Impact of the Use of the HeRO Vascular Access Graft vs. Tunneled Dialysis Catheters on Dialysis Provider Economics in an Era of Bundling

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INTRODUCTION

CMS will institute a new prospective payment system (PPS) for facilities that provide dialysis services to Medicare ESRD beneficiaries beginning on January 1, 2011. This PPS will provide a single bundled payment to dialysis facilities that covers the majority of items and services used in providing outpatient dialysis. Since the use of chronic catheters for hemodialysis access has a well-documented association with increased morbidity, mortality, and costs compared to AV fistulas and grafts, reducing the utilization of tunneled dialysis catheters represents a significant opportunity for dialysis providers to improve dialysis delivery, reduce complications, decrease patient care costs, and increase dialysis center revenue in a bundled payment environment.

Based on the reported differences in clinical outcomes associated with use of the HeRO vascular access graft (Hemosphere, Inc., Eden Prairie, MN) versus tunneled dialysis catheters in patient-dependent patients, we developed a model to assess the potential economic impact associated with the conversion of catheter access to the HeRO graft (in suitable patients) as a part of a catheter reduction algorithm in a bundled payment environment.

METHODS

A quantitative model with multiple input parameters was developed to calculate the potential per annum differences in economic outcomes associated with the use of tunneled hemodialysis catheters and the HeRO graft for dialysis providers under Medicare’s new bundled payment system. The second version utilized to create the model were obtained from the USRDS 2010 Annual Data Report, the 2008 Annual Report for ESRD CPM Project, and from published results of relevant clinical studies.

The first step of our analysis focused on the projection of differences in hospitalization, missed dialysis sessions, and associated loss of dialysis provider care costs, in the diagnosis and treatment of bacteremic episodes. Subsequently we expanded the analysis to identify potential cost differences resulting from use of different medications and need for blood cultures between the two groups.

RESULTS

Based on the calculated differences in clinical outcomes reported for dialysis patients with fistula and graft options,

- The model assumed that 5.1% of the total hemodialysis patient population would be catheter dependent in 2011.
- The model also projects that the use of the HeRO graft in this patient population would result in an incremental revenue of $15,101,959 or $737 per patient per year when compared to the use of tunneled hemodialysis catheters in this patient population.
- The results of our model indicate that the use of the HeRO vascular access graft instead of tunneled dialysis catheters in this patient population would produce a per patient economic benefit of $3,172 to dialysis providers on an annual basis.

CONCLUSION

Implementation of catheter reduction strategies will enable dialysis providers to decrease costs and increase revenues by reducing the rate of catheter access use. Based on our model, outcomes for Medicare’s new bundle payment for dialysis services, the HeRO graft will likely be associated with improved dialysis provider economics under a bundled payment system.

REFERENCES


Projected Per Patient Annual Cost Savings Associated with the HeRO Graft

Based on the calculated differences in clinical outcomes reported for dialysis patients with fistula and graft options, the model assumed that 5.1% of the total hemodialysis patient population would be catheter dependent in 2011. In 2011 versus 2010, we modeled results indicate that the use of the HeRO vascular access graft would produce a per patient economic benefit of $3,172 to dialysis providers on an annual basis. A reduction in annual costs is associated with the use of tunneled hemodialysis catheters instead of dialysis grafts in this patient population. Additional savings would also be incurred by dialysis providers as a result of the reduced need for catheter related care services which have not been calculated or included in this model.

Economic modeling projects that dialysis providers would generate total incremental revenue of $15,101,959 or $737 per patient, per year when using the HeRO graft instead of tunneled hemodialysis catheters. The effects of the catheter reduction on in-hospital and outpatient bacteremic episodes and a cost savings of $706,068 associated with a decrease in need for blood cultures when using the HeRO graft instead of tunneled hemodialysis catheters were included in Medicare’s new bundle payment for dialysis services. Incorporation of the HeRO graft into a vascular access algorithm and its preferential use over a catheter in patients who have exhausted all available access options will likely be associated with improved dialysis provider economics under a bundled payment system.