

# Improving Discharge Efficiency of Medically Complex Patients in the Pediatric Intensive Care Unit

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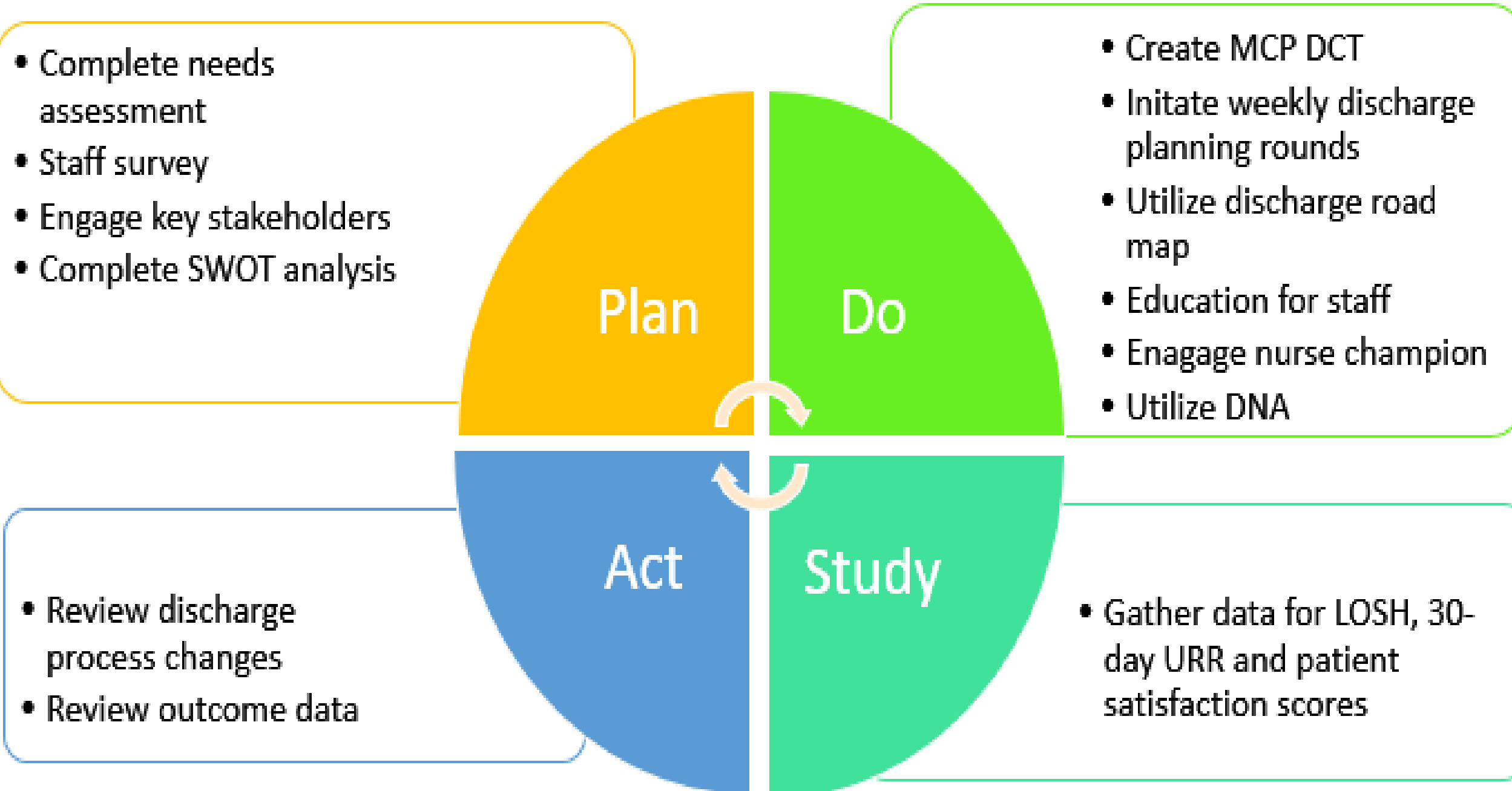
## PROBLEM STATEMENT

- Lack of a standardized discharge process for medically complex patients (MCP) impacts 30-day unplanned readmission rates (URR), patient satisfaction (PS) and leads to prolonged length of stay measured in hours (LOSH) while awaiting coordination of needs (Statile et al., 2016)
- Discharge planning is often ignored over acute problems
- Shortening LOSH allows for improved resource utilization and patient through-put
- Unplanned readmission rates for pediatric intensive care unit (PICU) **0.6%** higher than national average (Buchholz et al., 2020; CHA, 2020)
- Prolonged LOS (CHA, 2020)
  - Mean overstay days: **5.56 days**
    - 5.56 days x 24 hours = 133.44 hours
  - > **\$1900/delay day**
    - 5.56 days x \$1927 = **\$10,714.12**

## PROJECT PURPOSE

- Purpose:** Create standardized discharge process for MCPs admitted to the PICU
- Overarching Aim:** Determine how improving discharge (DC) efficiency among MCPs will affect LOSH, 30-day URR, and PS
- PICO-T:** Among MCPs admitted to the PICU, does a standardized DC process compared to no standardized process affect LOSH, 30-day URRs and PS over a 12-week period?

## MODEL/NURSING THEORY (IHI, 2021)



## Ida Jean Orlando's deliberative nursing process (Petiprin, 2020)

- Assessment: DC needs
  - Diagnosis: assessment of needs confirmed
  - Planning & Implementation: interventions assigned to meet DC needs and implemented
  - Evaluation: progress toward DC goal evaluated, interventions changed based on progress towards DC goal
- When new problems related to DC needs are identified, assessment process begins again

## METHODS

Submitted and approved by IRB

### Participants

- MCP admitted to PICU
- No restrictions based on ethnicity or sex
- Anticipated N: 10

### Inclusion:

- Age: newborn-21 years
- Dependence on technology

### Exclusion:

- Admitted prior to start date of QI initiative
- DCF custody

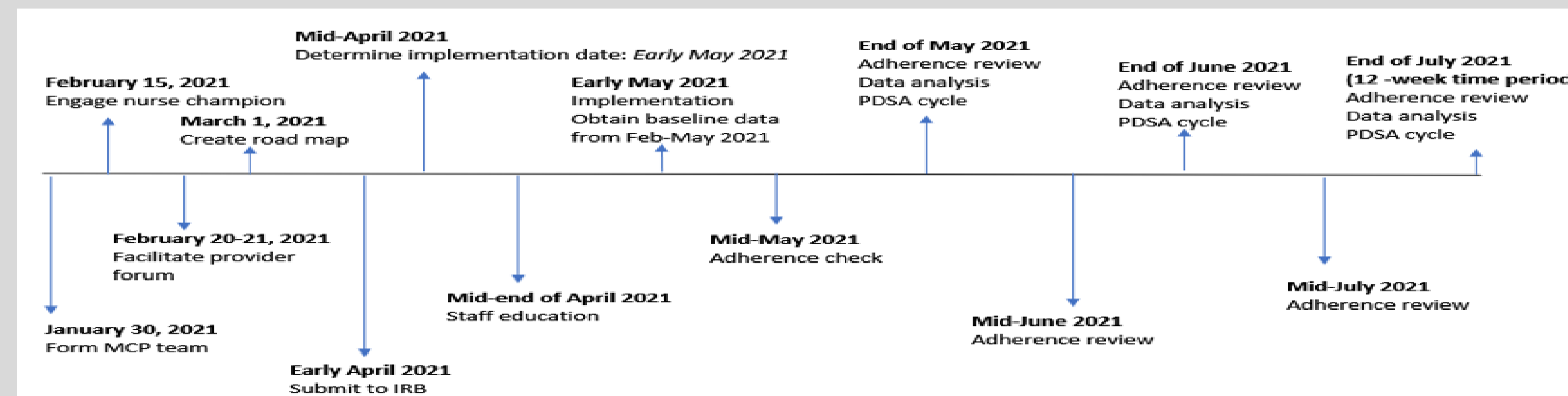
## SETTING

- Tertiary free-standing children's hospital
- 24-bed step-down/ICU
- Medical and non-cardiac surgical patients

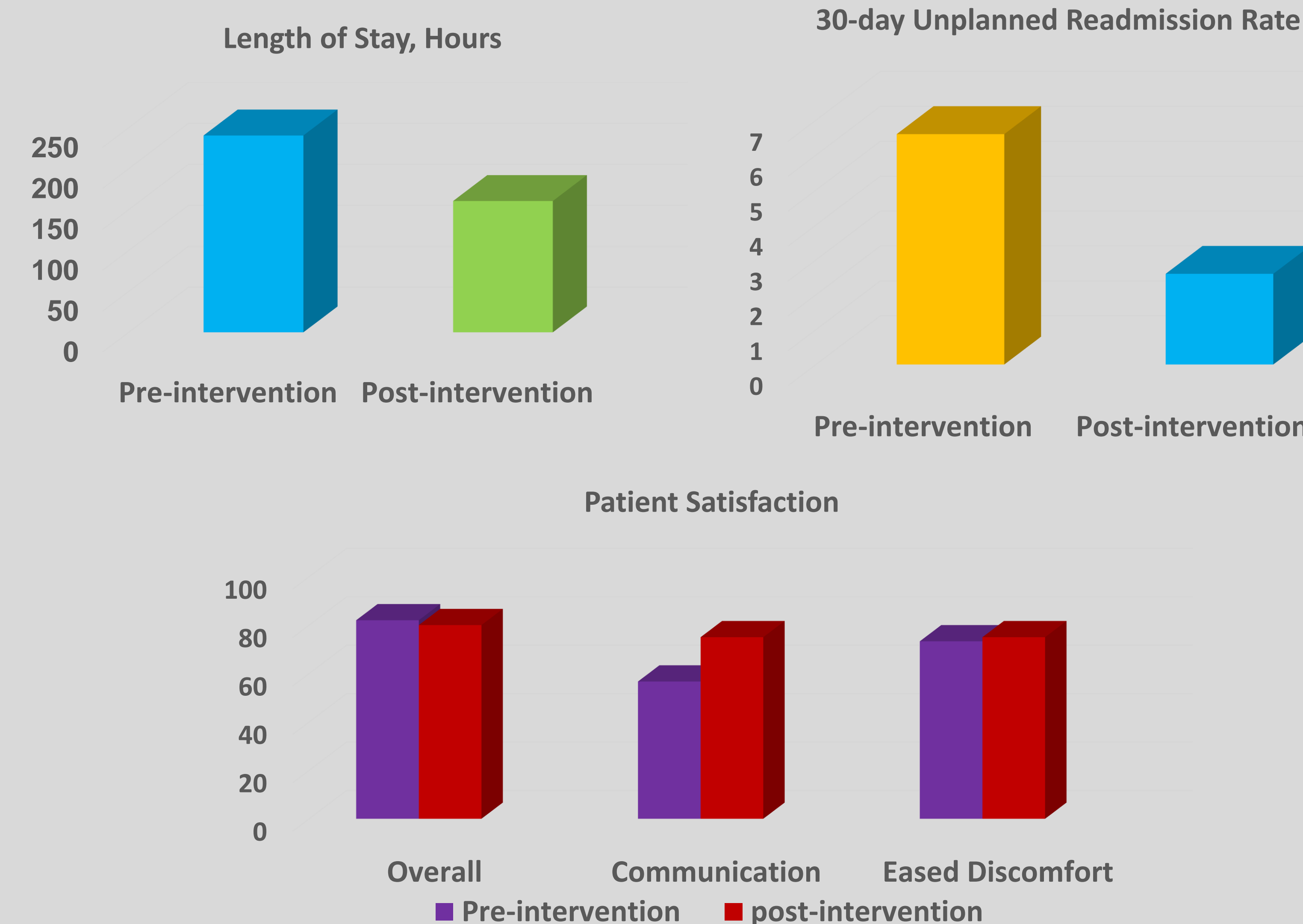
## INSTRUMENTS/TOOLS

- Average LOSH**
  - Obtained from Under/overstay dashboard
- Unplanned 30-day readmission rates**
  - Calculated from PICU admission/transfer/discharge record
- Patient satisfaction scores**
  - NRC Health: Human Understanding
  - Validated survey, utilized internationally by healthcare organizations
  - 15 questions
    - 14 questions: Likert scale
    - End with open-ended prompt: "What else would you like to say about your experience?"

## INTERVENTIONS/TIMELINE



## RESULTS



- A standardized DC process for MCP in the PICU led to a statistically significant improvement in LOSH and clinically significant improvement in unplanned readmission rates. Patient satisfaction rates were not impacted significantly.
- LOSH demonstrated a decrease from **240.5 hours to 160.6 hours** ( $p < .0001$ ).
- 30-day URR improved to **2.6%** ( $p=.13$ ) well-below the national average of **6%**, which was clinically significant.
- Patient satisfaction rates were not clinically or statistically significantly impacted; perceived communication ( $p=.24$ ), eased discomfort ( $p=.86$ ), overall experience ( $p=.87$ )

## DISCUSSION

- The DC process was designed to create a shared mental model of the progress each child and family made toward the goal of discharge.
- Without a clear process guiding the complex discharge, there are many opportunities for discharge delays resulting in additional days in hospital after a patient reaches medical clearance.
- The development of the MCP team and weekly DC planning rounds allowed for alignment of discharge needs with medical clearance, leading to a statistically significant improvement in LOSH.
- The improvement in LOSH led to an improvement in overstay days. Overstay days decreased to 1.67 days with associated with about **\$7,500** cost savings/MCP
- DC errors/omission can lead to an increased number of unplanned readmissions. Improvement in the 30-day URR was clinically significant, but not statistically significant likely due to the small sample size.
- Patient satisfaction may have been impacted by other circumstances not related to DC planning.
- Limitations include one single intervention was not studied; many interventions were implemented simultaneously. Members of MCP team may not be available at all healthcare facilities.

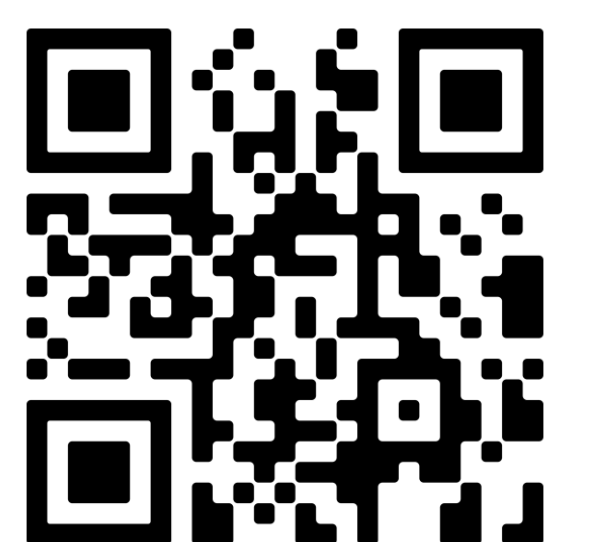
## IMPLICATIONS FOR APN

- The results of the successful implementation of a standardized DC process for MCPs in the PICU directly address a gap in the literature.
- Given the success of the QI project, the discharge process map is being considered for utilization in other ICUs throughout the hospital.
- The creation of a standardized discharge process may be considered for utilization in other PICUs across the country.

## SUSTAINABILITY

- Assignment of directed roles
  - Nurse champion
  - MCP discharge team
  - Discharge planner

## REFERENCES



A standardized DC process for MCP in the PICU demonstrated improvements in LOSH and 30-day URR.