

# New Studies Recommend Inclusion of Dynamic Inputs in Cost-Effectiveness Analyses to Better Reflect Drug Value Over Time

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*Cost-effectiveness models that exclude dynamic pricing likely underestimate a treatment's benefits versus its costs to society*

WASHINGTON, DC, UNITED STATES, May 13, 2025 /EINPresswire.com/ -- Two new studies published in Value in Health underscore the importance of incorporating dynamic pricing and other evolving inputs into cost-effectiveness analyses (CEAs) to more accurately represent the value of prescription drugs across their lifecycles.

"CEAs are comprised of both science and judgment – which is why they are a tool, not a rule," said NPC Chief Science Officer Jon Campbell, PhD, who was an author on both studies. "This research supports more useful tools that better reflect market realities."

The first paper, "[U.S. Drug Pricing Patterns Before Loss of Exclusivity](#)," characterizes changes in drug prices following launch and prior to loss of market exclusivity to enable the inclusion of dynamic pricing assumptions in CEAs. The paper is authored by Ching-Hsuan Lin, MD, MPH, and Joshua Cohen, PhD, of the Center for the Evaluation of Value and Risk in Health (CEVR) at Tufts Medical Center; and James Motyka, PharmD, and Jon Campbell, PhD, of the National Pharmaceutical Council (NPC).

"The assumption that drug prices stay the same after launch distort a cost-effectiveness projection," Dr. Campbell explained. "The failure to accurately represent the cost to society of a drug or its comparator can have ripple effects on market competition and the ability to bring future innovations to market."

In their analysis of inflation-adjusted pricing data for 32 brand-name drugs that are most likely to be selected within the Drug Price Negotiation Program, the authors identified several insights to inform CEAs:

- The average inflation-adjusted mean annual drug price change for commonly prescribed and large-market drugs was -4.7%.

- Mean annual price changes for 25 (78%) of the studied drugs were negative, suggesting most had lower net prices at the end of the observed period once adjusted for inflation.

-Modeling indicates that price change rates tend to moderate with more time since a drug's launch.

The study also includes an interactive tool to help researchers incorporate these empirical models into CEAs alongside other evidence on price drops after the loss of exclusivity.

The second study, "[Identifying the Influential Dynamic Inputs in Cost-Effectiveness Analyses](#)," is the first work of its kind investigating the influence of specific dynamic inputs on cost-effectiveness findings. Informed by an advisory panel of economic modeling experts, this study calculated cost-effectiveness estimates for four stylized examples to explore how omitting dynamic inputs could misrepresent a treatment's cost-effectiveness. The paper is authored by Melanie D. Whittington, PhD, Joshua T. Cohen, PhD, and Peter J. Neumann, ScD, affiliated with CEVR at Tufts Medical Center and Tyler D. Wagner, PhD, and Jonathan D. Campbell, PhD, of NPC.

"Omitting key drug pricing dynamics risks misrepresenting a medicine's benefits versus costs over the lifecycle," said Dr. Wagner. "It is a disservice to patients if these analyses use the same inaccurate assumptions and inputs to assess all drugs."

Key findings from the modeling include:

-For chronically administered drugs, the static (i.e. conventional) cost-effectiveness estimate was less favorable than the dynamic estimate by over 60%. Drug price changes after loss of exclusivity had the most impact on this difference.

-For one-time administration drugs, the static estimate was less favorable by over 30%. In this case, impact on the difference in cost-effectiveness findings included price changes as well as the age at baseline and discount rate.

-The inclusion of dynamic inputs had a greater impact in CEAs for chronically administered treatments than for one-time treatments, indicating that static models do not have the same level of CEA finding bias across all treatment types.

"Moving from static to dynamic inputs for CEAs is not a cure-all but will help prevent CEAs from misrepresenting certain cost dynamics that are a component of the comprehensive value of medicines," added Dr. Campbell.

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