

What is the evidence of SGLT2i in CKD?

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4 Things to know about CKD and SGLT2i



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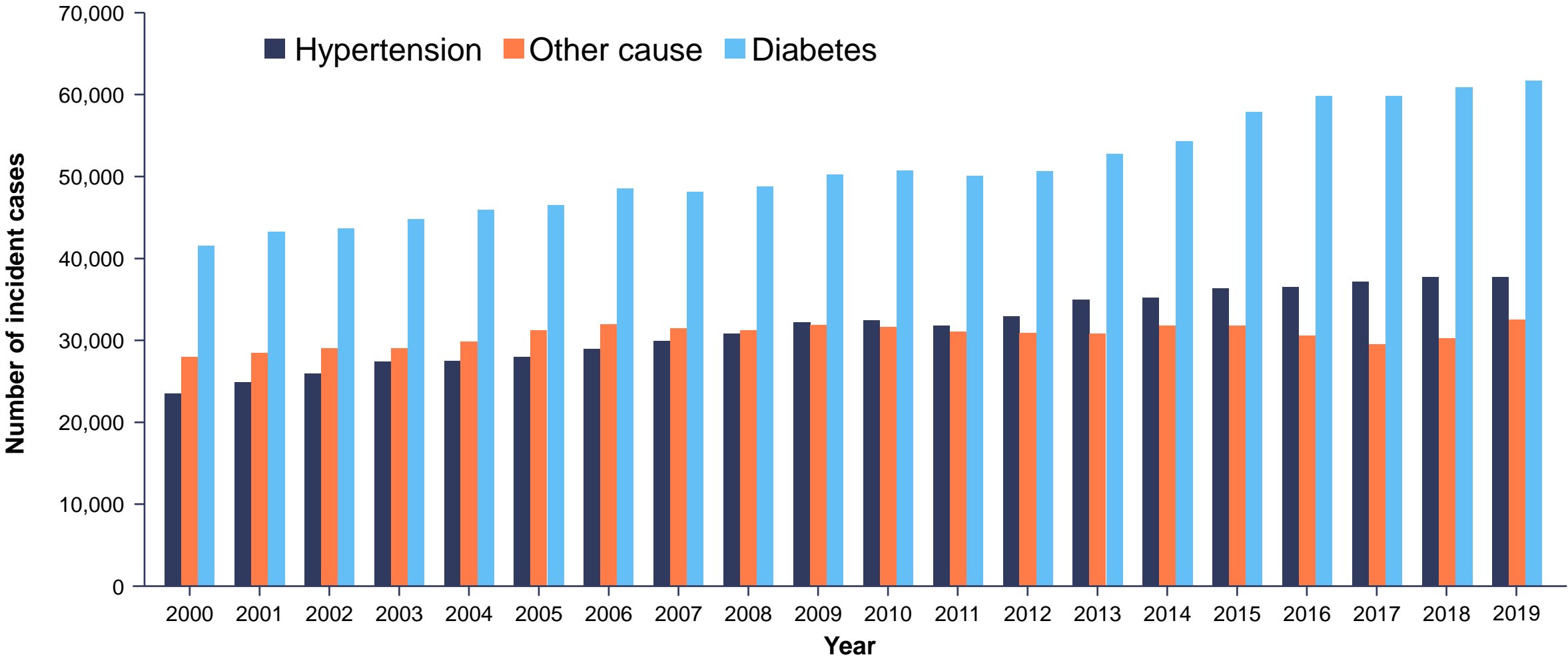
University Medical Center Groningen

Disclosures

- HJLH is a consultant for AbbVie, AstraZeneca, Bayer, Boehringer Ingelheim, Chinook, CSL Pharma, Gilead, Janssen, Merck, Mundi Pharma, Mitsubishi Tanabe, Novo Nordisk, and Retrophin
- He has received research support from AbbVie, AstraZeneca, Boehringer Ingelheim, and Janssen

The number of incident cases of kidney failure continues to rise

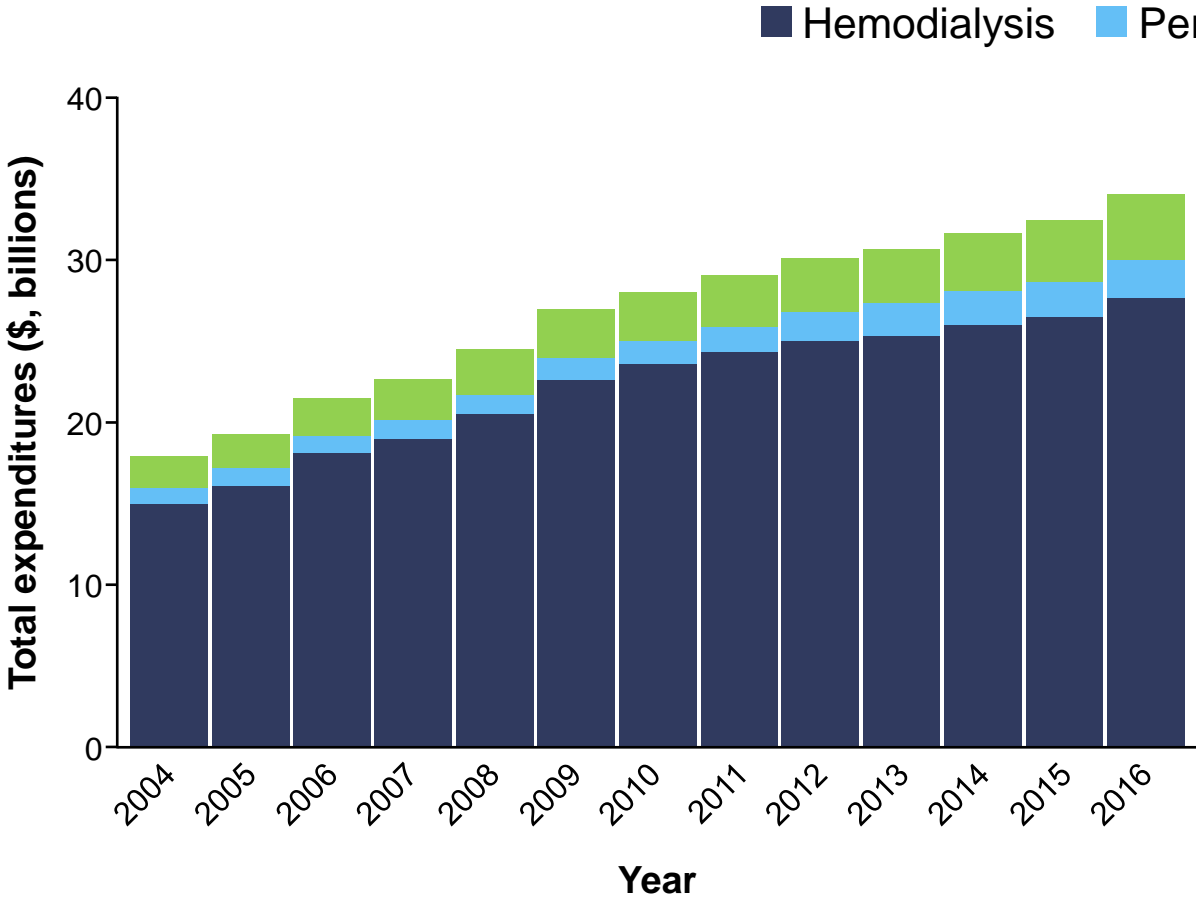
Number of reported prevalent cases of end-stage kidney disease, by primary cause — United States, 2000–2019^a



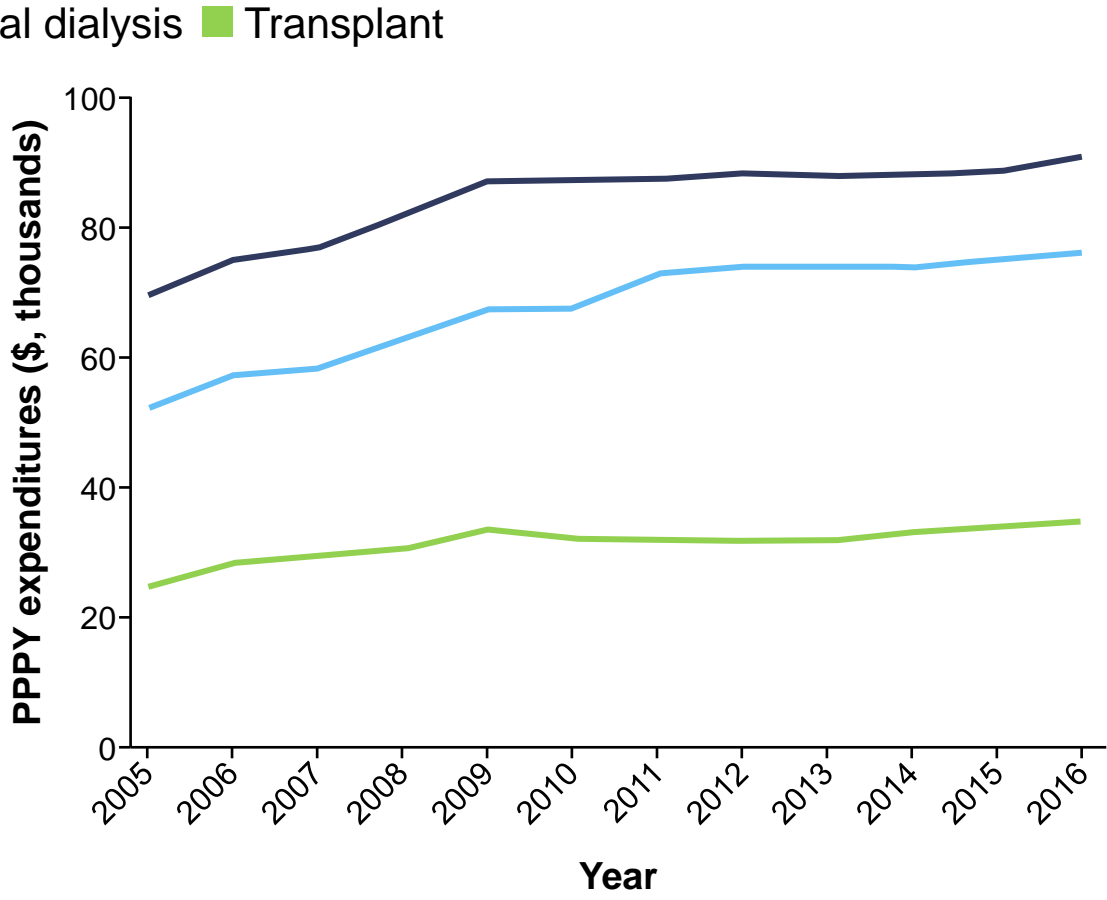
^aData from United States Renal Data System, 2021 Annual Data Report, Reference Tables. <https://adr.usrds.org/2021/reference-tables>
Burrows NR, et al. *MMWR Morb Mortal Wkly Rep* 2022;71:412–415

In the USA, the total and per-person expenditure for dialysis has increased considerably over time

Total Medicare expenditures for ESKD, according to modality

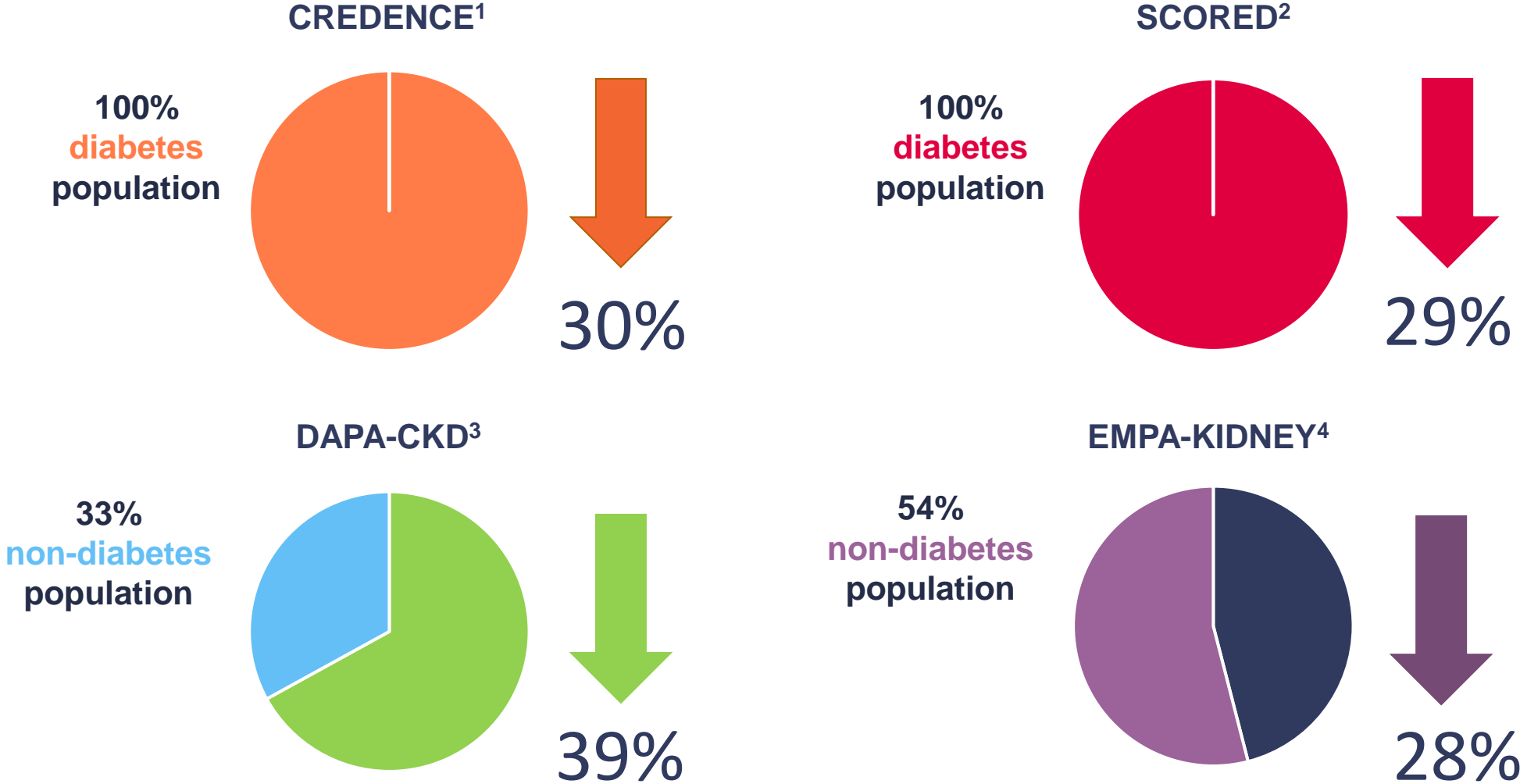


Total Medicare expenditures for ESKD per-person, per-year, according to modality¹



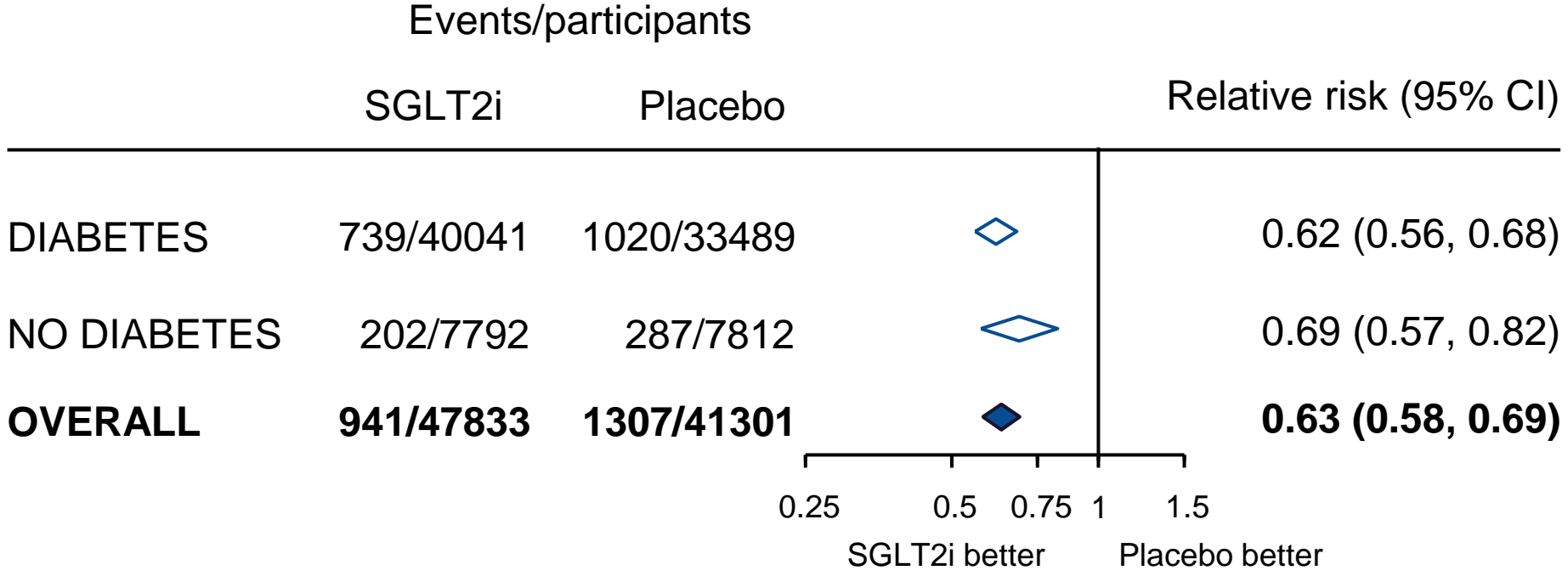
ESKD, end-stage kidney disease; PPPY, per-person, per-year
United States Renal Data System. 2018 USRDS Annual Data Report: Epidemiology of kidney disease in the United States. Available at: <https://www.usrds.org/annual-data-report/previous-adrs/> (Accessed October 2020).

SGLT2 inhibitor trials have recruited patients with CKD with and without diabetes



CKD, chronic kidney disease
1. Perkovic V, et al. *N Engl J Med* 2019;380:2295–306; 2. Bhatt DL, et al. *N Engl J Med* 2021;384:129–139;
3. Heerspink HJL, et al. *N Engl J Med* 2020;383:1436–1446; 4. EMPA-KIDNEY Collaborative Group. *N Engl J Med* Nov 4. doi: 10.1056/NEJMoa2204233

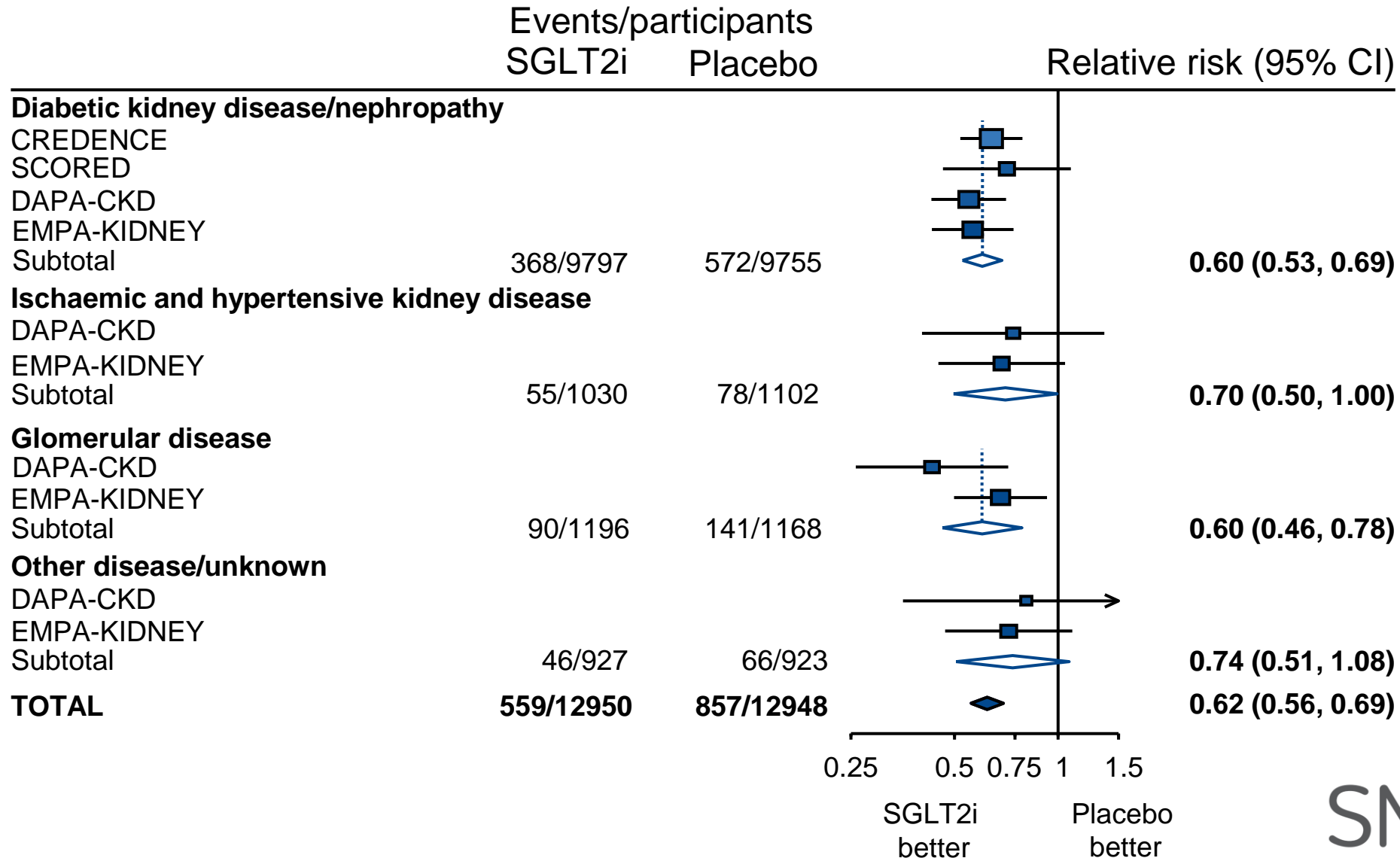
The Benefit of SGLT2 Inhibitors to Delay CKD Progression are Consistent in Patients with and without Type 2 Diabetes



Heterogeneity by diabetes status: p=0.31



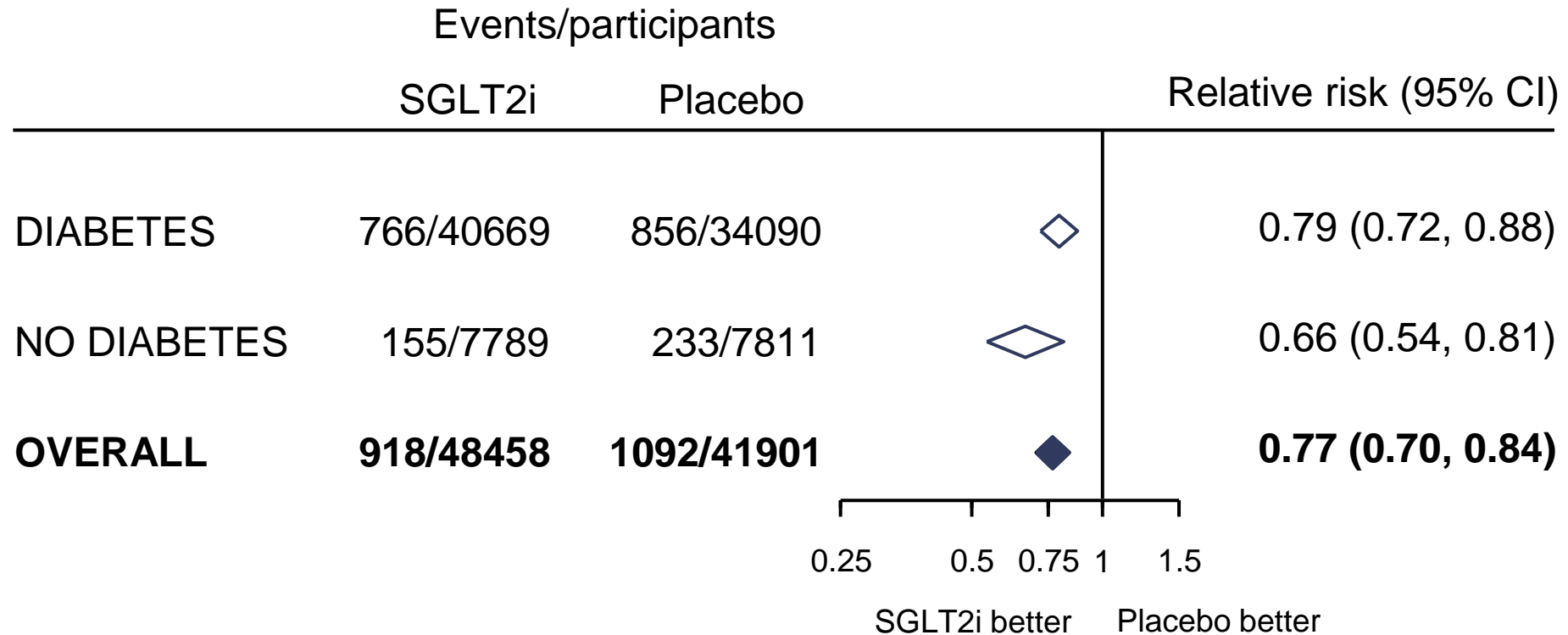
The Benefit of SGLT2 Inhibitors to Delay CKD Progression are Consistent Regardless of the Type of Kidney Disease



Heterogeneity across groups of primary kidney disease: p=0.67



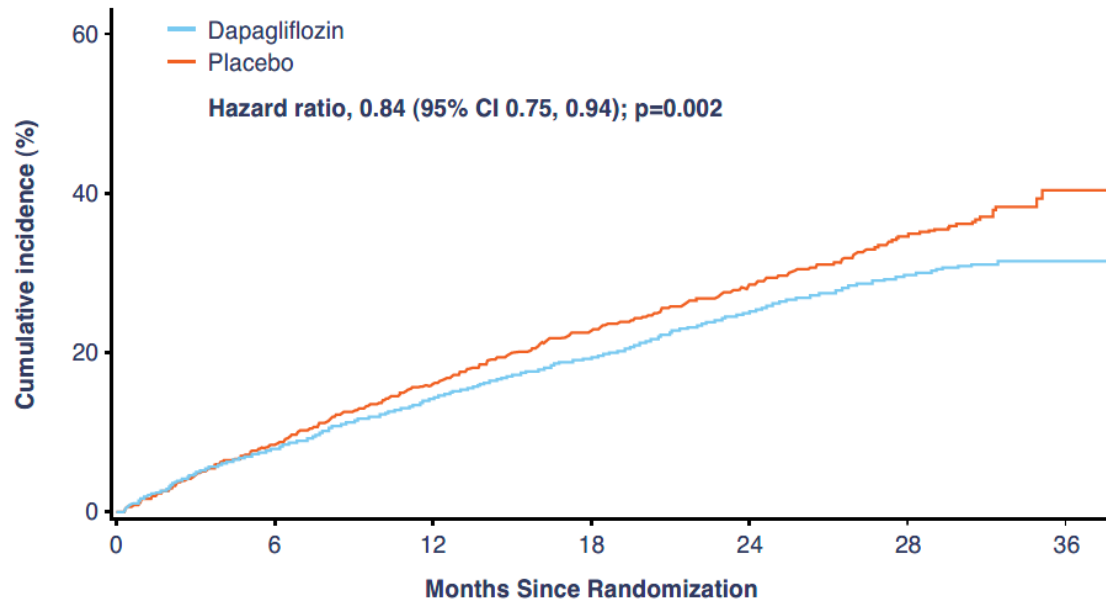
SGLT2 inhibitors Reduce the Risk of Acute Kidney Injury



Heterogeneity by diabetes status: $p=0.12$

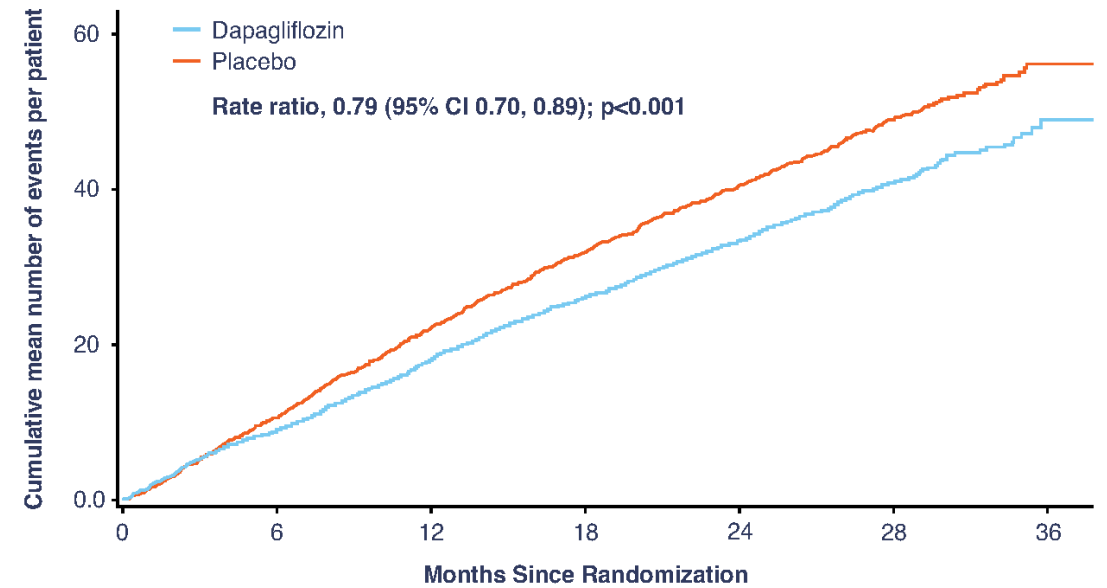
DAPA-CKD: Incidence of first hospitalization and all hospitalizations or death

First any hospitalization



No. at Risk		0	6	12	18	24	28	36
Dapagliflozin	2152	1877	1745	1620	1168	493	30	
Placebo	2152	1868	1704	1549	1110	452	28	

All (first and subsequent) hospitalizations or death



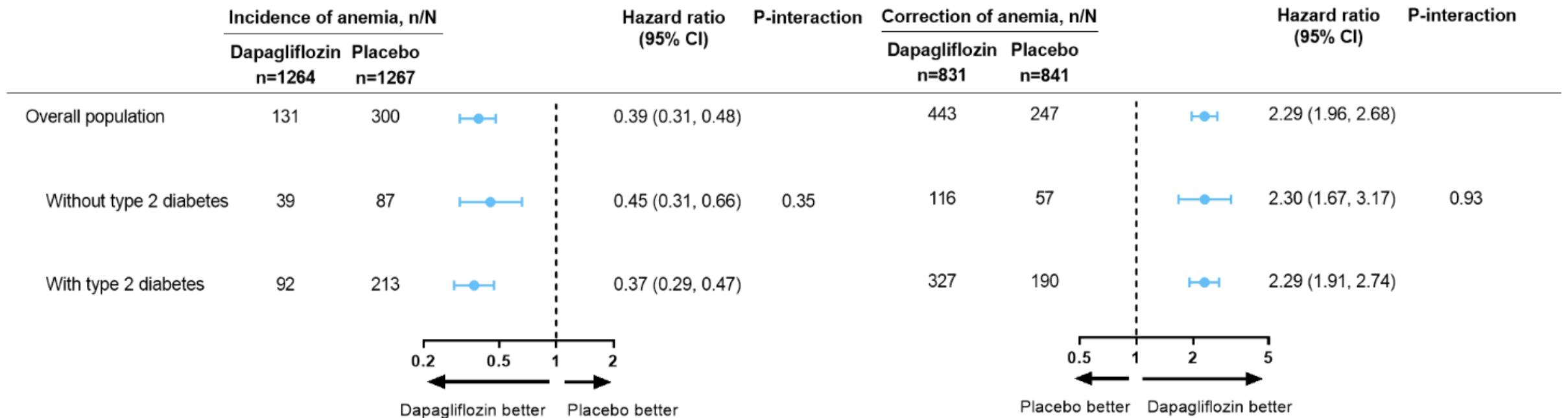
No. at Risk		0	6	12	18	24	28	36
Dapagliflozin	2152	2020	2001	1951	1519	667	43	
Placebo	2152	2017	1975	1935	1485	658	44	

Hazard ratio, confidence intervals (CIs), and p-values for the first hospitalization were estimated using Cox proportional-hazards regression models. Rate ratio, CIs, and p-value for all (first and subsequent) hospitalizations were estimated using Lin-Wei-Ying-Yang models, which consider all subsequent hospitalizations and censoring due to death as events. The models were adjusted to randomization factors (according to type 2 diabetes and UACR) and to baseline eGFR (as a continuous variable).

DAPA-CKD: Dapagliflozin reduces the incidence of anemia

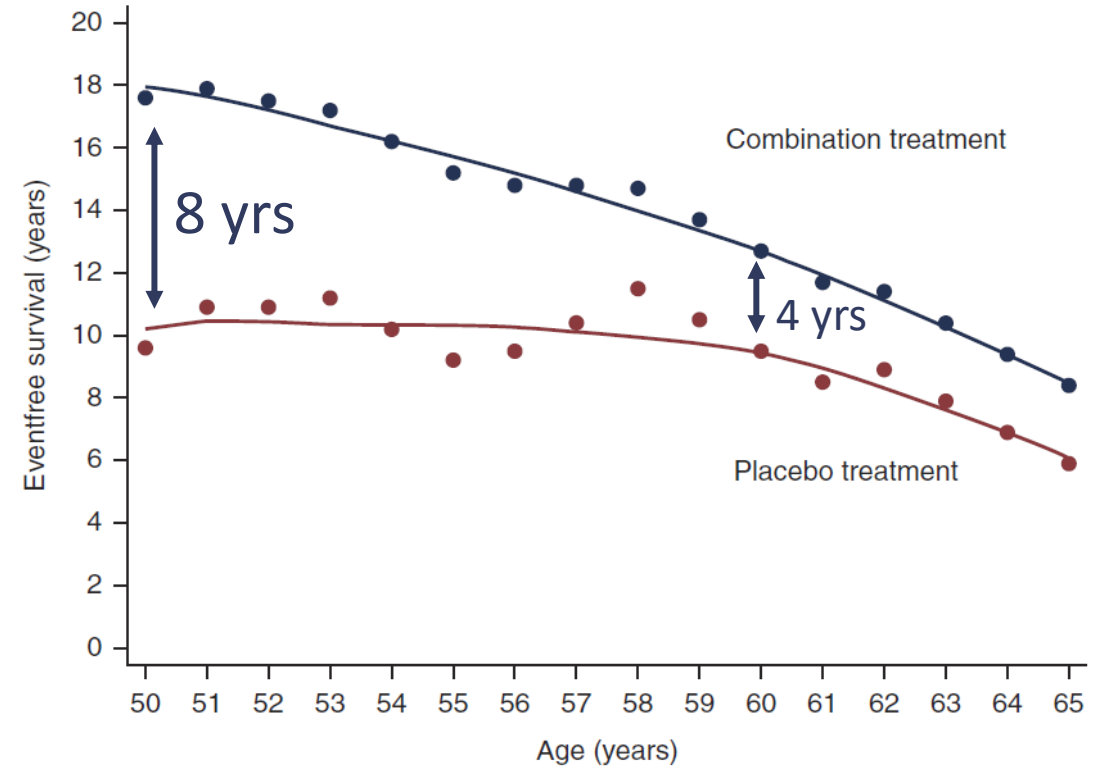
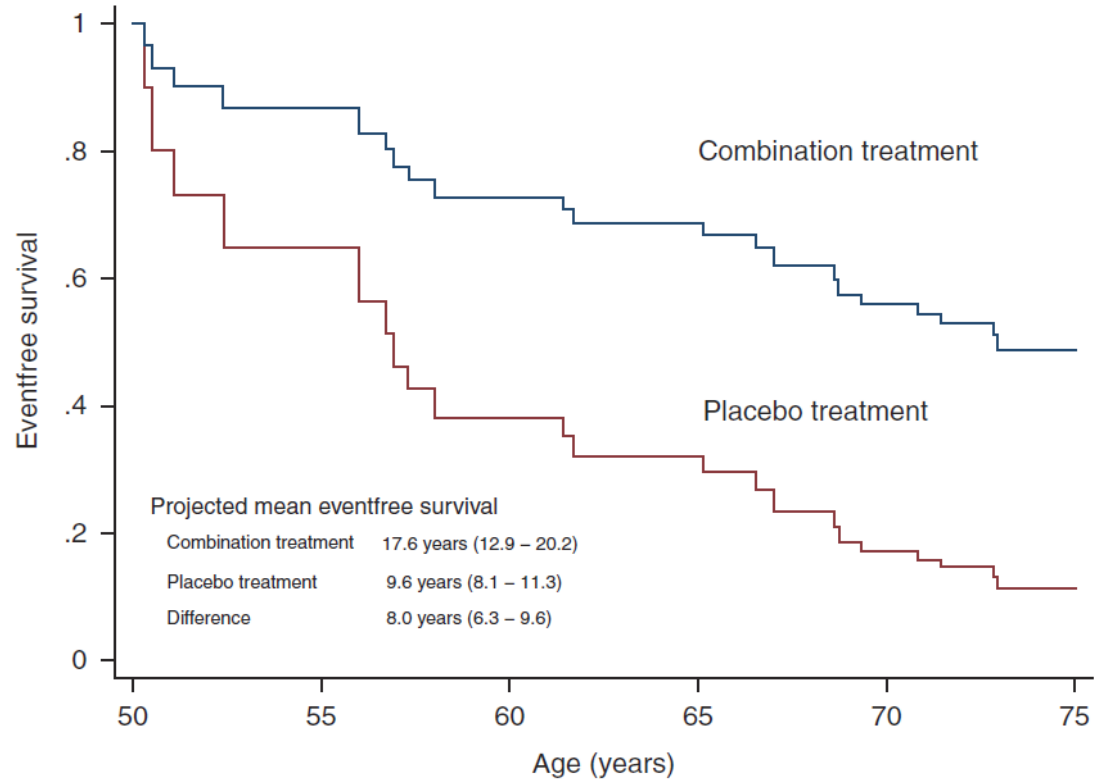
Participants without anemia at baseline

Correction of anemia in participants with anemia at baseline



Lifetime benefit of combined treatment ACEi and SGLT2i

Combination vs no treatment delays dialysis by 8 years



Key points

- SGLT2 inhibitors slow progression of CKD, reduce the risk of kidney failure, and AKI in patients with CKD
- These benefits are present regardless of
 - Diabetes status
 - Type of kidney disease
- Screening for CKD and appropriate intervention is a key management goal for patients with CKD

We have to implement these findings in clinical practice