Impact of a Managed Care Pharmacist Consultation Program on Controlled Substance Drug Cost, Emergency Room Visits and Hospitalizations

C.I. Starner[1,2], S.W. Champaloux[1], H. Kim[3], P.P. Gleason[1,2] [1]Prime Therapeutics LLC, Eagan, MN, United States; [2]University of Minnesota, College of Pharmacy, Minneapolis, MN, United States; [3]Horizon Blue Cross Blue Shield of New Jersey, Newark, NJ, United States

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Background

- The Comprehensive Addiction and Recovery Act of 2016 (i.e., CARA) provides a framework for opioid abuse prevention and treatment and includes provisions that highlight pharmacists' role in curbing the epidemic.[1]
- One commercial Blue Cross and Blue Shield plan added a pharmacist consultation program for its commercially insured business in 2015. The pharmacist consultation program was designed to reduce the use of controlled substances (CS) by providing case management to persistent users through phone calls and faxes to the prescriber.
- Health insurers should evaluate the impact of managed care pharmacist case management programs to support continued funding and improvement of clinical programs focused on decreasing member risk from CS.

Objective

- The primary objective of this analysis was to determine if a managed care (MC) pharmacist consultation intervention was associated with cost savings from controlled substance drug costs, total costs, emergency room visits and hospitalizations.

Figure 1. Flow of Members in Analysis

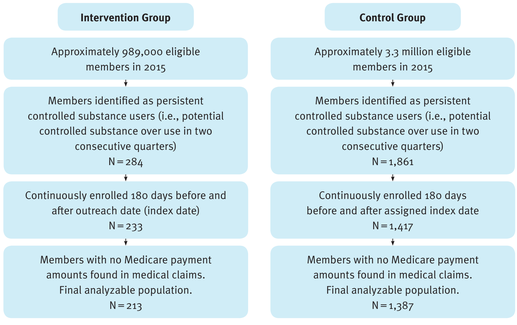

Table 2. Adjusted Outcomes: Generalized Linear Regression 6 Month Results

Outcome	Intervention group change pre to post period compared to controls	95% confidence interval	P value
CS drug costs*	-$920	(-$429, -$1,410)	<0.01
Overall drug costs*	-$726	(-$1,466, $14)	0.05
Emergency room visits*	-6.4%	(-0.9%, -11.9%)	0.02
Hospitalizations*	-0.7%	(-5.2%, 3.8%)	0.75
CS claims per member**	-0.96	(-2.38, 0.46)	0.18
Average MED difference*	-15	(-30, 1)	0.06
Members >120 MED ≥ 1 day*	1.7%	(-4.0%, 7.0%)	0.55
Total cost of care*	-$357	(-$4,549, $3,835)	0.87

MED = morphine equivalent dose, CS = controlled substance

*Model controlled for baseline controlled substance score, Optum Pharmacy Risk Group score, gender, age and U.S. Census ZIP code derived median household income, education and race.

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Results

- The intervention group had 213 members in which a prescriber outreach was performed by a managed care pharmacist. The control group had 1,387 members. **(Figure 1)**
- Presence of medical claims with mental health or substance abuse diagnoses was not different between the intervention and control groups.
  - Mental health diagnosis: 164 (77 percent) of 213 intervention group members and 1,060 (76 percent) of 1,387 control group members, p = 0.85.
  - Substance abuse diagnosis: 68 (32 percent) of 213 intervention group members and 400 (29 percent) of 1,387 control group members, p = 0.36.
- The unadjusted intervention group's six month CS drug cost per member decreased from $5,802 (pre) to $5,148 (post) and increased slightly in the controls from $3,511 per member (pre) to $3,627 (post). **(Table 1)**
- The unadjusted average number of CS claims per member was 31.1 (pre) and 27.8 (post), 3.4 claim decrease for the intervened upon members compared to 29.8 (pre) and 27.0 (post), 2.8 claim decrease for the control group, p = 0.18.
- Adjusting for baseline differences the regression model results showed the intervention members compared to the controls had: **(Table 2)**
  - 6.4 percent fewer emergency room visits, p = 0.02.
  - No statistically significant difference in hospitalizations.
  - $920 lower six month CS drug costs per intervened upon intervention group member, p < 0.01.
  - No statistically significant difference in number of members exceeding MED 120mg for at least one day from pre to post period.
  - 15mg lower average MED per intervened upon intervention group member, p = 0.06.
  - No statistically significant difference in total cost of care, all medical plus all pharmacy.
  - One fewer CS claim per member from pre to post period, p = 0.18.
- Drug Enforcement Agency (DEA) schedule II, drugs with high abuse potential, claims per member change pre versus post period were an incremental 0.51 greater claims reduction in the intervention group (pre 16.76 and post 14.89 for a 1.87 decrease) compared to the control group (pre 13.67 and post 12.31 for a 1.36 decrease).
- CS drug cost decrease was driven by the intervention group's incremental reduction, after adjustment for the control group change, of:
  - 0.6 oxycodone claims per member with an oxycodone cost reduction of $349 per member.
  - Fentanyl claim cost reduction per member of $199.
- The lower CS drug costs translated to an overall savings of $195,960 over the six month post period ($0.03 PMPM) with a $50,000 pharmacist effort (0.75 FTE) cost for a 3.9 return on investment (ROI).
- Annualized savings is estimated at $391,920 from a 0.75 FTE managed care pharmacist effort.

Limitations

- The intervention group was chosen by prioritization, a subjective assessment of the highest risk members assessed and receiving provider outreach first. The MC pharmacist prioritization may have created bias when compared to the control group. However, the difference-in-difference analysis with a multivariate generalized linear regression model did control all possible baseline differences between the intervention and controls groups.
- The MC pharmacist consultation occurred in one Northeastern U.S. commercial plan so these results may not be generalized to other plans or Medicare/Medicaid populations.
- Administrative pharmacy and medical claims have the potential for miscoding and include assumptions of member actual drug use and diagnosis.
- Members may have paid for CS claims out of pocket or obtained them through friends and family. This could have resulted in underestimation of the amounts of CS use.

1305 Corporate Center Drive,
Eagan, MN 55121

AMCP, March 2017, Denver, CO, U.S.A.

Catherine Starner, 800.858.0723, ext. 5073
cstarner@primetherapeutics.com

Table 1. Unadjusted Outcomes: Intervention and Control Groups Pre versus Post Period Change

Outcomes	Intervention (n = 213) 6 month pre period	6 month post period	Unadjusted change	Control (n = 1,387) 6 month pre period	6 month post period	Unadjusted change
Total costs: Medical and pharmacy cost per member	$24,750	$23,677	-$1,073	$17,192	$16,330	-$862
Pharmacy cost per member	$8,326	$7,981	-$345	$5,934	$6,016	$82
CS pharmacy cost per member	$5,802	$5,148	-$654	$3,412	$3,542	$130
Average CS claims per member	31.14	27.77	-3.37	29.81	27.00	-2.81
Average MED	296	278	-18	164	157	-7
Members >120 MED ≥ 1 day	164	163	1	867	844	23
Percentage over 120 MED	77.0%	76.5%	-0.5%	62.5%	60.9%	-1.7%
Average number of prescribers	2.8 (2.3)	2.4 (1.9)	0.4	2.7 (2.2)	2.4 (1.9)	0.3
Average number of pharmacies	2.3 (1.7)	1.9 (1.3)	0.4	2.3 (1.6)	2.1 (1.5)	0.2
Emergency room visits	76	67	-9	136	127	-9
Emergency room visits per member	0.360	0.310	-0.05	0.098	0.091	-0.007
Hospitalizations	36	31	-5	83	56	-27
Hospitalizations per member	0.17	0.15	-0.02	0.06	0.04	-0.02

MED = morphine equivalent dose, CS = controlled substances

Methods

- This study was an integrated medical and pharmacy claims, quasi-experimental, retrospective comparison with a concurrent control group.
- Managed care pharmacist outreach was performed on persistent CS users (i.e., CS over use in two consecutive quarters). The MC pharmacist reviewed all persistent individual's claims and determined whether contact was required. An identified member was prioritized by the pharmacist, with members whose claims appear to indicate higher abuse potential to be worked first.
- A 0.75 full-time equivalent (FTE) MC pharmacist effort was dedicated to reviewing all CS persistent members, contacting prescribers and documenting their activities at a cost of approximately $100,000 annually including benefits.
- The intervention group was from a ~1 million member commercial plan where the MC pharmacist outreach program started in 2015.
- Intervention analysis group member identification began with assigning a member's index date, defined as the earliest outreach date in 2015. Members were required to be continuously enrolled from six months prior to index date (pre period) to six months post index date (post period). Up to a 30 day gap in enrollment was allowed.
- Control group members were persistent CS users identified from two different commercial plans with a combined 3.3 million membership who did not have pharmacist outreach in 2015.
- Since outreach was not performed on the control group, their index date was obtained by a randomly selected date between one week after the original identification date and 30 days before the beginning of the next quarter's identification date.
- After the index date was determined for the control group, members were required to be continuously enrolled from six months prior to the index date to six months post their index dates.
- To ensure members were solely commercially insured, members with any claim for which Medicare paid a portion or all of the charges were excluded.
- All costs were the total allowed amounts, inclusive of the member and plan paid amount to the provider.

Morphine equivalent dose analysis

- For members using opioids during their continuous enrollment period, morphine equivalent dose (MED) was calculated and applied to all days of the opioid claim. All opioid claims' MED were summed together for the member.
- All buprenorphine products were excluded.
- Average MED was calculated in pre and post periods for intervention and control members.
- The absolute count of members exceeding 120mg MED for at least one day was also calculated for both the intervention and control groups in the pre and post periods.

Statistical analysis

- A difference-in-difference study design was used to compare the pre period, defined as 180 days prior to the outreach until the outreach date, and the post period, defined as the day of the outreach through 180 days, for the intervention group compared to the control group.
- A generalized linear regression model was fit to measure the outcome change between intervention and control group members and outcomes in the post period compared to the pre period, with adjustment for pre period member characteristics.
- Member characteristics adjusted for in the generalized linear regression model included: age (as of index date), gender, ZIP code level education, median household income, and race, presence of mental health and/or substance abuse medical claim diagnoses, and Optum™ Symmetry® Pharmacy Risk Group® score in 2015 — an industry accepted software tool that uses pharmacy claims data to predict future health care cost and drug use.[2]
- The outcome variables were determined using medical and pharmacy claims for both the pre period and the post period in order to calculate the change between the two time periods. Outcomes examined were:
  1. overall pharmacy costs,
  2. the CS pharmacy claims cost (a subset of all pharmacy costs),
  3. emergency room (ER) visits using revenue codes found on medical claims,
  4. hospitalizations using revenue codes found on medical claims,
  5. number of CS claims per member,
  6. average number of pharmacies and prescribers used for CS claims,
  7. average MED,
  8. total cost of care (combined medical and pharmacy costs).
- For all analyses, a p-value of less than 0.05 was considered statistically significant.

Conclusions

- These findings suggest value to having a managed care pharmacist contact prescribers via telephone or fax for members whose CS claims appear to indicate high abuse potential. These discussions appear to be associated with a shift in controlled substances drug or dosage form selection away from oxycodone and expensive fentanyl products resulting in a significant controlled substances cost reduction compared to a concurrent control group.
- A managed care pharmacist intervention with the provider was associated with $920 lower controlled substances costs over the six months pre post change compared to a concurrent control and adjusting for baseline differences.
- Controlled substance claims decreased for both groups with an additional one CS claim reduction occurring in the intervention group; however this was not statistically significant. The CS cost savings was primarily from a reduction of DEA schedule II claims and specifically, lower oxycodone and fentanyl costs among the members for whom a MC pharmacist contacted their prescribers.
- The incremental $920 CS savings per member intervened upon translates into $195,960 ($920 x 213 members), for the six month analysis period, with an ROI of 3.9:1.
- Further research is needed to validate these findings, including more members across several health plans.

References

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