GAVIN PUBLISHERS

Anesthsia and Medical Practice Journal

Brunner JL, et al. Anesth Med Pract J: AMPJ-114.
DOI:10.29011/AMPJ-114/100014

Case Report

Facilitating Safe Opioid Prescribing in The Primary Palliative Care Setting: Pilot of an Educational Module and Clinical Checklist

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Citation: Brunner JL, Larson K, Ingram CJ, Benbenek M, Bunkers K (2017) Facilitating Safe Opioid Prescribing in The Primary Palliative Care Setting: Pilot of an Educational Module and Clinical Checklist. Anesth Med Pract J: AMPJ-114. DOI:10.29011/AMPJ-114/100014

Received Date: 9 October, 2017; **Accepted Date:** 20 October, 2017; **Published Date:** 27 October, 2017

Abstract

Background: Our clinical site developed a new model of primary care to include palliative care. Providers have requested a tool outlining opioid prescribing practices and additional training in safe opioid prescribing. The purpose of this project was to ensure components of safe opioid prescribing were being utilized through education and development of an opioid prescribing checklist.

Measures: We developed surveys to assess provider knowledge and current prescribing practices. The surveys were analyzed by pre- and postintervention scores using both paired and cohort scores.

Intervention: The intervention included an educational presentation, introduction of the prescribing checklist with tally sheet documenting use, and weekly communication with providers.

Outcomes: Providers demonstrated a 19.4% increase in knowledge-based scores. Survey results demonstrated an increase in adherence to opioid prescribing principles, though the results were not significant.

Conclusions: Use of an educational intervention with prescribing checklist increased knowledge of opioid prescribing in the primary care setting.

Keywords: Checklist; Opioid prescribing; Quality improvement

Background

Studies have demonstrated that primary care providers lack confidence in prescribing opioids, resulting in suboptimal pain management for patients at the end-of-life [1]. The lack of confidence in managing end-of-life pain by primary care providers has led to increased demand for specialty palliative care providers, who are too small a group to support the growing needs of the population [1]. Close-ended survey results of health care providers demonstrated that health care education did not provide adequate training for providing end-of-life care [2]. Providers reported that several barriers exist for end-of-life pain management, including need for training and lack of professional support [2]. Meta-analysis has demonstrated that educational interventions aimed at professionals improve attitude and knowledge base regarding cancer pain; however, they do not translate into suggested practice changes [3]. The interventions that have the greatest impact on practice changes include the clinician stating importance of pain control with the patient, assessing pain, and adherence to a prescribing protocol [3].

Institutional leadership created the Office of Population Health Management, which included the specialty of palliative medicine as 1 of 10 core programs to create a new model of primary care. An enterprise-wide group composed of primary care and palliative care leaders representing all practice regions achieved consensus around tools, processes, and measures for primary palliative care. Throughout this process, providers have requested a tool outlining safe opioid prescribing practices. Local survey results demonstrated that most providers do not use an opioid prescribing tool. Furthermore, all providers requested additional training in at least 1 element of safe opioid prescribing practice, with most providers seeking training in 3 or more of the elements

of safe opioid prescribing. The A, B, C, D, E Opioid Checklist for primary care was adapted from Ingram, Deming, and Bock's [4] "The A, B, C, Ds of Opioid Prescribing for People Living with Cancer" to facilitate safe opioid prescribing principles for primary care providers (Table).

Subject	Tally	CI (α = 0.025)	P-value
Checklist was useful	21/30 (70%)	51.2% - 83.3%	
Checklist was burdensome	1/30 (3.3%)		
Useful for palliative patients	9/10 (90%)	59.6% - 98.2%	<0.001
Useful for non-palliative patients	11/19 (57.9%)		
Note: Tallies for use of the opioid prescribing checklist with both opioid and non-opioid patients. CI= Confidence Interval; confidence intervals were calculated using α = 0.025. Statistical significance was determined using the criterion of p < 0.001.			

Table: A, B, C, D, E Opioid Checklist. Modifications made throughout the Plan-Do-Study-Act cycles included equianalgesic dosing for tramadol and consideration of adjuvant medications. (Adapted with permission from data reported in Ingram C, Deming J, Bock A. The A, B, C, Ds of Opioid Prescribing for People Living with Cancer.

Our site endorses the Define, Measure, Analyze, Improve, and Control (DMAIC) change management model and the Plan-Do-Study-Act (PDSA) cycles as a foundation for quality improvement projects. The existing change management framework at our institution allowed for adoption of the teleological theory, which is grounded in repetition of goal forming, implementation, evaluation, and modification based on feedback [5]. The DMAIC model and teleological theory have provided the foundation for the quality improvement design.

The purpose of our project was to ensure the components of safe opioid prescribing were being utilized with opioid prescription. This was achieved through development of a time-efficient, face-to-face educational intervention and implementation of an evidenced-based checklist at each prescribing station to promote safe and effective opioid prescribing by primary care providers. The aim was to increase the use of the A, B, C, D, E Opioid Checklist from 0% at baseline to 25% by January 31, 2017. We describe whether the checklist was useful or burdensome to use, and whether it was used for palliative or non-palliative care patients. Non-palliative care patients required opioids for acute, nonchronic pain, whereas palliative care patients were treated for pain secondary to chronic illness. Lastly, we report survey data demonstrating the percent increase in the providers' perceived adherence to the elements of the checklist before and after checklist introduction.

The Project site was Mayo Clinic Enterprise locations in Mayo Clinic Health Systems and Jacksonville, Florida. All the participating providers were well versed and motivated to partake in quality improvement projects for the advancement of patient care and professional practice. The project team included a nurse manager, the director of primary palliative care, 5 clinicians, and a doctor of nursing practice student who served as the project director. The project settings were primary care clinics at the Springfield, Minnesota, and Jacksonville, Florida, campuses of Mayo Clinic. Participation was based on the interest of providers. Participants included 4 primary care providers (2 nurse practitioners and 2 physicians) from the clinic in Minnesota and 1 fellow from the clinic in Florida. This quality improvement project did not require institutional review board approval.

Measures

Project measures included assessment of provider knowledge, perceived impact the interventions had on prescribing practices, and usefulness of the tool. The methods were chosen based on ease of use, cost, and availability to all providers. The measurements were assessed for face validity through review by an expert nurse and palliative care consultant.

Provider knowledge of safe opioid prescribing principles was measured via a deidentified pre- and postintervention survey consisting of 8 multiple choice questions. The survey was used to determine the individual change in scores, in addition to cohort change following the educational presentation. The same deidentified educational survey was administered following the final PDSA cycle to determine whether there was a sustained increase in provider knowledge of safe opioid prescribing principles. The knowledge based surveys were analyzed using McNemar test to evaluate if there was a significant change in the provider knowledge. A 1-sample t test was also performed on the individual change scores. The surveys were administered via browser-based data collection software.

A second survey was designed to assess the perceived prescribing practices of each provider. This survey included 11 questions aimed at identifying the providers' prescribing practices during the previous 2 weeks. The providers were asked to estimate the percentage of time an opioid was prescribed per the safe prescribing elements outlined in the intervention. The survey was administered 3 times throughout the project to capture pre- and postintervention data. The survey was deidentified and paired to determine the perceived change in prescribing practices over time for individual providers and the cohort. The perceived prescribing practice surveys were analyzed before and after checklist implementation. The measures were quantitative in nature. These surveys were administered via browser-based data collection software.

A tally sheet was developed to include short-answer and yes-or-no questions to evaluate the usefulness of the tool, the burden to practice, and the impact on patient care, as well as to identify palliative care or non-palliative care patients. Following each use of the checklist, the providers were encouraged to complete the tally

sheet to assist in informing the process. A copy of the completed survey was returned to the project director to assist with discussion during the PDSA phone calls. The tally sheet data were evaluated using descriptive statistics. Statistical analysis was completed by the statistics department affiliated with the Department of Nursing at the University of Minnesota.

Intervention

The interventions for the quality improvement project were designed to increase knowledge and promote safe opioid prescribing practices. The project was designed with a 3-pronged approach. The initial intervention was a short educational presentation followed by introduction of the prescribing checklist and weekly PDSA phone calls.

The educational presentation was intended to increase awareness of the principles of safe opioid prescribing. The education focused on management of breakthrough pain, constipation, management of special populations, titration of opioids, and rotation of opioids compiled from current guidelines and best practices. The education was provided in a presentation format via Web conference to facilitate attendance; those unable to attend were sent an electronic version of the presentation for review.

The prescribing checklist was adapted to be a single page, 2-sided checklist based on existing research and guidelines. The tool was not designed to be prescriptive in nature, allowing the provider to make decisions based on the needs of the patient. The project director adapted the tool with the assistance of current providers based on the needs of the clinicians. The checklist was posted at each prescribing station for ease of clinician reference.

PDSA phone calls or emails were incorporated into the project as a means of promoting awareness of the project, while including the providers in the development of the tool. PDSA cycles took place weekly until 30 uses of the checklist were documented. Providers were urged to participate in weekly phone calls or to email the project director to propose changes. The PDSA cycles were intended to inform the process, improve the tool, and promote ownership and professional exchange.

Outcomes

Data from the tally sheets demonstrated that providers found the prescribing checklist useful 21 out of 30 uses, which equates to 70% of the time (confidence interval (CI) = 52.1%; 83.3%, $\alpha = 0.025$). Providers found the prescribing checklist not burdensome 29 out of 30 uses. An exact binomial test demonstrated the checklist was useful for at least 25% of palliative care providers ($P< 0.001$). Prescribing practices survey results indicated an increase in the consistent use of an opioid prescribing tool, though these results were not significant due to small sample size. These survey data demonstrated increased adherence to the domains of safe opioid prescribing practices, including use of the prescribing tool; management of breakthrough pain, constipation, and special populations; and titration and rotation of opioids.

Knowledge-based posttests demonstrated a 19.5% average increase in individual provider knowledge on safe opioid prescribing practices (38.8%; 58.3%). The increase in knowledge-based scores from pre- to posttest was statistically significant ($p=0.025$) However, using the Exact McNemar test for each individual question, there was not a statistically significant increase in the percentage correct for any individual question. Factors that aided the implementation of our quality improvement project included administrative supported, professional recognition within our institution for contributors, and team members experienced in the quality improvement process endorsed by our institution.

Barriers to implementation included low frequency of opioid prescriptions; different local prescribing practices, which prolonged the duration of the project; and limited availability of providers and leaves of absence, which made it difficult to maintain provider participation. Furthermore, the checklist and educational module were not incorporated into the electronic workflow of prescribing, which created additional steps in opioid prescribing.

Conclusions

Our quality improvement project was successful in improving primary care providers' knowledge of the principles of safe opioid prescribing. Utilizing a prescribing checklist may improve patient safety by advocating safe prescribing practices. The feedback received from this pilot study informed the process and improved the usability of the checklist and educational intervention. The participants recommended the opioid checklist be considered for integration with the electronic medical record or electronic clinical guidelines. Ultimately, the final version of the checklist will serve as a prototype for an opioid prescribing tool that could be embedded in the institution's new electronic medical record.

In future projects, surveys will be combined to limit the quantity of surveys sent and reduce survey fatigue. To ensure ownership and promote participation, individual providers will be given the option to participate in future projects as opposed to enrolling entire clinical sites.

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