Implementation of a Comprehensive, Focused Clinical Campaign Improves MBD Outcomes

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INTRODUCTION

Given the challenges of mineral and bone disorder (MBD) management in dialysis patients, we developed a comprehensive clinical campaign to assist physicians and care teams that includes a facility-level MBD scoring system, an MBD physician management tool and an educational toolkit for clinical teams and patients. The physician management tool allows simultaneous evaluation of MBD test results and provides medication and diet recommendations. In June 2006, we introduced the MBD clinical campaign to >1200 facilities in a large dialysis organization. We assessed facility MBD scores and patients meeting 2003 KDOQI MBD targets at baseline and 18 months after program initiation to evaluate the effectiveness of the clinical campaign.

METHODOLOGY

- Facility MBD scores were calculated monthly based on the % of patients within KDOQI-recommended ranges for phosphorus (P; ≤5.5 mg/dL), corrected calcium (Ca;≤9.5 mg/dL), Ca × P product (<55 mg2/dL2) and intact parathyroid hormone (PTH; 150-300 pg/ml) using a weighted scoring system.
- We compared MBD scores and individuals meeting KDOQI targets between baseline (June 2006) and 6 months (Dec 2006) and 20 months (Feb 2008) after program initiation by post-hoc independent t-test with Bonferroni's correction.

RESULTS

Table 1. Patient Demographics

Mean ± SD	June 2006 (month 0)	Dec 2006 (month 6)	Dec 2007 (month 18)
n	86,627	89,579	95,146
Age (yr)	60.5 ± 15.2	60.5 ± 15.1	60.6 ± 15.1
% Male	54.5%	54.6%	55.0%
% African American	38.3%	38.2%	38.0%
% Hispanic	14.8%	15.0%	15.5%
Charlson Co-morbidity Index	5.4 ± 2.1	5.5 ± 2.1	5.4 ± 2.2
% Diabetic	44.7%	44.4%	44.2%
Vintage (yrs)	2.1 ± 2.4	2.2 ± 2.4	2.4 ± 2.5
Dialysis Treatment Time (min/last treatment of the month)	214.8 ± 38.1	211.8 ± 44.6	212.5 ± 50.0
Ca (mg/dL)	9.5 ± 0.8	9.3 ± 0.8	9.2 ± 0.8
P (mg/dL)	5.5 ± 1.9	5.4 ± 1.7	5.3 ± 1.7
PTH (pg/mL)	359.1 ± 418.5	362.2 ± 411.4	382.8 ± 412.8
Ca × P (mg^2/dL^2)	52.3 ± 16.2	50.4 ± 16.1	49.5 ± 15.4

Over 1500 clinical team in-services and >1500 patient education days were conducted in the first 6 months.

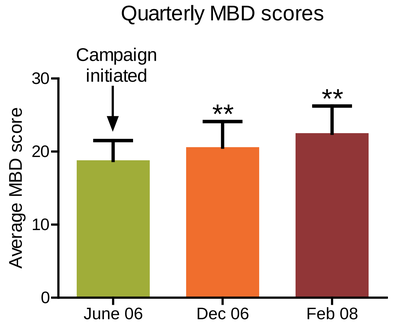

Figure 1. Average quarterly MBD scores increased after implementation of the clinical campaign. Higher scores signify more patients within MBD target ranges.

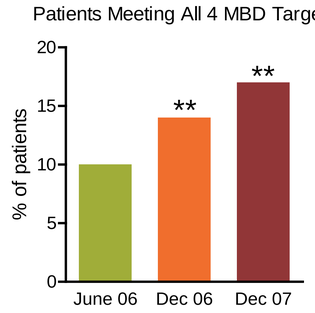

Figure 2. The percentage of patients achieving all 4 MBD targets increased significantly at 6 months and 18 months after implementation of the campaign, n <80,000 patients, ** p<0.001 compared to June 2006.

SUMMARY of RESULTS

- Facilities in which the majority of patients received treatment based on the Physician MBD Management Tool or a facility-specific protocol based on the Physician MBD Management Tool increased from 0% in June 2006 to 74% in February 2008.
- Facility MBD scores increased between baseline (18.8 ± 2.7) and 20 months (22.5 ± 3.7, p<0.001) after campaign initiation (Figure 1).
- Over an 18-month period, the company-wide proportion of patients who simultaneously achieved all four MBD targets improved from 10% to 17% (p<0.001), an increase of approximately 7,000 patients (Figure 2).

KEY LEARNINGS

- ✓ We have developed and implemented a comprehensive MBD clinical campaign that provides effective tools to guide assessment and treatment intervention; tracks results; and engages the interdisciplinary team in successful management of MBD.
- ✓ After initiation of the clinical campaign, the patients within KDOQI-recommended target ranges increased suggesting it is an effective strategy to improve MBD outcomes.

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