A Retrospective Economic Comparison of Combined Ipratropium Bromide and Albuterol versus Individual Components in Chronic Obstructive Pulmonary Disease (COPD) Patients

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INTRODUCTION
• DuoNeb® (IAC; DEY Laboratories, LP, Napa, CA) is a two-in-one inhalation solution for nebulization combining ipratropium and albuterol. It is approved for bronchospasm in COPD patients requiring more than one bronchodilator.
• While combination therapy with other two-in-one delivery systems has been demonstrated to be effective in COPD, the impact of IAC on health care resources and compliance has not been widely evaluated.

OBJECTIVE
• To compare nebulized ipratropium and albuterol combination product (IAC) versus dual single agents (DSA) on health care resources and compliance in COPD patients.

METHODS
• A retrospective analysis was conducted utilizing a three-month baseline and a 12-month comparison.
• Data were extracted from the PharMetrics managed care database of U.S. patients enrolled from January 2001 through December 2003. Records utilized were HIPPA compliant. The study protocol required member eligibility through December 2003. Records utilized were HIPPA compliant. The study protocol required member eligibility through December 2003. Records utilized were HIPPA compliant. The study protocol required member eligibility through December 2003. Records utilized were HIPPA compliant. The study protocol required member eligibility through December 2003.
• Members into the study were required to have a diagnosis of chronic obstructive pulmonary disease (COPD) with or without a history of intercurrent disease (ICD9: 490.x, 491.x, 492.x, 495.x).

RESULTS
• Disease severity was classified by pharmacy therapy—termed CDSS—based on available claims data. This was a “best effort” to recognize COPD severity based on drug claims as an alternative to the tradition GOLD staging due to limited clinical information.

Statistical Analysis:
• PMPM data were compared using unpaired Student’s t-Tests
• Subgroup analysis was conducted to examine influence of CDSS stage and age
• Compliance parameters were analyzed using χ2 and Wilcoxon rank sum tests.

DISCUSSION
• IAC was associated with statistically fewer ED visits and lower expenditures. The impact on ED resources suggest savings, annualized to $193.99 per patient.
• Potential Per-member-per-year (PMPY) savings was $2,476.45 (NS). For equivalent-size DSA cohort (1063 patients), savings could be as high as $2.6 million.
• Multivariate techniques did not observe any significant confounders. However, the lack of complete clinical information limited analysis to fully assess the influence of disease progression.
• Limitations included retrospective design, limited patient sample for 12-month assessment, a wide sample diversity (and standard deviation), and no available COPD clinical information. Many of these are inherent to claims-based evaluations. Future analysis should try to address.
• The study population (58% of DSA and 67% of IAC patients were younger than 65 years) would be applicable to health care plans covering COPD. Disease prevalence may be greater in the less than 65 population than previously claimed.4
• Improved compliance may contribute to savings. At least 15% of COPD patients are noncompliant with nearly one-third of their bronchodilators.
• Reduced potential for medication errors may contribute to savings. Albuterol is ranked 2nd, ipratropium is listed as 15th, and the agents together as individual components is rated 41st by the MEDMARX system for medication errors.5

CONCLUSION
• IAC therapy does not appear to generate any greater expense than DSA overall, despite a higher product acquisition costs (NS).
• IAC was associated with statistically lower ED visits and costs, plus significantly fewer individuals who experienced therapy interruptions.

REFERENCES