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## The state of kidney failure in the United States in 2018

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End Stage Renal Disease (ESRD) impacts the lives of over 700,000 American patients (including transplant recipients) and their families and costs United States taxpayers approximately \$32.8 billion in annual Medicare expenditures. Spending continues to rise each year, likely due to an increase in various comorbid conditions which contribute to ESRD, including diabetes and hypertension in the context of an aging population. In 1972, President Nixon created an ESRD program in response to 'God panels' that were tasked with determining a patient's eligibility for hemodialysis based on their social worth, since dialysis was seen as too costly to perform universally for all patients with ESRD. Unfortunately, the government grossly underestimated the future cost of this program, since it assumed that most patients who are medically suitable for dialysis are under age 54 with few if any comorbidities and that only one in five ESRD patients are eligible for dialysis. In hindsight, it was an altruistic but economically infeasible plan. In addition, while this program provides funding to the Center for Medicare Services (CMS) to treat patients under 65 with ESRD, it doesn't help defray the cost of disease prevention. Medicare spends \$32.9 billion per year on the treatment of ESRD but only \$564 million annually on research geared towards the prevention and treatment of kidney disease. In contrast, in 2015 the NIH had a \$3 billion research budget for the study of HIV/AIDS. As a result, there hasn't been a significant improvement in dialysis delivery systems over the past four decades. The payment structure for dialysis therapies remains complex, with Medicare bearing the brunt of the responsibility. Upon initiation of dialysis, if a patient is already a Medicare recipient, Medicare becomes the primary payer for dialysis service and covers approximately 80% of the cost, leaving supplemental insurance to cover the balance. For those who only have private employer-based insurance, their insurance is the primary payer for the first 33 months of care (a.k.a. the 'waiting period'), after which time they are eligible for Medicare. Private insurance companies typically reimburse dialysis organizations at a significantly higher rate than Medicare or Medicaid. Therefore, it is during the waiting period that the dialysis organizations accrue the most financial benefit. Without employer insurance, a gap in payment would exist until the patient moved over to Medicare insurance after the standard waiting period. Home dialysis therapies continue to be underutilized. As of 2015, only 7% of all ESRD patients were using peritoneal dialysis and only 1.8% were utilizing home hemodialysis. Home dialysis offers a number of benefits over conventional in-center dialysis including an improvement in quality of life, more flexibility in scheduling, decreased pill burden, and a lower pricetag. As an incentive to promote home therapies, CMS waived the traditional 90-day waiting period for reimbursement for home-dialysis and recently increased the rate of reimbursement for the training of patients to perform home dialysis. Encouragingly, home dialysis use has increased by approximately 5% since the ESRD prospective payment bundling system began in 2011. The landscape of America's health care system is uncertain due to the repeal of the Affordable Care Act's individual mandate for health insurance. At this point, the financial impact of this change is unclear, but costs may rise as uninsured patients rely more heavily on expensive emergency room visits for their medical care. This could potentially shift costs to patients with health care insurance. Medicare recently implemented a capitated system with a "pay for performance" model in an attempt to reduce expenditures. This new system abolishes the previous "a la carte" delivery of medicine and instead delivers bundled payments. This has resulted in a significant cost shift to commercial third-party payers that may have previously been 'compensated' in the form of the mandate. However, with the abolishment of the mandate, will these insurance companies further reduce reimbursement rates for dialysis? In summary, the current dialysis reimbursement system is unsustainable due to the gross underestimation, at the inception of the program, of co-morbidities and the number of future dialysis patients. Furthermore, money has been poured into providing dialysis systems without providing sufficient funding for the prevention of kidney disease and research to provide improved modalities for dialysis. Compounding the problem, the payment structure for dialysis is extremely complicated, and it is unclear how the recent changes to the Affordable Care Act will affect the future of reimbursement. A system that is clearly in need of reform appears to be headed instead for a period of greater uncertainty.

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