Reducing Readmissions for Patients with Congestive Heart Failure at University Hospital
Through Proactive Use of the Electronic Medical Record

Aim Statement
• We aim to reduce the 30 Day Unplanned Readmission Rate for patients discharged from UH with a primary diagnosis of congestive heart failure (CHF) from 24% to 15% by March 2017.
• We plan to accomplish this through the development of a CHF Identification Innovation (CHFII) which will allow for earlier identification of patients with CHF to facilitate the initiation of CHF care and transition processes for these patients as early as possible in their hospitalization at MUHC.

Background
• According to the Vizient, the 30-day Unplanned Readmission Rate for patients with a primary diagnosis of CHF from January 2015-May 2016 was 24% (Fig 1)
• An analysis of the 158 UH patients defined by CMS as falling into the CHF Cohort who were discharged to home or home health between August 2014-September 2015 was conducted.

Key Findings
There were 36 unplanned readmissions within 30 days post-discharge
✓ 70% of re-admitted patients had a length of stay (LOS) at their index visits of 4 days or less (20% <1 day)
✓ There is little time to intervene with short LOS
✓ 70% of all patients with CHF were diagnosed later in their inpatient stay (Fig 2) which could inhibit timely patient care and education.

Specific Measures
• 30 Day Unplanned Readmission Rate
• % of CHF patients identified at admission
• Average number of provider alerts per day

Plan
• Analyzed data and current state for patients with CHF at UH.
• Developed an idea for a tool, the CHFII, which would 1) identify patients with potential CHF as early as possible during their hospitalization, 2) alert the provider, and 3) automatically set in motion tasks and workflows for clinicians caring for identified patients.
• Obtained a set of criteria from Sentara Healthcare proven to accurately identify patients with CHF.
• Identified and engaged key stakeholders
• Determined appropriate, evidence-based care for patients with CHF through literature reviews and discussions with stakeholders.

Do
• Analyzed and tested evidence-based CHF identification criteria from Sentara Healthcare to determine if the criteria would effectively identify UH patients with CHF.
• Worked with providers, nurses, dieticians, pharmacists, and cardiac rehabilitation staff to develop workflows resulting from patient identification.
• After testing, built the CHFII utilizing the optimized identification criteria (Fig 3), finalizing resulting workflows (Fig 3, automatic tasks), and the provider alert process.
• Manually tested CHFII in May 2016.
• Electronically piloted CHFII on the Cardiovascular Unit in June 2016.
• Go-live of CHFII on all inpatient units in July 2016
• Made adjustments to workflow and identification criteria based on feedback from providers and data in January 2017.

Study
• Pre-Intervention Time Period: 1/1/16-5/30/16
• Post-Intervention Time Period: 7/12/16-12/30/16
• The 30-Day Unplanned Readmission Rate decreased from 25% to 11% (Fig 1). There were 6 months in a row which were significantly below the baseline readmission rate indicating an improvement.
• The % of patients with CHF who were identified by a provider as having CHF at admission of the visit went from 30% to 50% (Fig 2) (an increase is favorable).
• 65% of patients with CHF were correctly identified by the CHFII. (98% with primary diagnosis identified, 60% with secondary diagnosis identified)
• After a modification to the alert process in January 2017, the number of total alerts received by all providers per day decreased from 95 to 21 (a decrease is favorable).

Act
• Made adjustments to identification criteria to increase the % of patients with a secondary CHF diagnosis correctly identified by the CHFII by turning on a functionality allowing the tool to “look back” at previous visits.
• Continue to monitor process and outcome data to ensure improvements are sustained.
• Determine other potential uses for the CHFII such as linking patients to outpatient care.
• Determine other potential disease states to which this framework could be spread. Initial discussions involve COPD.