# SGLT2i Benefits a Wide Spectrum of Patients

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## BACKGROUND

- Sodium Glucose Cotransporter 2 inhibitor (SGLT2i) is a class of drug originally intended for decreasing blood glucose in diabetes.
- Recent trials have shown promise that there are other beneficial effects.

## OBJECTIVE

- Collate the clinical benefits from the most recent diabetes, heart failure, and kidney disease SGLT2i trials.

## METHODS

- Literature review of major clinical trials involving SGLT2i medications from 2015 to 2022.

## RESULTS

| | DIABETES | | | | CARDIOVASCULAR DISEASE | | | | | RENAL DISEASE | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trial** | EMPA-REG | CANVAS | DECLARE-TIMI 58 | VERTIS CV | DAPA-HF | EMPEROR-REDUCED | EMPEROR-PRESERVED | SOLOIST-WHF | DELIVER | CREDENCE | DAPA-CKD |
| **Medication** | empagliflozin 10 or 25 mg | canagliflozin 100 or 300 mg | dapagliflozin 10 mg | ertugliflozin 5 or 15 mg | dapagliflozin 10 mg | empagliflozin 10 mg | empagliflozin 10 mg | sotagliflozin 200 or 400 mg | dapagliflozin 10 mg | canagliflozin 100 mg | dapagliflozin 10 mg |
| **Major Outcome HR (95% CI) (P-value)** | ↓ MACE, 0.86 (0.74 – 0.99) (P=0.04)<br>↓ HHF<br>↓ All cause death | ↓ MACE 0.86 (0.75 – 0.97) (P=0.02) | ↓ CV death or HHF 0.83 (0.73 – 0.95) (P=0.005) | MACE 0.97 (0.75 – 1.03) (P<0.001 for noninferiority) | ↓ composite of CV death and HHF 0.74 (0.65 – 0.85) (P<0.001) | ↓ composite of CV death and HHF 0.75 (0.65 – 0.86) (P<0.001) | ↓ CV death or HHF 0.79 (0.69 – 0.90) (P<0.001) | ↓ CV death and HHF 0.67 (0.52 – 0.85) (P<0.001) | ↓ CV death or worsening HF 0.82 (0.73 – 0.92) (P<0.001) | ↓ ESRD, doubling of sCr, renal death, or CV death 0.70 (0.59 – 0.82) (P=0.00001) | ↓ Decline in eGFR, new ESRD, renal death, or CV death 0.61 (0.51 – 0.72) (P<0.001) |
| **Summary** | This was the first SGLT2i trial showing reduction of CV events. | Canagliflozin reduced CV events and HHF. | Dapagliflozin lowers rate of CV death or HHF, but not MACE. | Ertugliflozin is non-inferior to placebo in reducing MACE. | Dapagliflozin lowered the risk of worsening HF or CV death in HFrEF patients, regardless of diabetic status | Empagliflozin shown to reduce CV death and HHF in HFrEF, regardless of diabetic status | Empagliflozin reduced CV death or HHF in HFpEF patients | This was the first large trial of SGLT1/SGLT2 inhibitor in hospitalized patients | Patients with HF with mildly reduced or preserved ejection fraction. Dapagliflozin benefits extend to all HF patients across a whole spectrum of EF (Meta-analysis of DAPA-HF and DELIVER trials). | CREDENCE was the first trial in more than two decades in improving kidney endpoints. | Dapagliflozin reduced the risk of eGFR decline, ESRD, and renal or CV death in CKD patients, regardless of diabetic status. |

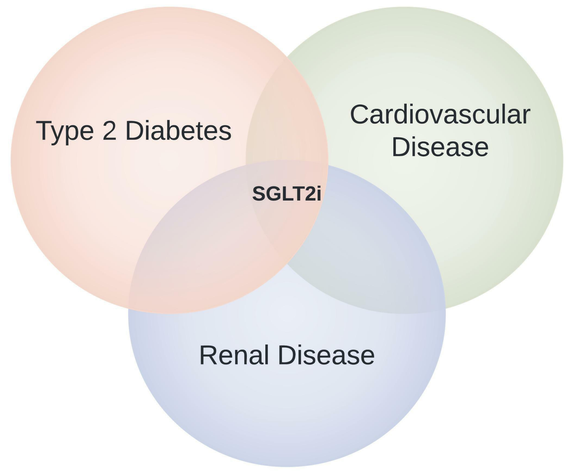
CKD = chronic kidney disease; CV = cardiovascular; EF = ejection fraction; eGFR = estimated glomerular filtration rate; ESRD = end stage renal disease; GLD = glucose lowering drug; HHF = hospitalization heart failure; HFrEF = heart failure reduced ejection fraction; HFpEF = heart failure preserved ejection fraction; MACE = major adverse cardiovascular event (stroke, myocardial infarction, CV death); sCr = serum creatinine

## CONCLUSION

- The consistent cardiorenal benefits observed in major landmark trials have led to the rapid adoption of SGLT2i therapy in not only diabetes guidelines but also cardiovascular and renal guidelines.

### Who benefits from SGLT2i therapy?

1. Patients with type 2 diabetes
2. Heart Failure patients with any left ventricular ejection fraction
3. Patients with Chronic Kidney Disease




## CONTACT

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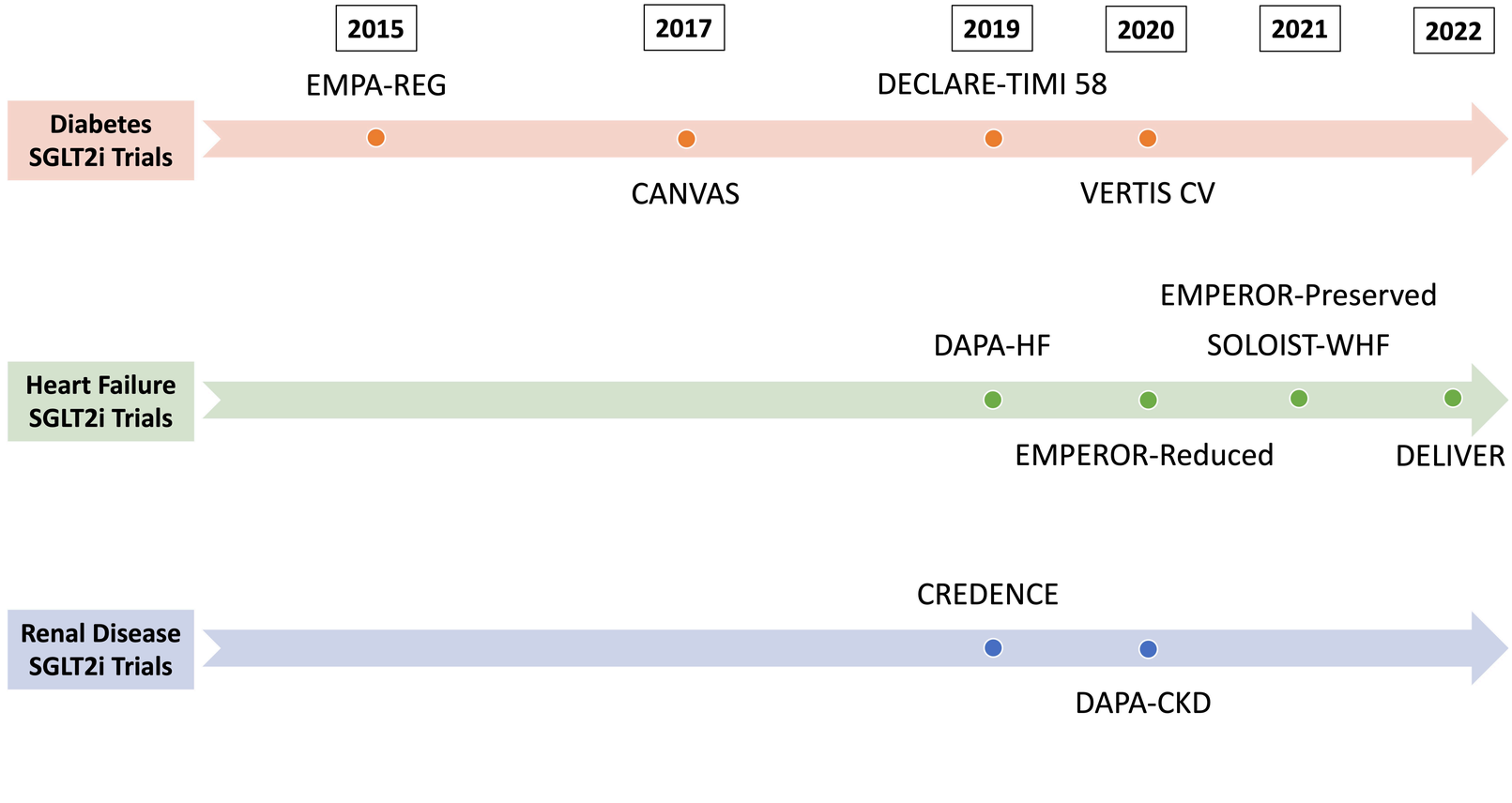

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DIABETES TYPE 2


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CV = cardiovascular; eGFR = estimated glomerular filtration rate; HHF = heart failure hospitalization; MACE = major adverse cardiovascular event (stroke, myocardial infarction, CV death)

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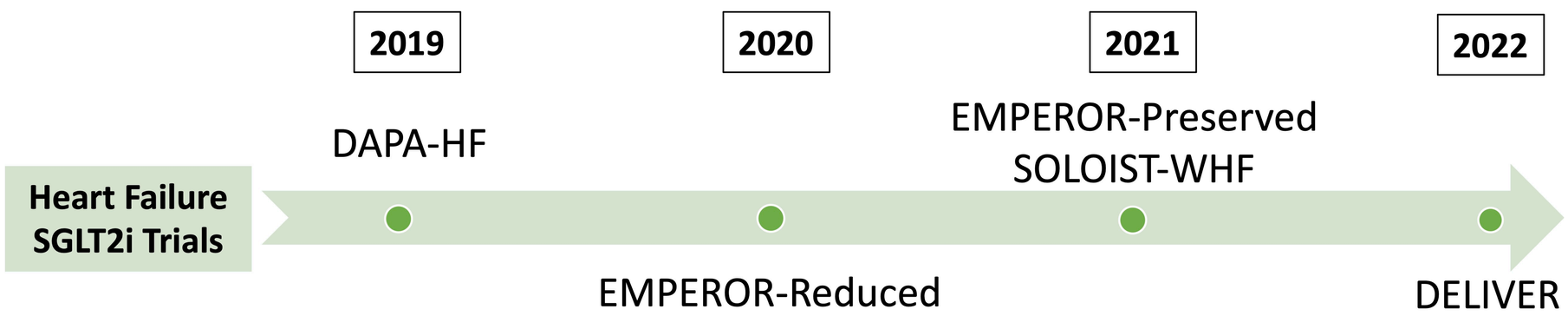
**CARDIOVASCULAR DISEASE**




| | | | | | |
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HFrEF = heart failure reduced ejection fraction (<40%); HFpEF = heart failure preserved ejection fraction (>40%)

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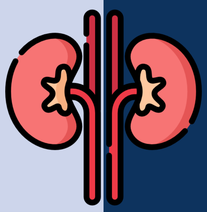
## RESULTS

**RENAL DISEASE**

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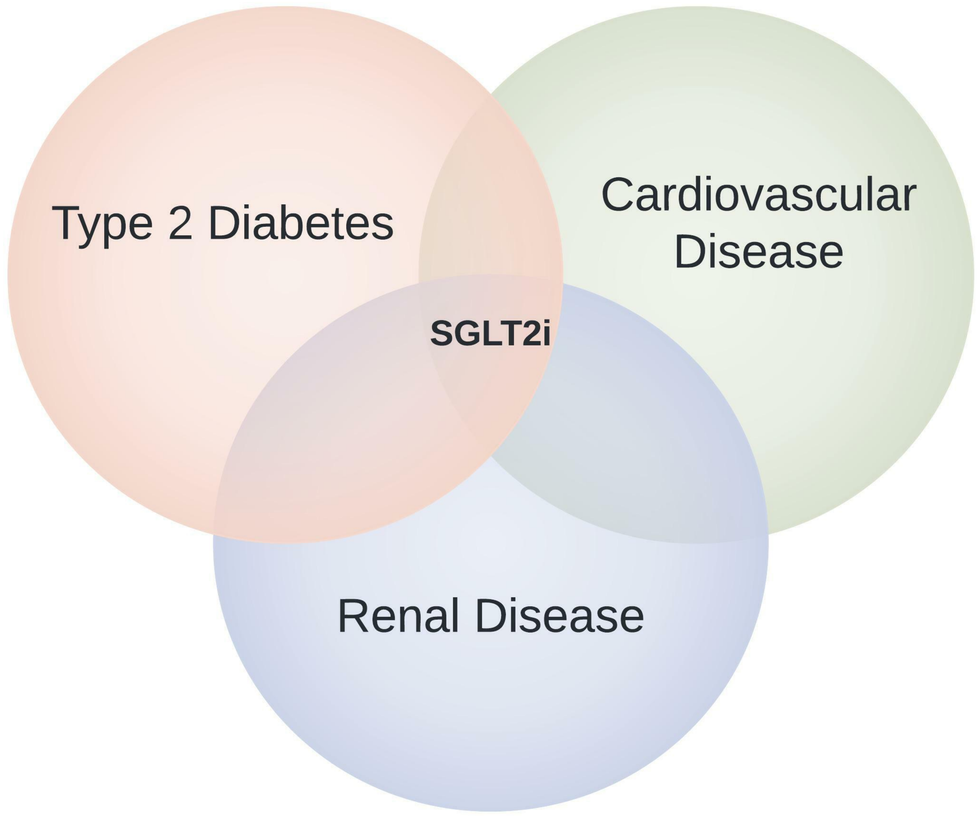


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