EVERNORTH
HEALTH SERVICES

AN EVERNORTH HEALTH SERVICES ANALYSIS

Maximizing utilization and reducing costs

How RationalMed® clinical intervention impacts physician, ER and inpatient costs and utilization

August 2023

Executive Summary

The Evernorth Health Services RationalMed® patient safety solution has a proven track record of achieving clinical outcomes and prescription drug cost savings complementary to traditional PBM, health plan and disease management programs. With more than 600 carriers representing 18.8 million covered lives, RationalMed affects thousands of changes in care each week—changes that **help improve patient safety and correct important errors in care to lower both medical and prescription drug costs.**

Our research found that when our RationalMed solution was used to identify potential adverse drug events and alert health care providers, **there was a significant decrease in costs, improved health outcomes, and lower utilization of emergency room (ER) and inpatient hospital facilities.** While the interventions led to increased visits to primary care physicians, those costs were offset by a decrease in ER visits and inpatient hospitalizations, l**owering average ER costs by $526.30 and hospitalization costs by $1,197.40 per patient, over a one-year period.**

This study was peer reviewed by the Academy of Managed Care Pharmacy and presented at their March 2019 meeting.

Applying these study outcomes, an average 100,000-lives plan could save

$16.2 million annually

10 adverse drug risk categories were included in this analysis:

1. Adverse drug disease consideration
2. Adverse drug interaction
3. Dose duration consideration
4. Drug age consideration
5. Drug pregnancy consideration
6. Drug therapy duplication
7. Duration consideration
8. Excessive dosing
9. Quantity consideration
10. Pharmacogenomics

Background

While traditional clinical programs such as Drug Utilization Review, health and wellness solutions (disease management), and case/care management address some issues related to prescription drug therapy, the RationalMed program employs added health and safety protection across a plan's total population—not just for those with chronic conditions. **RationalMed alerts physicians, pharmacists and patients (when applicable) to an increased health and safety risk, and then tracks and reports on the outcomes.**

Using thousands of evidence-based clinical rules, RationalMed identifies patients across the population who may be at risk for near-term hospitalizations, adverse events and longer-term health complications by evaluating integrated health information (medical, pharmacy and lab data). Potential safety issues are sent to the prescribing physician in the form of a RationalMed alert. Alerts are also sent to pharmacists, patients and case/care managers as determined by the payers' preference. As a result, the plan realizes greater program savings from reduced hospitalization costs and appropriate use of prescription drugs.

Thesis

RationalMed, an integrated health safety solution with clinical rules, would:

+ **Identify** potential health hazards
+ **Initiate** changes to improve patient safety
+ **Correct important errors in care** to decrease utilization of avoidable emergency room and inpatient care facilities
+ **Lower medical costs**

Methodology

Study design:

A retrospective analysis using a matched case/control study design was conducted comparing pre- and post-period health care costs and utilization. The analysis compared payer data for patients who were enrolled in RationalMed, a clinical safety program designed to alert health care providers to potential drug interactions or contraindications, to payer data for those patients who were not enrolled in the program.

Samples:

Patients in the RationalMed group were selected if they were targeted for their first adverse drug clinical rule between Oct. 1 and Dec. 31, 2016. The date of their adverse drug clinical rule targeting was used as the index date. These patients were matched to the control cohort based on demographics and pre-period medical utilization of a primary care physician (PCP), emergency room (ER) visits or number of inpatient hospitalizations. Members in the control group were assigned Jan. 1, 2017, as their index date. Pre- and post-periods were defined as 365 days before and after the index date for patients in each sample.

What was measured?

Pre- and post-period cost and utilization were assessed for PCP, ER and inpatient visits. Cost was defined as the charged amount for all services and procedures conducted within the PCP or ER visits or inpatient hospitalizations. Utilization was calculated as the average number of PCP or ER visits or inpatient hospitalizations. We compared the before and after differences between the two groups to assess the effect of the program. Statistical comparisons were made using the Student's *t*-test to test for pre- and-post period differences in all outcomes metrics.

Who comprised the samples?

The control and RationalMed samples consisted of 53,339 and 53,515 patients, respectively. Member demographics (i.e., age and gender) were comparable across the member RationalMed and control samples.

	Control (n=53,339)		**RationalMed** (n=53,515)		
	MEAN	STD DEV	MEAN	STD DEV	P*
AGE	49.21	15.23	49.36	15.35	0.096
% FEMALE	54.4%	50.2%	54.2%	50.2%	0.657

	Control (n=53,339)		**RationalMed** (n=53,515)		
	MEAN	STD DEV	MEAN	STD DEV	P*
PCP VISITS	4.64	4.37	4.65	4.37	0.610
ER VISITS	0.25	0.60	0.25	0.60	0.890
INPATIENT HOSPITALIZATIONS	0.05	0.05	0.05	0.05	0.942

*The P-value is defined as the probability that the data would be at least as extreme as those observed, if the null hypothesis were true.

What did we find?

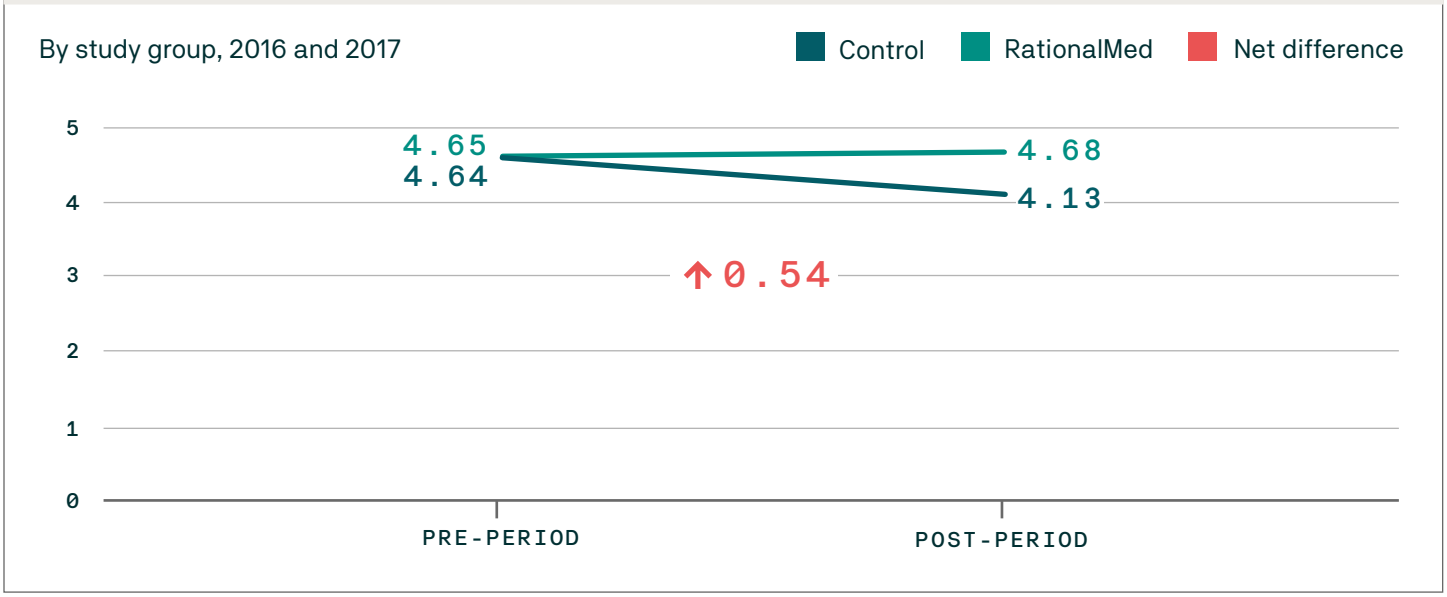
Payers who implemented the RationalMed solution experienced an overall reduction in costs due to improved use of primary care physicians, and decreased ER visits and inpatient hospitalizations.

Improved use of primary care physicians

Among the two groups, the number of primary care visits increased in the RationalMed group and decreased in the control group, for a net difference of -0.54 ($p<0.0001$), as shown in ***Figure 1.***

As the program alerts providers of adverse drug risk concerns, the increase in PCP visits may be a positive artifact of the program. The data indicates these alerts prompted additional visits to the provider's office; theoretically, to address the identified concern. Patients in our study had an average of 4.65 overall visits, compared to 2.78 in the U.S. population.[1] Not surprising, patients with adverse events would have more visits to their PCP compared to the general population.

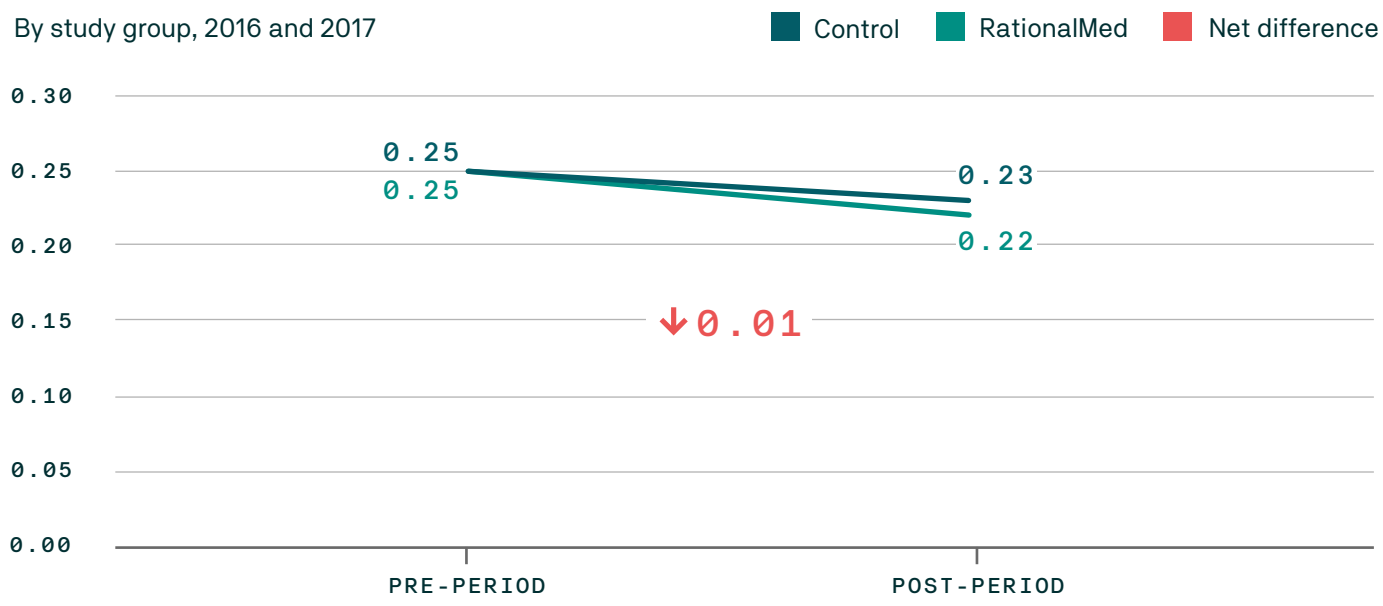
FIGURE 1: Average annual primary care physician visits



Decreased ER visits

Visits to the emergency room are relatively rare occurrences in the U.S., taking place for only 45.8 out of every 100 persons.[2] Among our study population, visits to the ER occurred for only 19% of the patients. The average number of ER visits declined in both samples. The RationalMed group declined by 0.03 compared to 0.02 for the control group, resulting in a net decline of 0.02 visits pre- to post-period (***Figure 2***, p=0.0003). Although only a small difference between those in RationalMed and those in the control group, the decline resulted in lower costs for the payer.

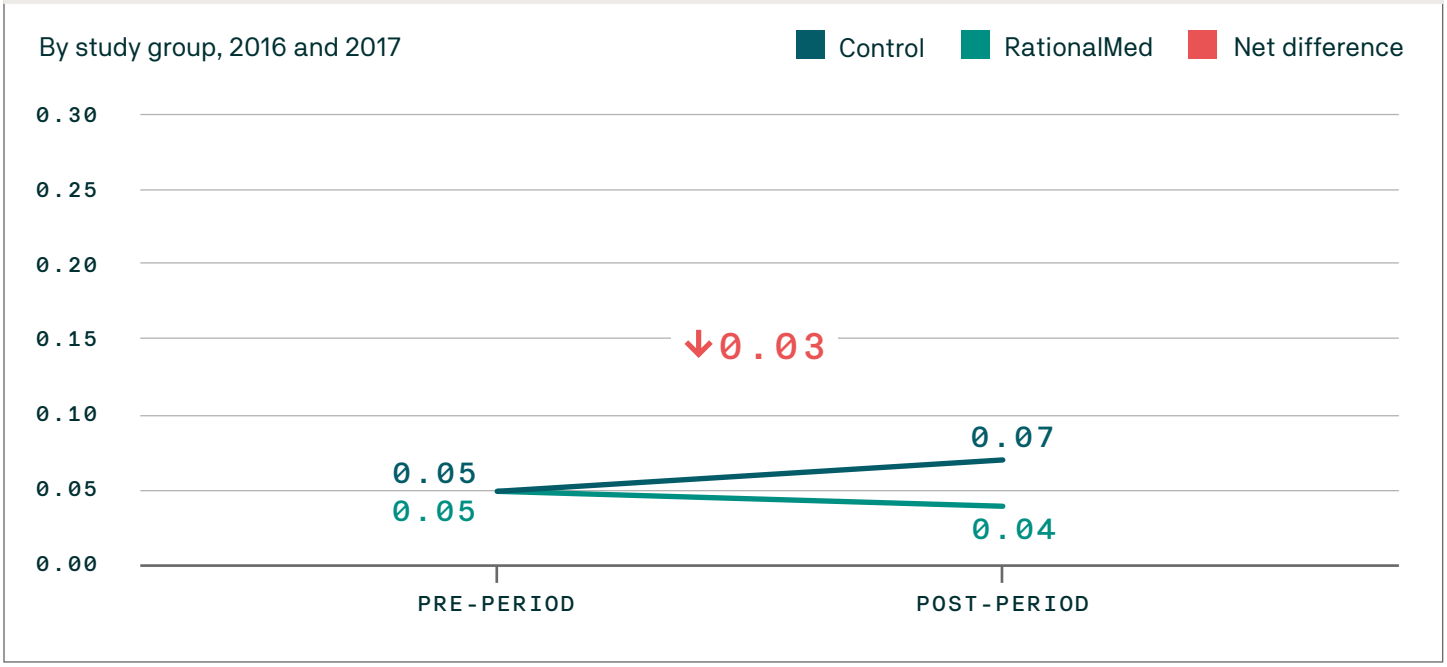
FIGURE 2: Average annual emergency room visits



Decreased inpatient hospitalizations

Inpatient hospitalizations for the control group increased, on average, from 5 visits to 7 visits per 100 members, pre- to post-period, while the RationalMed group decreased from 5 visits to 4 visits per 100 members, as shown in ***Figure 3.*** This contributed to a net difference in inpatient hospitalizations between control and RationalMed samples of 0.03 ($p<0.0001$).

FIGURE 3: Average annual inpatient hospitalizations



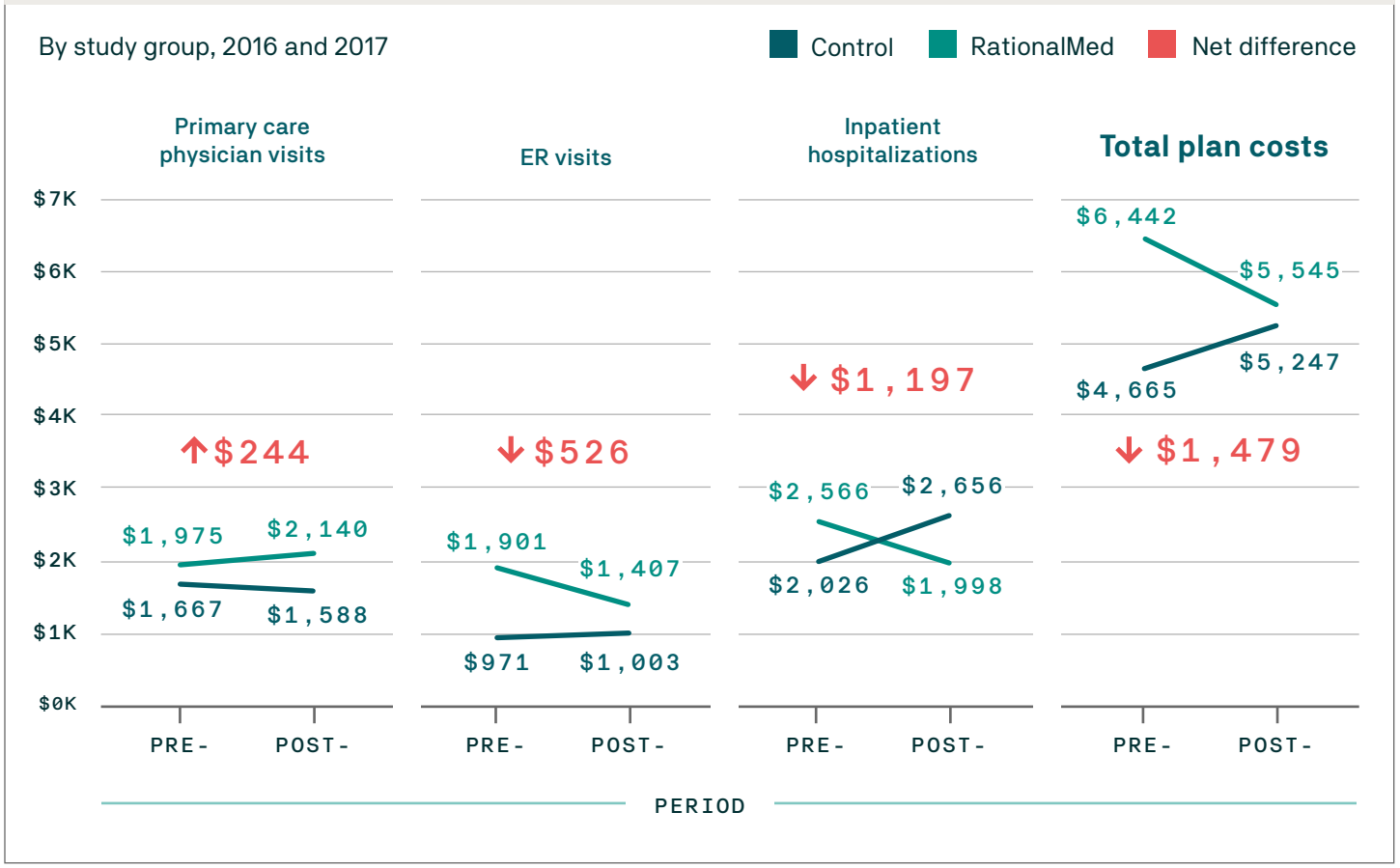
Lower overall health care costs

Evaluating pre- and post-period charged costs for the control group versus the RationalMed sample, we discovered the following, as shown in ***Figure 4***:

+ **Increased primary care physician visits** in the RationalMed sample contributed to the combined net increase in charged costs of $244.20 (p=0.0006).
+ **Decreased ER visits** in the RationalMed sample contributed to the combined net decrease in charged costs of $526.30 (p<0.0001).
+ **Decreased inpatient visits** in the RationalMed sample contributed to the combined net decrease in inpatient hospital costs of $1,197.40 (p<0.0001).

Even factoring in the cost of increased PCP utilization, RationalMed contributed to the combined net decrease in total plan costs of $1,479 per patient, over a one-year period.

FIGURE 4: Average cost of health care services



Conclusion

Using RationalMed to identify and alert health care providers of potential adverse drug events can improve health outcomes, decrease utilization of ER and inpatient hospital facilities, and contribute to a significant decrease in costs. Applying these study outcomes, an average 100,000-lives plan could save $16.2 million annually.

This study was peer reviewed by the Academy of Managed Care Pharmacy and presented at their meeting in March 2019.

1. Center for Disease Control and Prevention. Ambulatory Care Use and Physician office visits. Available at https://www.cdc.gov/nchs/fastats/physician-visits.htm. Accessed on 6/18/2019.

2. Center for Disease Control and Prevention. Emergency Department visits. Available at https://www.cdc.gov/nchs/fastats/emergency-department.htm. Accessed on 6/18/2019.

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