Study offers alternative explanation for much-heralded decline in hospital readmission rates under pay-for-performance

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The decline in hospital readmission rates that occurred following the launch of a federal program designed to improve quality of care and reduce repeat hospitalizations has been lauded as proof of the program's effectiveness.

But a new analysis led by researchers at Harvard Medical School offers an alternative explanation for the outcome.

The findings, published in the November issue of *Health Affairs*, suggest that an overall decline in hospital admissions may have driven the observed drop in readmissions.

"The decline in readmission rates looked like the silver lining of pay-for-performance, but it seems to have lost its luster," said study lead author J. Michael McWilliams, the Warren Alpert Foundation Professor of Health Care Policy in the Blavatnik Institute at Harvard Medical School. "Our study makes a strong case that what looked like achievements of the program may have been a byproduct of factors driving a broader decrease in hospitalizations across the board."

The Medicare Hospital Readmissions Reduction Program (HRRP) was established as part of the Affordable Care Act in 2010 in an attempt to improve quality of care through payment incentives. When the same person is admitted to a hospital twice within 30 days, that might mean that the hospital is not doing enough to ensure safe discharges and adequate follow-up. Under the program, hospitals with higher than expected readmission rates are penalized.

Since the program launched, readmission rates progressively declined from 17.5 percent in 2009 to 15.5 percent in 2014. To the casual observer, this trend would seem to prove that the HRRP achieved its objective, a widely held belief among policymakers and health care experts and the conclusion of many research studies on the subject.

But could other factors account for this effect, the researchers wondered. To test an alternative hypothesis, the team conducted a simulation analysis. They first calculated changes in per capita admission rates from 2009 to 2014. Next, they removed random samples of admissions from the 2009 data to match the admission rate in each subsequent year. Finally, they recalculated the readmission rate to determine what would be expected at the lower admission rate and compared these expected readmission rates to what was observed.

Assuming that readmissions are often not due to deficient care in prior admissions, readmission rates should fall as admission rates decline because of a simple statistical relationship between the two. The probability that two unrelated hospitalizations occur within 30 days of each other decreases when there are fewer hospitalizations occurring per patient.

This assumption was borne out in the new analysis, the team said. Prior studies have generally found that at most 20 to 30 percent of readmissions are due to preventable deficits occurring during the prior admission. The rest are independent events. For example, a patient admitted for pneumonia may be admitted again within 30 days for a gastrointestinal infection.

"It's like a crowded dart board. The more darts on the board, the more likely your next throw may hit another dart and land on the floor," McWilliams said. "But that doesn't mean that you're getting worse at throwing darts."

Strikingly, the simulated drop in readmission rates that would be expected from the drop in admission rates was as large as the observed decline from 2009 to 2014.

The findings call into question the prevailing interpretation that the

program caused the reduction in readmissions, the authors said, and build on other recent research questioning the HRRP's impact. For example, one study found that some of the decrease ascribed to the HRRP was explained by administrative changes in the number of diagnoses coded during the years after the program launched. Perhaps more importantly, the new study underscores the importance of questioning assumptions and examining causes and effects carefully and rigorously.

"When policies are rolled out like this, without allowing for a strong study design to isolate their causal effects, we are given a tough job as researchers," McWilliams said. "How big of an effect did the HRRP have on readmissions? We will never know exactly, but our findings suggest that if it had any impact at all, it was small."

Some experts may continue to deem the HRRP responsible for much of the decline in readmissions, McWilliams said. They may argue that the broader decline in admissions was a "spillover effect" of hospital responses to the HRRP. McWilliams and colleagues say this explanation is highly unlikely. Not only did the decline in admissions predate the HRRP, but it occurred across the board—including private insurance payers as well as Medicare. Hospitals would not sacrifice such a substantial fraction of their revenue to avoid much smaller penalties imposed by a single payer.

The researchers say the substantial decrease in admissions (a 13 percent decline from 2009 to 2014) is likely the result of multiple factors unrelated to the HRRP, including medical innovations that allow for more conditions to be treated in an outpatient setting, an ongoing decline in available hospital beds in the U.S., and regulatory measures to crack down on unnecessary short hospital stays.

There have been many other studies documenting the failure of pay-for-

performance programs to improve quality and the unintended consequences these programs can have, such as unmerited penalties on providers serving sicker and poorer patients.

"While new payment models may play a key role in containing health care costs, attempts to improve quality through the payment system are fraught and may not be the key to quality improvement," McWilliams said. "Rather, I tend to think we are better off devoting our attention and energy to understanding what improves care and outcomes. Once we know what works, there should be demand for it."

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