

# Are primary stroke centers associated with lower fatality?

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Does a long travel time to a primary stroke center (PSC) offset the potential benefits of this specialized care?

In an article published online by *JAMA Internal Medicine*, Kimon Bekelis, M.D., of Dartmouth-Hitchcock Medical Center, Lebanon, N.H., and coauthors analyzed data for a national group of Medicare beneficiaries and calculated travel time to evaluate the association of seven-day and 30-day death rates with receiving care in a PSC.

Stroke is a leading cause of death and long-term disability in the United States. To maximize patient outcomes, referral centers - PSCs certified by The Joint Commission are the backbone of this - have been established to ensure adherence to guidelines and the efficient delivery of disease-specific care.

Regionalization incentives to direct patients with stroke to PSCs can impact travel times and outcomes so the potential benefit of admission to a PSC must be weighed against the effect of longer travel times.

During the study period from 2010 through 2013, 865,184 Medicare fee-for-service beneficiaries (average age almost 79) were seen for a stroke. There were 976 PSCs across the country and 466,334 (53.9 percent) patients from the study group were treated at PSCs. Almost a quarter of these patients (24 percent) lived closer to a PSC than a non-PSC facility.

Study analysis that accounted for travel time suggests that admission to a

PSC was associated with a 1.8 percent lower seven-day and 30-day death rate, although traveling at least 90 minutes to a PSC appears to offset any benefit of care there. The study suggests 56 patients with stroke need to be treated in PSCs to save one life at 30 days. The study also suggests 60 minutes of [travel time](#) may offset the benefit of PSC admission for seven-day outcomes.

The study has some limitations, including that the authors cannot identify what it is about PSCs that may reduce mortality rates.

"Further investigations are necessary to identify the best combination of approaches to improve access to centers of excellence and stroke outcomes," the authors conclude.

"Their main interest was in determining the additional travel distance necessary beyond the hospital nearest to a patient's home for admission to a PSC after which no difference in outcomes would be evident. Among patients who entered this complex maze of [stroke](#) care from 2010 to 2013, they found higher mortality after multivariable adjustment for patients assigned to a house that was JC [The Joint Commission] PSC certified vs. one that was not, but this effect reversed when using instrumental variable analysis to account for unmeasured confounding. After 90 minutes of added travel, no benefit was gained by admission to a JC PSC. Within the limits of their Medicare (Centers for Medicare & Medicaid Services) fee-for-service claims data source, they did an elegant job of trying to control for measured and unmeasured confounding introduced by the nonrandom allocation of [patients](#)," writes Lee H. Schwamm, M.D., of Massachusetts General Hospital, Harvard Medical School, Boston, in a related commentary.

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