

Research Article

Effectiveness of ALTO® Program in Reducing Opioid Prescription Rates in Inspira Woodbury Freestanding Emergency Department (FSED)

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Abstract

Since the 1990s, the emergence of opioid medications and focus on treating pain has led the United States to struggle with the opioid epidemic. Still to this day, countless communities are affected by addiction and overdoses due to high opioid prescription rates and misuse. To combat death and addiction there are many programs that have been implemented in communities and hospitals to decrease opioid prescriptions. One of these programs started in 2016 is called Alternatives to Opioids (ALTO®) that provides Emergency Departments non-opioid medication protocols to use instead of opioid containing medications. This study retrospectively analyzes the implementation of ALTO® at the Inspira Woodbury Emergency Department located in South Jersey, that serves an area which has the one of the highest opioid prescription rates per capita in the state. Specifically, we analyzed if ALTO® was effective in reducing total opioids prescriptions and for certain common diagnosis such as abdominal pain, renal colic, migraines and low backpain. We report in this study that although after the implementation of ALTO® it did not significantly reduce total opioid prescriptions but did reduce opioid prescriptions for migraines. Furthermore, it was seen that females were prescribed higher rates of opioids than males and young adults and adults were prescribed higher rates of opioids than children, adolescent and the elderly. ALTO® proves to have potential in reducing opioid prescription rates for certain diagnosis and shows that more

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research needs to be done to better understand the affects of an ALTO® program.

Keywords: Abdominal pain; Emergency department; Low back pain; Migraines; Opioids; Opioid epidemic; Pain; Pain management; Renal colic

Introduction

When it comes to pain, it is one of the most prevalent health care challenges especially in the United States. Acute pain is reported as a presenting symptom in over 80% of physician visits [1]. Everyone over the course of their lifetime will experience some form of pain at least once. Whether it is caused by an acute injury or chronic disease the treatment of pain and suffering can be traced back to opioids over centuries. Opioids come from many sources including raw poppy seeds, synthetic drugs that include fentanyl and methadone, and semisynthetic drugs which include heroin and oxycodone. The management and treatment for patients became crucial in effectively assessing and treating pain. As a reaction, an initiative that grew traction in the 1990's was the declaration of pain as a "fifth vital sign". Dr. James Campbell in 1995, urged the American Pain Society to make this change to make drastic improvements in the delivery and assessment of pain care [2]. The Joint Commission then also urged that pain is subjective and needed to be accepted and addressed by physicians based on patients self-reporting. As a result, there came increased promotion of newly enhanced pain medications that were narcotics and then subsequently remarketed as analgesics [3]. Fast forward almost 3 decades we now face the repercussions of opioid overdoses in the United States which in 2017 was officially declared a public health emergency under section 319 of the Public Health Service Act. From 1999-2018 the opioid epidemic took close to 450,000 lives [4].

The cause of the opioid epidemic is not due to one factor, but multiple variables intertwined within one another. On the physician level one of the major causes for such a public health crisis is the wide range of opioid habits and rates across the country. In 2017 alone, over 191 million opioid prescriptions were dispensed to American patients [5]. Anyone who needs or has taken opioid pain medications can easily develop an addiction whether for a short duration or not. Fortunately, with the increased awareness and initiatives set in place to battle this epidemic, fatal opioid overdoses in the United States have declined from the years of 2017 to 2018 [4]. One of such initiatives implemented in 2016 is the Alternatives to Opioids Program (ALTO®) protocol [6]. ALTO® is an educational program for Emergency Department providers that provides non-opioid containing protocols for certain common pain diagnosis. The objective for this program is to see if it may help lower the rates of opioid prescriptions.

Rates of opioid prescriptions also vary depending on location especially in the United States. When looking at New Jersey specifically, the rate of prescriptions widely varies based on certain counties. Compared to northern and central parts of New Jersey, South Jersey has the highest rates of opioid prescriptions in the state. More specifically counties such as Burlington, Ocean, Gloucester, Atlantic, Cumberland and Cape May [7].

Therefore, in this study we seek to measure opioid prescription rates before and after the implementation of ALTO® at the Inspira Woodbury Emergency Department located in South Jersey. Our primary objective for this paper is to determine if ALTO® is effective in reducing opioid prescriptions and to better understand patient demographics by studying patient age, race, gender, and final diagnosis as our secondary objectives.

Methodology

In this study, we did a retrospective analysis of deidentified raw patient aggregate data from the dates of January 2023 through March 2024. Data was provided by Inspira Health Network IT Department. Patients who were selected had an ICD-10-10 final diagnosis code for renal colic, migraines, low back pain and abdominal pain. Additional data points of those patients selected were their gender, age, race, and whether they were given an opioid prescription or not.

In order to see if there was a significant change in opioid prescriptions, patients who met the above criteria were separated into two groups. One of the groups is “Pre-ALTO®” and the second group is “Post-ALTO®”. Pre-ALTO® groups were patients selected from January 2023 through March 2023. Post-ALTO® groups were patients selected from January 2024 through March 2024. January through March from 2023 and 2024 were chosen to keep the months compared constant. The ALTO® program went live in December 2023 in the Inspira Woodbury Emergency Department and has been running continuous since.

Pre-ALTO® and Post-ALTO® groups were compared for total opioids prescribed and for individual ICD-10 final diagnosis codes of abdominal pain, migraines, renal colic and low back pain. In addition, total opioid prescription rates were also analyzed based on race, gender, age and final diagnosis. Patient race categories were white, black, Hispanic and other. Patient gender categories were male and female. Finally, patient age categories were children aged 1-12, adolescent aged 13-17, young adult aged 18-35, adult aged 36-64 and elderly aged 65 and higher.

For statistical analysis we used a Pearson Chi-Square test which was evaluated at 0.05 significance level using IBM SPSS statistics software.

Results

When analyzing the difference in pre and post ALTO® intervention regarding total opioids prescribed it was determined that from January 2023 - March 2023 (Pre-ALTO® group) there were a total of 230 patients who had a final ICD-10-10 diagnosis of either renal colic, abdominal pain, migraine and low back pain. Out of those 230 patients, 12.81% (n=62) of patients were prescribed opioids and 34.71% (n=168) were not. From January 2024 - March 2024 (Post-ALTO® group) a total of 254 patients were seen with final ICD-10-10 diagnosis of renal colic, abdominal pain, migraine and low back pain. Out of those 254 patients, 14.26% (n=69) of patients were prescribed opioids and 38.22% (n=185) were not prescribed opioids. It was determined that there was no significant difference between the number of opioids prescribed pre and post ALTO® intervention (p Value = .959). This data is represented by figure 1.

Regarding pre and post ALTO® innervation for patients who had an ICD-10 final diagnosis for migraines, there were a total of 18 patients from January 2023 - March 2023 (Pre-ALTO® group). Out

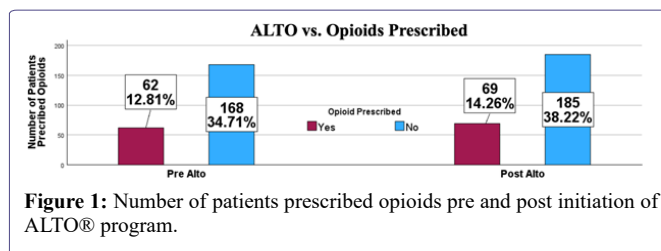


Figure 1: Number of patients prescribed opioids pre and post initiation of ALTO® program.

of the 18 patients, 10.26% (n=4) of patients were prescribed an opioid and 35.90% (n=14) were not. From January 2024 - March 2024 (Post-ALTO® group) there were a total of 21 patients who had an ICD-10 final diagnosis of migraines. Out of the 21 patients, 0% (n=0) of patients were given opioids and 100% (n=21) did not. There was a significant difference in opioids prescribed pre and post ALTO® intervention for migraines. Patients who had migraines were prescribed less opioids than before the invention of ALTO® (p Value = .023). This data is represented by figure 2.

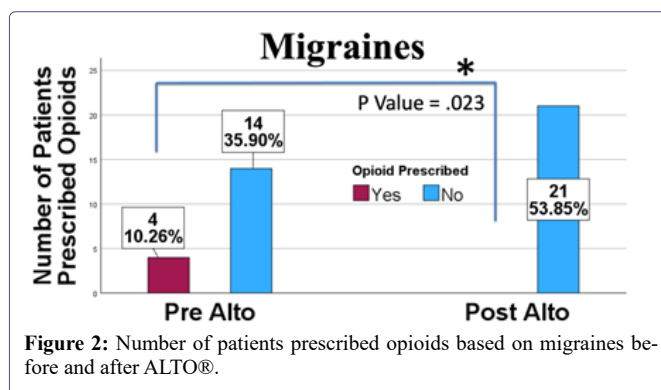


Figure 2: Number of patients prescribed opioids based on migraines before and after ALTO®.

When looking at pre and post ALTO® intervention for patients who had an ICD-10 final diagnosis for abdominal pain, there were a total of 167 patients from January 2023 - March 2023 (Pre-ALTO® group). Out of the 167 patients, 12.98% (n=44) of patients were prescribed opioids and 36.28% (n=123) of patients did not receive an opioid. From January 2024 - March 2024 (Post-ALTO® group) there were a total of 172 patients who had an ICD-10 final diagnosis for abdominal pain. Out of the 172 patients, 14.45% (n=49) of patients were prescribed an opioid and 36.28% (n=123) were not. There was no significant difference in opioids prescribed pre and post ALTO® intervention for abdominal pain (p Value = .659). This data is represented by figure 3.

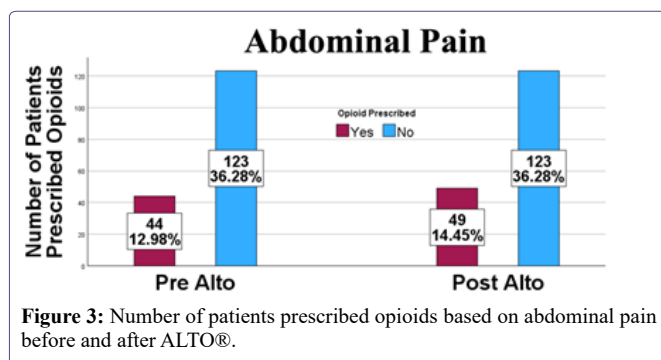


Figure 3: Number of patients prescribed opioids based on abdominal pain before and after ALTO®.

Looking at pre and post ALTO® intervention for patients who had an ICD-10 final diagnosis for low back pain it showed that there was

a total of 45 patients from January 2023 - March 2023 (Pre-ALTO® group). Out of the 45 patients, 14.14% (n=14) of patients were prescribed an opioid and 31.31% (n=31) were not. From January 2024 - March 2024 (Post-ALTO® group) there were a total of 54 patients with low back pain. Out of the 54 patients, 18.18% (n= 18) were prescribed opioids and 36.36% (n=36) were not. There was no significant difference in opioids prescribed pre and post ALTO® for low back pain (p Value = .814). This data is represented by figure 4.

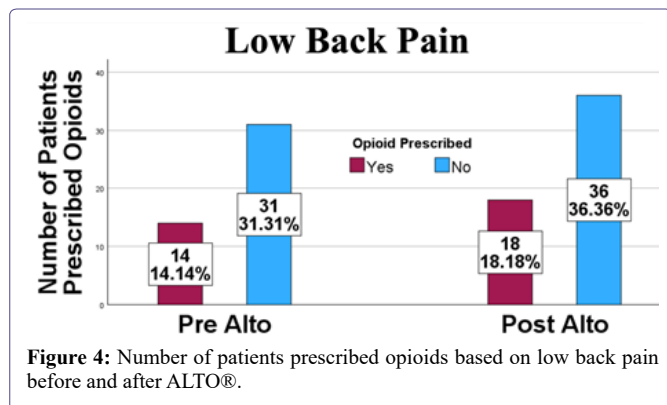


Figure 4: Number of patients prescribed opioids based on low back pain before and after ALTO®.

Pre and post ALTO® intervention for patients who had an ICD-10 final diagnosis for renal colic showed that there was a total of 0 patients from January 2023 - March 2023 (Pre-ALTO® group). From January 2024 - March 2024 (Post-ALTO® group) there were a total of 7 patients with renal colic. Out of the 7 patients, 28.57% (n= 2) were prescribed opioids and 71.43% (n=5) were not. There was no significant difference in opioids prescribed pre and post ALTO® for renal colic (p Value = N/A). This data is represented by figure 5.

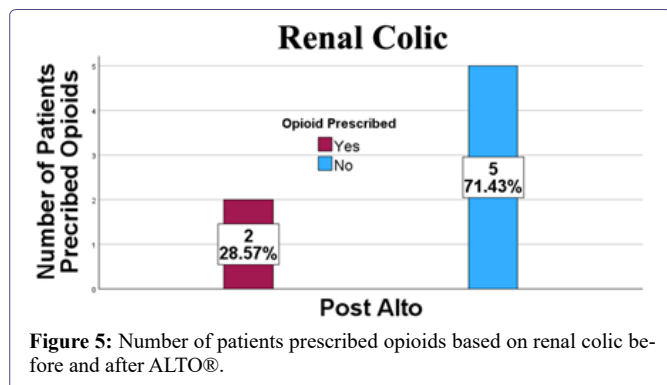


Figure 5: Number of patients prescribed opioids based on renal colic before and after ALTO®.

For our secondary objectives we analyzed opioids prescribed based on patient gender, age and race. There was a total of 131 patients who had an ICD-10 code for renal colic, abdominal pain, low back pain, or migraines prescribed opioids from our selected time frame of January 2023 - March 2023 and January 2024 - March 2024. Out of those 131 patients, 77% (n=102) of patients were females who received opioids versus the 22.14% (n = 29) of patients who were male and received opioids. There was a significant difference in opioids prescribed between male and females. There were more females prescribed opioids than males who had the same ICD-10 final diagnosis of either abdominal pain, renal colic, low back pain and migraines (p Value = .009). This data is represented by figure 6.

Next, when looking at opioids prescribed and age, .76% (n=1) were children, 0% (n=0) were adolescent, 32.06% (n=42) were young adult, 58.02% (n=76) were adult and 9.16% (n=12) were elderly.

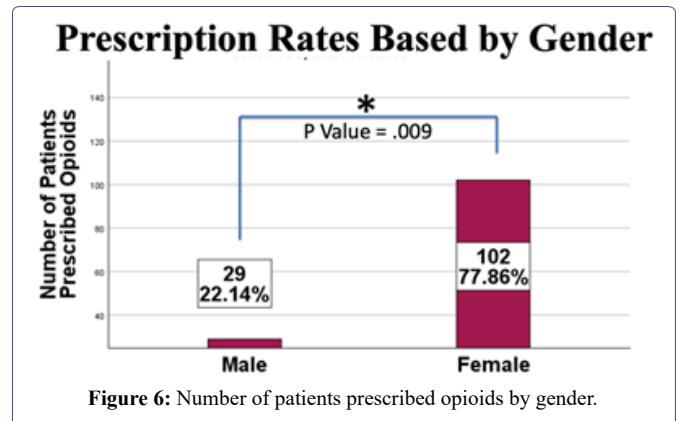


Figure 6: Number of patients prescribed opioids by gender.

There was a significant difference in the age of patients prescribed opioids who had ICD-10 final diagnosis of either abdominal pain, renal colic, low back pain and migraines. Patients who are considered young adults to adults were more frequently prescribed opioids than the elderly, adolescent and children (p Value = <.001). This data is represented by figure 7.

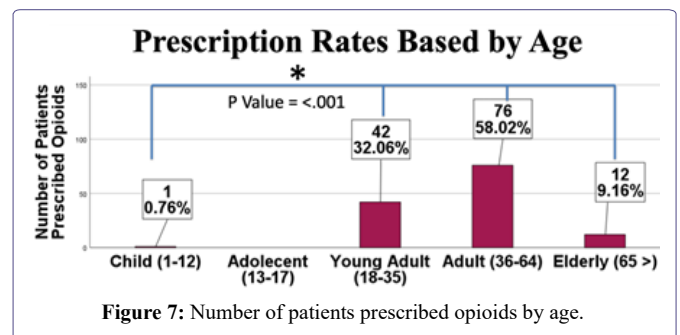


Figure 7: Number of patients prescribed opioids by age.

Based on patient race, there were 64.12% (n=84) of patients who were white, 22.14% (n=29) who were black, 11.45% (n=15) who were Hispanic, and 2.29% (n=3) who were categorized as other. There was no statistical difference in between race and opioids prescribed (p Value = .959). This data is represented by figure 8.

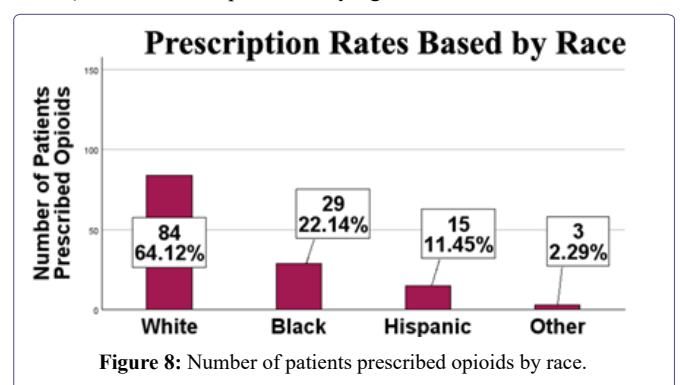


Figure 8: Number of patients prescribed opioids by race.

Lastly, out of the total population of patients who were prescribed opioids (n=131), 70.99% (n=93) were for abdominal pain, 3.05% (n=4) were for migraines, 1.53% (n=2) were for renal colic, and 24.43% (n=32) were for low back pain. There was no significant difference between ICD-10 final diagnosis and opioids prescribed (p Value = .072). This data is represented by figure 9.

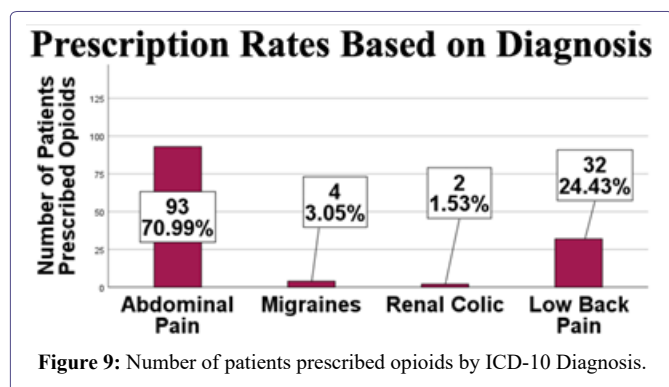


Figure 9: Number of patients prescribed opioids by ICD-10 Diagnosis.

Discussion

In this study, we sought to examine whether Alternatives to Opioids (ALTO®) would be effective in decreasing opioid prescription rates at the Inspira Woodbury Emergency Department located in South Jersey which has one of the highest opioid prescription rates in the state. It was found that even though the implementation of ALTO® did not significantly change the total number of opioid prescriptions prescribed, it was effective in reducing opioid prescriptions for patients who presented with migraines. Data from 2019 showed that in America 15% of the population experience them [8,9]. And historically opioids are still commonly prescribed to patients with migraines [10]. With these results from our study, ALTO® shows promise in minimizing opioid prescription rates for patients who present with migraines and decreasing the number of patients exposed to opioid medications. With less patients prescribed opioids there are less patients at risk for developing future addiction. Furthermore, although ALTO® did not significantly affect opioid prescription rates for the other diagnosis such as low back pain renal colic and abdominal pain, further research still needs to be done on the effects of ALTO® and opioid prescription rates. One of the reasons hypothesized why there was not more significant change in our study is due to small sample size. Instead of looking at 3-month pre and 3-month post ALTO® intervention further research should analyze a larger duration of time to yield more significant results. Another reason that may have affected our study is due to the fact that ALTO® may need more time to run and take affect on provider prescription habits and patterns.

When analyzing opioid prescription rates amongst the gender of patients it was determined that more female patients were prescribed opioids than male patients. These findings show that with increased prescription rates in women, it may lead to more female patients at risk for developing future addictions, other chronic medical problems and eventually death. Already, previous data has shown that the current opioid epidemic has produced differences by sex and gender where there are increased use and overdose deaths in women [11]. In addition, when compared to men, woman have more acute and chronic pain and are prescribed opioids significantly more [12]. These previous findings in combination with our study results call for further resources and better understanding of the differences in men and women in regards to the biological mechanisms of pain, opioid prescribing trends and patterns, and creating effective gender-specific treatments for patients especially women.

Amongst the different age group of patients in the study, it was shown that young adults aged 18 to 35 and adults aged 36 to 64 were prescribed significantly more opioids than children, adolescents and

the elderly. These results show that the young adult and adult population are a high risk for future reliance, addiction, and even overdoses due to increased opioid prescription rates amongst other ages. United States data from 2021 showed that the 35- to 44- age group is experiencing the most opioid overdose deaths and an 83% increase since 2019 [13]. Results from another study also showed that the prevalence of prescription opioid use amongst young adults in the US are still high despite knowing the risks of misuse [14]. These previous study findings in conjunction with our study findings prove that discovering new ways to minimize unwarranted opioid prescriptions to at risk ages and effective patient screening tools are more important than ever to help reduce exposure to opioid pain medications.

When looking at opioids prescribed based on race and final patient diagnosis, non-significant results can be explained as previously stated by not enough sample size. Further research still needs to be done to understand opioid prescription rates and patterns based on race and certain diagnosis to better understand community demographics and how to deliver proper opioid related resources for at risk populations.

Conclusion

Our findings suggest that Alternatives to Opioids (ALTO®) was not significantly effective in reducing total opioid prescriptions but was effective in reducing opioid prescriptions for patients with migraines who presented at the Inspira Woodbury Emergency Department. Based on these results ALTO® has shown the potential to minimize opioid prescriptions for certain diagnoses and to be a great tool for Emergency Departments to employ to provide education and resources for providers to reduce opioid prescriptions. In our study population, women were associated with increased rates of opioids prescribed than men and that young adults and adults were associated with higher rates of opioids prescribed than children, adolescents and the elderly. Our study limitations include variable patient pain tolerance, potential repeat patient emergency department visits and excluding admitted patients from our study population. For the future, it would be beneficial for new studies to look at longer term affects of ALTO® and to include a diverse array of Emergency Department locations across the nation.

References

1. Walid MS, Donahue SN, Darmohray DM, Hyer LA Jr, Robinson JS Jr (2008) The fifth vital sign--what does it mean? *Pain Pract* 8: 417-422.
2. Max MB, Donovan M, Miaskowski CA (1995) Quality improvement guidelines for the treatment of acute pain and cancer pain. American Pain Society Quality of Care Committee. *JAMA* 274: 1874-1880.
3. Mandell BF (2016) The Fifth Vital Sign: A Complex Story of Politics and Patient Care. *Cleve Clin J Med* 83: 400-401.
4. Buben A, Cance JD (2021) Uncertainty in overdose death reporting impedes the public health response. *Am J Drug Alcohol Abuse* 47: 655-657.
5. Centers for Disease Control and Prevention (2018) 2018 Annual Surveillance Report of Drug-Related Risks and Outcomes. CDC, USA.
6. D'Amore K, Traficante D, LaPietra AM (2016) Introducing the ALTO Alternatives to Opioids Program. EMRA, Texas, USA.
7. New Jersey Department of Health (2023) New Jersey Prescription Monitoring Program. New Jersey Department of Health, New Jersey, USA.
8. Thomas MA (2003) Pain management - the challenge. *Ochsner* 5: 15-21.

9. Peters GL (2019) Migraine overview and summary of current and emerging treatment options. *Am J Manag Care* 25: 23-34.
10. Shao Q, Rascati KL, Lawson KA, Barner JC, Sonawane KB, et al. (2022) Real-world opioid use among patients with migraine enrolled in US commercial insurance and risk factors associated with migraine progression. *J Manag Care Spec Pharm* 28: 1272-1281.
11. Barbosa-Leiker C, Campbell ANC, McHugh RK, Guille C, Greenfield SF (2021) Opioid Use Disorder in Women and the Implications for Treatment. *Psychiatr Res Clin Pract* 3: 3-11.
12. Goetz TG, Becker JB, Mazure CM (2021) Women, opioid use and addiction. *FASEB J* 35: 21303.
13. Injury Facts (2024) Drug overdoses. National Safety Council, Illinois, USA.
14. Hudgins JD, Porter JJ, Monuteaux MC, Bourgeois FT (2019) Prescription opioid use and misuse among adolescents and young adults in the United States: A national survey study. *PLoS Med* 16: 1002922.



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