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Surgical Treatment for End-Stage Renal Disease Could Save Medicare Billions

Shared decision-making is the key to cutting costs and saving lives

Lebanon, N.H. (November 12, 2014) – Medicare beneficiaries, suffering from kidney failure, typically get the most costly and least effective treatment, hemodialysis using an intravascular catheter, according to a new report from the Dartmouth Atlas Project.

Hemodialysis for patients with end-stage renal disease (ESRD), or kidney failure, accounted for 6.2 percent (\$34.3 billion) of the total Medicare budget in 2010. Hemodialysis treatment costs Medicare 2.6 times more per person per year than kidney transplants and also is less effective. What's more, according to the report, an individual's likelihood of survival varies greatly across the country, based on access to specialists and transplant centers.

For patients suffering from kidney failure, the decision to continue hemodialysis, the process by which machines filter the blood to remove toxins, or receive a transplant is critical. Compared with hemodialysis, kidney transplants cost less and lead to longer survival. More than 16,000 patients receive transplants every year; however, tens of thousands of patients cannot receive a transplant, as far too few organs are available. Consequently, these patients rely on hemodialysis - most often initiated with an easily-placed intravascular catheter. Arteriovenous fistulas are the preferred method, as they lead to improved survival, fewer infections and demonstrate superior durability by comparison to catheters. The goal of either treatment is to support the patient's life until his or her kidneys recover, or a donor kidney becomes available.

A kidney transplant is by far the most efficacious option for a patient suffering from ESRD, as nearly 75 percent of transplanted kidneys function after five years. Without transplant, the overall five-year mortality rate of patients who remain on hemodialysis is 47 percent, meaning that less than one in two patients will live. However, average waiting times for a transplant vary significantly regionally – from 19 months to more than 37 months.

“This report highlights the need to reform both delivery and payment systems so they better support ESRD patients, including the need for ESRD care across specialties. Current Medicare reimbursement policies work against evidenced-based best practices for ESRD-related care, including early fistula creation,” said report co-author David Axelrod, M.D., M.B.A., of the Dartmouth-Hitchcock Medical Center.

Living donor kidney transplant recipients survive the longest. However, access to a living donor transplant depends greatly on transplant center practices, as some programs are more proactive about finding suitable matches. On average, 3.3 percent of ESRD patients receive living donor transplants within two years of first hemodialysis, and there was a more than tenfold variation

across transplant referral regions – from 1.1 percent of ESRD patients in Shreveport, La. to 10.1 percent in Rochester, Minn. Overall, rates were lower in the Southeast and in southern California than in other parts of the country.

Even when transplant is not an option, early engagement with a nephrologist increases the likelihood that a patient will receive hemodialysis with a fistula rather than a catheter. This is important because the outcome for patients with catheters are poorer. Yet, use of AV fistulas varied nearly fourfold across transplant referral regions, from 6.4 percent of patients with ESRD in Lubbock, Texas to 24.4 percent in Honolulu, Hawaii and 23.7 percent in Portland, Maine. Generally, rates of AV fistula use were higher in the Northwest and New England than in other regions of the country.

“Despite recommendations from the National Kidney Foundation, most patients start hemodialysis with catheters, the least effective and least safe method,” the report states. It also notes that more than 70 percent of new ESRD patients overall received hemodialysis using catheters in 2011.

“There is no doubt that there are regional differences in access to care and practitioners,” said Devin Zarkowsky, M.D., who co-authored the report along with Philip Goodney, M.D., M.S., director of the Center for the Evaluation of Surgical Care at Dartmouth Hitchcock Medical Center, David Goodman, M.D., M.S., principal investigator of the Dartmouth Atlas, and other colleagues. “To combat these disparities, we must find opportunities for discussion and collaboration between physicians and surgeons, but also with patients and their families.”

Urgency for addressing this problem is growing. About 110,000 new patients are diagnosed with ESRD every year. Hemodialysis costs Medicare an average of \$87,945 per person per year and renal transplants cost \$32,922 per person per year. The overwhelming financial demands and, more importantly, the prevalence of the disease demands collaboration with specialists to ensure the patient has access to the best care.

The report, called “[Variation in the Care of Surgical Conditions: End-Stage Renal Disease](#),” is the fifth in a series of six reports from the Dartmouth Atlas of Health Care examining unwarranted variations in the surgical care of Medicare beneficiaries. Previous reports on [spinal stenosis](#), [obesity](#) and [cerebral aneurysms](#) pointed out regional and, in the case of [diabetes](#), racial disparities, focusing on the importance of shared decision-making. The report draws on Medicare claims from 2007-2011 and divides the country into 113 transplant referral regions (TRRs) within the United States.

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This report was produced by the Dartmouth Atlas Project, located at the [Dartmouth Institute for Health Policy & Clinical Practice](#). The Dartmouth Atlas Project is principally funded by the Robert Wood Johnson Foundation, with support from a consortium of funders. This report received its major support from the Department of Surgery at Dartmouth-Hitchcock Medical Center. The full report, [Variation in the Care of Surgical Conditions: End-Stage Renal Disease](#), and [complete data tables](#) can be found at www.dartmouthatlas.org.

About the Dartmouth Atlas Project

For more than 20 years, the Dartmouth Atlas Project has documented glaring variations in how medical resources are distributed and used in the United States. The project uses Medicare data to provide information and analysis about national, regional, and local markets, as well as hospitals and their affiliated physicians. This research has helped policymakers, the media, health care analysts and others improve their understanding of our health care system and forms the foundation for many of the ongoing efforts to improve health and health systems across America.

Methodology

In this report, we examined the rates of end-stage renal disease (ESRD) in the Medicare population (age 18-99) and the proportion of ESRD treatments employed among both Medicare beneficiaries and the national ESRD population. We selected all patients with evidence of a procedure code for dialysis among Medicare fee-for-service beneficiaries. We also obtained data on all ESRD patients in the United States from the United States Renal Data Registry (USRDS). Information on the use of AV fistulas and grafts and hemodialysis catheters came from the renal registry, along with data on live and deceased donor kidney transplants. To track outcomes among ESRD patients in the Medicare population, we used both diagnosis and procedure codes for kidney transplantation. Rates are reported at the level of transplant referral regions (TRR), which were constructed by aggregating patient residential ZIP codes into hospital service areas (HSAs), and HSAs into TRRs, after examining patterns of listing for kidney transplantation. Each of the 113 TRRs included at least one transplant center.