

Economic Benefits of Care Management for Obstructive Sleep Apnea in a Prospective Cohort of Professional Truck Drivers

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INTRODUCTION

OSA treatment is noted to create multiple benefits in medical and mental health.

In addition to potentially helping to prevent OSA related chronic diseases such as hypertension, metabolic syndrome and depression, OSA treatment often results in enhanced daytime vigilance, vitality, productivity and social function.

Previous studies demonstrate the economic impact that OSA has on populations due to direct and indirect medical costs, as well as work/societal costs due to accidents, early mortality, productivity loss and disability.

Only a few studies to date have investigated the impact of OSA therapy on a workforce over time and the economic impact on health care costs, as well as productivity and safety metrics.

This study was designed to prospectively measure change in (1) medical and pharmacy claims and (2) workplace productivity/safety metrics in a cohort of working subjects compliant with OSA therapy (PAP) over the course of a year.

METHODS

Professional drivers employed >1 yr with a record of healthcare claims were recruited by company safety directors using known biometric risk factors for OSA using IRB approved advertisements and education as previously described (Durmer et al., 2014).

After subjects were diagnosed with OSA and treated with PAP, they were continually monitored for adherence, efficacy, and escalation care management was utilized to proactively identify medical, technical and behavioral barriers to successful PAP treatment over 12 months.

Medical and pharmacy claims, as well as safety/productivity data were collected from the year prior to and during the study. This information was used to perform pre-post analyses within subjects and between the study group and 3 other matched populations within the company (see diagram for matching details):

METHODS(Cont'd)

Grouping performed via claims with matched attributes in G2 & G3 as noted in diagram:

- G1: not in other groups; male, eligible claims, DOB, BMI
- G2: not in other groups; claims w/apnea dx during study
- G3: not in other groups; claims w/apnea dx & tx during study
- G4: study participants

Subjects were compared in the year before and after OSA therapy for health care claims, ER visits, inpatient visits, accidents, incidents and hard braking events.

When applicable, two-tailed t-tests were applied for significance. Only participants compliant with therapy were used for comparisons.

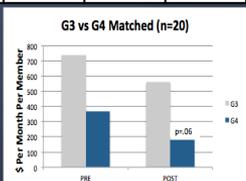
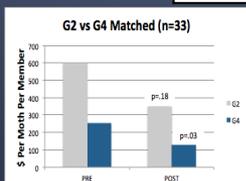
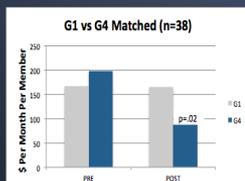
RESULTS

Of ninety-one subjects, 59 completed the one-year trial (G4) with health claims and workplace records. G1 (n=4383), G2 (n=230), and G3 (n=93). The total average PMPM costs for each group between 2008-2010 is noted on the table below. G4 costs do not included research program in total (on average, this ranges from additional \$267-\$395/mo). Average PMPM costs for all drivers in the company were: \$299 (2008), \$304 (2009) and \$287 (2010).

After accounting for eligibility and attributes, the study group pre-post comparison was reduced from 59 to 38.

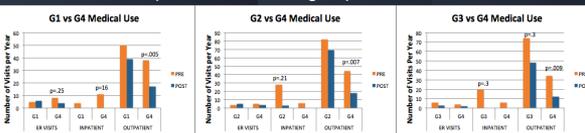
Subsequent pre and post claims comparisons within G4 demonstrated a reduction from an average \$197 to \$87 PMPM (56% p=0.02). Medical/Pharmacy claims comparisons between groups is as follows:

Grp	2008	2009	2010
G1	\$414	\$439	\$405
G2	\$777	\$652	\$475
G3	\$947	\$726	\$511
G4	\$184	\$204	\$123

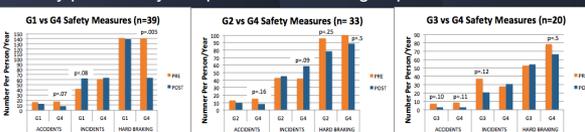


RESULTS (Cont'd)

Medical visit comparisons between groups:



Safety/productivity comparisons between groups:



CONCLUSIONS

This study suggests that the introduction of a technology enabled OSA testing, treatment and remote management program with objective data monitoring and care management can result in significant savings in Medical and Pharmacy claims over a year. When compared to varying levels of controls (G1-G3), significance of claims savings was maintained.

A consistent significant reduction in Outpatient claims was noted in the study subjects when compared to all other groups.

The initial cost of the Study Group was much lower than the other groups, which may be due to selection bias, population size and non-inclusion of OSA program costs. The cost of this OSA care is estimated at an additional \$267-\$395/mo.

A trend toward a reduction in Hard Braking events was noted in the Study Group when compared with G2 & G3, with a significant reduction when compared to All Drivers (G1).

The small sample size due to case matching with controls over the entire 1 year study limited the power of associations in this study. Additional prospective workplace research of this kind is required to extend the applicability of these preliminary findings.

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