



Penn Medicine  
Chester County Hospital



# Piloting Telemedicine to Address Critical Physician Staffing Shortages in the Inpatient Hospital Setting

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July 14, 2022



# INTRODUCTION – WHO WE ARE

## Clinical Informatics Team

- Clinical background
- Epic EHR:
  - Clinical Informatics Certified
  - Credential Educators
- Centrally located in the main hospital
- Staff can stop by team office, call, secure text; for assistance
- Office Hours M-F 7am – 5pm
- On-Call support 24/7



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**DNP, MSN,  
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• Director –  
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Joseph  
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**MPH**

• Provider  
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Nicholas  
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**MSN, BA,  
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• Provider  
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Analyst

# OVERVIEW

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- ▶ Objectives
- ▶ Background – The “Perfect Storm”
- ▶ Problem
- ▶ Purpose and Significance
- ▶ Literature Review
- ▶ Preparation/Considerations
- ▶ Interventions
- ▶ Implementation
- ▶ Outcomes
- ▶ Limitations and Challenges
- ▶ Lessons Learned
- ▶ Future Application



# OBJECTIVES

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- ▶ Articulate the use of Telemedicine in an inpatient hospital setting
- ▶ Consider the use of Telemedicine as an option or alternative to supplement crisis physician staffing
- ▶ Consider the constraints and stakeholders to engage for successful implementation



# THE “PERFECT STORM”

Regional  
Hospitals  
Closing/Closed

Patient Volume  
Surges


COVID  
Census Surge

Crisis Staffing




# PROBLEM

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- Providers willing and well enough/able to work, **but** at home on required COVID quarantine

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- ED patient volume surge
  - ED to inpatient throughput bottleneck
  - Crisis provider staffing



# PURPOSE/SIGNIFICANCE

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Facilitate  
ED  
Throughput

Via the use of a  
novel  
Telemedicine  
solution

Engage off-site  
providers to admit,  
triage, and  
discharge patients



# WHAT IS TELEMEDICINE?

## Telemedicine

is broadly defined as the remote delivery of health services using electronic means

for diagnosis, treatment, research & evaluation, prevention of disease & injury, and health care education.

*World Health Organization (2022)*



# LITERATURE REVIEW

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- ▶ As of 2017, more than 65% of hospitals in the U.S. reported having some form of telehealth
  
- ▶ Studies evidence the use of Telemedicine through videoconferencing for
  - Immediate access to care
  - Overcoming limited access to health services
  - Remote monitoring
  - Workforce sustainability
  - Electronic consults
  - Wireless communications
  - Mass triage
  - Pervasive personal health monitoring
  - Emergency services
  - Easing burden on hospitals for patients seeking care
  - Reducing physical contact

[Miranda & Richard (2021); Panicacci et al. (2022); Stern (2017); Wouhaybi et al. (2013)]



# PREPARATION / CONSIDERATIONS

## Documentation

- What needs to be documented?

## Regulations/Compliance

- Where can telemedicine be used?
- Who can do what?

## Billing

- Are there billing implications?

## Technology

- What hardware is needed?
- What software is needed?

## Consents

- Are consents needed?



# INTERVENTION

## Scenario A - Low Acuity ED Patients

### Description

- Low Acuity ED Patient
- Awaiting ED Provider Result Review
- Pending Discharge

### Telemedicine Solution

- Private room, Tele-Med device
- Remote Provider continuously connected to Telemedicine session
- Nurse with patient in room, join the Tele-Med visit for assessment and discharge planning

## Scenario B - ED to Inpatient Admissions

### Description

- ED patient to be admitted
- Awaiting ED Provider Admission order placement

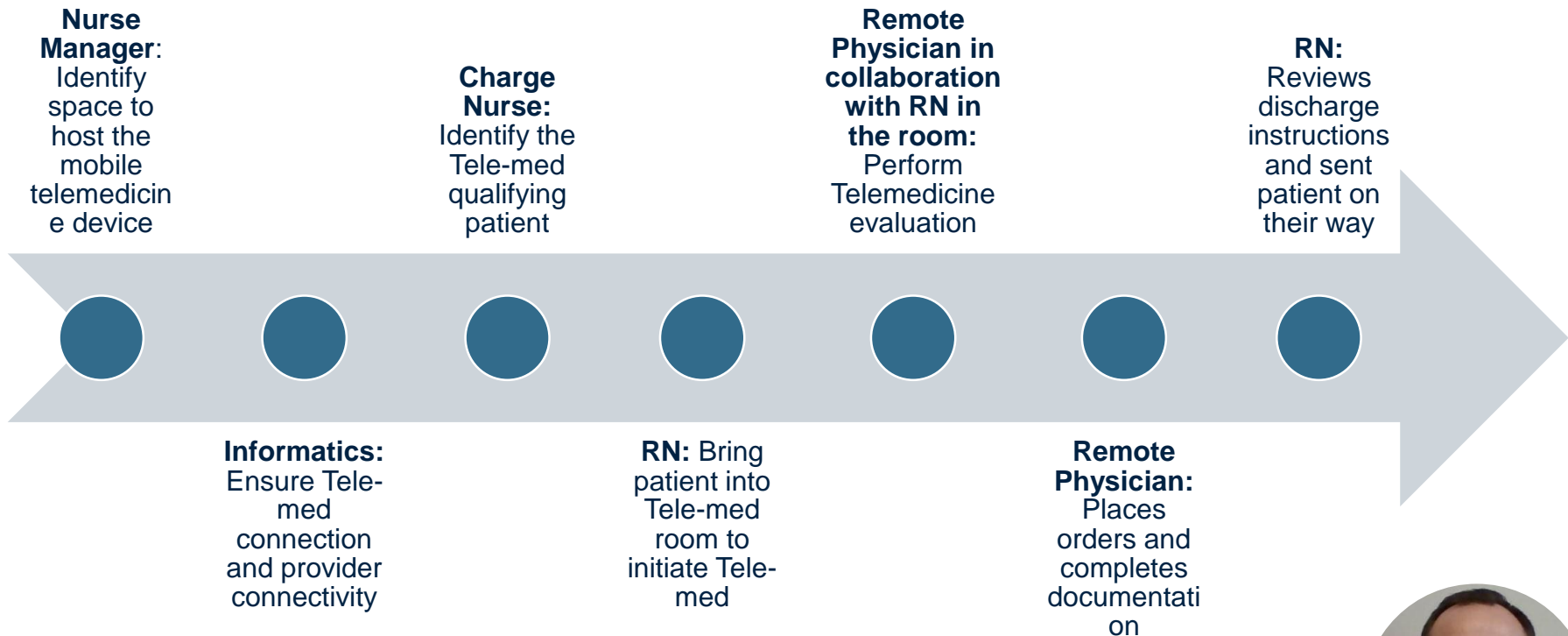
### Telemedicine Solution

- Private inpatient room, Mobile Tele-Med device
- Remote provider connected to a unique patient-specific Tele-Med session
- Nurse with patient at bedside joins the Tele-Med visit; for assessment, and discussing the plan of care



# IMPLEMENTATION – PROCESS STEPS

## Scenario A - Low Acuity ED patients



# IMPLEMENTATION – PROCESS STEPS

## Scenario B - ED to Inpatient Admissions

### ED Provider:

Identifies patient as eligible for medical admission; notifies Hospitalist coordinator (on-site)

### Remote Physician:

Places admission order and inpatient nurse order to trigger tele-med after transfer

### Floor RN:

Coordinates Tele-med with remote physician and patient, at patient's bedside

### Remote Physician:

Places orders and completes documentation

### Hospitalist Coordinator:

Assigns patient to remote physician to perform admission

### ED RN to Inpatient RN:

Performs Handoff; patient transfers to inpatient floor.

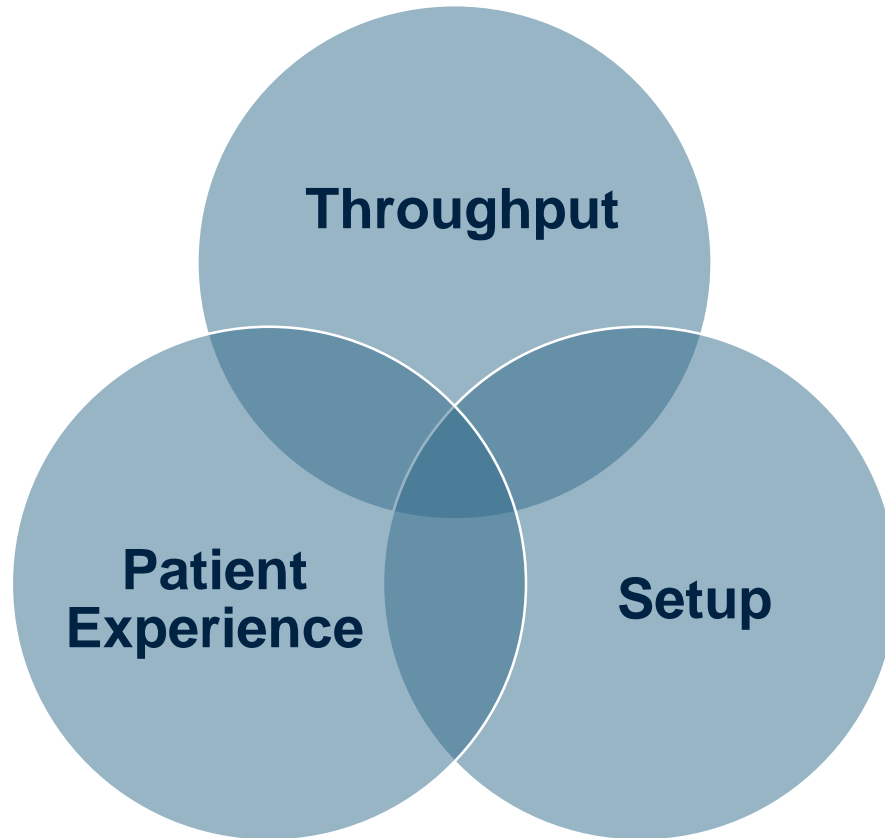
### Remote Physician in collaboration with RN in the room:

Performs Telemedicine evaluation



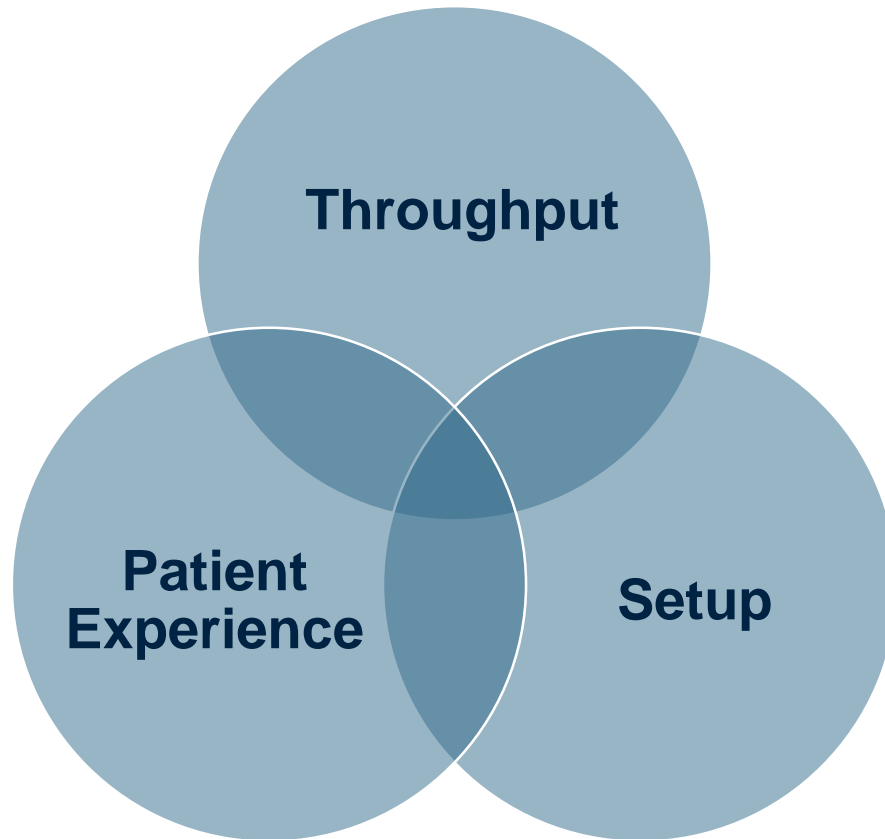
# BENEFITS

## Scenario A - Low Acuity ED patients



# BENEFITS

## Scenario B - ED to Inpatient Admissions



# LIMITATIONS/CHALLENGES

## Scenario A - Low Acuity ED patients



# LIMITATIONS/CHALLENGES

## Scenario B - ED to Inpatient Admissions



# LESSONS LEARNED

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Patient  
Selection

The  
Process

Equipment

Physician  
Experience

Nursing  
Experience

Patient  
Experience



# FUTURE APPLICATION/CONSIDERATIONS

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## Organizational Considerations

- Evaluate and Consider
- Explore, Invest and Adopt
- Clinical Workflow



## Technical Considerations

- Integration
- User Interface



# Q & A

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