

An Acute Heart Failure Order Set to Decrease Intensive Care Unit Length of Stay

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PROBLEM STATEMENT

Developing an acute heart failure (AHF) protocol/order set promotes early initiation of guideline directed medical therapy (GDMT) for the patients presenting with AHF exacerbations and decreases intensive care unit (ICU) length of stay (LOS)

Prolonged ICU LOS can lead to:

- Regressions of AHF
- Sepsis/infection
- Venous thromboembolism
- Increased mortality rates



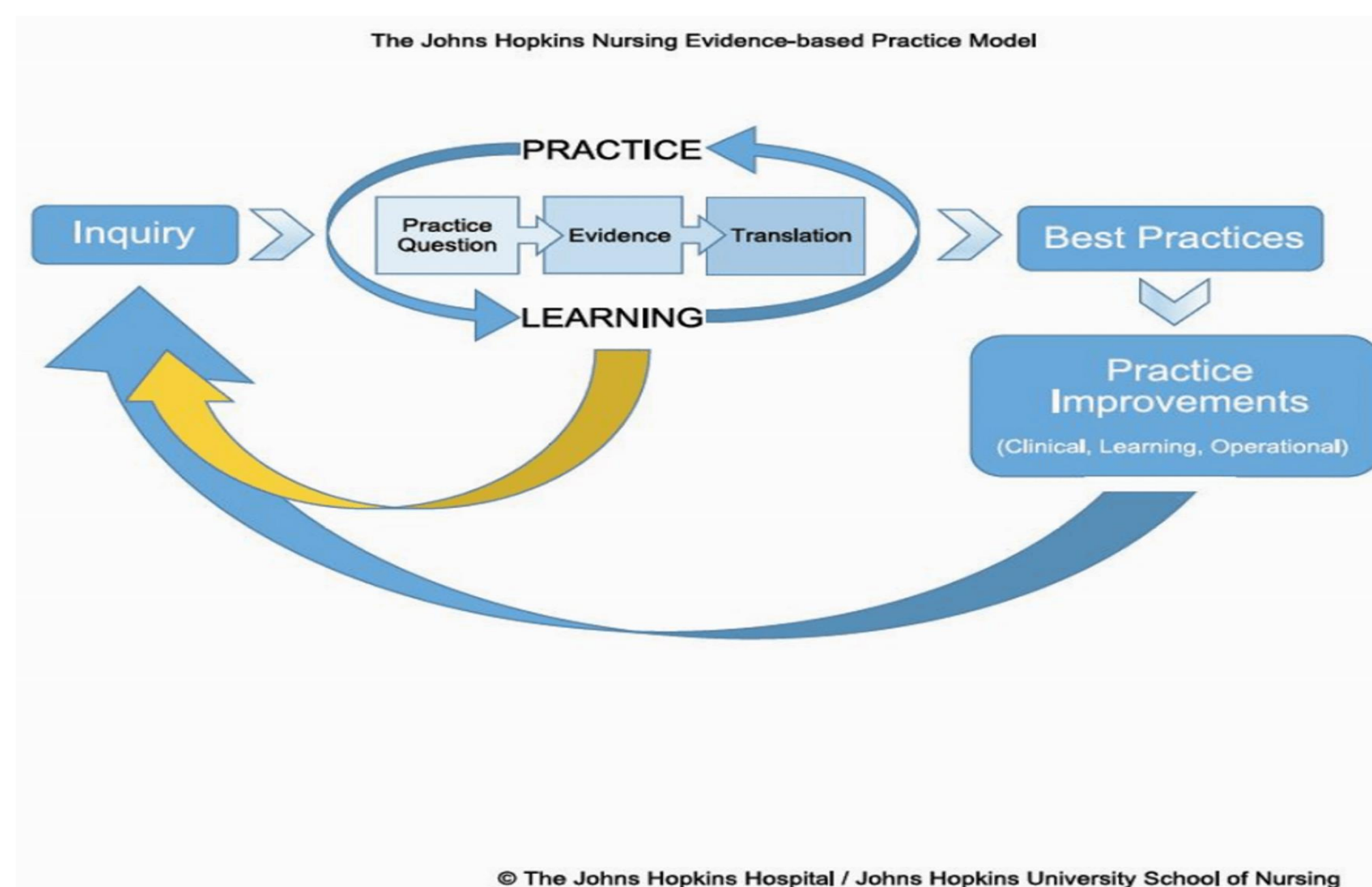
PROJECT PURPOSE

Develop and implement an evidence-based AHF protocol/order set with the guidance of guidelines and evidence – based medicine.

Aim: Develop an AHF order set to decrease ICU LOS by 10% over a 90 day period

PICOT: Does implementation of an acute heart failure exacerbation order set decrease intensive care unit length of stay by ten percent for the adult-gerontology population, presenting with acute and acute on chronic congestive heart failure exacerbation over a 90-day period

NURSING MODEL



NURSING THEORY

The theory of human beings by Martha E.Rogers. The idea that nursing is a science that is humanistic and humanitarian (Wayne, 2020). This theory uses scientific knowledge through evidence-based medicine.

METHODS

• SUBJECTS (Participants)

•Inclusion Criteria: primary diagnosis of acute heart failure, age greater than 18 years, intensive care unit admission, admitted to the designated critical care service that will be utilizing the protocol/order set for respiratory failure associated with congestive heart failure.

•Exclusion criteria: end-stage renal disease on renal replacement therapy, end-stage heart failure, cardiogenic shock, septic shock and patients being admitted to the cardiothoracic unit where the selected critical care team does not manage patients

•SETTING

A large 1000+ bed, level one trauma center specialized in heart failure and heart transplant management.

•INSTRUMENTS/TOOLS

Measuring length of stay from January 2021 to April 2021 (90 days).

•INTERVENTION

Work in conjunction with HF quality improvement (QI) committee to determine need of ICU HF order set/protocol.

Develop new protocol/order set in collaboration with critical care physician and advanced practice providers, critical care pharmacist.

Implement new order set/protocol into EMR with assistance of EMR analysts in which critical care providers were then able to utilize order set for patients meeting inclusion criteria.

•DATA COLLECTION

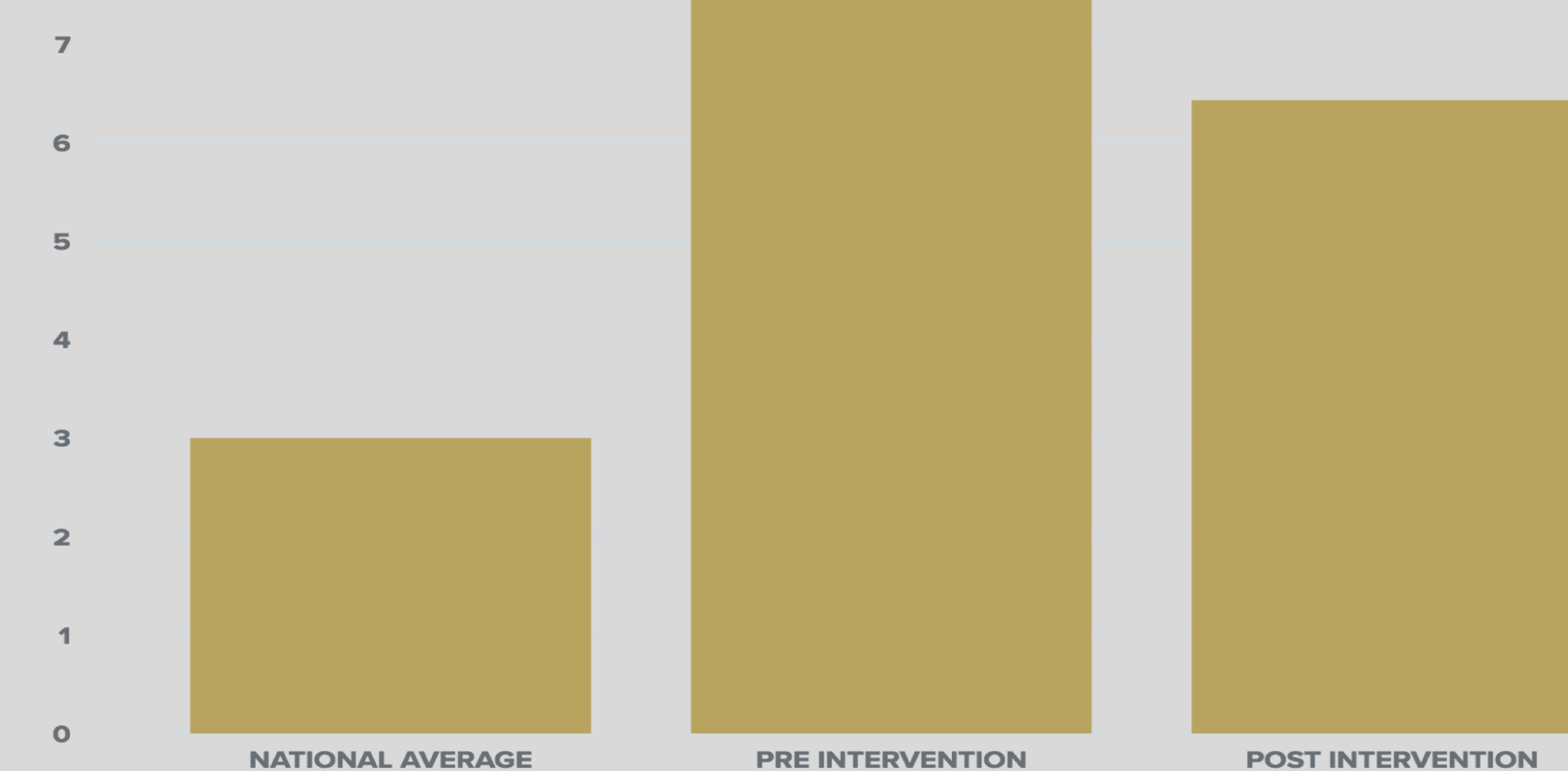
Pre intervention (N = 93) ICU LOS was obtained over a 365 day period.

LOS collected from ten patients using password protected Excel spreadsheet.

Post intervention LOS was calculated by USF informatics technology.

RESULTS

HEART FAILURE ORDER SET PRE & POST INTERVENTION



DATA ANALYSIS

A t-test was utilized to compare pre and post order set/protocol implementation over a 90 day period to determine median ICU LOS.

The national average for ICU LOS related to HF exacerbation was 3 days (Sinan et al., 2019).

Pre intervention average ICU LOS related to acute HF exacerbation over a 365 day period including was 7.53 days.

Post intervention median ICU LOS related to HF exacerbation over a 90 day period was 6.43 days.

Although the post intervention ICU LOS was decreased the difference did not meet statistical significance ($p > 0.05$).

UNANTICIPATED FINDINGS:

Merger of medical record numbers not allowing patient data to be found by EMR information technology to determine ICU LOS.

This unanticipated finding lost data for patients (N=4).

DISCUSSION

The development of an acute heart failure order set/protocol shows promise in decreasing intensive care unit length of stay.

- Although not statistically significant, length of stay decreased to greater than one day and greater than a 10% reduction.
- Cost was not determined, but is expected to be decreased with a shorter length of stay.
- Improved ordering providers ease of early initiation of GDMT for acute HF exacerbations.

LIMITATIONS

- Decrease in anticipated size of patient population due to COVID-19 pandemic.
- Patients being admitted to ICU post coronary angiography with mechanical assist devices.
- Challenges with EMR data collection.

IMPLICATIONS FOR ADVANCE PRACTICE NURSING

Nurses doctoral prepared are able to lead the way in quality improvement to positively impact HF patients presenting to the ICU.

SUSTAINABILITY

- Early implementation of GDMT can decrease ICU LOS.
- Implementation of order set/protocol within EMR will allow access to all providers.
- Organizational review structure will update order set/protocol as guidelines are updated.

REFERENCES

Sinan, Ü. Y., Ekmekçi, A., Özbay, B., Akyıldız Akçay, F., Bekar, L., Koza, Y., Bolat, İ., Kocabaş, U., Zoghi, M., & Collaborators (2019). The real-life data of hospitalized patients with heart failure: On behalf of the Journey HF-TR study HEART FAILURE ORDER SET 12 investigators. *Anatolian journal of cardiology*, 21(1), 25–30. <https://doi.org/10.14744/AnatolJCardiol.2018.50880>

Wayne, G. (2020, January 2). Nursing theories and theorists. Your guide to nursing theories. Nurse lab. https://www.nurselabs.com/nusing-theories/#ida_jean_orlando



Implementation of an acute heart failure order set supports a decrease in ICU LOS.