



## Effective Health Care

### ESRD and In-center Dialysis versus Home Dialysis Nomination Summary Document

#### Results of Topic Selection Process & Next Steps

- *ESRD and In-center Dialysis versus Home Dialysis* was found to be addressed by an systematic review by the US Department of Veterans Affairs (VA) Evidence-based Synthesis Program. Given that this systematic review addresses this nomination, no further activity will be undertaken on this topic.
  - Comparative Effectiveness of Home-based Kidney Dialysis versus In-center or other Outpatient Kidney Dialysis Locations. <http://www.hsrd.research.va.gov/publications/esp/kidney-dialysis.cfm>. Accessed 12/31/15.

#### Topic Description

**Nominator(s):** Public payer

**Nomination Summary:** The nominator is interested in the comparative effectiveness of in-center dialysis versus home dialysis for patients with end-stage renal disease (ESRD). The nominator indicated that an AHRQ systematic review could provide evidence to inform decisions about implementing quality improvement (QI) initiatives and adopting measures for QI programs.

##### **Staff-Generated**

**Population(s):** Adults with a diagnosis of ESRD, with or without comorbidities, including diabetes, obesity, hypertension, cardiovascular disease (CVD), and other chronic diseases

**Intervention(s):** home dialysis (hemodialysis, peritoneal dialysis)

**Comparator(s):** In-center dialysis (hemodialysis); all other treatment options

**Outcome(s):** All-cause mortality; cause of death; sepsis from health care associated infections (HAIs) and non-HAIs; transition to comfort care; kidney transplantation; hospital admissions and readmissions; abnormalities in electrolytes and mineral metabolism; hypercalcemia, parathyroidectomy fluid overload; anemia; dialysis access complications; quality of life; residual renal function; failure of home dialysis; health consequences of treatment failures; utilization of healthcare resources

##### **Key Questions from Nominator:**

1. For patients with a diagnosis of ESRD, what are the comparative effectiveness risks and benefits of in-center dialysis versus home dialysis (home hemodialysis and peritoneal dialysis)?
2. What are the barriers to the delivery of home dialysis?
3. What are the predictors and consequences of home dialysis failure?
4. Do these findings differ between different population groups (e.g., patients of different races and ages; patients with comorbidities including, diabetes, obesity,

hypertension, CVD, and other chronic diseases; patients with differing insurance payers)?

## Considerations

- At the end of 2012, there were more than 636,905 cases of ESRD in the US, an increase of 3.7% since 2011. Dialysis is the only treatment option for individuals with ESRD until a match for renal transplant is identified. The vast majority (91.0%) of dialysis patients in the US were treated by in-center hemodialysis in 2012. However, over the past decade, the use of home hemodialysis has increased markedly. There were five times more patients using home hemodialysis in 2012 than in 2002.<sup>1</sup>
- Adverse outcomes, including mortality infections and hospitalization, are high among patients receiving dialysis. Preliminary evidence suggests that patients undergoing daily home hemodialysis have lower adjusted mortality rates compared to those who dialyze in-center, although research has not conclusively found one dialysis modality to be superior to the other.
- A search of the literature identified a systematic review by the US Department of Veterans Affairs (VA) Evidence-based Synthesis Program, which covers this topic. This evidence-based report addresses the following key questions:
  - Key Question 1. What are the benefits and harms (i.e., all-cause mortality, cardiovascular events, hospitalizations, depression, cognitive impairment, quality of life, conversion to a different type of dialysis, complications related to vascular access, complications of dialysis) of in-home compared to in-center hemodialysis?
    - 1a. What are the benefits and harms (i.e., all-cause mortality, cardiovascular events, hospitalizations, depression, cognitive impairment, quality of life, conversion to a different type of dialysis, complications related to vascular access, complications of dialysis) of the various modalities of in-home hemodialysis (i.e., short daily, nocturnal) compared to conventional hemodialysis?
  - Key Question 2. What are the benefits and harms (i.e., all-cause mortality, cardiovascular events, hospitalizations, depression, cognitive impairment, quality of life, conversion to a different type of dialysis, complications related to vascular access, complications of dialysis) of peritoneal dialysis compared to in-home hemodialysis or in-center hemodialysis?
    - 2a. Do results differ depending on whether peritoneal dialysis was the initial therapy or the therapy used following failed in-center dialysis?
  - Key Question 3. What are the a) health care system, b) provider, and c) patient factors associated with selection of and technique survival for home-based dialysis (including peritoneal dialysis)?
  - Key Question 4. In the published literature, what are the costs of home hemodialysis or peritoneal dialysis compared to in-center hemodialysis?

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<sup>1</sup> Saran R, Li Y, Robinson B, et al. US Renal Data System 2014 annual data report: epidemiology of kidney disease in the United States. *Am J Kidney Dis.* 2015;66(1)(suppl 1):S1-S306.