

An Advanced Practice Provider (APP) Led Critical Care Unit: A Program Evaluation

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Presentation Overview



Problem: Lack of Access to Critical Care in Rural Areas



Background & Why Access to Critical Care Matters



Introduction of the Critical Care APP Program



Methodology of Program Evaluation



Results: APP Program May Be the Solution



Financial Comparison



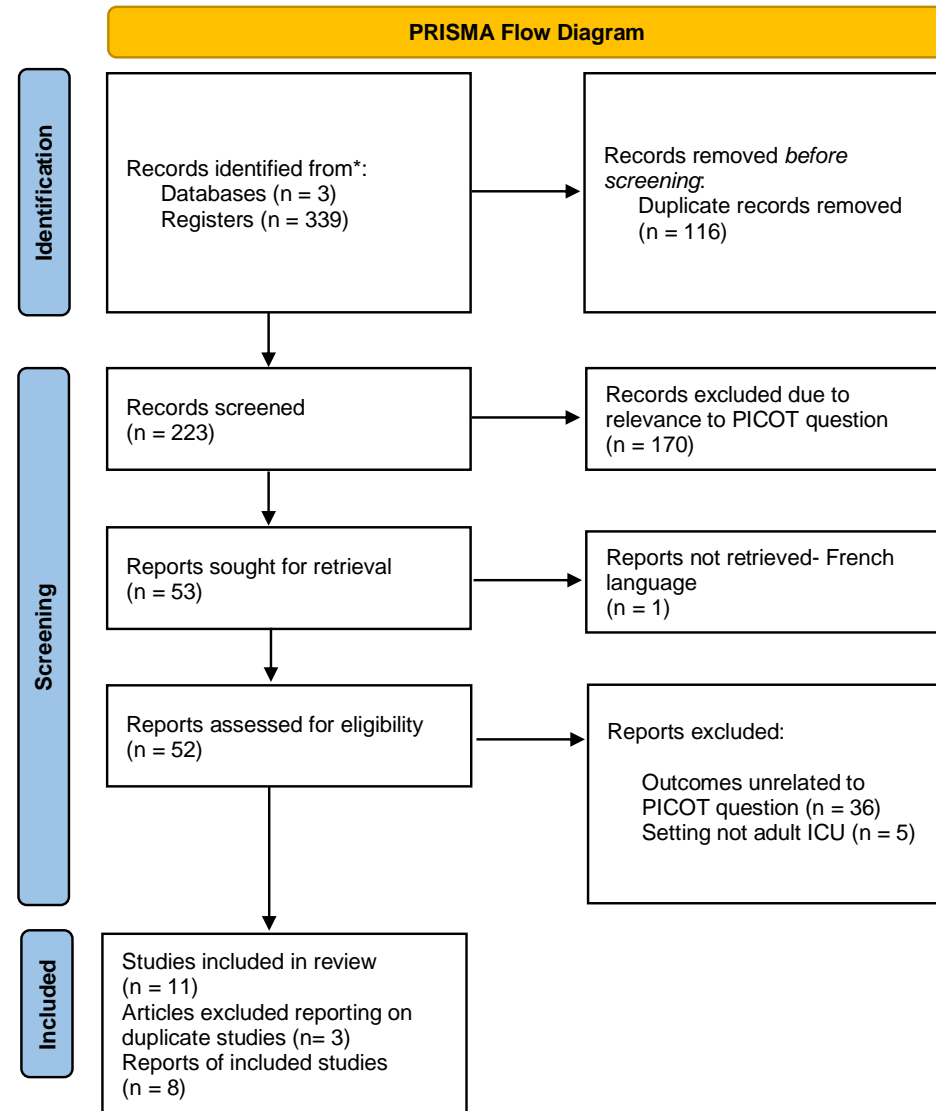
Conclusions and Practice Impact

Problem Statement:
Recruiting physician
intensivists to rural
ICUs is challenging



Search Terms: physicians, PAs, NPs, APPs, critical care, and intensive care

Exclusion criteria: English language, non-adult or non-ICU practice areas



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi

Background & Significance

- Access to critical care services in the US is highly variable
- Disparity in rural and low-income areas (Kanter, 2020)
- Shortage of intensivists (Deslich, 2014)
- Over 6 million people are admitted to the ICU every year and as the population ages this number will continue to grow (Lipsky, 2011)

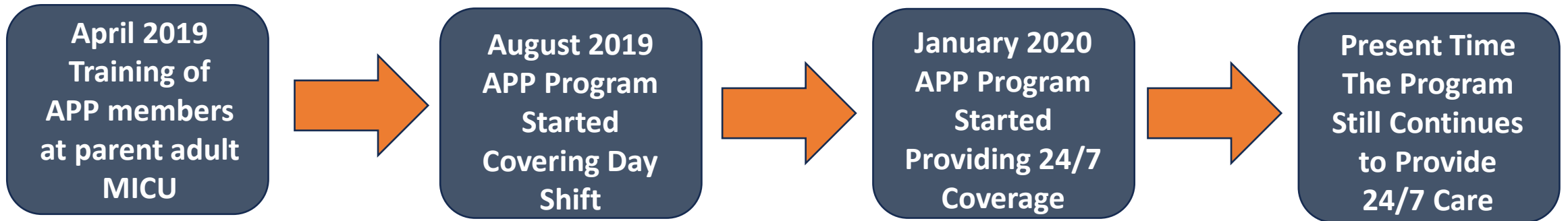
Background & Significance

- APPs may be an important solution to the problem
- Comparison studies show no significant differences in patient outcomes
- Study findings suggest that APPs are a viable solution (Edkins, 2014)
- APP groups may also bring increased access to emergency and critical care needs (Kreeftenberg, 2019)

TRANSITION FROM HOSPITALIST COVERAGE TO APP CRITICAL CARE SERVICE

- How the program got started
- Bridging the critical care access gap
- Bringing ICU care to the rural community

TIMELINE & KEY COMPONENTS OF THE PROGRAM



Training
No physician onsite
Longevity

PURPOSE OF THE PROJECT

Project Purpose: Evaluation the APP led critical care program and its effectiveness in providing critical care services

PICOT Question: Does the APP led critical care program provide safe and effective ICU patient outcomes?

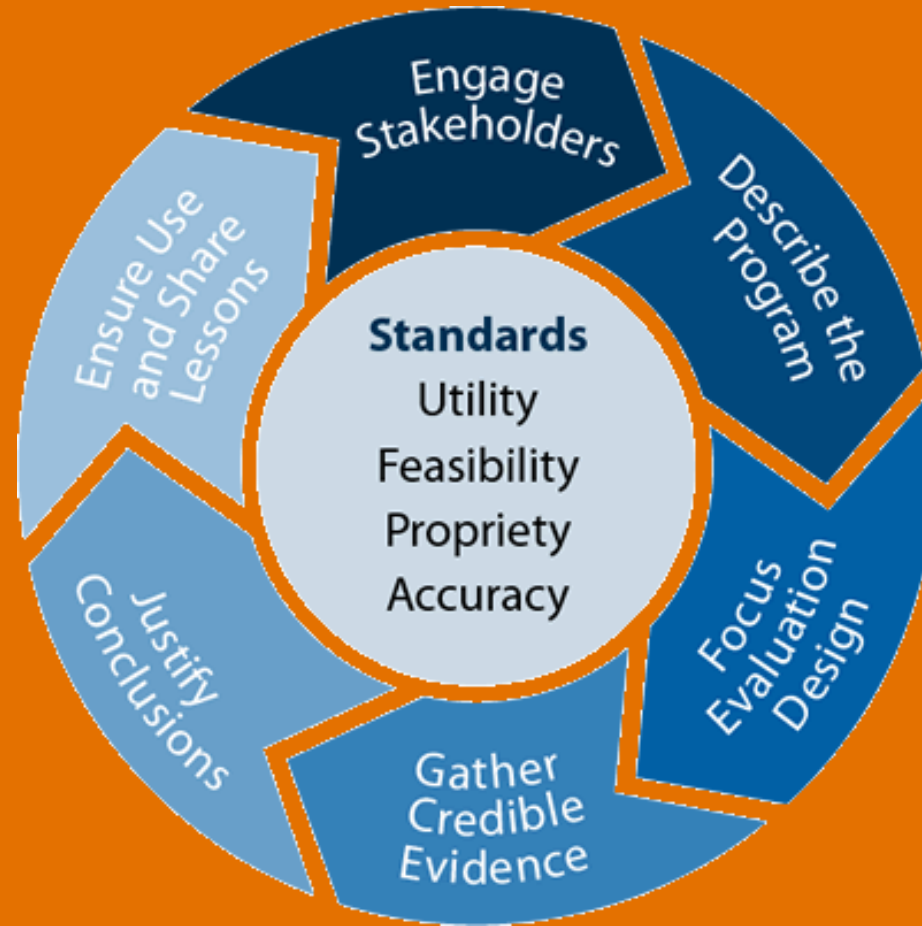
A program evaluation of a rural APP led critical care group that has been trained by its parent tertiary care center emphasized two things:

- 1) Produced safe and effective ICU patient outcomes without a physician on-site
- 2) May provide additional alternatives to decrease disparity gaps in critical care



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CDC FRAMEWORK FOR PROGRAM EVALUATION



CDC (1999).

KEY STAKEHOLDERS

Attending physicians & Medical Director of tertiary care adult MICU

Director of Quality Improvement

- Inclusive of input of both tertiary care and rural hospitals

Chief Medical Officer of Rural Hospital

Members of APP Group



CDC FRAMEWORK: PROGRAM EVAL DESCRIPTION

PURPOSE

- Increase access to critical care for patients
- Provide safe patient outcomes

GOAL

- Establish critical care access without compromising ICU patient care outcomes



PROGRAM EVALUATION DESCRIPTION- CONTINUED

APPROACH

- Collection of variables repeated in the literature



PRINCIPLES

- 1) Bring critical care access to the community
- 2) Provide safe patient outcomes
- 3) Define potential areas for future improvement

FOCUSING THE PROGRAM DESIGN COMPONENTS

Retrospective data collection

Data retrieval between August 2018 and August 2023

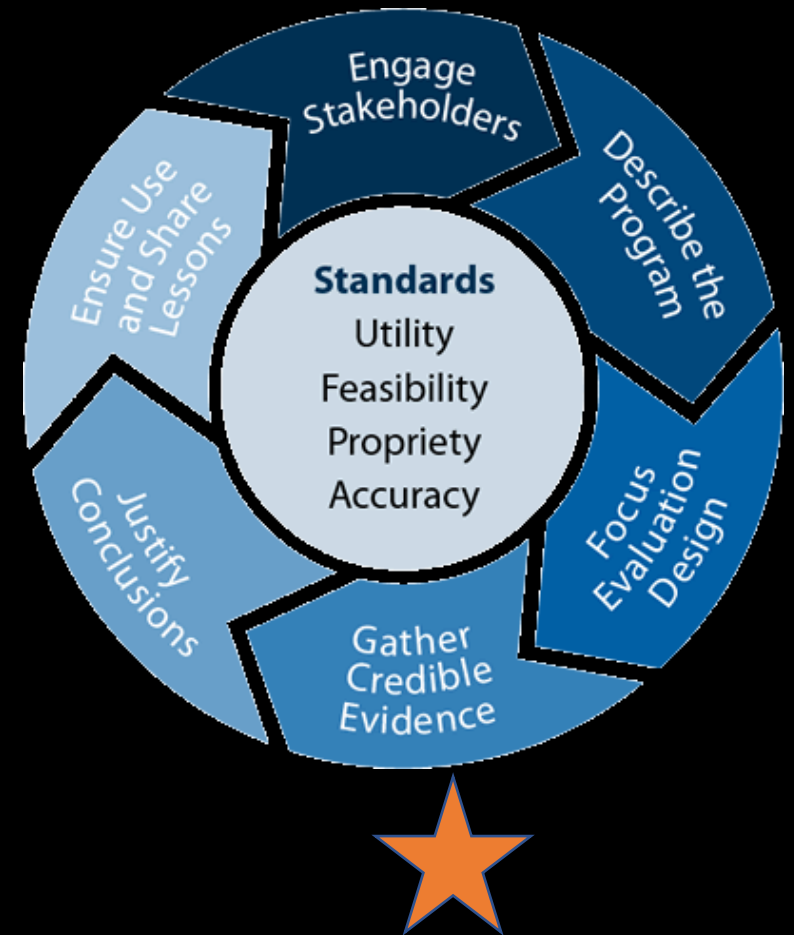
Measurement & Analysis of key variables

Financial Comparison of APP v Intensivist



Gathering Credible Evidence: The Data Analysis

- Data to support safe and effective patient care outcomes
- Comparative data analysis and what this means for practice
- Outcomes related to the PICOT question: Does this program provide safe and effective patient care outcomes?



RESULTS

- N= 1,542
- Data period August 2018- August 2023
- 1,054 of these were seen by the APP critical care team (January 2020)
- 14.6% were COVID patients
- During peak COVID-19 time periods, COVID patients accounted for 50% occupancy rates



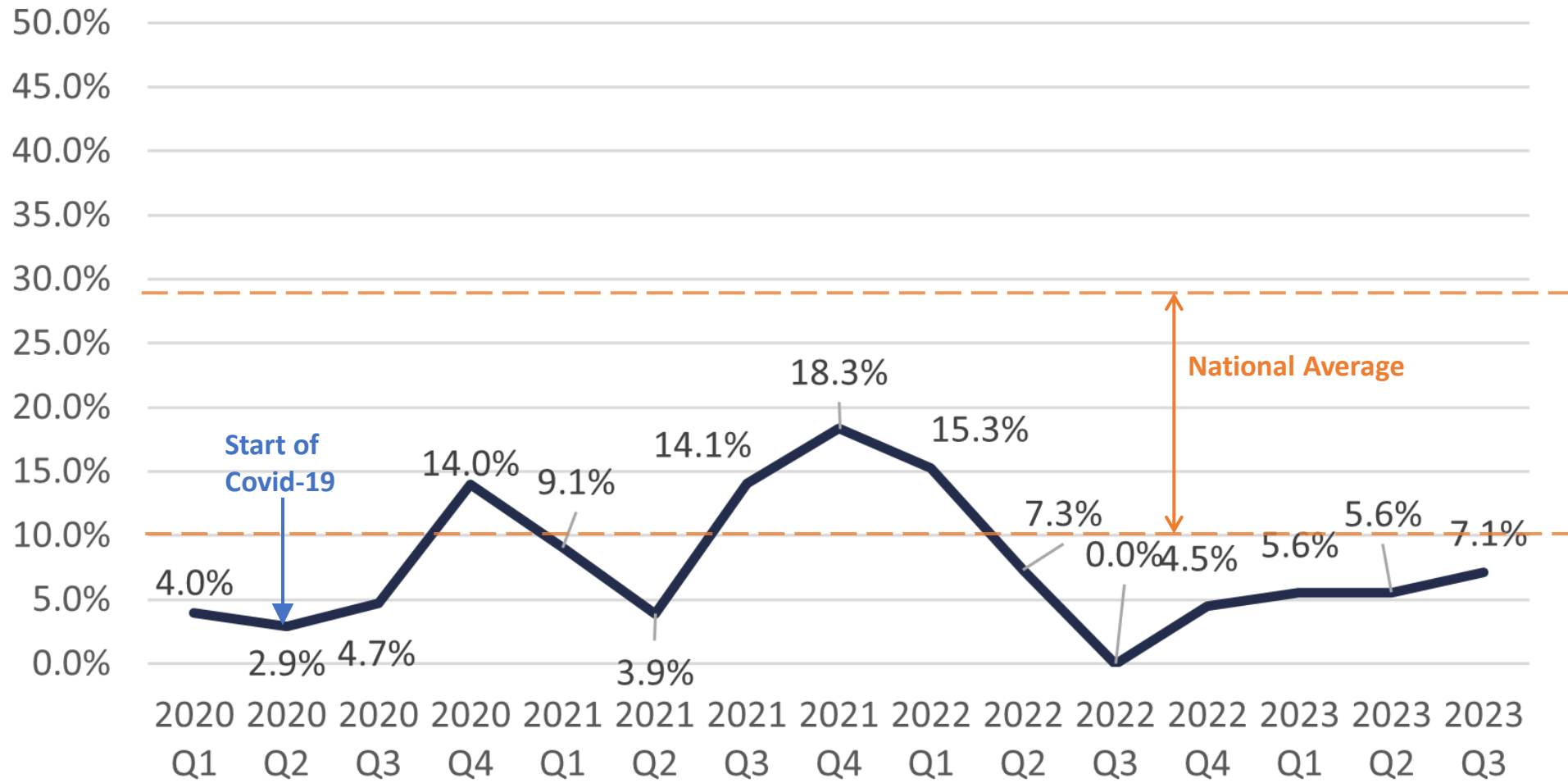
RESULTS

- Vent utilization nearly doubled after implementation of the APP team
- Increased patient acuity
- Central line infections from August 2022- August 2023 = 1
- ICU Consults = 2/day



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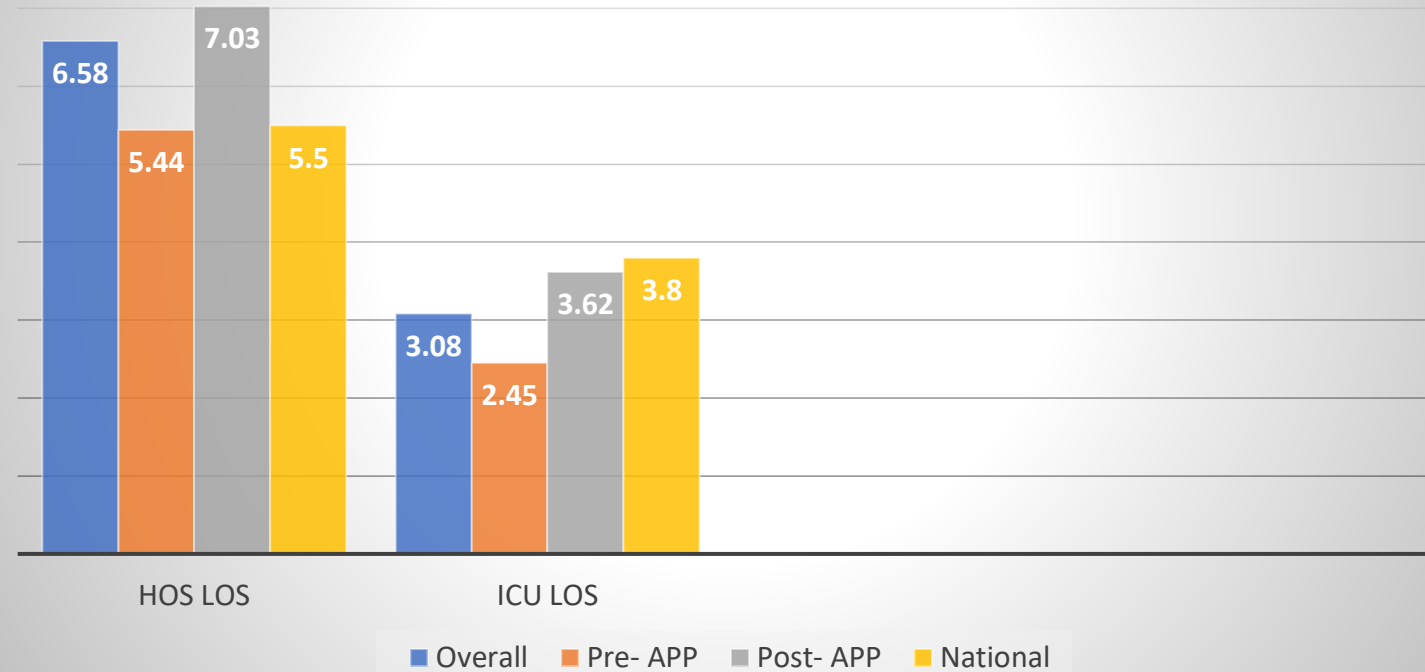
Post-APP Team ICU Mortality



Patient Discharge Disposition Data

ICU Disposition Destination	ICU TOTAL (%) 2018- 2023	Pre-APP Service (%) 2018-2019	Post-APP Service (%) 2020-2023
Extended Recovery Care	23.4	26.8	21.8
Home w/ Assistance	16.2	16.6	15.9
Home	16.1	15.4	16.5
Tertiary Care Hospital	12.8	13.5	12.5
Expired	8.9	5.1	10.6* (NOTE: COVID19)

Comparison of Average ICU and Hospital (HOS) Length of Stay (LOS)



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FINANCIAL COMPARISON

CURRENTLY NEED 6 FULL TIME PROVIDERS FOR 24/7 CRITICAL CARE COVERAGE

# Of Intensivists	# Of APPs	Salary Cost Intensivist	Salary Cost APP	Total Salary
0	6	\$ ---	\$ 738,000	\$ 738,000
6	0	\$ 2,124,000	\$ ---	\$ 2,124,000



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Justifying Conclusions & Results Summary

- Data does support safe and effective patient care outcomes
- Patient acuity increased with vent utilization doubling
- A decrease in transfers to other tertiary care centers
- Increased rate of discharge disposition to home
- 1 CLABSI
- ICU mortality stayed consistently below the national average
- Hospital wide critical care consult service



Project Limitations

- Data Retrieval and limitations to the Electronic Medical Record (EMR) systems
 - Transition to new EMR
 - Overall raw data access/variable limitations
 - Repeat need for analysis and acquiring data by hand (human error)
- COVID-19 Pandemic
 - Influence on outcomes
- Comparison data



PRACTICE IMPACT

- Hospital wide critical care consult services
- Improvement for data collection and documentation
- Breaks barriers to critical care access
- Cost effective
- Advancement of nursing practice



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A close-up photograph of two dogs resting on a bed. A black dog is on the left, and a brown dog is on the right. They are partially covered by a white, ribbed blanket. The background shows an orange surface, possibly a pillow or another blanket.

Thank you!
QUESTIONS

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