Clinical Outcomes in Patients with Persistent Asthma by Attainment of Healthcare Effectiveness and Data Information Set (HEDIS) Measures

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INTRODUCTION

Asthma is a chronic disease characterized by respiratory symptoms and exacerbations, which are episodes of progressive airway narrowing, leading to symptoms of breathlessness, cough, wheeze, and chest tightness.1,2 A goal of asthma therapy is to stably control and maintaining symptoms; poorly controlled asthma is associated with increased emergency department (ED) visits, hospitalizations, and medication use.3

The Healthcare Effectiveness Data and Information Set (HEDIS) measures specific to asthma were developed by the National Committee for Quality Assurance (NCQA) to serve as useful constructs for evaluating the impact of interventions aimed at asthma control on disease and patient outcomes.4

This retrospective, real-world study linked data between two secondary databases to evaluate the impact of two HEDIS measures, Medication Management (MM) and Asthma Medication Ratio (AMR), on the burden of asthma in adult and pediatric patients stratified by attainment of a satisfactory HEDIS score.5

Here we describe the characteristics and clinical outcomes of patients that attained and did not attain satisfactory HEDIS scores, to uncover areas of need among the asthma population.

METHODOLOGY

Data sources

This retrospective cohort analysis used patient-level data from QVIA’s Real-World Data-Adjusted Claims – US database (formerly known as ProactivePharma Plus) linked to ambulatory electronic medical records (EMR)

The claims database comprised adjudicated claims for more than 150 million patients. QVIA’s EMR database included data on >40 million active patients in the most recent calendar year who have both pharmacy and medical claims.

The EMR database covers over 65 million patient records sourced from “opt-in” provider research networks. The aggregated database comprises records collected across 70,000 physicians. Approximately 35% of the contributing physicians are primary care providers and the remainder are specialists.

Study outcomes

For each cohort, the following outcomes were evaluated during the measurement period:

- Asthma specialist visits defined as any hospitalization claim associated with an asthma diagnosis code
- Pulmonologist visits defined as an EMR with asthma diagnosis code
- Controlling medication defined, according to an algorithm using an EMR with asthma diagnosis code
- Inpatient claims defined, according to pre-specified pharmacy claim or prescription order for a systemic corticosteroid at least 3 times, but not less than 14 days
- Asthma exacerbation defined as an asthma-related ICD-9-CM code: 492.10, 492.11, 492.50, 492.52, 492.54, 492.57, 492.81, 492.83, 492.9, 599.1, 780.15, 780.20
- Asthma hospitalization defined as any hospitalization claim associated with an asthma diagnosis code
- Inpatient asthma hospitalization defined as any hospitalization with an asthma diagnosis code

Study endpoints

Study endpoints included:

- No evidence of prior diagnosis of any respiratory tract cancer, COPD, and HIV
- Onset of new asthma diagnosis with a Charlson Comorbidity Index (CCI) score >0
- Medicaid
- Commercial
- Midwest
- South
- Other

PCP, primary care physician

RESULTS

Asthma exacerbation: defined as any claim or appearance in EMR with asthma diagnosis code

Asthma Medication Ratio (AMR): evidence of a ratio of controller medications to reliever medications

Patient selection

Patients with an asthma diagnosis code in EMR database between May 2, 2015 and April 30, 2017 (N = 268,528) were included.

Figure 1. Patient attrition

Table 1. Patient demographic and clinical characteristics during the measurement period

Patient demographic and clinical characteristics

- The two cohorts were similar in terms of age and gender, with a mean age of 40–42 years and approximately 60% of females (Table 1).
- Comparing the 2 cohorts, the following differences were noted:
  - A higher proportion of patients who were white (92.8% vs. 87.2%, where race was defined as meeting at least one of the following: non-Hispanic/Non-Latino), and being covered by Medicare (39.9% vs. 32.7%)
  - A lower proportion of patients with ≥1 asthma hospitalization (4.9% vs. 7.3%), asthma specialist visit only (n, %)

Table 2. Healthcare utilization during the premeasurement period

Outcomes during the measurement period

Comparing the 2 cohorts, the attained cohort had:
- A lower proportion of patients with ≥1 asthma hospitalization (8% vs. 18%), asthma-related ED visit (6% vs. 18%) or asthma exacerbations (9% vs. 11%)
- More patients that attained satisfactory MM and/or AMR during the measurement period (MM: 94%, AMR: 92%) compared to the non-attained cohort (MM:4%, AMR:27%)

Multivariable logistic regression was conducted to identify factors associated with at least one of the following: attainment of a satisfactory HEDIS score during the premeasurement period.

Table 3. Predicted healthcare utilization during the premeasurement period

- Charlson Comorbidity Index
- Other
- PPO
- HMO
- Medicaid
- Commercial
- Midwest
- South
- Other

Figure 2. Specific HEDIS score attainment

Figure 3. Clinical outcomes during the measurement period

CONCLUSIONS

Asthma patients who attained satisfactory HEDIS scores were more likely to have white, participate in a PPO vs. an HMO, and to be commercially insured. Patients on Medicaid had a lower frequency of satisfactory HEDIS score attainment.

Patients who attained satisfactory HEDIS scores were more likely to have had at least one visit to an asthma specialist during the premeasurement period, while patients who did not attain a satisfactory score were more likely to have only visited a PCP, and were more likely to continue attaining HEDIS scores in the follow-up period, indicating that increased quality of care may have a persistent effect on outcomes long-term.

Patients who attained satisfactory HEDIS scores had better clinical outcomes, including fewer asthma hospitalizations, asthma-related ED visits, and exacerbations.

These findings highlight the importance of monitoring adherence and persistence in asthma treatment; suggesting that it may be beneficial for PCPs in partnership with asthma specialists to better achieve quality metrics, reduce exacerbations, and ultimately lower associated healthcare-resource utilization.

Disclosures

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