

SUMMARY AND COMMENT | GENERAL MEDICINE, AMBULATORY MEDICINE, HOSPITAL MEDICINE

INFORMING PRACTICE

October 13, 2022

Should Newer Agents Replace Metformin as First-Line Drugs for Type 2 Diabetes?

*Daniel D. Dressler, MD, MSc, MHM, FACP, reviewing Choi JG et al. Ann Intern Med 2022 Oct 4**They wouldn't be cost-effective at current U.S. prices.*

Although most guidelines recommend metformin as the first-line agent for patients with type 2 diabetes ([Diabetes Care 2018; 41:2669](#)), some experts now advocate starting with newer agents (e.g., sodium–glucose cotransporter-2 [SGLT-2] inhibitors and glucagon-like peptide-1 [GLP-1] receptor agonists) as first-line therapy. In a cost-effectiveness analysis, researchers used randomized, controlled trials and large patient databases to estimate life expectancy and cost differences if patients with new diabetes used SGLT-2 inhibitors or GLP-1 receptor agonists as first-line agents instead of metformin.

First-line SGLT-2 inhibitors or GLP-1 receptor agonists were associated with ≈5% fewer macrovascular complications (i.e., heart failure, ischemic heart disease, or stroke) compared with first-line metformin; the newer agents increased life expectancy by only ≈3 months. However, compared with metformin, SGLT-2 inhibitors and oral GLP-1 receptor agonists cost US\$500,000 and \$800,000 more, respectively, per quality-adjusted life-year (QALY) gained. (Note: Injectable GLP-1 receptor agonists were considered to be less effective than metformin, primarily owing to lower quality of life related to injections.)

COMMENT

SGLT-2 inhibitors and GLP-1 receptor agonists would require ≈80% reduction in their current U.S. prices to make them cost-effective as first-line agents for type 2 diabetes — at a willingness-to-pay threshold of \$150,000 per QALY gained. Until costs come down for these drugs, metformin should remain the first-line agent for treating patients with new type 2 diabetes, unless coexisting heart failure is documented.

CITATIONS

Choi JG et al. First-line therapy for type 2 diabetes with sodium–glucose cotransporter-2 inhibitors and glucagon-like peptide-1 receptor agonists: A cost-effectiveness study. *Ann Intern Med* 2022 Oct 4;

[e-pub]. (<https://doi.org/10.7326/M21-2941>)

SHARE



DISCLOSURES



TOPICS [Diabetes](#)

FURTHER READING

SEP 22, 2022

[After Metformin, Which Medication Should Be Next for Patients with Type 2 Diabetes?](#)

Molly S. Brett, MD

JUN 22, 2022

[Glycemic Targets for Older Adults with Type 2 Diabetes](#)

Molly S. Brett, MD

JUN 7, 2022

[Should Patients with New Diabetes Receive SGLT-2 Inhibitors Before Metformin?](#)

Daniel D. Dressler, MD, MSc, MHM, FACP

**Daniel D. Dressler, MD, MSc,
MHM, FACP**

Deputy Editor

*NEJM JOURNAL WATCH GENERAL
MEDICINE*

NEJM JOURNAL WATCH HOSPITAL MEDICINE

[Biography](#) | [Disclosures](#) | [Summaries](#)





Journal Watch

Stay Informed, with Concise, Evidence-Based Information.

SUBSCRIBE

NEJM Journal Watch is produced by **NEJM Group**, a division of the Massachusetts Medical Society.
Copyright © 2022 Massachusetts Medical Society. All rights reserved.

The content of this site is intended for health care professionals. [Copyright](#) | [Terms](#) | [Privacy Policy](#)

