

Insights From the 2016 Peer Kidney Care Initiative Report: Still a Ways to Go to Improve Care for Dialysis Patients

James B. Wetmore, Suying Li, Julia T. Molony, Haifeng Guo, Charles A. Herzog, David T. Gilbertson, Yi Peng, and Allan J. Collins



Although outcomes improved during the past decade for patients receiving maintenance dialysis, gains were few in certain key areas, as highlighted in the 2016 Peer Kidney Care Initiative Report. Overall incidence rates of dialysis therapy initiation in adults remained relatively stable (~42 per 100,000 US population, 2009-2013), but rates varied more than 2-fold, from 26 to 54, across US geographic regions. Hospitalization rates in incident patients decreased from 261 hospitalizations per 100 patient-years in 2003 to 207 in 2012, but observation stay rates increased from 40 to 67, attenuating the decline in hospitalizations by half. Decreases in prevalent patient hospitalizations for heart failure, from 15.6 per 100 patient-years in 2004 to 9.5 in 2013, were partially offset by increases in hospitalizations for volume overload, from 3.0 in 2004 to 6.1 in 2013. Prevalent patient rates of hospitalizations for arrhythmias (~4.6 per 100 patient-years) did not improve during the past decade, whereas sudden cardiac death as a proportion of total cardiovascular deaths increased from 53% to 73%. Hospitalization rates for pneumonia/influenza, at about 8.3 per 100 patient-years in prevalent patients, did not decrease during this period, while hospitalization rates for bacteremia/sepsis increased from 8.6 to 12.0. If decreases in mortality rates are to be sustained, novel approaches to these challenges will be required.

Complete author and article information provided before references.

Am J Kidney Dis. 71(1): 123-132. Published online November 20, 2017.

doi: [10.1053/j.ajkd.2017.08.023](https://doi.org/10.1053/j.ajkd.2017.08.023)

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During the past decade, the nephrology community has witnessed improved outcomes for patients receiving maintenance dialysis. Dialysis patients are living substantially longer than at the turn of the millennium.¹ The adjusted annual incidence rate of adult patients receiving kidney replacement therapy has declined by >8% in the past decade or so, while the absolute number of new end-stage renal disease (ESRD) cases annually was relatively unchanged from 2009 through 2013² despite a nearly 3% increase in the US population during that period. Most, and perhaps nearly all, the dialysis-related goals set forth in the Healthy People 2020 initiative are likely to be met, and many handily exceeded.³

However, it is important not to minimize the immense challenges that remain. The absolute number of dialysis patients increased by >63% from 2000 through 2013 to approximately 467,000, suggesting that the maintenance dialysis population will remain a large, complex, medically challenging, and expensive population to care for well into the foreseeable future.² Although substantial progress has been made in achieving the Healthy People 2020 goals for decreasing death rates,³ these decreases have, ominously, begun to slow. For example, although the adjusted death rate decreased annually by approximately 5 per 1,000 patient-years overall between 1999 and 2014, rates decreased by only about 3 per 1,000 patient-years from 2012 through 2013 and by less than 2 per 1,000 patient-years from 2013 through 2014.² Future improvement in mortality rates will therefore require ever more concerted efforts in targeted areas.

Understanding how future challenges might be met is of paramount importance to the Peer Kidney Care

Initiative,⁴ the origin of which has been described previously.⁵ Peer was created to provide insights complementing important work being done by other major public health initiatives in dialysis, such as the US Renal Data System (USRDS) and the Dialysis Outcomes and Practice Patterns Study (DOPPS). Peer seeks to study cause-specific issues affecting patient outcomes that dialysis providers can help address. Particular areas of focus are the study of how geographic variation, temporal and seasonal factors, and traditionally understudied disease processes and comorbid conditions affect outcomes in dialysis patients.

In this article, we summarize and highlight seminal findings of the most recent Peer Kidney Care Initiative annual report.⁴ We contextualize recent epidemiologic trends by examining geographic variation in dialysis incidence rates, describe changes in patterns of hospitalizations and other health care encounters for dialysis patients, and scrutinize clinical areas in which little improvement in care has occurred. In so doing, our goal is to galvanize the nephrology community to confront continuing challenges that will affect the possibility of continued gains in the care of patients receiving maintenance dialysis.

Peer 2016 Report Methodology

Data Sources

We used the Centers for Medicare & Medicaid Services (CMS) ESRD database, which includes information collected at dialysis therapy initiation on the Medical Evidence Report (form CMS-2728), information collected upon death (including cause of death) on the Death

Notification (form CMS-2746), and all Parts A and B claims for patients with Medicare coverage. US census data were used to calculate incidence rates of adult patients with ESRD initiating thrice-weekly hemodialysis therapy at freestanding dialysis facilities.

Patient Populations

Incident maintenance dialysis patients were identified by selecting adults (aged ≥ 18 years) with a first outpatient dialysis session in a freestanding facility within 3 months of maintenance dialysis therapy initiation. The cohort construction strategy is reported elsewhere.⁴ Briefly, we identified 120,924 incident patients with ESRD in 2013. We excluded patients who underwent kidney transplantation as their first kidney replacement therapy ($n = 2,776$), who died immediately upon initiation ($n = 359$), who never dialyzed in a freestanding facility ($n = 10,532$), whose first outpatient dialysis session in a freestanding facility was more than 3 months after maintenance dialysis therapy initiation ($n = 1,798$), and who were either pediatric patients or patients who lived in territories (eg, Puerto Rico) for which we lacked full access to data ($n = 1,878$ total). This resulted in a final 2013 analytical cohort of 103,581 individuals. Patients who dialyze at freestanding units make up the vast majority of all US maintenance dialysis patients. In 2013, for example, 87.9% of all new dialysis patients were available for analysis via this strategy.⁴

Prevalent maintenance dialysis patients were identified in a similar fashion, except that they included patients receiving maintenance dialysis in a freestanding facility on the first day of the year (thereby comprising annual cohorts) and during the preceding 3 calendar months. Patients' locations were determined by the state in which their freestanding facilities were located. Rates were standardized to the US census population as of July 1 of each year and expressed per 100,000 US population.

Hospitalizations, Other Health Care Encounters, and Mortality

Hospitalization rates were estimated in cohorts of incident and prevalent patients. For incident patients, we analyzed the subset with Medicare Parts A and B as the primary payer within 3 months of maintenance dialysis therapy initiation. Follow-up began at the later of the first outpatient dialysis session or the start of Medicare coverage and ended at the earliest of recovery of kidney function, kidney transplantation, death, loss to follow-up, 3 months after the start of an uninterrupted series of dialysis sessions in a hospital or hospital-based dialysis facility, or 1 year after the first outpatient dialysis session. For prevalent patients, we analyzed the subset with Medicare Parts A and B as the primary payer on the first day of year. Follow-up began on the first day of the calendar year and ended at the earliest of recovery of kidney

function, kidney transplantation, death, loss to follow-up, 3 months after the start of an uninterrupted series of dialysis sessions in a hospital or hospital-based dialysis facility, or the last day of the calendar year.

Hospitalizations during follow-up were ascertained from Medicare Part A claims for inpatient care. Causes of hospitalization were categorized according to the principal discharge diagnosis. Outpatient emergency department (ED) encounters or observation stays during follow-up were defined using Medicare Part A outpatient claims. Causes of death (cardiovascular death and sudden cardiac death [SCD]) were ascertained from the ESRD Death Notification form (CMS-2746). Rates of events were calculated for each annual cohort of incident and prevalent patients, first-year rates for incident patients, and annual rates for prevalent patients.

Peer 2016 Report Findings and Context

Geographic Variation in Incidence Rates of Maintenance Dialysis Patients

Findings

Geographic variation in incidence rates of adult patients initiating maintenance dialysis therapy in freestanding units and corresponding incidence rate change are demonstrated in Figure 1. Both hemodialysis and peritoneal dialysis patients were included. Although overall incidence rates in adults ranged between 42.2 and 42.6 per 100,000 US population between 2009 and 2013, incidence rates varied from 26.3 per 100,000 in the New England census division to 53.5 per 100,000 in the East South Central division in 2013. Additionally, in some divisions, such as the West South Central and Middle Atlantic, incidence rates increased from 2009 to 2013, while rates remained stable in most other divisions during this period.

Context

Variation in incidence of ESRD has been highlighted previously, for example through the illustration of current incidence rates by health services area in the 2016 USRDS Annual Data Report.² However, time trends in absolute rates of maintenance dialysis therapy initiation, which vary by a factor of about 2 across the regions, demonstrate how persistent differences remain despite stabilization of overall ESRD incidence rates. From a public health perspective, it is important that all areas of the country share in the gains made in recent years. The variation in care demonstrated likely reflects historical, demographic, economic, and perhaps even cultural variation in access to and delivery of health care. Although complete elimination of all such differences may not be possible, the nephrology community should leverage the differences to help determine which, if any, factors are potentially modifiable and to subsequently encourage health entities such as state health departments, regulatory agencies such as CMS, payers and

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