

SGLT-2 Inhibitor Prescription Rates for Heart Failure Patients at Strong Internal Medicine AC5 Clinic

Louis Arens, MD
Maurice Vaughan, MD

Introduction

- SGLT-2 inhibitors are the newest addition to the guideline directed medical therapies (GDMT) that reduce morbidity and mortality in heart failure (HF) patients. They have been found to be effective across the entire spectrum of left ventricular ejection fraction.
- DAPA-HF trial found that dapagliflozin significantly reduced cardiovascular death, HF hospitalizations, and urgent HF visits compared to placebo, in patients with an LVEF < 40%.
- EMPEROR-Reduced trial found that empagliflozin significantly reduced cardiovascular death and HF hospitalizations compared to placebo, in patients with a mean LVEF of 27%.
- DELIVER trial found that dapagliflozin significantly reduced unplanned HF hospitalizations, urgent visits for HF, and cardiovascular death compared to placebo in patients with HFmrEF and HFpEF.
- SGLT-2 inhibitors are becoming easier to prescribe.
- Empagliflozin can now be prescribed without limitations based on GFR for HF patients. There are no contraindications for patients on dialysis.

Objective

- To assess how effective providers at AC5 internal medicine resident clinic are at prescribing SGLT-2 inhibitors to patients with heart failure, regardless of their left ventricular ejection fraction.

Methods

- This is a retrospective chart review of all patients who attended AC5 general medicine clinic in 2023 with HFpEF or HFrEF (based on visit diagnoses in the EMR) and a GFR > 20.
- Patients with a past medical history that included type 1 diabetes, extremity amputations, and frequent urinary tract infections were excluded from the study.
- 151 patients were included in the final analysis.

Results

- Throughout 2023, 48.3% of eligible patients (73 out of 151) who presented to AC5 Internal Medicine Clinic who had a history of HFrEF or HFpEF, were prescribed an SGLT-2 inhibitor.



SGLT-2 Inhibitor Prescription Rates to Heart Failure Patients at SIM AC5 Clinic Throughout 2023

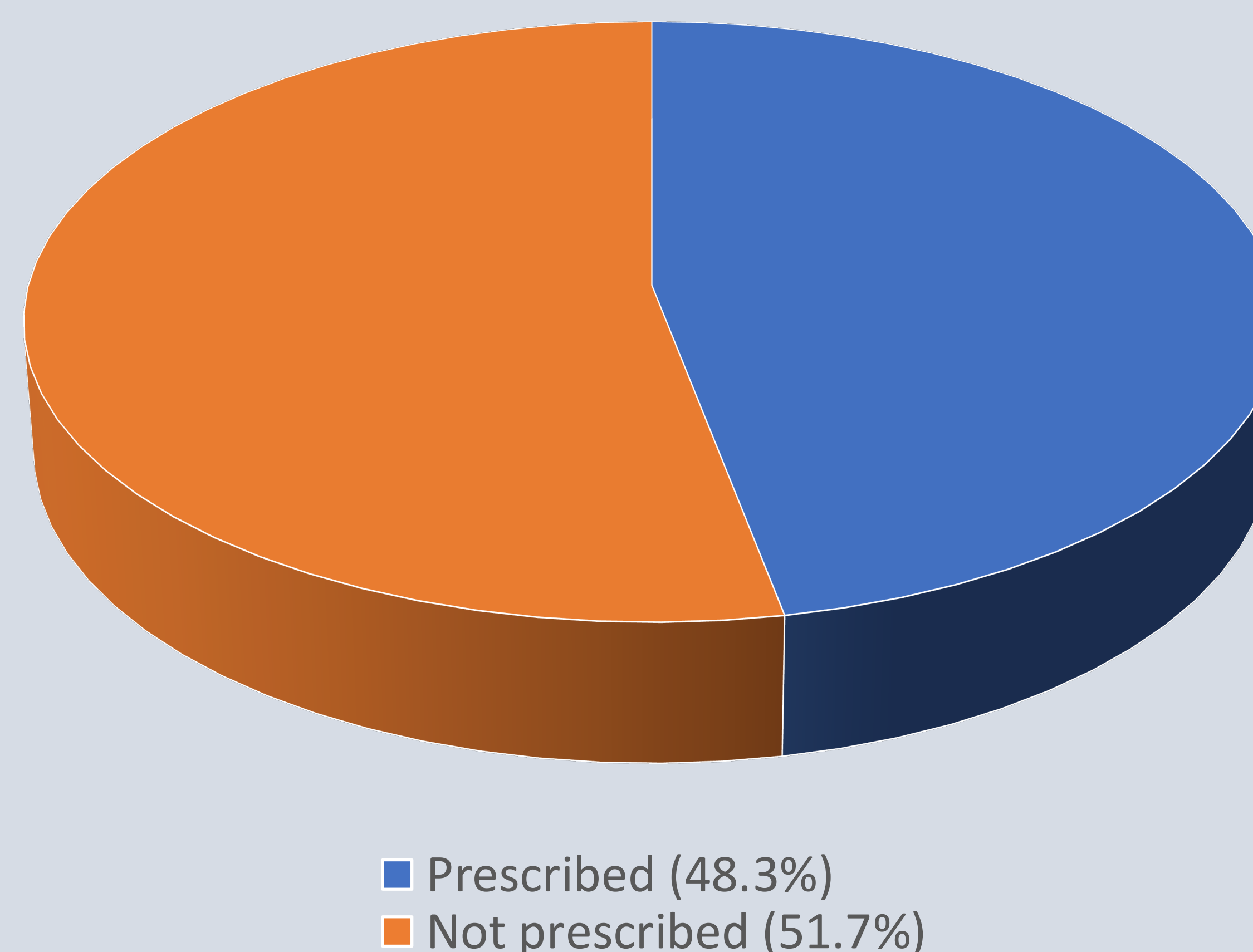


Figure 1: Pie chart demonstrating the percentage of eligible patients with a GFR > 20 who presented to ACS clinic between January 2023 and December 2023 with heart failure diagnosis coded in their visit, who were either prescribed or not prescribed an SGLT-2 inhibitor during this timeframe.

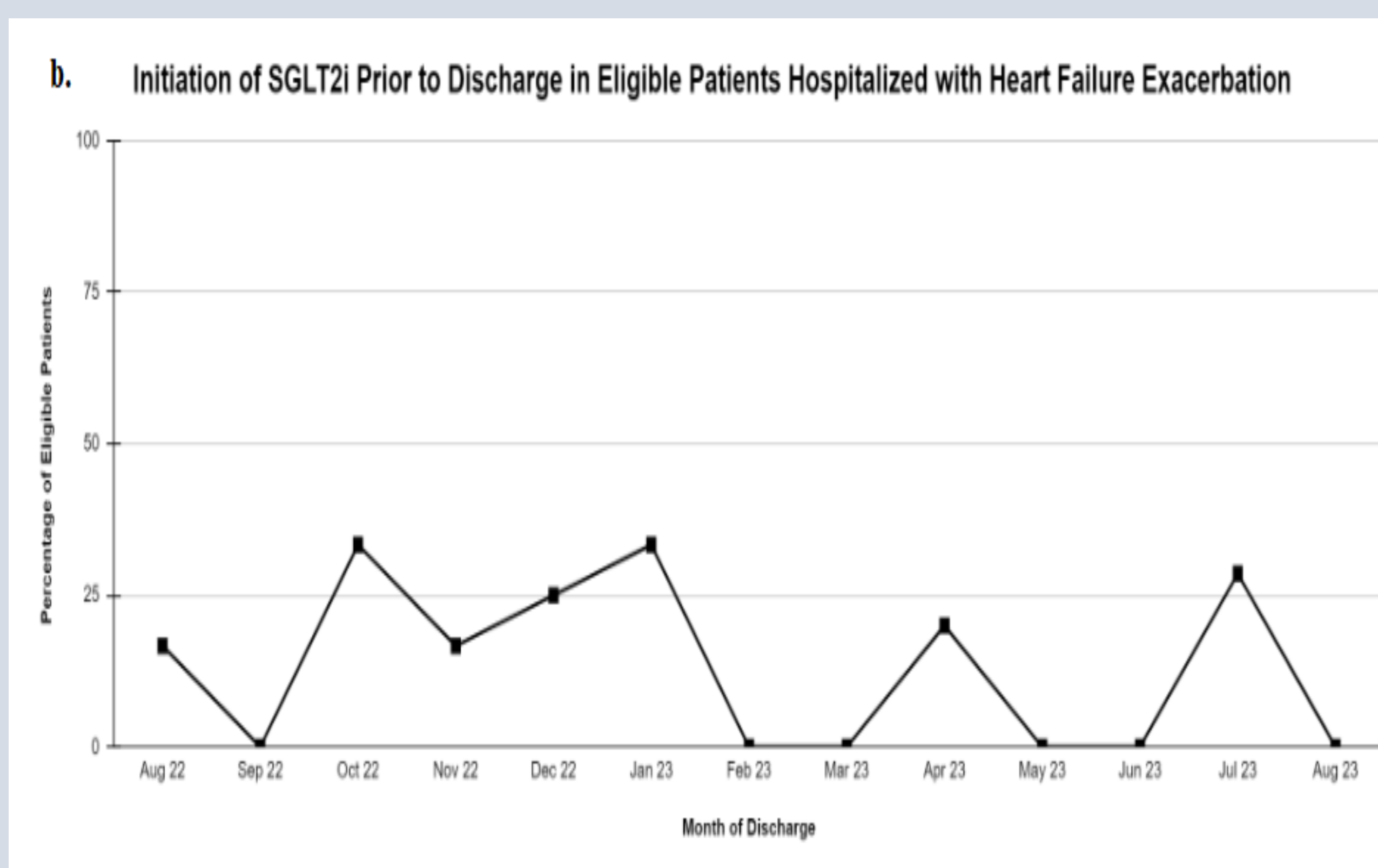


Figure 2: Percentage of patients with GFR > 30 not already taking an SGLT2 inhibitor who were admitted with a principal diagnosis of heart failure to units 6-14 or 6-34 at Strong Memorial Hospital, and were started on an SGLT-2 inhibitor prior to discharge.
Figure Credit: Drs. Nathaniel Larson, Aneliya San, Maurice Vaughan QI project titled "Initiation of SGLT2 Inhibitors in Patients Hospitalized with Heart Failure Exacerbation"

Discussion

- Multiple trials have shown that SGLT-2 inhibitors reduce adverse cardiovascular outcomes in patients with HFrEF and HFpEF. They also possess unique features that could allow for easy implementation relative to other GDMT therapies, including minimal effect on blood pressure or electrolytes, concurrent benefit in common comorbidities, and once daily administration. Despite this, there is minimal available data characterizing nationwide utilization of these medications among eligible patients with CHF.
- A study of a population of 305 patients hospitalized with a first episode of HFrEF found that beta blockers and ACE-I/ARB/ARNI were prescribed to 93.4% and 68.2%, respectively, by the time of discharge. An MRA was prescribed to 32.5% of patients, though none had contraindications to this class of medication¹.
- According to data from a study from the Journal of the American Heart Association, an analysis of 2,884 patients hospitalized for acute heart failure found that 57% were prescribed a beta blocker at the time of discharge, and 66.5% were prescribed a beta blocker at 12 months³.
- One JAMA Cardiology study of 49,399 patients across 489 sites in the US found that 20.2% of eligible patients hospitalized for HFrEF were prescribed SGLT-2 inhibitors at time of discharge⁴.
- Factors that appear to affect if a HF patient is prescribed an SGLT-2 inhibitor include whether they have CKD (less likely) or concurrent T2DM (more likely).
- A recent study at Strong Memorial Hospital found that between August 2022 and August 2023 the rate of initiation of SGLT-2 inhibitors to patients admitted to two general medicine units with a principal diagnosis of heart failure who had GFR > 30 was < 12%.

Conclusions and Going Forward

- AC5 clinic is prescribing SGLT-2 inhibitors to patients with congestive heart failure at a relatively high rate, including compared to two general medicine inpatient units at SMH, but there is room for improvement.
- Further analysis on why certain patients are not prescribed these medications is necessary. We are currently working on studying factors such as LVEF, age, and kidney function to see how they impact prescription rates.
- What should the goal prescription rate be?
 - We could use prescription rates of other GDMT medications to help establish this goal.
- How to increase prescription rates of SGLT-2 inhibitors to eligible patients?
 - Electronic medical record alerts have proven to be beneficial.

References

- 1.) D'Amario D, Rodolico D, Delviniotti A, Laborante R, Iacomini C, Masciocchi C, Restivo A, Ciliberti G, Galli M, Pagliantini AD, Iaconelli A, Zito A, Lenkiewicz J, Patarnello S, Cesario A, Valentini V, Crea F. Eligibility for the 4 Pharmacological Pillars in Heart Failure With Reduced Ejection Fraction at Discharge. *J Am Heart Assoc.* 2023 Jul 4;12(13):e029071. doi: 10.1161/JAHA.122.029071. Epub 2023 Jun 29. PMID: 37382176; PMCID: PMC10356099.
- 2.) Larson, Nathaniel, et al. "Initiation of SGLT2 Inhibitors in Patients Hospitalized with Heart Failure Exacerbation." 1 Oct. 2023.
- 3.) Park, Jin Joo, et al. "B-blockers and 1-year postdischarge mortality for heart failure and reduced ejection fraction and slow discharge heart rate." *Journal of the American Heart Association*, vol. 8, no. 4, 19 Feb. 2019, <https://doi.org/10.1161/jaha.118.011121>.
- 4.) Pierce JB, Vaduganathan M, Fonarow GC, et al. Contemporary Use of Sodium-Glucose Cotransporter-2 Inhibitor Therapy Among Patients Hospitalized for Heart Failure With Reduced Ejection Fraction in the US: The Get With The Guidelines-Heart Failure Registry. *JAMA Cardiol.* 2023;8(7):652-661. doi:10.1001/jamacardio.2023.1266
- 5.) Sinha S, Goldstein M, Penrod J, Hochman T, Kamran M, Tenner C, Cohen G, Schwartz MD. Brief report: beta-blocker use among veterans with systolic heart failure. *J Gen Intern Med.* 2006 Dec;21(12):1306-9. doi: 10.1111/j.1525-1497.2006.00601.x. PMID: 17105526; PMCID: PMC1924725.
- 6.) Talha KM, Anker SD, Butler J. SGLT-2 Inhibitors in Heart Failure: A Review of Current Evidence. *Int J Heart Fail.* 2023 Mar 13;5(2):82-90. doi: 10.36628/ijhf.2022.0030. PMID: 37180562; PMCID: PMC10172076.