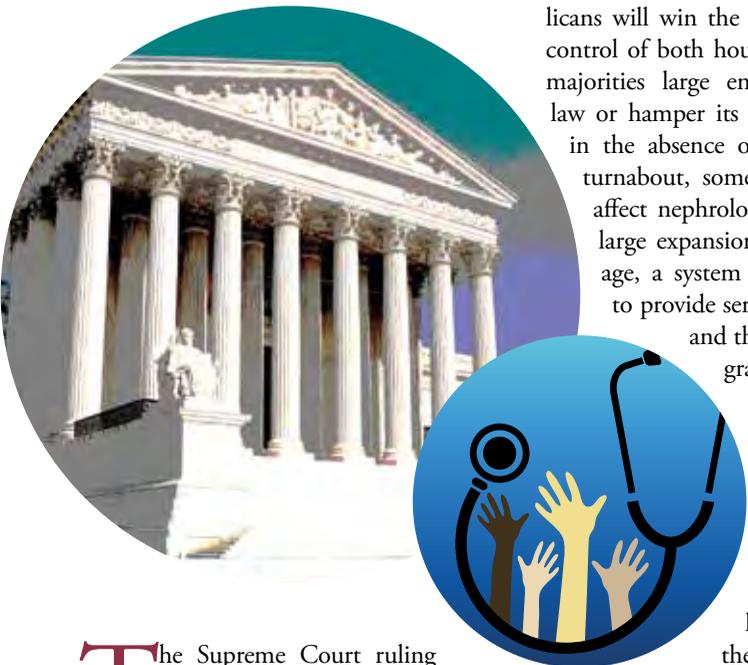


# Kidney News

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## Supreme Court's Health Care Ruling Ushers in Host of Reforms Affecting Kidney Care

By Eric Seaborg



The Supreme Court ruling upholding the constitutionality of the Affordable Care Act (ACA) gave the green light to a host of reforms that will affect the practice of kidney care. The possibility remains that Repub-

licans will win the presidency as well as control of both houses of Congress with majorities large enough to repeal the law or hamper its implementation. But in the absence of that large political turnabout, some changes that could affect nephrology practice include a large expansion of insurance coverage, a system needing adjustments to provide services to more people, and the output of new programs for research on care quality.

The main goal of the ACA was to increase the number of Americans covered by health insurance, and the latest projections of the nonpartisan Congressional Budget Office are that an additional 30 to 33 million people will have health insurance by 2016, an increase from today's 82 percent to 92 percent of the population under Medicare

age. One big driver of the growth in coverage is a planned expansion of Medicaid eligibility, but the portion of the court ruling that allows states to opt out of the expansion could have a big effect on these numbers (see sidebars). But in any scenario, millions more people should obtain coverage.

An underlying theme of the reform is that this increased coverage should translate into earlier and better care. "Increasing access to primary care can only be a good thing in terms of preventing and slowing the progression of kidney disease," said Rachel Shaffer, manager of policy and government affairs at the American Society of Nephrology.

Early treatment in the primary-care environment of two common causes of kidney failure, hypertension and diabetes, could prevent or delay the need for many patients to see a nephrologist, said Thomas Hostetter, MD, chair of ASN's public policy board: "If more people have coverage, we would not be in the position

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## Delayed Graft Function: Increasingly Common, and Increasingly Expensive

Delayed graft function (DGF) is a growing problem in kidney donation, given that donor kidneys increasingly come from older and more health-compromised individuals. Among other effects, the impact is felt on the hospital's bottom line. The complex picture of DGF in renal transplantation was the focus

of a discussion among experts in a "Transplantation in Depth" panel at the American Transplant Congress in Boston.

The gap between supply and demand for kidneys is growing, with 92,000 patients on the waiting list in the United States alone. The shortage of organs and the lengthening of wait

times have led to considerable reliance on expanded-criteria donor (ECD) kidneys, defined as those from donors over age 60, or between 50 and 59 with either a history of hypertension, elevated creatinine, or death resulting from cerebrovascular disease. "These donors are associated with higher risk of DGF," said Norberto Perico, MD, of the Mario Negri Institute for Pharmacological Research in Bergamo, Italy, "and may account for the increase in DGF in the last 2 decades."

The incidence of DGF in ECD kidneys is between 5 percent and 50 percent. *Continued on page 4*

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## Delayed Graft Function

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percent, depending on the study and also on the exact definition of DGF, which in most cases is taken to mean the need for dialysis within 7 days of transplantation.

DGF does have important consequences for the success of the graft, Perico said. A recent metaanalysis of 21 outcome studies suggested that the risk of graft loss is 41 percent higher in patients with DGF than in patients not experiencing DGF.

“But not all expanded-criteria donor kidneys are equal,” Perico said. The age is important, but it is far from the only indicator of organ quality. Another factor at work is the duration of cold ischemia time. In a 2011 study of more than 9000 donor kidneys, an increase in cold ischemia time increased the risk of DGF after multiple other characteristics were controlled for. But in this case, there was no difference in graft survival at 96 months, highlighting the complexity of the impact of DGF on outcomes.

In any event, Perico said, “We need to look for strategies to maximize chances of success with ECD kidneys.” He suggested that one strategy may be to use biopsy to match donors with patients for “nephron dose,” to better accommodate differences in metabolism among patients. “An increased use of older kidneys, evaluated with biopsy, would permit a successful expansion of the donor pool for older patients, and would safely shorten the waiting list.”

“Every transplant saves lives, and the same can be said for costs,” said David Axelrod, MD, assistant professor of surgery at Dartmouth Medical School in Hanover, New Hampshire, who spoke about the economics of transplants with and without DGF.

Transplants are more expensive than dialysis in the short run, he said, but after a mean of 2.3 years for a living donor, or 3.6 years for a deceased donor, the cost curves cross because the recipient of a transplant requires fewer medical services than does the patient receiving dialysis. “The overall cost of transplanting is less than the cost of maintaining that same patient on dialysis. As a society, we benefit from kidney transplantation.”

But an aging recipient population, and an increased use of ECD organs, is taking a toll on the economics of transplantation for the hospital. “Reimbursement costs have not kept pace with operation costs,” he said. And neither is reimbursement tied to the quality of the kidney. As a result, “Delayed graft function largely determines the overall margin for the hospital,” Axelrod said.

Patients experiencing DGF have an increase of about 50 percent in overall length of stay, not only for dialysis but often also for cardiac care in the intensive care unit, Axelrod said. His analysis shows that DGF is a major driver of Medicare payments, increasing the average reimbursement by about \$13,000. However, he said, the hospital still lost about \$5000 per patient because of the effects of DGF, which increased to almost \$11,000 with the combination of ECD and DGF.

The indirect impact is also high, with an increased risk for decreased renal function and return to dialysis, and overall higher payments for chronic kidney disease care. “The cost of returning to dialysis is significant,” he said.

So how can the risk of DGF be reduced? Mechanical perfusion—pumping—is one strategy, Axelrod said. “The benefit of pumping is going to be on graft survival,” but not necessarily on cost, according to his analysis. “There is not much effect on cost at 3 years. At worst, you could say pumping is cost neutral.” Induction therapy, designed to induce tolerance for the new organ, is another option to decrease the risk of acute rejection after DGF. “We use induction therapy quite liberally,” Axelrod said, “but these agents are not cheap.”

Other options were reviewed by Douglas Hanto, MD, PhD, from Beth Israel Deaconess Medical Center in Boston. Dopamine, levothyroxine, steroids, and vasopressin have all been used. A new option may be carbon monoxide, which, although toxic in high doses, is released naturally within the body at very low doses during hemoglobin catabolism and acts as a cytoprotective and anti-inflammatory agent through its ability to induce stress response pathways.

Carbon monoxide can be delivered as a gas. It has been shown to reduce lung injury from hyperoxia and to improve renal transplant outcomes in animals when delivered to the recipient intraoperatively. There are no side effects until the dose reaches twice the effective dose, Hanto said. The clinical development of carbon monoxide as an adjunct for transplantation is currently stalled because the company developing the delivery system is changing hands. “We think donor treatment is probably also a good idea, but that can be challenging,” because it involves a tradeoff between taking the time for treatment and reducing the delay between removal of the donor kidney and transplantation.

Further research, all agreed, was needed to better define the risk factors for DGF, the best ways to reduce its incidence, and the optimal treatment strategies for patients who experience it. ●