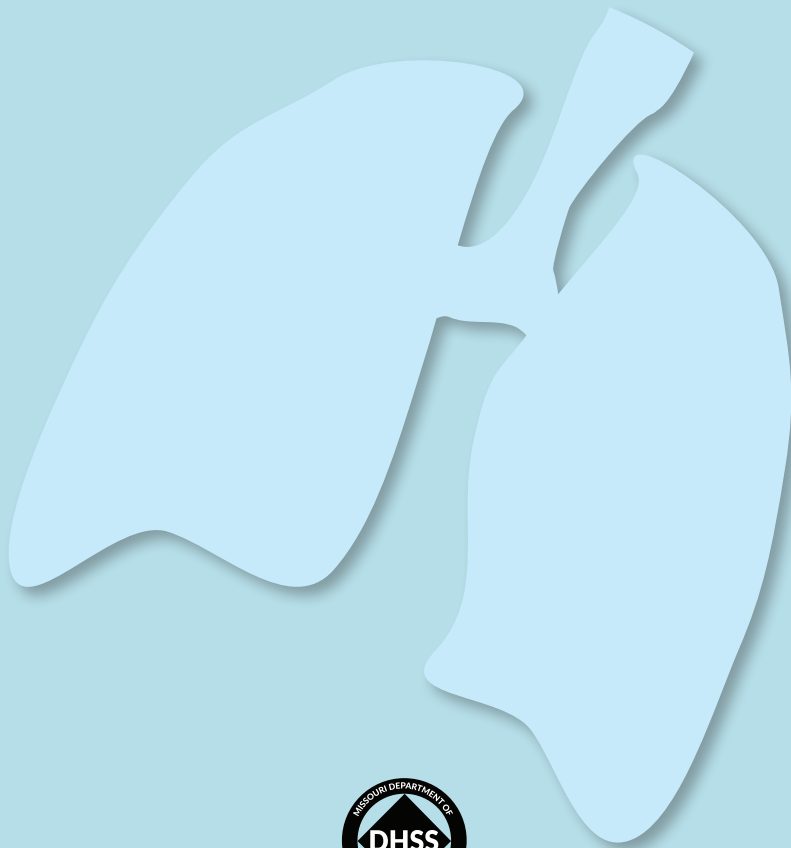# Evaluation Brief: Enhancing Asthma Medication Profiles to Improve Asthma Control: A Drug Utilization Review

Missouri Asthma Prevention and Control Program

Evaluation Brief: Enhancing Asthma Medication Profiles to Improve Asthma Control: A Drug Utilization Review

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Project

The "Drug Utilization Review" (DUR), an asthma disease management intervention, uses a medication protocol query of pharmacy drug claims data to identify patients with asthma who appear to have problematic therapies. Then a population-based mailing is sent to the physicians of these patients with the goal of improving prescribing practices and reducing overall care cost.

Primary Evaluation Questions

1. To what extent are patients with asthma receiving problematic therapies identified?

2. Did the DUR communications to health care providers improve choice of controller medication?

3. How does the intervention affect cost?

For More Information

Sherri Homan, RN, FNP, PhD
Public Health Epidemiologist
Missouri Asthma Prevention and Control Program
Sherri.Homan@health.mo.gov
573.522.2810

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Summary of Findings

Overall, the intervention reduced the five clinical indicators (i.e., medication non-compliance, duplicate therapy, risk for adverse drug events, medication overutilization, and underutilization of influenza vaccine) an average of 16.1% for target patients compared to a 14.0% decrease among the control group.

Regarding medication non-compliance with inhaled corticosteroids (ICS), there was a reduction of 19.9% in the number of non-compliant target patients compared to a 13.7% decrease in the control group.

There was a reduction of 12.6% in the number of target patients over utilizing their short-acting beta2 agonist (quick relief medication) compared to a 10.7% decrease in the control group.

The amount paid for intervention-related drugs decreased $5.92 in the post-intervention period. This yielded an overall estimated savings of $430,606.82 in intervention-related drug expenditures during the six-month post-intervention period.

> Overall, the intervention reduced the five clinical indicators an average of 16.1%.

Recommendations

The following are recommendations for project improvement.

Consider random assignment of patients/providers to intervention and control groups.

Collaborate with health care practitioners to reformat the intervention letter to be easier to interpret findings and patient profiles.

Include additional information in the intervention mailing such as the *Asthma Care Quick Reference: Diagnosing and Managing Asthma.*

"Collaborate with health care organizations to reformat the intervention letter."

Introduction

MO HealthNet provides coverage for 38% percent of Missouri's children.

Asthma is a chronic respiratory disease that currently affects more than one-half million people in Missouri.[1] Children bear the greatest burden of asthma based on acute health care services in Missouri. MO HealthNet is the Missouri state-sponsored Medicaid insurance program and provides coverage for one in seven Missourians and 38% of Missouri's children.[2] Asthma is a leading cause of emergency department (ED) visits and hospitalizations among children and adults. Poorly controlled asthma carries a substantial financial cost to MO HealthNet with $141.4 million in hospital charges over the five year period of 2009-2013, which was more than one-fourth of all the hospital charges for asthma during this timeframe in Missouri. In addition, medication cost for MO HealthNet fee-for-service recipients with persistent asthma averaged about $40.7 million per year (state fiscal years 2011-2013).[3]

Inhaled corticosteroids (ICSs) are the most potent and consistently effective long-term control medication available for mild, moderate, or severe persistent asthma. ICSs are well tolerated, safe at recommended dosages and are preferred for first-line control therapy for asthma.[4,5] In addition, the use of ICSs decrease the need for systemic corticosteroid courses, antibiotics, emergency room visits, hospitalizations and deaths due to asthma.[4,6] However, ICS prescribing and adherence are often underutilized for asthma patients. This quality improvement intervention called a "Drug Utilization Review" (DUR) was implemented to improve the safety and efficacy of drug therapy for patients with asthma enrolled in the fee-for-service and managed care programs by promoting a change in controller medication selection by prescribing physicians.

Evaluation Methods

This retrospective intervention evaluation involved a query of the MO HealthNet pharmacy claims data for all patients with a history of asthma according to a protocol to determine which medications were being prescribed and utilized by asthma patients. The protocol medication included short-acting inhaled beta2 agonists, short-acting beta2 agonist nebulizers, salmeterol products, formoterol products, oral theophylline, oral inhaled steroids, inhaled mast cell stabilizers, leukotriene antagonists, non-cardio selective beta blockers, oral steroids. Of particular interest for asthma control was the indicator assessing underutilization of inhaled corticosteroids. The DUR project was structured to evaluate outcomes in terms of a target group and comparison group, and pre- and post-intervention data.

The protocol included nine performance measures that were combined into five indicators. These five indicators identified providers whose patients were affected by:

- Medication Non-compliance, less than 60 days of therapy in the last 90 days with theophylline, a leukotriene modifier, or inhaled corticosteroid

- Duplicate Therapy, patients taking multiple salmeterol products, salmeterol product with formoterol, or salmeterol/fluticasone with oral steroid products during the most recent 60 days of claims history

- Increased risk of Adverse Drug Event (ADE) 1) patients with a theophylline claim in the past 90 days and selected co-morbidities (peptic ulcer disease, seizure disorder, cardiac arrhythmias, pulmonary edema, congestive heart failure, cor pulmonale, or liver disease); or 2) with a non-cardio selective beta blocker in the past 90 days with a diagnosis of asthma or inferred asthma

Evaluation Methods

Nine performance measures were combined into five indicators.

- Overutilization of Therapy patients receiving a short-acting beta2 agonist during the last 60-day period of claims in greater quantities than is recommended

- Underutilization of influenza vaccine therapy

Based on the query findings, an intervention letter with asthma information was sent to providers with the goal of improving adherence to EPR-3 treatment guidelines. Changes in intervention-related pharmacy dollars paid, pharmacy dollars paid per patient per month (PPPM), and number of pharmacy claims were examined.

The pre-intervention or baseline data were extracted from the MO HealthNet pharmacy claims data for the 6-month period, November 2013 through April 2014 with the post-intervention period, May 2014 through October 2014 (Figure 1). The final data run included a total of 8,211 providers and 28,170 patients.

Figure 1. Asthma Drug Utilizaton Review Pre- and Post-Design and Timeline, Missouri, 2013-2014

| 2013		2014										
Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Pre-Intervention Period (Baseline)						Post-Intervention Period					
					Target Group	Target versus control group					
Intervention Mailing April 21, 2014											

Results

Target and Control Groups

Health care providers with at least four patients matching one of the indicators received the intervention letter. There were 670 physicians included in the intervention (i.e., mailed intervention letter) and the number of targeted patients with pharmacy claims included 15,204; after adjusting for post-intervention continuous enrollment the total number of patients was 12,132. There were 7,541 physicians in the control group (i.e., not mailed intervention materials) and their patients who had the same drug utilization and disease characteristics as the targeted patients and were continuously enrolled throughout the post-intervention time period totaled 12,966 patients; after adjusting for continuous enrollment there were 11,546 patients. As shown in Figure 2, the target group was younger, had a higher prevalence of males, saw fewer providers, and on average had fewer prescriptions during the baseline period than the control group.

There were 7,541 physicians in the control group.

Figure 2. Patient Characteristics of Target and Control Groups for 6-Month Baseline Period
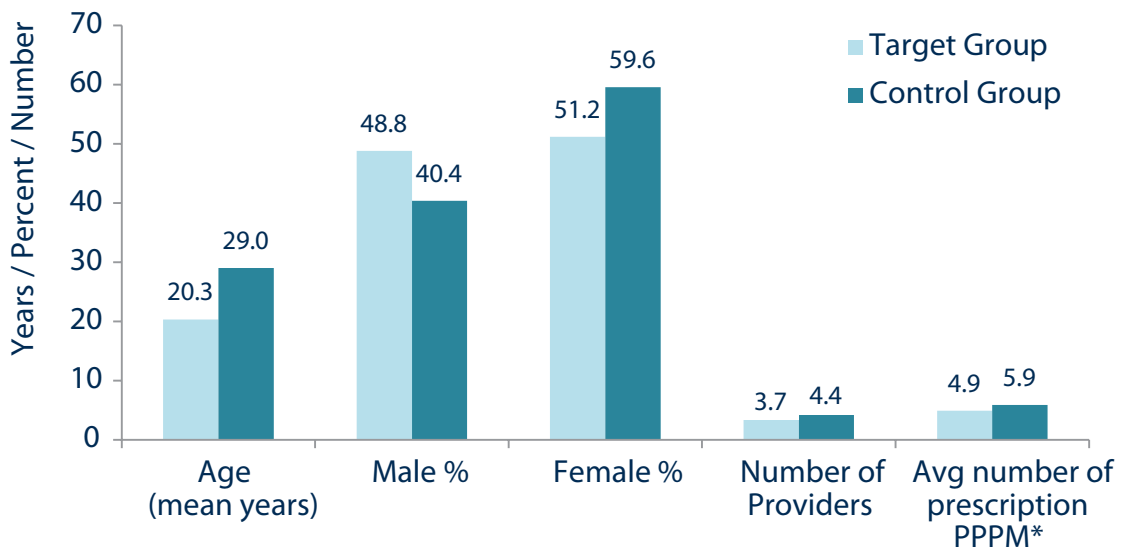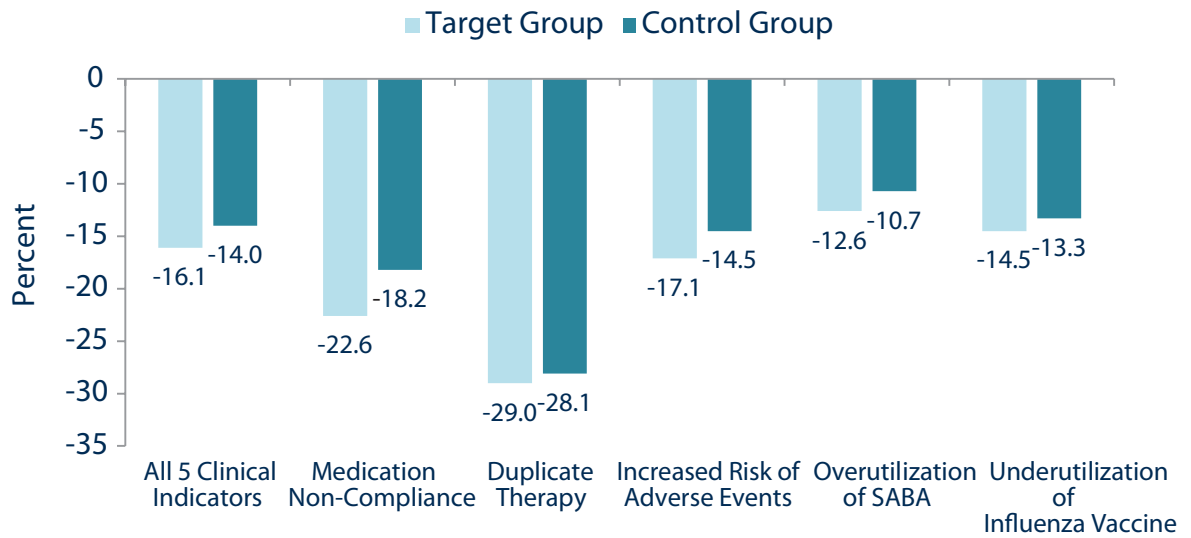

* Per patient per month (PPPM)

Results

There were substantial reductions in the number of patients at increased risk of an ADE in both groups.

Clinical Indicators

Overall, the intervention reduced the five clinical indicators (i.e., medication non-compliance, duplicate therapy, risk for adverse drug events, medication overutilization, and underutilization of influenza vaccine) combined an average of 16.1% for target patients compared to a 14.0% decrease among the control group (Figure 3). There was a 22.6% reduction in the number of target patients who were non-compliant with their inhaled corticosteroid, leukotriene antagonists, or theophylline therapy compared to an 18.2% decline in the control group. For non-compliance with ICS, there was a reduction of 19.9% in the number of non-compliant target patients compared to a 13.7% decrease in the control group. Although the baseline numbers were small (target group n=31 and control group n=32), both groups had similar reductions in duplicate therapy (-29.0% v -28.1%). There were substantial reductions in the number of patients at increased risk of an ADE in both groups with a decrease of 17.1% among the target patients and 14.5% decrease in the control group. In addition, there was a 12.6% reduction in the number of target patients overutilizing their SABA therapy compared to a 10.7% decrease in the control group. Although there were still large numbers of patients not documented as having received a recent influenza vaccination (> 5,000 per group), there was a 14.5% decrease among the target group and a 13.3% reduction in the control group.

Figure 3. Changes in Clinical Indicators for Asthma Disease Management, Missouri, 2014-2015

Target Group   Control Group

Category	Target Group	Control Group
All 5 Clinical Indicators	-16.1	-14.0
Medication Non-Compliance	-22.6	-18.2
Duplicate Therapy	-29.0	-28.1
Increased Risk of Adverse Events	-17.1	-14.5
Overutilization of SABA	-12.6	-10.7
Underutilization of Influenza Vaccine	-14.5	-13.3

Results

There was a total estimated savings of $430,606 in intervention-related drug expenditures for the 6-month post-intervention period.

Intervention-Related Drug Savings

The per patient per month (PPPM) amount paid for the intervention – related drugs was calculated separately for the target and control groups for the six-month baseline and six-month post-intervention periods. The medication cost for the target group declined 7.8% from $148.07 at baseline to $136.51 post-intervention. The medication cost for the control group also declined but to a lesser extent 3.8% from $138.99 at baseline to $132.56 post-intervention. After adjusting for the cost in the target group had there been no intervention, it was estimated that the amount paid for intervention-related drugs decreased by $5.92 in the post-intervention period. This resulted in a total estimated savings of $430,606.82 in intervention-related drug expenditures for the 6 month post-intervention period.

Limitations & Conclusion

The patients were not randomly assigned to the target and control groups; thus, limits the generalizability of the results.

- The 6-month post-intervention time period may not have been long enough to capture the full extent of the impact of the asthma disease management intervention, particularly if the recall of patients for their next primary care visit to change their medication regimen was delayed.

- Although there was a decline in the underutilization of the influenza vaccine, there are many places that provide "flu shots" that may not be captured in the pharmacy data, so the declines in both groups may not reflect the true impact of the intervention.

- While there may have been savings in overall care costs related to this intervention, this project primarily captured reductions in pharmacy cost rather than overall care costs.

This quality improvement asthma management intervention aimed to improve prescribing practices and reduce care cost. The intervention was successful in that it reduced the five clinical care indicators and associated medication expenditures

Data and statistics for this evaluation brief come from the Asthma Disease Management Outcomes Assessment report prepared by the Conduent, unless otherwise indicated.

Collaborators

Missouri Department of Social Services, MO HealthNet Division and Conduent

George Oestreich, PharmD, MPA & Jennifer E. Kemp-Cornelius, R.Ph, Pharm D, G.L.O. and Associates

Peggy Gaddy, RRT, MBA, Program Coordinator & Sherri Homan, PhD, RN: Public Health Epidemiologist
Missouri Asthma Prevention and Control Program, Missouri Department of Health and Senior Services
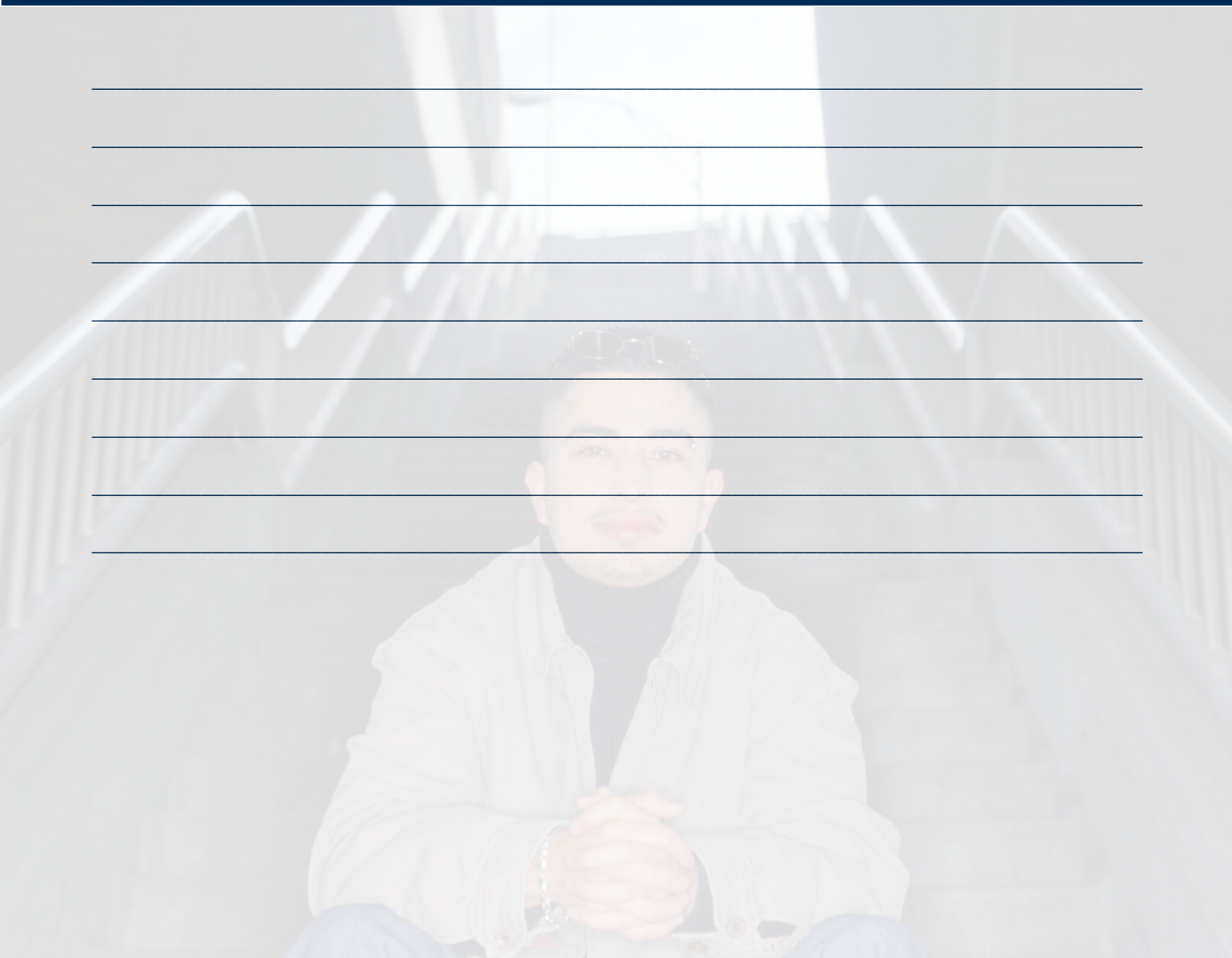
Benjamin Francisco, PhD, NP, AE-C, Director, Tammy Rood, NP, MSN, AE-C: Program Coordinator, Asthma
Ready Communities and Teaming Up for Asthma Control, University of Missouri

Eric S. Armbrecht, PhD: Lead Evaluator, Missouri Asthma Prevention and Control Program; Principal, Open
Health LLC

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