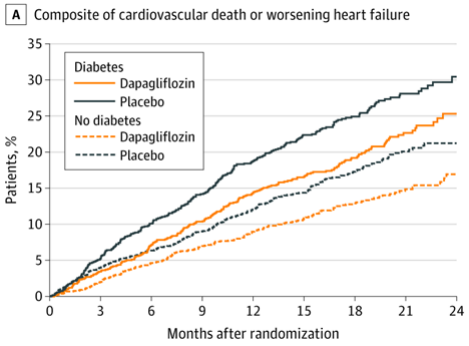
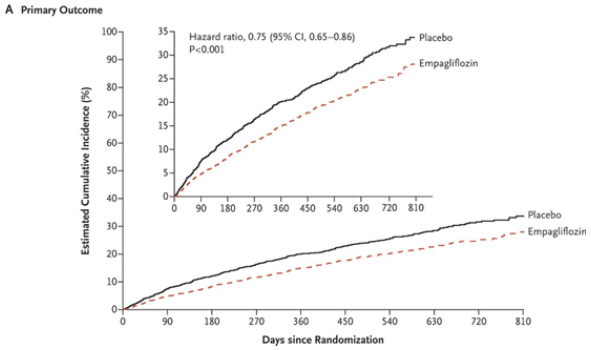
Heart Failure: Quality Improvement

Context: ·GDMT for HFrEF reduces all-cause mortality, cardiovascular mortality, all-cause hospitalizations and/or hospitalizations for HF. Few trials have shown the additive benefits of combining these therapies.
·SGLT-2 inhibitors act on the proximal tubule of the nephron → glucoresis, natriuresis and diuresis.
·Four approved SGLT-2 inhibitors: canagliflozin, dapagliflozin, empagliflozin, and ertugliflozin.

Current State:





DAPA-HF Trial[1]: Dapagliflozin improved composite outcome of CV death or worsening HF in patients with symptomatic HF with EF <40%. Reductions seen in patients with & without ARNI at baseline but was significant only in patients not treated with ARNI.

EMPEROR-Reduced Trial[2]: Empagliflozin improved t composite outcome of CV death or HF hospitalization in patients with symptomatic HF with EF <40%. HF hospitalization (but not CV death) significantly decreased.

==> When added to GDMT for HFrEF, dapagloflozin & empagliflozin **reduce all-cause mortality, CV mortality, HF hospitalization, and serious adverse kidney outcomes**.

==> SGLT2 inhibitors are now **first-line medications** for all populations in addition to GDMT[3] .

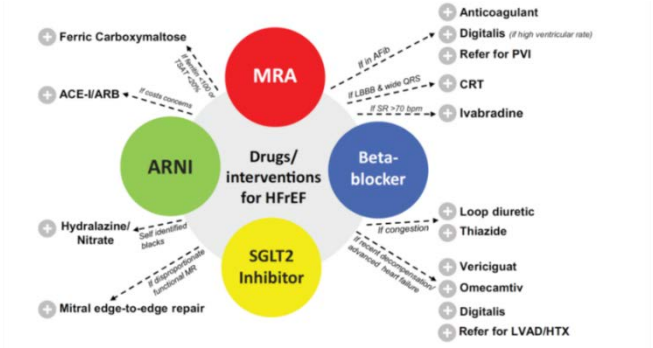


Figure 1 Drug, interventional, and device treatment for heart failure with reduced ejection fraction (HFrEF). ACE-I, angiotensin-converting enzyme inhibitor; Afib, atrial fibrillation; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor/neprilysin inhibitor; CRT, cardiac resynchronization therapy; HTX, heart transplantation; LBBB, left bundle branch block; LVAD, left ventricular assist device; MR, mitral regurgitation; MRA, mineralocorticoid receptor antagonist; PVI, pulmonary vein isolation; SGLT2, sodium–glucose co-transporter 2; SR, sinus rhythm; TSAT, transferrin saturation.

Cutting Edge: In EMPEROR-Preserved trial[4] empagliflozin **reduced the combined risk of CV or hospitalization for HF in patients with HF and preserved EF** (13.8% in the empagliflozin group compared to 17.1% in the placebo group, HR 0.79, 95% CI 0.69-0.9, P<0.001).

==> SGLT2 are effective, well-tolerated and beneficial regardless of diabetic status making them **ideal** candidates for **hospitalist-led QI initiatives**.

References:
1. Petrie, Mark C., et al. "Effect of dapagliflozin on worsening heart failure and cardiovascular death in patients with heart failure with and without diabetes." *JAMA* 323.14 (2020): 1353-1368.
2. Packer, Milton, et al. "Cardiovascular and renal outcomes with empagliflozin in heart failure." *New England Journal of Medicine* 383.15 (2020): 1413-1424.
3. Bauersachs, Johann. "Heart failure drug treatment: the fantastic four." *European Heart Journal* 42.6 (2021): 681.
4. Anker, Stefan D., et al. "Empagliflozin in heart failure with a preserved ejection fraction." *New England Journal of Medicine* (2021).