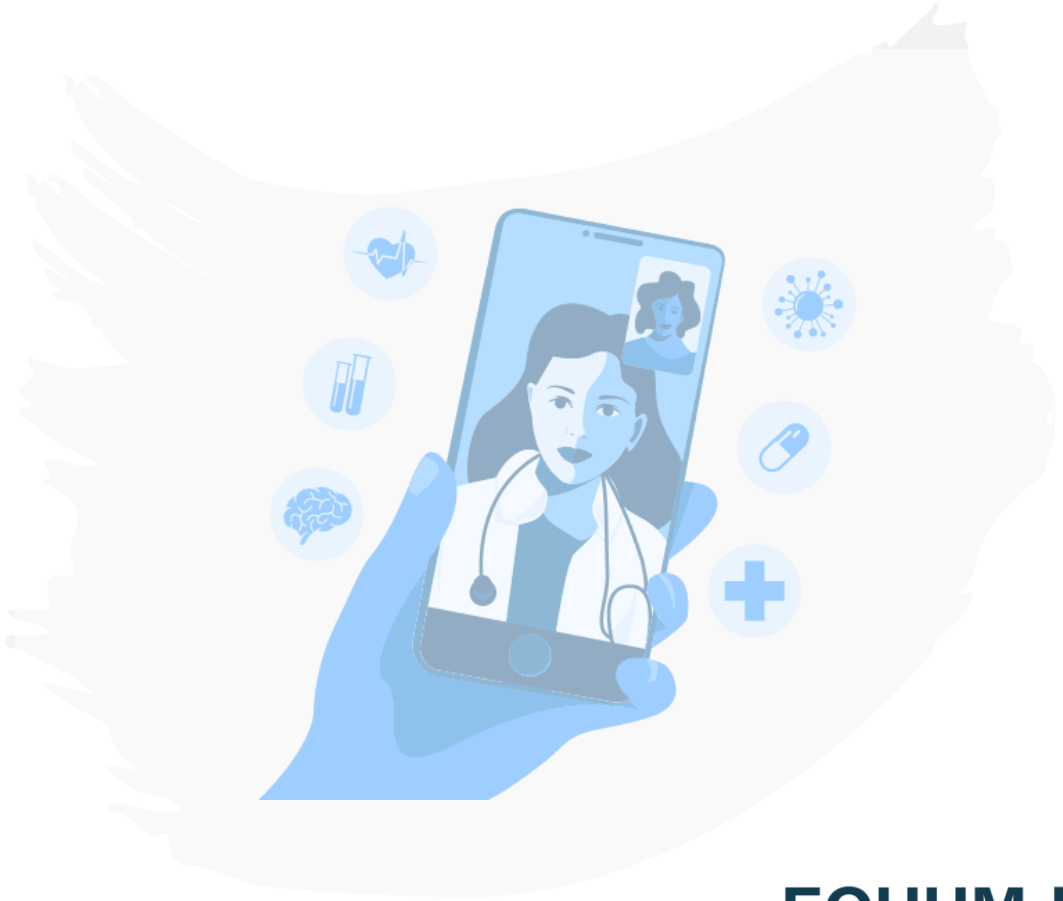
Agenda

- Trends in Care
  - COVID as a Catalyst
  - Access, Quality, Joy
- My Journey
  - Chasing Equity
- The State of Critical Care
- Tele-ICU
  - Literature
  - Examples
- Discussion

EQUUM Medical
ACUTE CARE TELEHEALTH

Objectives

1. Recognize how tele-intensive care (tele-ICU) works and how it's been used to support rural hospitals during the public health emergency (PHE)
2. Explain how keeping and caring for patients in their homes is beneficial to both patients and hospitals and clinics, both before and during the PHE
3. Describe provider and patient satisfaction with telehealth during the PHE
4. Summarize physician perspectives on the quality and effectiveness of telehealth
5. Describe how state Flex programs can support tele-ICU initiatives in CAHs and their RHCs



EQUUM Medical
ACUTE CARE TELEHEALTH

Trends in Care

A shortage of beds and staff continue to impact safe and equitable access to care, and this is magnified due to provider burnout

Sections ☰ BOSTON 25 NEWS Weather • V

✕ BREAKING NEWS | Mashpee woman suffers lif

25 Investigates: Patients waiting 12+ hours to be seen at some MA hospital emergency rooms

Staffing shortages and behavioral health patient boarding contributing to long wait times

November 17, 2021 at 11:18 pm EST

By Ted Daniel, Boston 25 News and Patricia Alulema, Boston 25 News

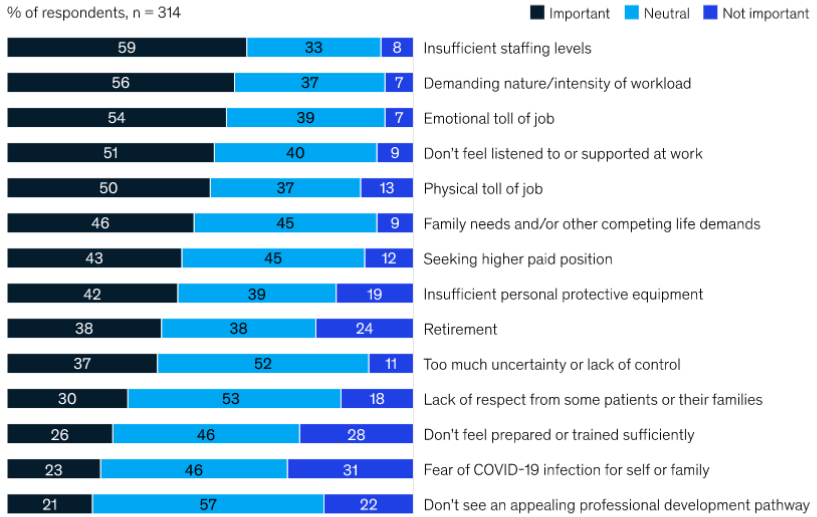
BOSTON — Too many patients and not enough staff or beds. That's the scenario across many Massachusetts

Staffing, workload, and the emotional toll of the job are the most important factors in nurse respondents' decision to leave.

Over half of nurses reported insufficient staffing levels, intensity of the workload, and emotional toll of job as important factors in the decision to leave current position.

Factors influencing decision to leave current position[1,2,3]

% of respondents, n = 314

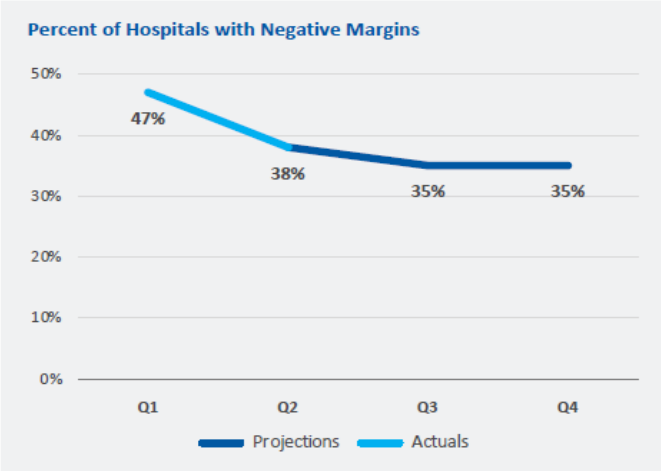


[1] TFACTORSLEAVE: Rate the following factors for how important they would be in a decision to leave your current role providing direct patient care, if you were to decide to leave.
[2] Excludes respondents who indicated "other" (n = 29). This group most frequently noted "management support," and similar variations, which were consistent with "don't feel listened to or supported at work." Figures may not sum to 100%, because of rounding.
[3] Responses were categorized as follows: Not important (1–3), In between (4–7), Important (8–10).
Source: 2021 Future of Work in Nursing Survey

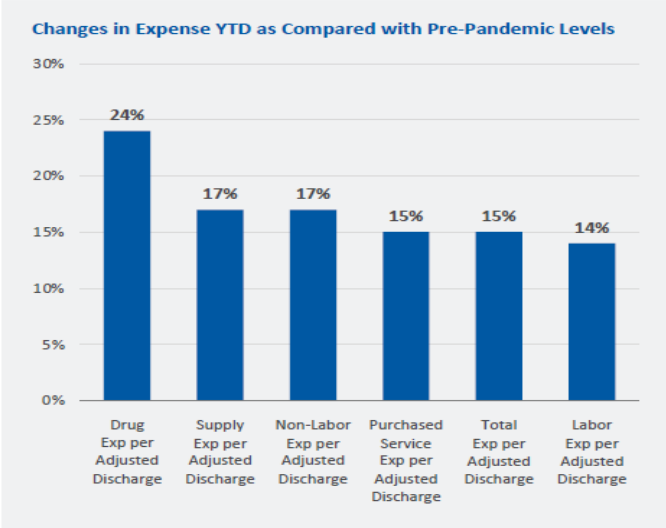
McKinsey & Company

UM Medical ACUTE CARE TELEHEALTH

Trends in Care (continued)



Source: Kaufman, Hall & Associates, LLC



Source: Kaufman, Hall & Associates, LLC

An unsustainable trend of inefficiency is breaking health and care

- Hospitals seeing an increase in high-acuity patients
- Median length of stay is up 8% year-to-date compared to 2019 for most hospitals (indicating higher-acuity patients), and up as high as 18% for some hospitals with 500 beds or more
- Non-labor Expenses per Adjusted Discharge are up 17% and Labor Expenses per Adjusted Discharge are up 14%.
- FTEs per Adjusted Occupied Bed (AOB) decreased 4% year to date.

Even with hospital actions that have improved overall labor efficiency—the cost of labor has risen significantly due to labor shortages, hazard pay, and other causes

EQUUM Medical
ACUTE CARE TELEHEALTH

Unsustainable Care

BECKER'S HEALTHCARE

Physicians Leadership Strategy Executive Moves Transaction & Valuation HR Patient Flow Capital Telehealth C
Ortho Patient Experience Pharmacy Care Coordination Legal & Regulatory Compensation Payer Opioids Rankin

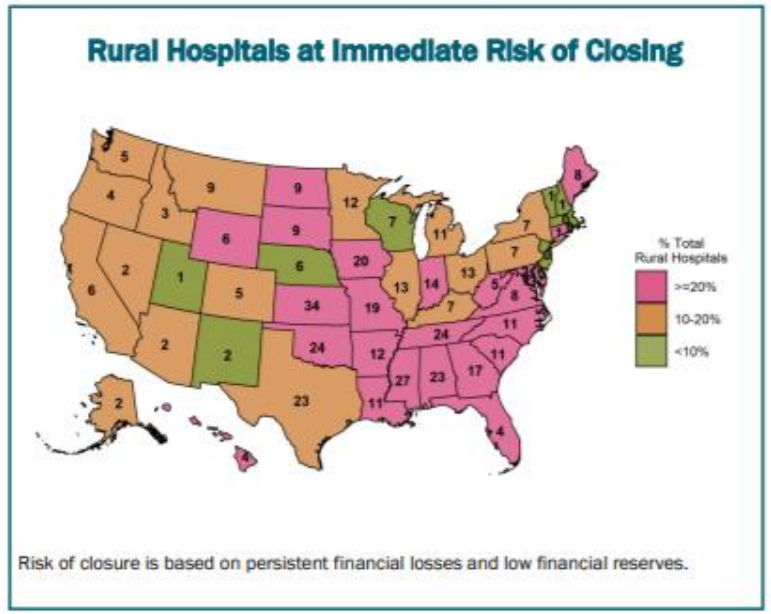
Financial Management

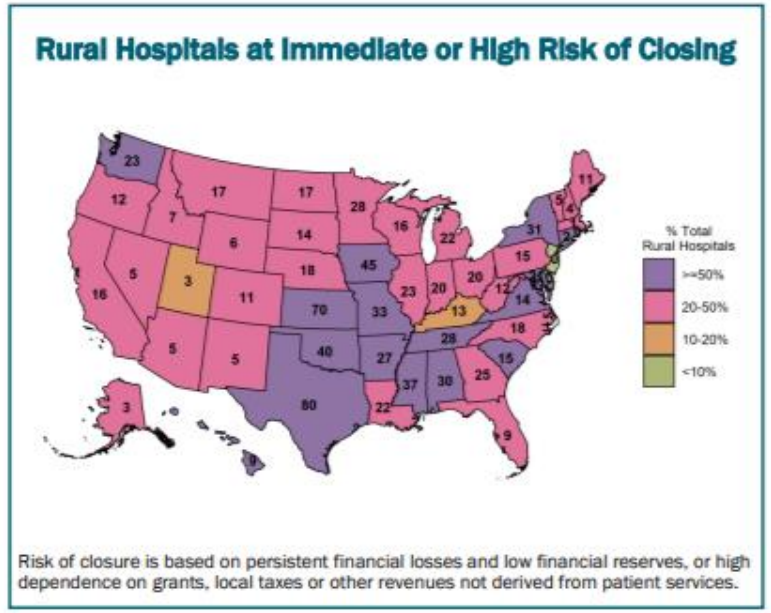
State-by-state breakdown of 897 hospitals at risk of closing

Ayla Ellison (Twitter) - Friday, January 22nd, 2021 Print | Email

Listen

More than 500 rural hospitals in the U.S. were at immediate risk of closure before the COVID-19 pandemic because of financial losses and lack of reserves to maintain operations, according to a report from the Center for Healthcare Quality and Payment Reform.





- 2020 Report by Center for Healthcare Quality and Payment Reform
  - 25 percent of rural hospitals were at immediate risk
  - Low financial reserves or high dependence on nonpatient service revenues such as local taxes or state subsidies

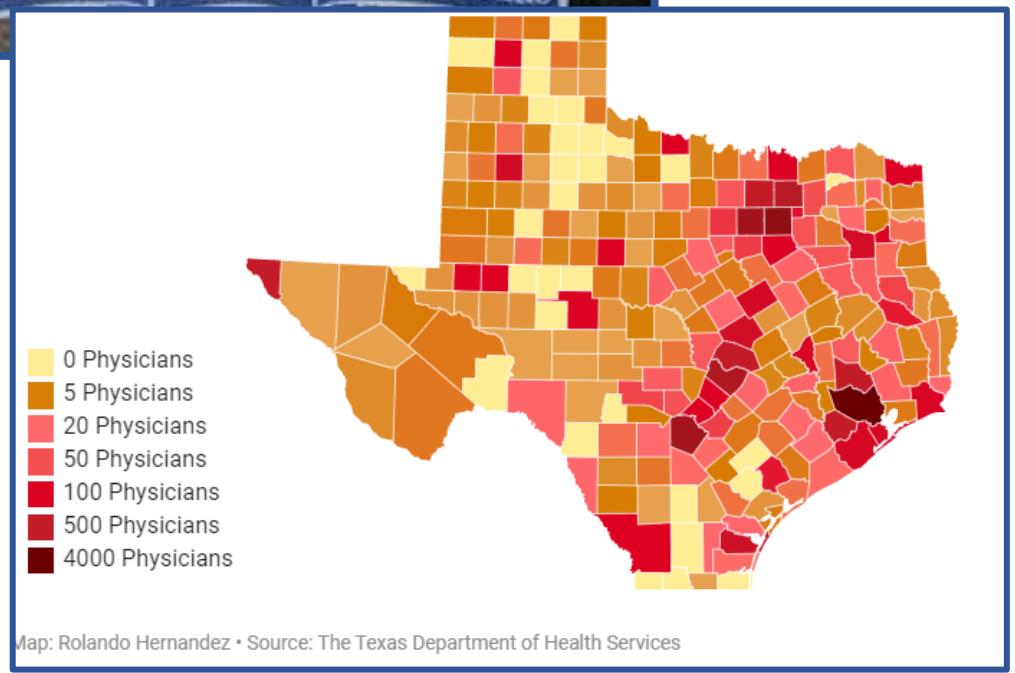
COVID as a Catalyst

Rural Health has experienced a new reality in a short period

Remoteness	Care @ a Distance	Reimbursement	Rapid innovation
			
Self isolation has resulted in changes in consumer behaviour	Care has become on demand, from home, and in the community	Tailwind of reimbursement encouraging adoption of virtual care	Solving problems with new technology and processes
People want care to be convenient and safe, when and where they want it	Consumerism principles are driving care redesign, and patient empowerment	Telehealth increasingly supported through state and federal programs	Responsive to changing dynamic, technology is improving access and quality

EQUUM Medical
ACUTE CARE TELEHEALTH

My Journey



64

Total number of counties in Texas without a hospital

25

Total number of counties in Texas without a primary care physician

75%

Percentage of Texas counties that are federally designated Health Professional Shortage Areas (HPSA) and/or Medically Underserved Areas (MUA)

EQUUM Medical
ACUTE CARE TELEHEALTH

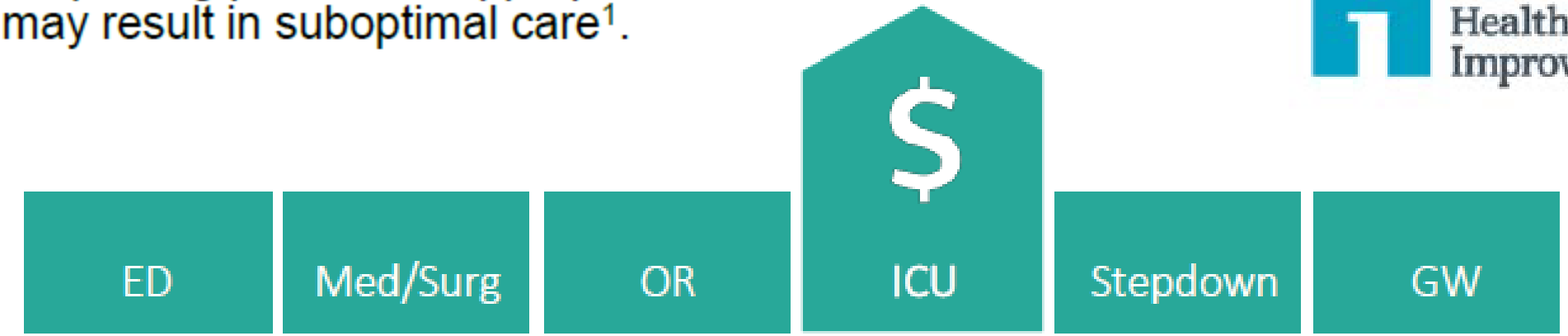
The State of Critical Care

Optimizing the ICU

ICU patients account for the highest costs in hospitals and pose the greatest risk for hospital-acquired conditions.

In addition, bottlenecks in ICUs have a negative impact on patient flow, and delays in placing patients in appropriate ICU's may result in suboptimal care[1].

Institute *for* Healthcare Improvement



EQUUM Medical
ACUTE CARE TELEHEALTH

Intensive Care in the US

Statistics

- **6 million** — Patients admitted to ICUs each year
- **6,500** — ICUs in 5,000 U.S. acute care hospitals
- **94,000** — ICU beds in the U.S.

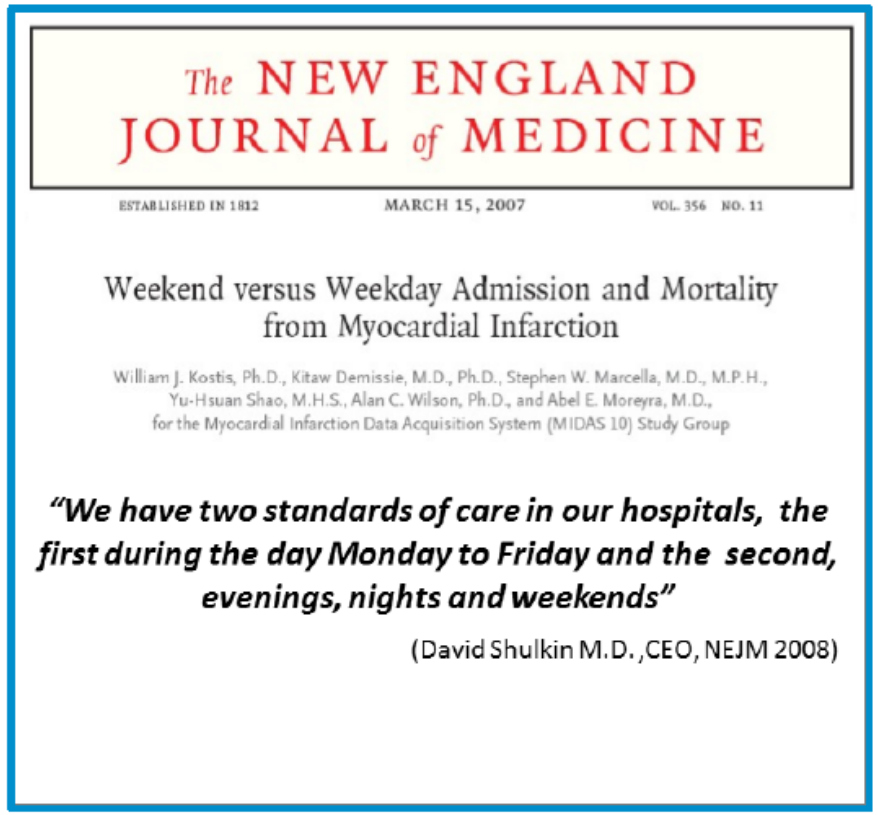
Highest mortality rate and highest costs in healthcare

- **15%** — ICU beds as a percentage of total hospital beds
- **30%** — ICU costs as a percentage of acute care hospital expenditures
- **~1%** — ICU care as a percentage of U.S. GDP
- **>$80 billion** — Hospital costs for critically ill patients
- **10-28%** — ICU mortality rates (540,000 deaths per year)

[1] Halpern NA, Pastores SM. Critical Care Medicine in the United States 2000-2005: An Analysis of Bed Numbers, Occupancy Rates, Payer Mix, and Costs. *Crit Care Med*. 2010 Jan;38(1):65-71.
[2] Young LB, Chan PS, LU X, Nallamothu BK, Sasson C, Cram PM. Impact of Telemedicine Intensive Care Unit Coverage on Patient Outcomes: A Systematic Review and Meta-Analysis. *Arch Intern Med*. 2011; 171:498-506.

Medical
ACUTE CARE TELEHEALTH

Intensive Care in the US (continued)



The NEW ENGLAND JOURNAL of MEDICINE

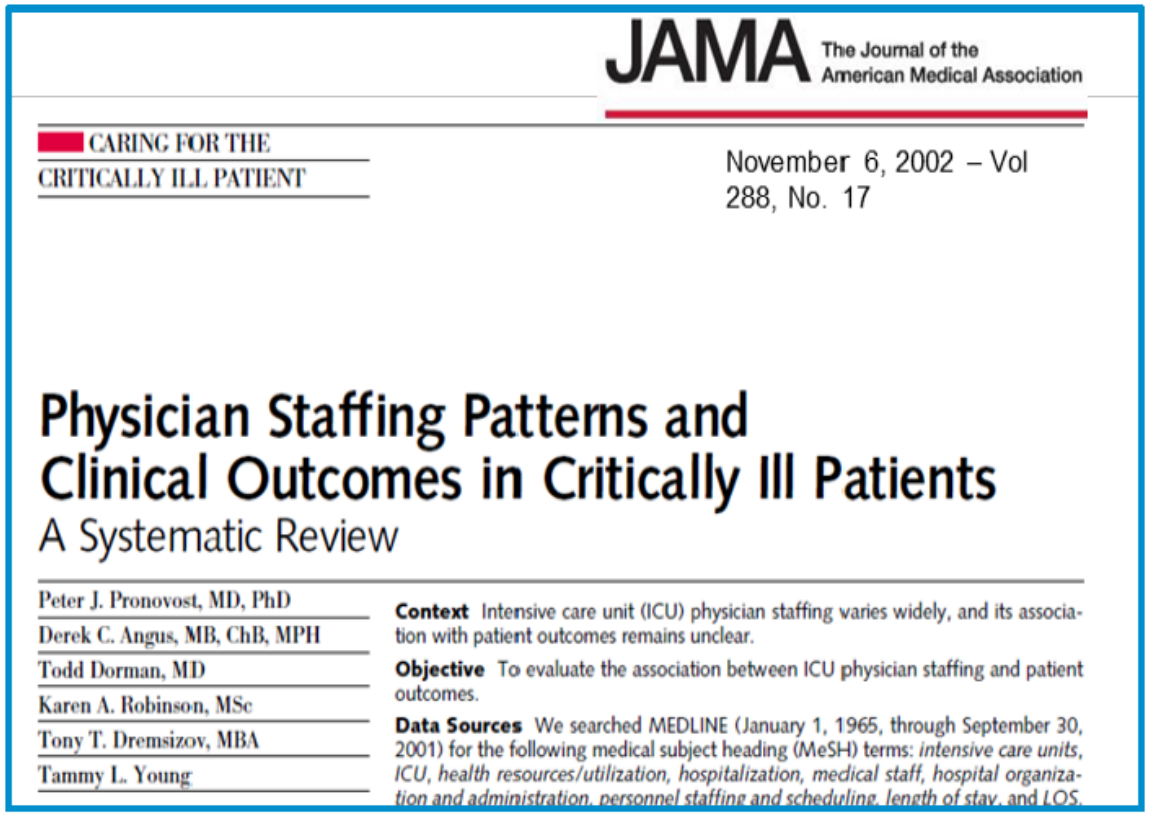
ESTABLISHED IN 1812 MARCH 15, 2007 VOL. 356 NO. 11

Weekend versus Weekday Admission and Mortality from Myocardial Infarction

William J. Kostis, Ph.D., Kitaw Demissie, M.D., Ph.D., Stephen W. Marcella, M.D., M.P.H., Yu-Hsuan Shao, M.H.S., Alan C. Wilson, Ph.D., and Abel E. Moreyra, M.D., for the Myocardial Infarction Data Acquisition System (MIDAS 10) Study Group

"We have two standards of care in our hospitals, the first during the day Monday to Friday and the second, evenings, nights and weekends"

(David Shulkin M.D.,CEO, NEJM 2008)



JAMA The Journal of the American Medical Association

CARING FOR THE CRITICALLY ILL PATIENT

November 6, 2002 – Vol 288, No. 17

Physician Staffing Patterns and Clinical Outcomes in Critically Ill Patients

A Systematic Review

Peter J. Pronovost, MD, PhD
Derek C. Angus, MB, ChB, MPH
Todd Dorman, MD
Karen A. Robinson, MSc
Tony T. Dremsizov, MBA
Tammy L. Young

Context Intensive care unit (ICU) physician staffing varies widely, and its association with patient outcomes remains unclear.

Objective To evaluate the association between ICU physician staffing and patient outcomes.

Data Sources We searched MEDLINE (January 1, 1965, through September 30, 2001) for the following medical subject heading (MeSH) terms: *intensive care units, ICU, health resources/utilization, hospitalization, medical staff, hospital organization and administration, personnel staffing and scheduling, length of stay,* and *LOS*.

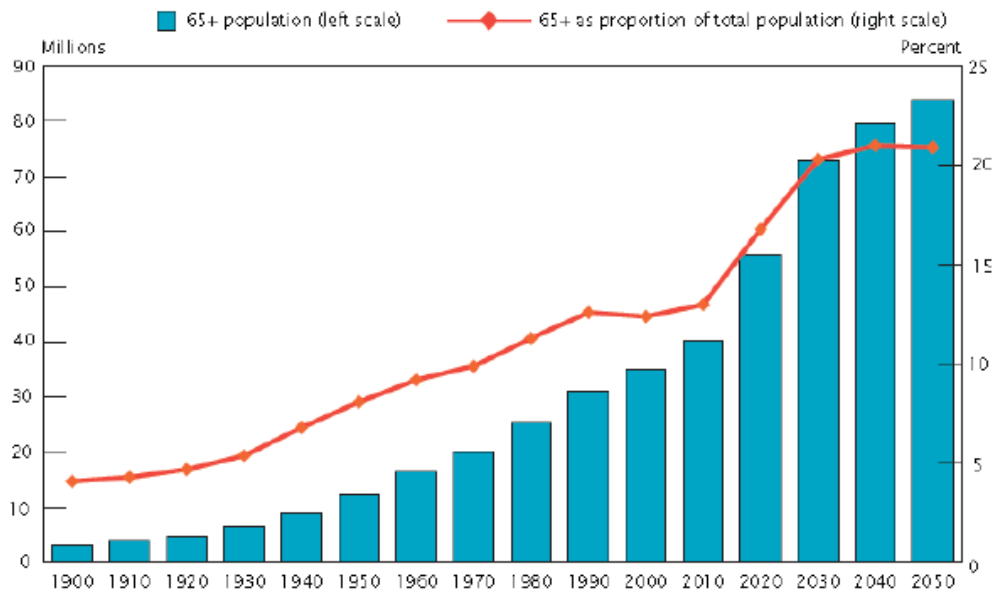
Research shows intensivist staffing can decrease ICU mortality by 40%

Medical
ACUTE CARE TELEHEALTH

Demand & Supply in Critical Care

ICU Utilization… a growing concern

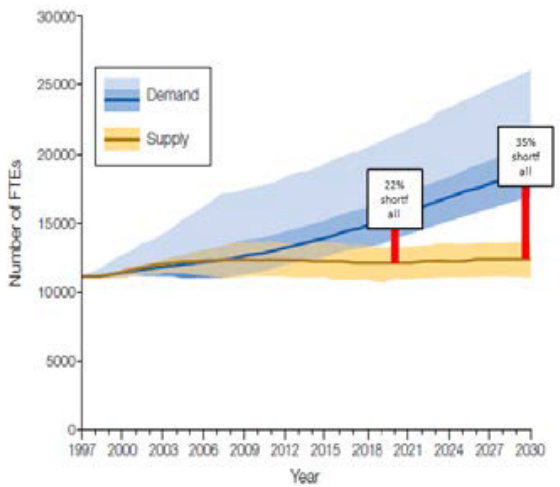
- More than half of ICU patients are over age 65
- A patient between 65 to 74 is **3x** as likely to use intensive care units as a middle aged patient
- A patient over age 85 is **6x** as likely to use intensive care units as a middle aged patient

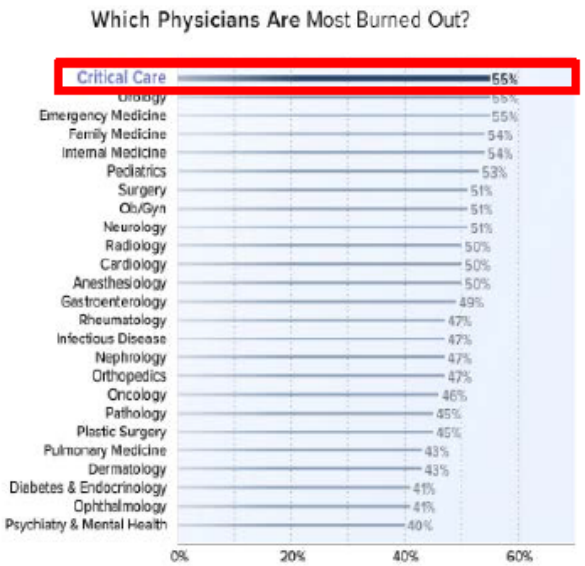


Intensivist projected demand curve

***"…there are not and will not be enough…intensivists** to staff all hospitals in the fashion that is suggested by the Leapfrog Group…thus, there must be…**regionalization of intensive care services…and telemedicine**."*

~ Committee on Pulmonary and Critical Care Societies, 2000 Committee Report to Congress





ACUTE CARE TELEHEALTH

“Having an intensivist present in the ICU saves lives, period.”

Yet **only 47%**

of hospitals surveyed have the recommended intensivist coverage.[1]

- Leah Binder
President and CEO,
The Leapfrog Group

Board-certified intensivists manage care for all ICU patients

Are present eight hours per day, seven days per week

Respond to pages within five minutes, 95% of the time

Evidence suggests that over $5 billion and 55,000 lives could be saved annually if the Leapfrog Group’s IPS Standard were implemented in all urban hospitals with ICUs in the U.S.

The Case for Tele-ICU

Demand & Supply in Critical Care (continued)

Society of Critical Care Medicine
The Intensive Care Professionals

"early intensivist involvement and improved adherence to best practices, both facilitated by Tele-Critical Care were associated with lower mortality and reduced length of stay. (Kahn et al) 3 core elements of effectiveness:

1. TCC leadership in relationship building, clinical decision-making, and conflict resolution
2. Perceived value of telemedicine influenced by staff satisfaction and a clear understanding of operations
3. Organizational characteristics that allowed proactive involvement by the TCC team

https://www.sccm.org/Communications/Critical-Connections/Archives/2019/Building-a-Case-for-Tele-Critical-Care-to-Improve

EQUUM Medical
ACUTE CARE TELEHEALTH

Models & Design

Continuous

Monitoring of the patient without interruption

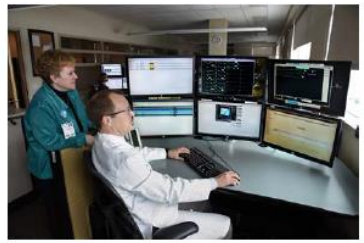
Scheduled

Pre-determined / periodic consultation

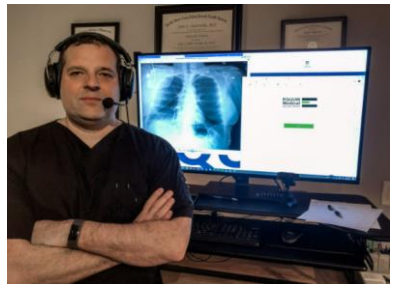
Responsive (Reactive)

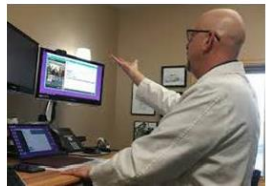
Virtual visits prompted by an alert (call/page)

Centralized
“HUB”

De-Centralized
“Remote”





EQUUM Medical
ACUTE CARE TELEHEALTH

Factors Driving Adoption

- ✓ Focus on improving clinical quality and patient safety
- ✓ Demand for nighttime and weekend critical care services has exceeded capacity of traditional service models to provide them
- ✓ Promotes more systematic and consistent application of quality and safety activities
- ✓ Leverage intensivist staffing to cover more patients
- ✓ Tele-ICU as way to build relationships with smaller, more remote hospitals, to support the potential development of regional delivery systems
- ✓ Promote adherence to best practice standards
- ✓ Reduces transfers, enabling patients to stay close to home and keep their health care local

[25]Hawkins HA, Lilly CM, Kaster DA, Groves RH, Jr., Khurana H. ICU Telemedicine Comanagement Methods and Length Of Stay. Chest. 2016;150(2):314-319.
[22] Berenson RA, Grossman JM, November EA. Does Telemonitoring Of Patients--The eICU—Improve Intensive Care? Health Affairs. 2009; 28:w937–w947.

CMS / HCPS Coding for Reimbursement

Critical Care Services

99291: Critical care, evaluation, and management of the critically ill or critically injured patient; first 30-74 minutes.

99292: Critical care, evaluation, and management of the critically ill or critically injured patient; each additional list 30 minutes separately in addition to code for primary service.

G0508	Telehealth consultation, critical care, physicians typically spend 60 minutes communicating with the patient via telehealth (initial)
G0509	Telehealth consultation, critical care, physicians typically spend 50 minutes communicating with the patient via telehealth (subsequent).

EQUUM Medical
ACUTE CARE TELEHEALTH

Literature & Peer-Review

EQUUM Medical
ACUTE CARE TELEHEALTH

Mortality and LOS

CARING FOR THE CRITICALLY ILL PATIENT

ONLINE FIRST

Hospital Mortality, Length of Stay, and Preventable Complications Among Critically Ill Patients Before and After Tele-ICU Reengineering of Critical Care Processes

Craig M. Lilly, MD
Shawn Cody, MSN/MBA, RN
Huifang Zhao, PhD
Karen Landry
Stephen P. Baker, MScPH
John McIlwaine, DO
M. Willis Chandler, MBA
Richard S. Irwin, MD
for the University of Massachusetts Memorial Critical Care Operations Group

Context The association of an adult tele-intensive care unit (ICU) intervention with hospital mortality, length of stay, best practice adherence, and preventable complications for an academic medical center has not been reported.

Objective To quantify the association of a tele-ICU intervention with hospital mortality, length of stay, and complications that are preventable by adherence to best practices.

Design, Setting, and Patients Prospective stepped-wedge clinical practice study of 6290 adults admitted to any of 7 ICUs (3 medical, 3 surgical, and 1 mixed cardiovascular) on 2 campuses of an 834-bed academic medical center that was performed from April 26, 2005, through September 30, 2007. Electronically supported and monitored processes for best practice adherence, care plan creation, and clinician response times to alarms were evaluated.

Main Outcome Measures Case-mix and severity-adjusted hospital mortality. Other outcomes included hospital and ICU length of stay, best practice adherence, and com-

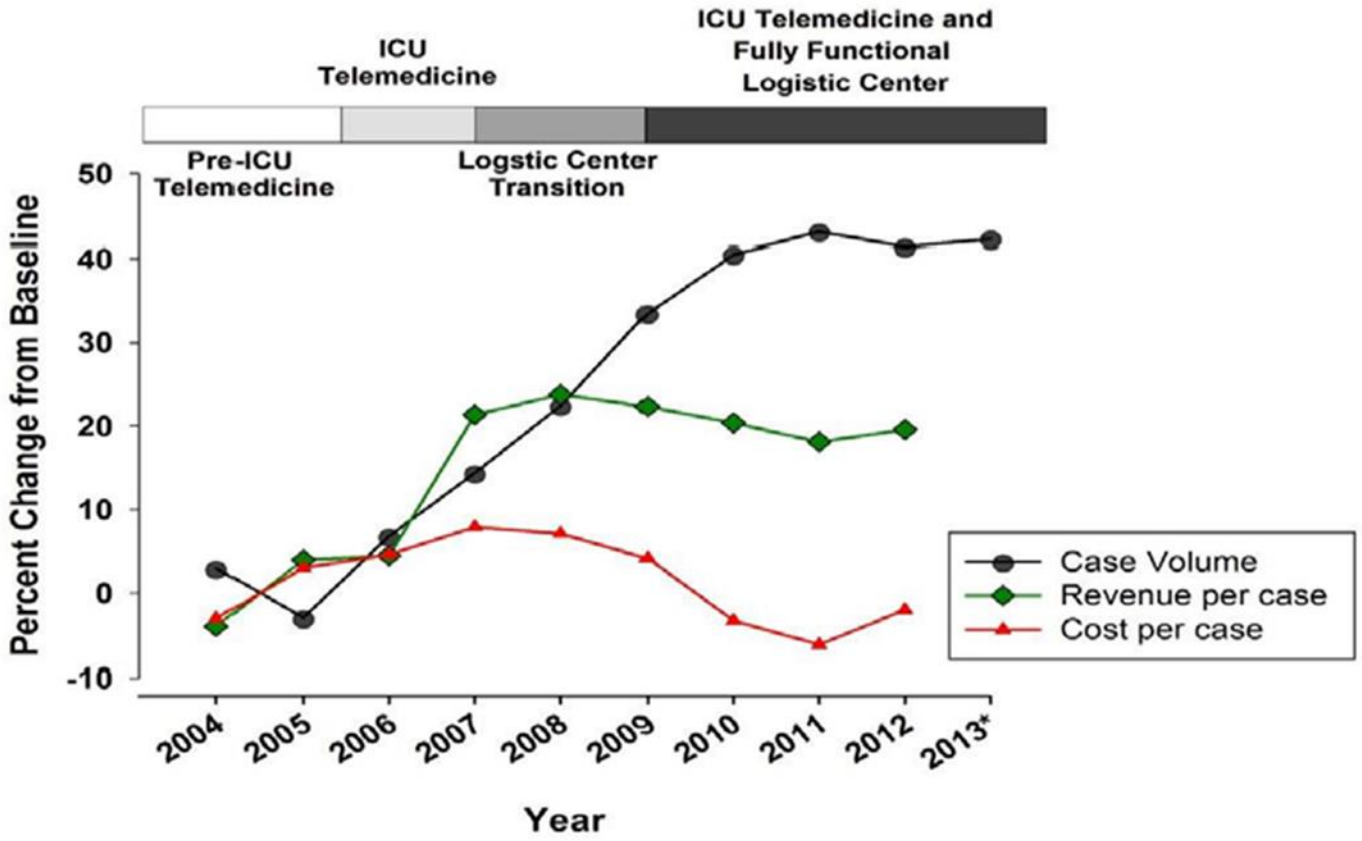
Outcome	Pre-intervention Group (n=1529)	Tele-ICU Group (n=4761)	P value unadjusted	Actual/ Predicted	P value	Tele-ICU Effect Estimates*	P value
Hospital Mortality Rate	13.6 %	11.8 %	0.07	↓68%	<0.001	0.40 (0.31 – 0.52)	0.005
ICU Mortality Rate	10.7 %	8.6 %	0.01	↓69%	<0.001	0.37 (0.28 – 0.49)	0.003
Hospital LOS Days; mean ± SD Median and [IQR]	13.3 ± 17.1 7.9 [0.2 -15]	9.8 ± 10 6.8 [0.2 -12]	<0.001	↓21%	<0.001	1.44 (1.33 – 1.56)	<0.001
ICU LOS Days; mean ± SD Median and [IQR]	6.4 ± 11 2.5 [0.2 -6.5]	4.5 ± 6.7 2.4 [0.1 -4.6]	<0.001	↓33%	<0.001	1.26 (1.17 -1.36)	<0.001

Financial ROI

CHEST

BACKGROUND: ICU telemedicine improves access to high-quality critical care, has substantial costs, and can change financial outcomes. Detailed information about financial outcomes and their trends over time following ICU telemedicine implementation and after the addition of logistic center function has not been published to our knowledge.

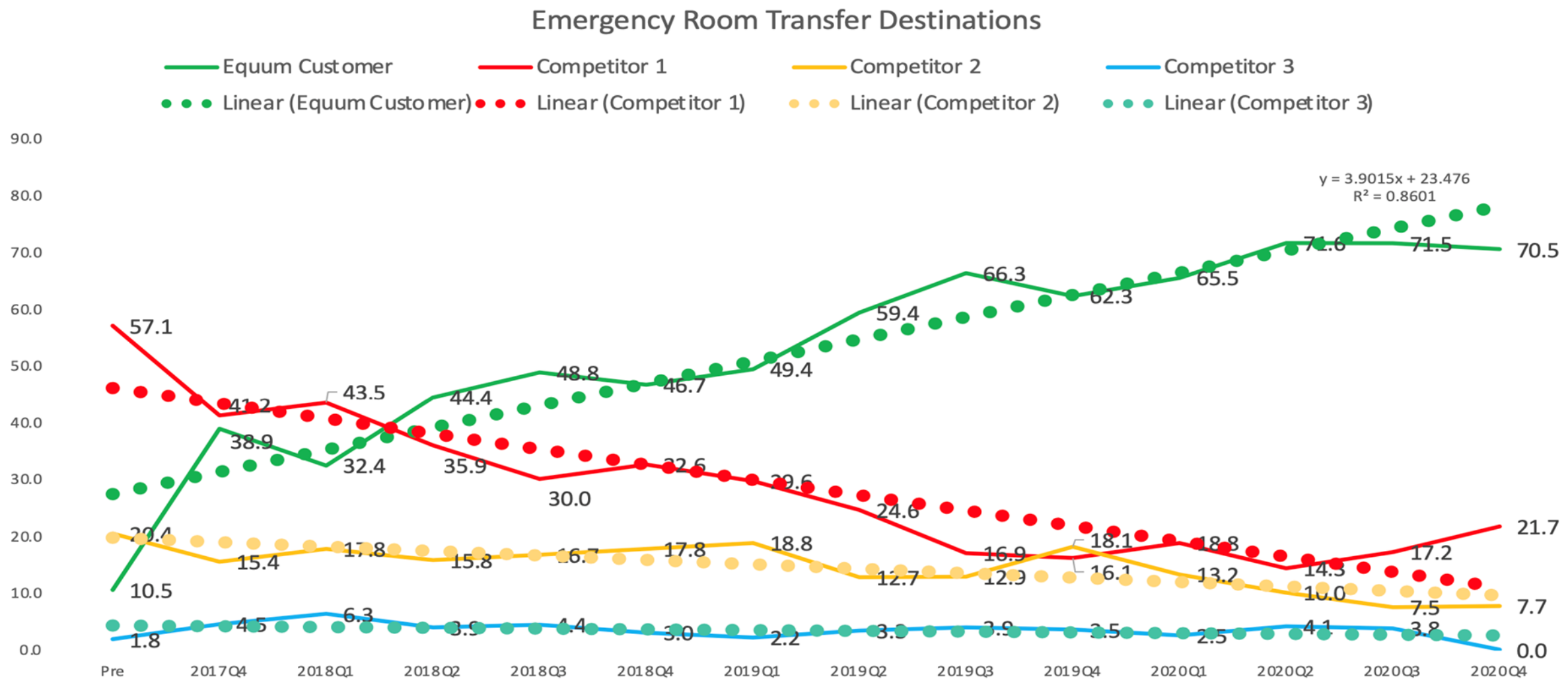
- Centralized tele-ICU
  - Improved case volume by 21%
  - Improved contribution margins by 376% ($37.7 million compared to $7.9 million)
- Centralized tele-ICU with added logistical center and quality care standardization
  - Improved case volume by 38%
  - Improved contribution margins by 665% ($60.6 million compared to $7.9 million)



Lilly, CM, et al. ICU Telemedicine Financial Outcomes. Chest 2017; 151(2) 286-297.

EQUUM Medical
ACUTE CARE TELEHEALTH

Reduced Transfers (Leakage)



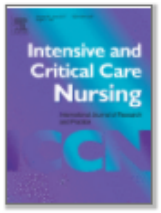
EQUUM Medical
ACUTE CARE TELEHEALTH

Collaboration & Satisfaction

ICU staff at rural facilities view Tele-ICU as a positive, useful tool to provide extra support and assistance.

ELSEVIER

Intensive and Critical Care Nursing
Volume 40, June 2017, Pages 51-56



Original article

Introduction of Tele-ICU in rural hospitals: Changing organisational culture to harness benefits

Cassie Cunningham Goedken [a], Jane Moeckli [a], Peter M. Cram [c], Heather Schacht Reisinger [a, b]

Show more

+ Add to Mendeley Share Cite

https://doi.org/10.1016/j.iccn.2016.10.001

Discussion

1. Can Tele-ICU support greater equity in care access, anywhere?
2. What benefits do care in the community offer for sustainability vs transferring?
3. How does Tele-ICU reduce burnout and support clinical joy in care delivery?

EQUUM Medical
ACUTE CARE TELEHEALTH

https://equummedical.com/

Contact Us: info@equummedical.com