



# Evaluation of Opioid Dispensing in the Community Pharmacy with the Implementation of St. Louis County Prescription Drug Monitoring Program

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## BACKGROUND

- The United States is facing an opioid epidemic as overdoses from both prescriptions and non-prescription medication are at an all time high.
- Prescription Drug Monitoring Programs (PDMP) are electronic databases used to monitor certain prescriptions medications. The programs can be used by providers to help slow down the unwanted distribution of controlled medications like opioids.
- All states, except the state of Missouri, have a state-wide PDMP that allows providers to evaluate the data and determine if it is in the best interest to dispense or prescribe a medication. Multiple attempts have been made for a state-wide PDMP in Missouri, but all have failed.
- St. Louis County Implemented a PDMP on April 27<sup>th</sup>, 2017

## OBJECTIVE

Evaluate the difference in opioids leaving the pharmacy after the launch of the St. Louis County PDMP with regards to tablets, milligrams/micrograms, and prescriptions per day for the most common opioids seen in the community pharmacy

## METHODS

### Study Design

- Retrospective data analysis evaluating data from different pharmacies around St. Louis County and 6 different opioids
- In total, 21 pharmacies were selected for the study
  - 7 pharmacies from North County (Labeled 1-7)
  - 7 pharmacies from South County (Labeled 8-14)
  - 7 pharmacies from West County (Labeled 15-21)
- The most common opioids dispensed in the community pharmacy were used for data collection
  - Oxycodone, tramadol, morphine, acetaminophen with codeine, fentanyl, and hydrocodone
- At a centralized location, we used McKesson's EnterpriseRx (ERx) system to run drug usage reports to get the data
- Used Microsoft Excel to compile a sum for all our measures
- Used charts and graphs to compared the measures before and after PDMP

### Study Measures

All data was collected for 180 days before and 180 days after the launch of the PDMP, comparing before and after the launch date

- Total number of tablets for each opioid
  - Total milligram or micrograms for each opioid
  - Average number of prescriptions per day for each opioid
- Blue symbolizes less after PDMP, red symbolizes more after PDMP, and gray symbolizes no difference before or after PDMP

## Results

Table 1: Oxycodone Results: Tablets, Milligrams, and Rx per day

Store	Before PDMP	After PDMP	Store	Before PDMP	After PDMP	Store	Before PDMP	After PDMP
1	33020	26666	1	249065	204875	1	2.4583	1.9429
2	27814	28439	2	205005	197640	2	2.55	2.13
3	29692	29332	3	274087.5	261587.5	3	3.021075269	2.619932298
4	22835	27395	4	228722.5	312389.8	4	2.100903226	2.468020709
5	32634	33273	5	303700	298675	5	2.94	2.895997611
6	22817	28669	6	224485	296945	6	1.900430108	2.220310633
7	36952	34333	7	445205	421252.5	7	2.67	2.48
8	51752	57366	8	593550	714475	8	3.174408602	3.472660295
9	54580	57965	9	553842.5	618571.5	9	3.319139785	3.372879331
10	18760	21354	10	181712.5	222780	10	1.374408602	1.517224213
11	14647	13146	11	126087.5	113142.5	11	1.466021505	1.299263242
12	33859	36055	12	296725	325400	12	2.322150538	2.346634807
13	21838	21918	13	205869	216812.5	13	1.531827957	1.488928714
14	35772	37199	14	287437.5	326215	14	2.390107527	2.636101155
15	13490	12644	15	184715	155245	15	0.995913978	0.866188769
16	12038	10957	16	113355	88190	16	0.935268817	0.755635205
17	18205	16945	17	165067.5	171480	17	1.647956989	1.383910793
18	31097	29895	18	291135	256537.5	18	2.135053763	2.100955795
19	22083	19531	19	176455	152810	19	1.793548387	1.50734767
20	9552	6909	20	93010	74845	20	0.829462366	0.633910793
21	24029	25432	21	264407.5	284842.5	21	1.781075269	1.918896854

Table 2: Hydrocodone Results: Tablets, Milligrams, and Rx per day

Store	Before PDMP	After PDMP	Store	Before PDMP	After PDMP	Store	Before PDMP	After PDMP
1	58970	54223	1	396387.5	377612.5	1	4.8206	4.6241
2	34393	30058	2	218815	188627.5	2	4.24	2.88
3	44402	46410	3	305572.5	321350	3	4.70967741	4.91622859
4	54611	46421	4	388087.5	331270	4	9.13651612	8.71666666
5	35049	37753	5	250975	261655	5	3.89548387	4.01248506
6	34173	43075	6	242532.5	301710	6	3.306666666	3.94870569
7	61280	62119	7	449082.5	447175	7	5.25	5.41
8	82981	79818	8	612015	582410	8	6.00602150	5.98361210
9	93665	91871	9	638010	621657.5	9	7.20903225	7.17839506
10	56462	48047	10	395620	332995	10	4.10301075	3.68371166
11	23986	24925	11	156907.5	160095	11	2.54279569	2.78534572
12	66306	62649	12	454272.5	435540	12	5.45741935	5.17648347
13	43107	42139	13	280617.5	274850	13	3.57827957	3.63837117
14	80335	73797	14	587122.5	545812.5	14	6.82989247	6.39494225
15	21701	20748	15	145640	143215	15	2.15655914	1.90316606
16	17193	14700	16	108605	92450	16	1.91956989	1.73166069
17	41618	40552	17	281967.5	270967.5	17	3.57010752	3.55499800
18	54062	50783	18	377120	365877.5	18	4.78430107	4.34874552
19	30738	25996	19	211522.5	177650	19	2.92623655	2.60649148
20	19891	18301	20	127557.5	118357.5	20	1.88172043	1.63584224
21	36460	30521	21	264262.5	219512.5	21	3.41569892	3.01837132

## RESULTS

### Synopsis of Data:

- Oxycodone
  - Tablets – 9 red and 12 blue
  - Milligrams – 11 blue and 10 red
  - Prescriptions per day – 13 blue and 8 red
- Tramadol
  - Tablets – 12 blue and 9 red
  - Milligrams – 10 blue and 11 red
  - Prescriptions per day – 11 blue and 10 red
- Morphine
  - Tablets – 8 blue, 12 red and 1 gray
  - Milligrams – 9 blue, 11 red and 1 gray
  - Prescriptions per day – 13 blue, 6 red and 2 gray
- Acetaminophen with codeine
  - Tablets – 15 blue and 6 red
  - Milligrams – 13 blue and 8 red
  - Prescriptions per day – 15 blue and 6 red
- Fentanyl
  - Patches – 10 blue, 9 red, and 2 gray
  - Micrograms – 9 blue, 11 red, and 1 gray
  - Prescriptions per day – 10 blue, 10 red and 1 gray
- Hydrocodone
  - Tablets – 17 blue and 4 red
  - Milligrams – 17 blue and 4 red
  - Prescriptions per day – 15 blue and 6 red

## CONCLUSION

- Our suspected outcome of less tablets, mg/mcg and prescriptions per day after the launch of PDMP compared to before for all pharmacies was not supported by our data
  - For almost all pharmacies, about half decreased and half increase with regards to our measures
  - Hydrocodone and acetaminophen with codeine saw the biggest difference after the launch of PDMP
  - It is hard to deny that PDMP can have and affect on opioids leaving the pharmacy
- Potential explanations:
- Our date ranges are from 2016 into 2017. Insurance changes at the beginning of the year can skew the results in both directions
  - Patient changes not dictated by insurance could skew results
  - Further prospective studies can strengthen the benefits of a statewide PDMP
  - The benefits outweigh the negatives with regards to a Missouri state-wide PDMP