

# Researchers measure quality of care in oral anticoagulation

January 3 2011

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Researchers from Boston University School of Medicine (BUSM) and the Bedford VA Medical Center believe that risk-adjusted percent time in therapeutic range (TTR) should be used as part of an effort to improve anticoagulation control and thus improve patient outcomes. These findings appear in this month's issue of *Circulation: Cardiovascular Quality and Outcomes*.

Oral anticoagulation with warfarin is received by millions of Americans each year to treat [blood clots](#) and to prevent strokes. While warfarin is effective, it is difficult to thin a patient's blood enough to protect them while avoiding dangerous over-anticoagulation. Excessive anticoagulation may result in serious or even fatal bleeding, particularly bleeding around the brain. Inadequate anticoagulation leaves the patient vulnerable to the events (such as [stroke](#)) that [warfarin](#) is used to prevent.

Previous studies have shown that better anticoagulation control can prevent many of these adverse events. "We have known for many years that anticoagulation control needs improvement, however, there has been no concerted effort to profile sites of care on anticoagulation control, as measured by percent time in therapeutic range," said lead author Adam Rose, MD, MSc, an assistant professor of medicine at BUSM and investigator at the Bedford VA Medical Center.

In addition, performance profiling can be complex, because some sites treat more challenging patient populations than others. Without adjusting for such complexity, they cannot know whether differences in site-level

performance are due to the quality of care or the patient population. A model that adjusts for complexity is commonly called a "risk-adjustment model," and results that have been adjusted in this way are called "risk-adjusted results."

The researchers profiled 100 sites of care within the Veterans Health Administration using risk-adjusted TTR. According to them, the main findings of the study are threefold. First, TTR varied widely among VA anticoagulation clinics, from 38 percent time in range to 69 percent, or from poor to excellent control. This suggests that some VA sites are already doing very well with this area of care, while others need to improve. Second, while risk-adjustment did not alter performance rankings for many sites, for other sites it made an important difference. For example, the anticoagulation clinic that was ranked 27th out of 100 before risk adjustment was ranked as one of the best (7th) after risk-adjustment. This demonstrates the importance of adjusting TTR for case mix when profiling performance. Third, site performance on risk-adjusted TTR was consistent from year to year, suggesting that risk-adjusted TTR measures a construct (quality of care) that is stable over time, rather than mere statistical variation.

"Our study suggests that risk-adjusted TTR should be considered for more widespread use as a performance measure as part of an effort to improve anticoagulation control and thus improve patient outcomes, said Rose. "In the past, the VA has led efforts to measure and improve quality in other areas of care, and numerous studies have shown that the VA delivers care that is as good as or better than non-VA care. We plan to make the VA a leader in delivering high-quality anticoagulation care as well," he added. The authors note that profiling anticoagulation performance is within the reach of any integrated health care system.

"As a nation, we spend vast amounts of effort and resources profiling performance regarding diabetes, blood pressure, acute coronary

syndromes, cancer screening, and commonly performed surgeries," explained Rose. "Until now, we have not tried to profile performance regarding anticoagulation control. This study suggests that we can - and we should."

Provided by Boston University Medical Center

Citation: Researchers measure quality of care in oral anticoagulation (2011, January 3) retrieved 7 May 2024 from <https://medicalxpress.com/news/2011-01-quality-oral-anticoagulation.html>

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