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<p><b>Why are you interested in the Improvement Scholars Program?</b></p> <p><i>From Letter of Intent:</i></p> <p>I am excited to apply for the Improvement Scholars Program because of my deep interest in closing the knowledge-to-practice gap in clinical medicine. As a clinician and researcher focused on population health and quality improvement, I have seen firsthand how evidence-based guidelines often fail to translate into routine clinical practice. This gap leads to variability in care, missed opportunities for prevention, and disparities in health outcomes. Through the Improvement Scholars Program, I aim to develop the skills and leadership necessary to implement sustainable, data-driven interventions that improve patient care and outcomes. The Improvement Scholars Program will provide the structured training and mentorship for me to build a strong foundation in quality improvement.</p> <p>I am particularly eager to enhance my expertise in Lean and Model for Improvement methodologies, project leadership, and data-driven change implementation. Additionally, the opportunity to collaborate with interdisciplinary teams aligns with my goal of developing scalable solutions that improve access, quality, and equity in cardiovascular care. I look forward to contributing to and learning from this program while advancing projects that lead to meaningful, lasting improvements in patient care.</p>
<p><b>Problem Statement: What is the problem you are looking to solve?</b></p> <p><i>From Letter of Intent:</i></p> <p>Hospital readmission rates in cardiology services – Med C and Med D – from June 2023 to July 2024 were 14.6%. We are aiming to improve this number by increasing utilization of SGLT2i in eligible heart failure patients.</p> <p>Between 7/7/2024 and 1/3/2025 (~6 months), there were 283 patients discharged from the Med C and Med D services who were eligible for SGLT2i. Of this group, only 55% were discharged on SGLT2i therapy. Our project aims to recommend initiation of SGLT2i with a e-consult by the pharmacy team and an inpatient cardiologist to inpatient rounding teams for eligible patients prior to hospital discharge. There is also potential to expand if the intervention is successful, as during the same time period there were 712 patients at UNCH Hospital discharged and eligible for SGLT2i; of that cohort, 38% were discharged with SGLT2i.</p>
<p><b>Importance Statement: Why is this project important?</b></p> <p><i>From Letter of Intent:</i></p> <p>Several meta-analyses have demonstrated SGLT2i use significantly reduces heart failure hospitalization, cardiovascular death, cardiovascular mortality, all-cause mortality and myocardial infarction in eligible patients. The hospitalization reduction of SGLT2i occurs quickly, with a meta-analysis showing a 37% decrease at 6 months. Additional studies have also shown that patients are</p>

more likely to remain on medications if given to them prior to leaving the hospital as clinical inertia often delays outpatient initiation.

SGLT2i therapy is generally well tolerated by patients but potential downsides include risks of urinary tract infections, genital infections, and euglycemic diabetic ketoacidosis. Financial impacts are also possible as these medications are patent-protected and can come with high out of pocket costs.

This project directly aligns and targets organizational goals of reducing hospitalizations and health equity promotion. Currently at UNC there is an initiative led by Dr. Gladman on the outpatient side to increase SGLT2i use for eligible patients and we believe this inpatient initiative can complement it. There have been numerous studies showing increase in medications prescribed by hospital discharge through virtual recommendation. This was recently studied at Duke Health.

**Project Scope**

In Scope:

- *What is the specific patient population your project will impact?*

Heart failure patients on the cardiology service (Med C and Med D) who are eligible for SGLT2i.

- *How many patients are in the population?*

In a 6-month period (from 7/7/24 – 1/3/2025) there were 283 patients potentially eligible for SGLT2i who were discharged from a cardiology service (Med C and Med D). Of those, 133 (47%) were not on SGLT2i on discharge. In the same time period, there were a total of 712 heart failure patients at UNC Main Hospital who were potentially eligible for SGLT2i with 463 (65%) not on SGLT2i on discharge.

- *In what setting(s) would this problem be addressed? (e.g., hospital unit, outpatient practice setting, non-clinical setting, etc.)?*

This problem would be addressed on the cardiology inpatient service at UNC Main Hospital.

Out of Scope:

Non-cardiology service lines, ICU patients, outpatients, medication recommendations outside of SGLT2i.

**Measures: (Process, Balancing, Structure)**

*Please describe the anticipated outcome measure(s), 2-3 process measures, and one balancing measure. Please do not include more than 5 measures total.*

Noted in the table below. Two balancing measures were included in order to evaluate patient safety and impact on staff requirements as we look ahead towards scalability.

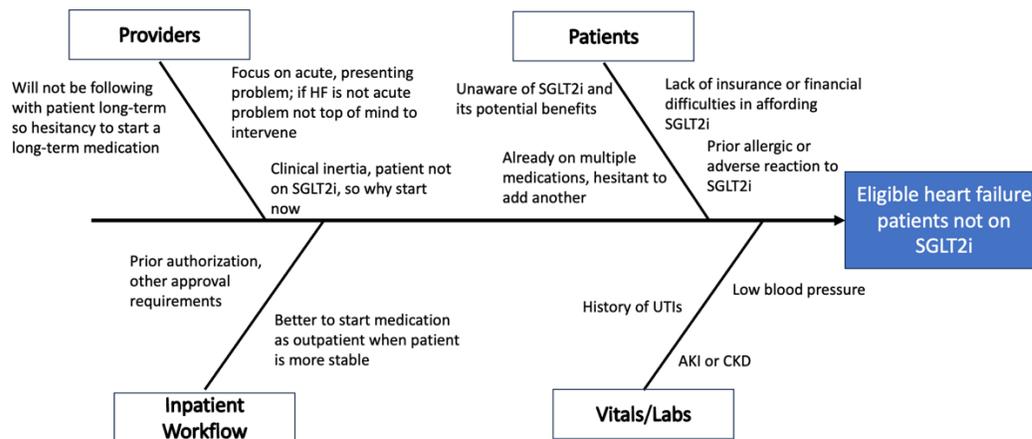
Measure Name	Measure Type	Measure Calculation	Measure Exclusion	Data Source	Baseline	Goal	Collection Frequency
Readmission rate	Outcome	Patients re-admitted within 30 days after hospital discharge		Re-admission dashboard	11.3%	8%	Quarterly
Percent of SGLT2i eligible patients	Process	Of the number of heart failure patients, how many are eligible for SGLT2i		Data pull from pre-specified report	60.7%		Biweekly
Percent of eligible patients discharged with SGLT2i	Process	Number of patients with SGLT2i on medication list divided by eligible patients		Data collection during intervention	53%	80%	Biweekly
Number of patients that decline prescription	Process	Number of patients		Data collection during intervention			Biweekly
Adverse events with SGLT2i	Balancing	Number of patients		Data collection during intervention			Quarterly
Time it takes to review and determine SGLT2i eligibility and prescription	Balancing	minutes		Data collection during intervention			Biweekly

**Root Cause Analysis**

- *What do you think are the underlying causes of the problem?*
- *Why do you think the problem is happening?*

The underlying causes are multifactorial and likely driven by a combination of clinical inertia, narrow management focus of managing the acute problem, insurance hurdles, and uncertainty of outpatient management and follow-up. See Fishbone diagram below for detailed analysis of root causes. Often the decision to change a chronic medication is left to the outpatient provider who will be monitoring and following the patient longitudinally. Therefore, it is easy and not illogical to recommend outpatient consideration of a specific medication since the inpatient provider or team will not necessarily be seeing the patient again.

However, numerous studies have shown that patients are more likely to remain on medications if they are prescribed them on hospital discharge as opposed to waiting to initiate them on an outpatient basis. The time to benefit for SGLT2i is in the matter of days to weeks where clinical trials have shown reduced events, like hospital re-admissions, were seen starting a couple of weeks from medication initiation.



**Ideas for Improvement**

- *What ideas do you have for changes that will result in improvement?*

Our primary change idea is to implement a proactive, systematized process to identify and initiate SGLT2i for eligible hospitalized heart failure patients prior to discharge. This addresses a key gap in the timely adoption of evidence-based therapies.

To support this, we are collaborating with the Epic team to enhance an existing report of admitted heart failure patients by integrating key clinical and logistical data points - such as renal function, history of SGLT2i use, documented allergies, and insurance status. There is already an existing report of admitted heart failure patients and we have been working with an Epic analyst to add those other columns; the columns already exist (ie there is already logic built for history of SGLT2i) so this process does not involve making new Epic logic, rather adding already existing logic to the heart failure list. Given this, we anticipate having the report ready prior to June. By enriching the report with these fields, we aim to create a real-time, actionable list of patients who may be eligible for therapy.

From this refined list, our multidisciplinary team can quickly review patient data, determine eligibility, and make recommendations for SGLT2i initiation before discharge. The workflow will entail, the pharmacy team evaluating the Epic list of admitted heart failure patients and identifying those on cardiology services who meet eligibility criteria but do not have SGLT2i on their home medication list or are not receiving it in the hospital. After identification, chart review to evaluate labs, confirm heart failure status, and evaluate for SGLT2i eligibility. For those eligible for SGLT2i but not currently on it, the pharmacy team will put in a note within the patient’s chart and discuss with the cardiology attending. Expected financial cost and insurance status will be considered to estimate out-of-pocket cost for the patient. The primary team will then be notified via phone call or epic chat about SGLT2i initiation and the pharmacy team, who also does discharge medication reconciliation for cardiology patients, will be able to meaningfully discuss with the primary team. This workflow not only increases uptake of a high-value therapy, but also reduces delays in care and potential readmissions. Embedding this review into existing pharmacy discharge workflows ensures efficiency and supports long-term sustainability.

**Risks and Opportunities**

- *What factors do you anticipate will foster improvement?*
- *What are the major challenges you anticipate?*

Several key factors will help foster improvement in this initiative. We are starting on the cardiology service, where the importance and benefit of GDMT is appreciated. Our team is composed of individuals from the cardiology group, which will facilitate effective communication and increase credibility and buy-in when engaging with primary teams. Additionally, our pharmacy colleagues are already deeply involved in inpatient medication management and discharge planning, making them well-positioned to lead the identification and recommendation process within existing workflows. This cohesive, experienced team structure provides a strong foundation for successful implementation and iterative improvement.

However, we do anticipate challenges. One will be refining the Epic-based patient identification tool to ensure it accurately captures eligible heart failure patients and includes all necessary data fields. As with any automated report, we will need to monitor for missed cases or false positives early on. On the patient side, cost and insurance coverage may pose barriers to initiating SGLT2 inhibitors during hospitalization, particularly for uninsured or underinsured patients. In addition, determining the optimal timing of initiation - and addressing clinical inertia that favors deferring initiation to the outpatient setting - may be an ongoing challenge.

By leveraging the strengths of our interdisciplinary team and using early implementation data to guide real-time adjustments, we are confident in our ability to navigate these challenges and drive meaningful, sustained improvement.

**Stakeholders and Project Team Members**

- *Who are the key stakeholders in your system and processes?*
- *Who are the key project team leaders to design and implement change?*

Name	Role
Anand Shah	<i>Team Lead</i>
Thelsa Weickert	<i>Co-Lead, Cardiology Attending</i>
Theresa Kline	<i>Pharmacist, Subject Matter Expert</i>
William Whitaker	<i>Cardiology Nursing Perspective</i>
Kara Lingley-Brown	<i>Team Quality Leader and Coach</i>
Anand Shah	<i>Data Lead</i>

**Impact on the Quintuple Aim**

- *Improved health*
- *Enhanced patient experience*
- *Enhanced clinician and staff experience*
- *Health equity*
- *Reduced costs*

This quality improvement initiative directly aligns with multiple parts of the Quintuple Aim. By increasing the appropriate use of SGLT2 inhibitors, which have been shown to reduce rehospitalizations within just a few months of initiation and improve survival, this initiative promotes **improved health** for a high-risk population.

Incorporating SGLT2i initiation into inpatient workflows also enhances the **patient experience**, as patients are discharged on optimal evidence-based therapy with early symptom improvement and fewer near-term hospital readmissions. This is especially impactful to ensure timely care is provided to patients.

For clinicians and staff, having a clear, systematic approach to identifying eligible patients and supporting initiation improves confidence in guideline-directed therapy and reduces variability in care, contributing to an **enhanced clinician and staff experience**. By aligning this initiative with existing care teams and discharge planning processes, it also avoids adding unnecessary burden.

A central focus of this initiative is addressing **health equity**. Black patients and individuals of other racial and ethnic minorities have 20–35% lower odds of receiving SGLT2 inhibitors despite similar benefits in quality of life and outcomes. By implementing a standardized approach to identify and initiate therapy during hospitalization, this project directly targets these disparities and promotes equitable access to life-saving treatments.

Finally, by preventing early rehospitalizations and improving long-term heart failure outcomes, this initiative contributes to **reduced costs** for the health system—minimizing avoidable inpatient utilization and improving the value of care delivered.

Overall, this project offers an impactful pathway to improve outcomes for heart failure patients while advancing the core goals of the health system.

1. Wang E, Patorno E, Khosrow-Khavar F, Crystal S, Dave CV. Racial and ethnic disparities in the uptake of SGLT2is and GLP-1RAs among Medicare beneficiaries with type 2 diabetes and heart failure, atherosclerotic cardiovascular disease and chronic kidney disease, 2013-2019. *Diabetologia*. 2025 Jan;68(1):94-104. doi: 10.1007/s00125-024-06321-2. Epub 2024 Nov 8. PMID: 39514094; PMCID: PMC11663158.
2. Cromer SJ, Lauffenburger JC, Levin R, Patorno E. Deficits and Disparities in Early Uptake of Glucagon-Like Peptide 1 Receptor Agonists and SGLT2i Among Medicare-Insured Adults Following a New Diagnosis of Cardiovascular Disease or Heart Failure. *Diabetes Care*. 2023 Jan 1;46(1):65-74. doi: 10.2337/dc22-0383. PMID: 36383481; PMCID: PMC9797651.
3. Gupta K, Spertus JA, Birmingham M, Gosch KL, Husain M, Kitzman DW, Pitt B, Shah SJ, Januzzi JL, Lingvay I, Butler J, Kosiborod M, Lanfear DE. Racial Differences in Quality of Life in Patients With Heart Failure Treated With Sodium-Glucose Cotransporter 2 Inhibitors: A Patient-Level Meta-Analysis of the CHIEF-HF, DEFINE-HF, and PRESERVED-HF Trials. *Circulation*. 2023 Jul 18;148(3):220-228. doi: 10.1161/CIRCULATIONAHA.122.063263. Epub 2023 May 16. PMID: 37191040; PMCID: PMC10523916.

**Sustainment Plan**

- *What ideas do you have for sustaining the improvement?*
- *How do you see the work you start with IHQI's support continuing?*

Sustainability is a central component of this initiative's design. From the outset, we are focused on creating a workflow that can be realistically integrated into existing roles and responsibilities - specifically those of the inpatient pharmacy team, who already play a vital role in medication reconciliation and discharge planning. Early conversations with pharmacy colleagues suggest that the additional time required to identify eligible heart failure patients for SGLT2i initiation will be minimal, making this an efficient and sustainable intervention. The screening process will be significantly streamlined as we are working with the Epic team to create a live Epic list of heart failure patients meeting specific inclusion and exclusion criteria. As part of our balancing measures, we will actively monitor the time commitment required by pharmacy to ensure feasibility as the project scales. The collaboration between pharmacy and cardiology will also support sustainability. Cardiology faculty are available for virtual consults. This model leverages existing expertise without straining limited subspecialty resources.

Our vision is to use this pilot as a proof of concept, initially focused on heart failure patients on cardiology service lines and then expand the intervention across the hospital. As previously noted, there are a significant number of heart failure patients not on cardiology teams that have the potential to benefit. The scalable and low-burden nature of the intervention, coupled with ongoing support and buy-in from pharmacy and cardiology, makes sustainability following by scalability realistic.

With IHQI's support, we aim to build the foundation - refining workflows, collecting outcome and balancing data, and demonstrating impact - that will enable long-term adoption.

**Carolina Quality Tools**

*How will Carolina Quality tools (Just Culture, SAFE reporting, TeamSTEPPS, huddles, and visual management boards) be used to support the work? Although use of these tools is not required, applications including them will be strengthened.*

Carolina Quality tools will be valuable in supporting the success, refinement, and spread of this heart failure SGLT2i initiation initiative. We plan to use **TeamSTEPPS** principles to enhance interdisciplinary communication between pharmacy, cardiology, and primary teams. This will be particularly important as we develop a streamlined process for identifying eligible patients, ensuring clear and timely communication around roles, consults, and medication initiation prior to discharge.

We also anticipate incorporating brief, structured **huddles**, particularly during pilot rollout, to support situational awareness, identify barriers in real-time, and ensure alignment across team members. These huddles will provide space to quickly review cases, address workflow issues, and foster a shared understanding of patient eligibility and next steps.

In line with a **Just Culture** approach, we will foster a learning environment where feedback from all team members is welcomed and used to iteratively refine the process. We anticipate adjustments and iterations along the way and expect to foster a culture that allows any team member to bring up barriers and potential solutions.

**References**

- Sponsor letters – specifics that leaders agree to.

Dr. Weickert will be emailing the letter of support to Matt.