Improving Mineral Bone Disease in Peritoneal Dialysis

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Introduction

Purpose: To implement a quality improvement program for 15 dialysis facilities in the southeastern US with poor mineral bone disease (MBD) outcomes in peritoneal (PD) dialysis patients

Goal: To improve MBD clinical outcomes (phosphorus [P], calcium [Ca^{2+}], and parathyroid hormone [PTH]) above large dialysis organization's (LDO) national average over a 9 month period.

Methods

- Facility MBD composite scores were calculated by pre-assigning weights for P, Ca^{2+}, and PTH and were based on the percentage of patients achieving these key MBD targets (Table 1). The facility score is the average of scores for all PD patients served by the facility and ranges from 0 (low) to 30 (high).
- 15 dialysis facilities located in the southeastern US from an LDO participated in a quality improvement program (Table 2).
- The facilities' PD MBD composite scores were an average of 13.27% below the DaVita national average.
- Nurses and dietitians at the 15 facilities participated on two weekly conference calls to determine the root causes of the low MBD scores in April of 2010.
- After a few months, conference calls were adjusted to a monthly schedule.

Table 1. Thresholds for the MBD Scorecard

Clinical Indicator	*Positive Threshold**
P	≤5.5 mg/dL
Ca^{2+}	≤10.2 mg/dL
Intact PTH	150≥x≤600 pg/ml

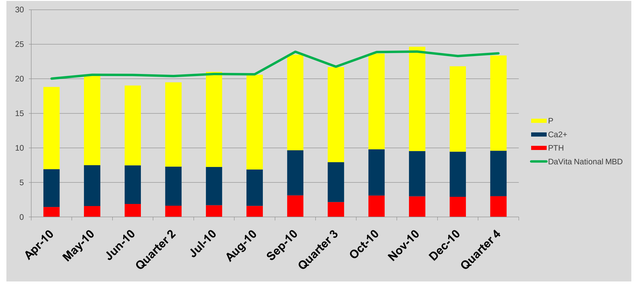
*Scores are determined by pre-assigned weights for each clinical indicator

Results

Table 2. Demographics and Disease Characteristics

	N (%)
Sex, Male – n (%)	110 (51.2%)
Race, Black – n (%) White Hispanic Other	162 (75.4%) 41 (19.1%) 2 (0.9%) 10 (4.7%)
Cause of ESRD – n (%) Unspecified DM HTN Other	 75 (34.9%) 58 (27%) 27 (12.6%) 55 (25.6%)

Figure 1. Facility MBD Scores in Quarter 2-Quarter 4 2010



- The 15 facilities exceeded their goal of an MBD score of 21 and demonstrated a 11.87% improvement from baseline (Figure 1).
- The facilities trailed the LDO's national average by 1.4% in Q4 2010.
- The targeted facilities exceeded the LDO national average in 3 out of the 8 months during the intervention (38%).

Table 3. Root Causes and Proposed Solutions for Improving MBD Outcomes

Top 3 Root Causes	*Proposed Solutions*
Lack of communication among the Interdisciplinary Team (IDT) including RD, RN, MD, SW, and patient	Each facility implemented their preferred method of communication (phone, in-person, email, written) among patients and teammates
Inconsistent scheduling of PD clinic day across patients	A monthly PD clinic day was scheduled at each facility
Inconsistent scheduling among members of IDT	A monthly calendar for labs and clinic visits was devised and implemented to coordinate IDT scheduling

Recommendations

- To improve MBD outcomes, we recommend PD facilities (Table 3):
  - Determine patients' and teammates' most preferred communication methods
  - Host a monthly PD clinic day with all IDT teammates
  - Devise an accessible calendar for coordinating schedules for lab draw and clinic day scheduling

Summary/Conclusions

- This project demonstrated how a team approach to patient care and improving IDT communication can result in improved MBD outcomes in the PD population.
- MBD outcome research in PD populations remains limited and therefore warrants additional studies.

References

1. Young EW. et al. Predictors and consequences of altered mineral metabolism: The Dialysis Outcomes and Practice Patterns Study. *Kidney International.* 2005;67:1179–1187.
2. Kalantar-Zadeh K. et al. Survival predictability of time-varying indicators of bone disease in maintenance hemodialysis patients. *Kidney International.* 2006;70:771–780.

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