

TIMED REMINDERS TO IMPROVE PAIN DOCUMENTATION

**Timed Reminders within the Electronic Health Record to Improve Pain Reassessment
Documentation**

by

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Abstract

Problem & Purpose: Ineffective reassessment and documentation of a patient's pain level can lead to physical and psychosocial impairments compromising the ability to participate in milieu activities among psychiatric inpatients. In a large community hospital's inpatient psychiatric unit, pain reassessments were only completed 57% of the time. The purpose of this quality improvement project was to implement modifications to the pain assessment flowsheets in the electronic health record on an adult inpatient psychiatric unit to improve nurse adherence to reassessment and documentation of pain scores.

Methods: Pain reassessment timed reminders were added into the electronic health record flowsheets and tracked over a 13-week period on an inpatient psychiatric unit in a large community hospital. An algorithm of the unit's pain management policy was developed laying out step by step guidance for pain reassessment timelines and medication management. Twenty staff nurses from a unit with a 19-bed patient capacity participated in this quality improvement project. Nurses received education on how to add timed reminders into the electronic health record flowsheets prior to project implementation. Pre and post implementation surveys were administered to evaluate how often nurses reassess and document pain levels within the appropriate timeframe. Weekly run charts were used to analyze and track data on nursing staff compliance rates.

Results: Data collected in the weekly audits reflected a 20% improvement in pain reassessment overall at the conclusion of the project timeline. A displayed pain assessment algorithm helped to boost reassessment documentation rates by 10% initially. The next week reassessment documentation decreased by 22% after posting names of individual nursing staff adherence rates.

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Documentation adherence rates increased within two weeks by 20% after posting a certificate of achievement displaying nursing staff achieving 100% weekly pain reassessment documentation.

Conclusion: The use of timed reminders embedded into electronic health record flowsheets, a pain management algorithm, and recognition of staff with 100% documentation compliance contributed to improvement in pain reassessment documentation practices. Implications for practice included timely documentation of pain reassessments improving pain management among psychiatric inpatients.

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Introduction

The reassessment and documentation of pain is essential to facilitate pain management and treatment success. Physical and psychosocial impairments can result from improper pain management (US Department of Health and Human Services, 2019). On a national level, pain is considered a public health problem due to the many adults affected as well as costs involved in the management (US Department of Health and Human Services, 2019). It is estimated 50 million adults in the United States suffer from chronic pain (US Department of Health and Human Services, 2019). According to an outpatient performance improvement project, it was noted organizations with vague policies, poorly designed flowsheets, and redundancy among workflow practices contributed to poor documentation (Feider, Nahm, Ross, & Stagers, 2017). According to the American Nurses Association, (ANA), nurses are ethically responsible to manage pain and provide care in a respectful way tailored to the individual patient. It has been noted lack of knowledge regarding best practices for pain assessment contribute to this problem throughout the United States (American Nurses Association, 2018). Baseline data collected from a nursing staff survey revealed that this unit had a pain reassessment documentation rate of only 57%.

Vulnerable populations, such as patients suffering from mental illness, may be at a greater risk of receiving poor pain management due to distractions occurring in the psychiatric milieu environment. Nursing staff adherence to reassessment and documentation of pain scores is instrumental in improving pain management and increasing patient participation in milieu activities. The purpose of this quality improvement (QI) project is to implement modifications to the pain assessment flowsheets in the electronic health record on an adult inpatient psychiatric unit to improve nurse's adherence to reassessment and documentation of pain scores.

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Literature Review

In a synthesis of the literature, process and practice changes were reviewed and evaluated focusing upon improving pain reassessment among nursing staff. To establish the quality of evidence the Johns Hopkins evidence level and quality guide was used for this review (Dang, 2017). An evidence review was conducted to synthesize evidence from several studies supporting a Pain Assessment Reference Model. The pain model standardizes concepts of pain, definitions, and related value sets for assessments, objectives, interventions, and anticipated results (Ali et al., 2018). Standardization helps to ensure nurses have the appropriate tool to assess and document pain specific to the patient setting. For example, several studies were in favor of embedded timed reminders in nursing flowsheets (Ahmad Khaldun, Mohd, Siti, & Von How, 2018; US Department of Health and Human Services, 2019; Von How, 2018).

A systematic review containing 23 different studies with consistent results conducted by Ista et al. (2013) examined several methods to improve the documentation of pain assessments. This was a level I study with a quality A rating due to having consistent recommendations and definitive conclusions. This systematic review reported that the use of implementation strategies such as modified pain assessment guidelines, nurse education, and one to one coaching with feedback, were successful in improving adherence to the documentation of pain assessments (Ista et al., 2013). A timed reminder placed in the nursing flowsheet was an effective pain reassessment strategy in documenting patient pain scores, pain management and improving patient satisfaction in an emergency room (Von et al., 2018). The use of a Pain Assessment Reference Model for the purpose of improving consistency in the documentation of follow up pain scores among nurses found consistency in pain documentation is facilitated by the use of user friendly flowsheets (Ali et al., 2018). Components included elements such as duration, time,

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location, and pain quality (Ali, et al., 2018). A model capturing flowsheet data from the electronic health record found many redundancies in data elements across health care facilities such as pain type, severity, and location. Data was evaluated and revised for input and use after gaining support of researchers to eliminate unnecessary elements to improve documentation (Ali et al., 2018). This was a Level IV study with a quality B rating having an adequate sample size. The resulting model identified concepts most relevant to pain assessments after construction using real electronic health record data. Unnecessary elements were removed to ensure elements were specific to the patient population improving documentation. Recommendations came after thorough evaluation of several health care facilities electronic health records. (Ali et al., 2018).

Lastly, a study conducted by Hoffecker et al. (2017) concluded that electronic health record (EHR) changes to improve documentation increased adherence rates to documentation of pain scores. Design related EHR recommendations included having cues and prompts incorporated into documentation interfaces, information being presented on flowsheets that align with processes used in patient care, and the creation of a standardized format in which pain assessments are documented across EHR's (Hoffecker et al., 2017). Four of the studies addressed different aspects of pain documentation using varying techniques to improve documentation practices (Ahmad Khaldun, Mohd, Siti, & Von How, 2018; Ali, et al., 2018; Ista, Van Achterberg, & van Dijk, 2013; Von How, 2018). Improvements designed in the nursing flowsheets helped ensure documentation was both accurate and timely. The inclusion of a timed reminder embedded within the electronic health record will ensure documentation is completed in the appropriate timeframe.

Theoretical Framework

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Lewin's Change Theory was the theoretical framework utilized to guide this practice change. Driving forces which are forces used to push toward change, restraining forces which push against change, and equilibrium or a state with no change, are concepts included in this framework (Lewin, 1947). The three stages to this theory are unfreezing, cognitive restructuring, and refreezing (Petiprin, 2016). Lewin defines behavior as energies working in opposite directions and believes prior learning should be discarded and replaced with new concepts. Driving forces work together bringing about change and require organizations to implement strategic change activities. According to Lewin, change is inevitable, and the use of his theory can assist to more easily guide practice changes (French, Murphy, Pearsall, & Wojciechowski, 2016).

These concepts were utilized in guiding the implementation of this practice change beginning with nurse education. This included educating staff nurses on the importance of timely documentation in addition to introducing the proposed practice change to gain acceptance for the need to change. This was part of the unfreezing process. The cognitive restructuring phase involves multiple components: (1) An algorithm of the pain assessment policy displayed in the nurse's station, (2) a timed reminder to reassess and document pain levels incorporated into the nursing flowsheets and (3) chart audits which are conducted weekly with percentages of pain reassessments displayed. Lastly, in the refreezing phase, the assistance of unit champions provided support and conveyed any barriers to the project leader as they arose. This ensured staff were always available to assist with and correct any problems going forward as well as reinforcing the intervention and preventing staff from reverting to former ways of practice. Lewin's Change Theory was used as a theoretical framework in the QI project to execute improvement in sustainable documentation rates for pain reassessments.

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Methods

This QI project was implemented in a large community hospital on an adult inpatient psychiatric unit with 19 beds. Twenty nurses were educated and trained to use timed reminders to reassess and document numeric pain ratings within 1-hour of administration of as needed pain medication. Project implementation took place over a 13-week period inclusive of all patients admitted within the project timeframe. All patients were voluntarily admitted to the unit with an average 3 to 5-day length of stay. Nurses worked both 8 and 12 hour shifts and were assigned up to five patients per shift.

Implementation team consisted of the project leader, site sponsor, clinical site representative, Information Technology (IT) personnel, and three-unit champions. All nurses were trained to insert timed reminders into electronic health record flowsheets. An algorithm was created by the project leader and displayed in the medication room to facilitate understanding and use of the pain management policy (Appendix A). Algorithm displays timeframe to reassess and document pain scores and appropriate medication category to administer based on the patient's numeric pain rating (Appendix B). Pre-implementation surveys were administered to assess amount of staff using timed reminders (Appendix C). Unit champions assisted in ensuring all staff incorporated reminders into their flowsheets and signed education attendance forms (Appendix D).

Chart audits were conducted by the project leader weekly to assess the number of pain reassessments documented within 1-hour of administration of pain medication and appropriateness of medication administered to numeric pain rating. Education attendance forms (Appendix D) and pre-implementation surveys (Appendix C) were collected by unit champions the end of the second week and given to the project leader. The number of nurses using timed

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reminders prior to implementation was documented. Weekly meetings were held with clinical site representative and unit champions to discuss barriers and facilitators encountered in adoption of the practice change.

Pre-implementation surveys were administered and collected by the unit champions and were analyzed by the project leader (Appendix C). Surveys indicated only 40% of staff nurses were using timed reminders prior to project implementation. Staff nurses received education on tactics to be used during the implementation period such as use of timed reminders and pain policy algorithm. Unit champions ensured all nursing staff incorporated timed reminders into their flowsheets and signed education attendance forms (Appendix D). Adherence rates increased during week 3 at which time the project leader ensured all workstations had visual reminders displayed with adhesive (Figure 1). Pain documentation reassessment rates declined the following week and the project leader consulted with unit champions for feedback. As a tactic to increase adherence rates, individual staff documentation rates were posted. However, the adherence rate still declined further the following week. The tactic was modified again to gain staff adherence and to focus solely upon their achievement rather than lack of adherence. Individual staff adherence rates were removed and replaced with a certificate of achievement displaying nursing staff achieving 100% weekly pain reassessment documentation within the one-hour timeframe (Figure 2). Run charts displaying weekly documentation adherence rates were emailed to clinical site representative and unit champions each week and feedback given to nursing staff (Figure 3). Weekly run charts were used to analyze, and track collect data on nursing staff compliance rates.

Weekly reports displaying pre and post pain scores with medication administered were printed by the clinical site representative and given to the project leader. The project leader

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transferred this data to the pain documentation tracking form displaying both numeric values for amount of pain reassessments documented by each nurse and number of pain medications administered appropriately corresponding to the patient's numeric pain rating (Appendix B).

These values were transferred to percentages and analyzed using run charts. To assess for trends or patterns in data, updated values were assessed weekly. To protect human subjects, patient data was not collected as data extracted included numeric values for documented reassessments only and names of individual nurses were not recorded on the tracking form. Use of timed reminders posed no discernable ethical risks to patients or nursing staff. Timed reminders presented no inconvenience as they were inserted one time and will remain in the flowsheet unless removed by the nurse. Prior to implementation, the QI project was submitted to the Human Research Protections Office at the University of Maryland and received a non-human research determination.

Results

Data analysis revealed the percentage of nurses documenting pain reassessments within the 1-hour time frame increased by 20% by the conclusion of the implementation period. Practice changes included insertion of timed reminders into electronic health record flowsheets for all nurses working on the inpatient psychiatric unit and an algorithm of the pain documentation policy displayed in the medication room. Project related activities included weekly meetings with unit champions and a certificate of achievement posted weekly in the medication room acknowledging all nurses documenting pain reassessments within the 1-hour timeframe. Timed reminders were implemented into the electronic health record (EHR) flowsheets as the first project intervention. Over the course of the 13 weeks, adherence rates were between 57% and 76%. The average adherence was 62.5%. Nurses were motivated using a variety of strategies

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including a pain algorithm displayed in the medication room, the posting of individual adherence rates, passing along reassessment times during shift handoff report, and posting a weekly certificate of achievement for those nurses documenting all pain reassessments on time which assisted to improved adherence.

Unintended consequences and barriers of this intervention included the need to manually insert timed reminders. Education on how to locate and insert timed reminders into the electronic health record flowsheet needed to be provided prior to the implementation period. Patients were not always available at the time of reassessment causing further delays with documentation. Unit acuity and shift change had negative impacts on reassessment documentation as well. Pain reassessments due after shift change were not always passed on during handoff report. These barriers provided opportunities for improvement as adjustments were made within the following weeks until interventions were implemented to sustain improved adherence rates. Pre and post surveys revealed only 40% of nursing staff were using timed reminders prior to implementation with 100% use during and after implementation. Run chart data revealed timed reminders improved pain reassessment documentation rates by 19% by the conclusion of the 13-week implementation period. Lastly, run chart data of administered pain medication being correlated to the patient's numeric pain rating showed an increase of 35% over the 13-week implementation period. This shows nurses were giving the correct category of pain medication in response to the numeric pain rating the patient was reporting as listed on the pain algorithm (Figure 4).

Discussion

The use of timed reminders embedded within the electronic health record increased documentation of pain reassessments by nearly 20% by the end of the implementation period. According to results from pre-implementation surveys 60% of the nurses working on this

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inpatient psychiatric unit were not using timed reminders pre-implementation. The initial increase that occurred in week two demonstrates the association with this intervention and adherence to timely documentation. Discussion with unit champions revealed nurses did not prioritize documentation and found reminders to be helpful.

According to a randomized control trial conducted on the effectiveness of timed reminders in the electronic health record to improve timely documentation of pain reassessments in an emergency department, results indicated both a high level of acceptance by nursing staff to use this intervention and a marked improvement in documentation rates (Ahmad Khaldun, Mohd, Siti, & Von How, 2018). Timed reminders also increased pain reassessment documentation in this project. Ista, Van Achterberg and van Dijk, (2013) reported in a systematic review that both nurse education and feedback were most useful in improving both assessment and documentation of pain scores. This is in line with the marked improvement noted during week three of implementation after nurses were educated on the pain policy and an algorithm of this policy was created and displayed.

Prior to the implementation period, anticipated outcomes included nurse's compliance in documenting pain reassessments rates within one hour of administration as well as the medication administered correlating to the patient's pain rating. Both reassessment documentation and pain medication correlation improved over the course of the implementation period. Variations in both outcomes occurred over the 13-week period showing distractions and unit acuity influenced both measures.

Limitations to the generalizability of the findings include the setting in which this intervention was conducted. Barriers consisted of the need to manually insert timed reminders, high unit acuity, pain reassessment timeframes not being passed on to the oncoming shift, and

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patients being unavailable when reassessments were due. These barriers were considered, and adjustments were made as the implementation period continued. Education was provided prior to the implementation period to ensure all nurses had timed reminders placed in their flowsheets. Nurses were instructed to pass reassessment times on as part of handoff report going forward. Lastly, at times when patients were unavailable nurses were instructed to document and follow up when available. Implications from pre and post implementation surveys included timed reminder use went from 40% to 100% and appropriate category of medication to pain rating administered went from 25% to 90%.

Conclusion

Results suggest the implementation of timed reminders into the electronic health record was useful in nurses improving documenting pain reassessments within the appropriate timeframe. Timely documentation of pain reassessments can help to improve pain management among psychiatric inpatients leading to improved treatment outcomes. Issues such as unit acuity and patients being unavailable at reassessment times are specific to this population. The use of a timed reminder may be useful and applied to improve pain reassessment documentation rates in other settings.

To assist with sustainability chart audits should continue to be conducted weekly and recognition given to those nurses documenting 100% of pain reassessments within the correct timeframe. Ongoing nurse education on the pain policy, the use of timed reminders, pain algorithm and chart audits and staff recognition are important sustainability drivers of the practice change. These practice change measures should be continued and can be potentially expanded to other inpatient hospital units.

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Table 1*Evidence Review Table*

Evidence Based Practice Question (PICO): Does the implementation of a pain assessment reference model to include mandatory reminders in the electronic health record improve nurse’s adherence to documentation of pain reassessment within one hour of administration of oral pain medication on an inpatient psychiatric unit in a large community hospital.

Ali, S., Bavuso, K. M., Collins, S., Cruz, C. A., Furukawa, M., Hook, M. L., . . . Whittenb. (2018). Validation and Refinement of a Pain Information Model from EHR Flowsheet Data. Applied Clinical Informatics, 09(01): 185-198.					Level IV
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
“The purpose of our study was to validate and further refine a pain IM from EHR flowsheet data that standardizes pain concepts, definitions, and associated value sets for assessments, goals, interventions, and outcomes.”	Retrospective observational study- “conducted using an iterative consensus-based approach to map, analyze, and evaluate data from 10 organizations”	<p>Sampling Technique: Convenience sampling- nursing informatics researchers were asked to represent their institution</p> <p># Eligible: 12 organizations</p> <p># Accepted: 10 organizations</p> <p>Control: N/A</p> <p>Intervention: N/A</p> <p>Power analysis: N/A</p> <p>Group Homogeneity: N/A</p>	<p>Control: N/A</p> <p>Intervention: Model components included pain intensity, location, duration, frequency, type and quality.</p> <p>Intervention fidelity (describe the protocol): Each organization extracted metadata about flowsheet documentation within the electronic health record, this data was then mapped to concepts in the pain information model, the group met bi-weekly to evaluate concepts throughout the organizations.</p>	<p>Dependent Variable: Pain Information Model</p> <p>Measure: A report was generated each week to decide which concepts to keep or remove and a survey was developed to assist the group in evaluating diverse response values. The group of nurse informaticists conducted the measurements. The outcome was observed using the weekly reports.</p>	<p>Level of Measurement: An iterative consensus-based approach</p> <p>Outcome Data Retrieval: Data was extracted from electronic health records from all 10 organizations involved in this retrospective study</p> <p>Analysis: N/A</p> <p>Conclusions: The pain information model created was based on real documentation from electronic health records</p>

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					<p>used from each institution involved in this study, concepts used were only those most important to capturing pain.</p> <p>SR Bias Risk: Moderate risk of bias due to heterogeneity among participating institutions.</p>
<p>Hoffecker, L. P., Makic, M. B., Ozkaynak, M. P., Reeder, B. P., & Sousa, K. P. (2017). Use of Electronic Health Records by Nurses for Symptom Management in Inpatient Settings A Systematic Review. Computers, Informatics, Nursing, Volume 35 - Issue 9 - p 465-472.</p>					<p>Level</p> <p>IV</p>
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The purpose of this systematic review is to characterize nurses’ use of electronic health records for documentation of symptom assessment and management in inpatient settings, to inform design studies that better support electronic health records for patient symptom management by nurses.”</p>	<p>Systematic Review- article search conducted by a health sciences librarian.</p>	<p>Search Strategy: Databases used in the search included Ovid MEDLINE from 1946-present, EBSCO, 1981-present and Embase, 1974-present day. Search terms included “chart,” “medical records systems, computerized,” and “EHR.”</p>	<p>Control: N/A</p> <p>Intervention: N/A</p> <p>Protocol: Not applicable to SR.</p>	<p>Dependent Variable: The documentation of symptom management by nurses in electronic health records.</p> <p>Measure: Compliance in completing management of patient symptoms to include pain and documentation of these symptoms into the electronic health record.</p>	<p>Level of Measurement: A descriptive analysis of publications due to heterogeneity among the study design and results.</p> <p>Outcome Data Retrieval: Data was obtained from all studies included in the systematic review.</p> <p>Analysis: N/A</p>

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		<p>Eligible Studies: 1982 obtained with search of database. Dates of studies included ranged from 2003 to 2014.</p> <p>Excluded: 1059 then excluded upon title review; 214 duplicated removed; 617 excluded after review of abstract; an additional 76 articles excluded upon review of full text</p> <p>Included: 18 (total of 16 journal articles obtained during database search and 2 conference papers) included from reference list of the 18 articles originally selected.</p> <p>PRISMA: Included and labeled as Table 1, listing articles found, duplicates, exclusions, and amount included.</p> <p>Power Analysis: Not applicable</p>			<p>Conclusions: The use of electronic health records for symptom documentation needs improvements to assist nurses to enhance their documentation practices. A more user-friendly design would be beneficial in achieving this goal. Design changes recommended include data entry options that are accommodating to the clinical setting in addition to providing pertinent information to better assist in making clinical decisions.</p> <p>SR Bias Risk: Moderate risk of bias due to large number of articles that were identified and not included in this study.</p>
<p>Ista, E., van Achterberg, T., & van Dijk, M. (2013). Do implementation strategies increase adherence to pain assessment in hospitals? A systematic review. International Journal of Nursing Studies, 552-568.</p>					<p>Level I</p>

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Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The overall aim of this study was to systematically review empirical evidence about the effectiveness of implementation strategies for the improvement of nurses’ adherence to pain assessment recommendations in hospitalized patients. We addressed two main questions:</p> <p>1. What implementation strategies for promoting nurses’ adherence to pain assessment recommendations are used?</p> <p>2. What is the effectiveness of these implementation strategies measured in terms of adherence rates?”</p>	<p>Synthesis-Systematic Review (SR) using the narrative method conducted by qualified researchers with expertise in performing SR.</p>	<p>Search Strategy: The databases used included PubMed (Medline), Embase, CINAHL, and Cochrane Library including studies from 1990 to May 2011 to include to following search terms: “nurs*” AND “compliance OR adherence” AND “pain assessment, pain measurement” AND “implementation OR knowledge transfer OR quality improvement” A librarian was used to assist in formulating the search strategy. Not restricted by language of publication.</p> <p>Eligible Studies: 57 articles were eligible according to abstract and title selection.</p> <p>Excluded: 34 studies excluded due to setting outside hospital, adherence rates not documented before and after implementation and/or intervention or control groups.</p>	<p>Control: Standard practice.</p> <p>Intervention: Guideline-recommendations; protocol or program for pain management; a new assessment tool used to document pain scores, algorithms and new guidelines; practice and policy change for pain assessment; education and nurse feedback.</p> <p>Protocol: Not applicable to SR.</p>	<p>Dependent Variable: Improving nurses’ adherence to pain assessment recommendations from two weeks and six months post implementation.</p> <p>Measure: Improved adherence rates to pain assessment from baseline measurement. Measurements taken by the authors between two weeks and six months after the strategies were initiated. Data extracted from all studies included in systematic review by one member of the review team. The outcome was observed through extracted data.</p>	<p>Level of Measurement: Narrative synthesis due to differing in definitions of adherence rates; heterogeneity of implementation strategies, outcomes and participants.</p> <p>Outcome Data Retrieval: Review team extracted data from all included studies.</p> <p>Analysis: N/A</p> <p>Conclusions: Implementation strategies such as education and feedback, used to improve nurse’s adherence to pain assessment suggestions differed showing an improvement in adhering to recommendations. The heterogeneity of the implementation strategies used prevented authors from recommending one strategy that was preferred.</p>

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		<p>Included: 23 studies to include RCT's, C-RCT's, quasi experimental studies, CBA's, ITS, before-after studies without control group, and comparative studies with historical controls.</p> <p>PRISMA: Included to describe studies obtained in the search strategy with reasons for exclusions and inclusions.</p> <p>Power Analysis: Not applicable</p>			<p>After strategies were implemented, 50% of the studies had 80% rates of adherence and among the remaining studies these rates fluctuated between 24-80%.</p> <p>SR Bias Risk: Bias risk is moderate due to low quality of studies used.</p>
<p>Von How, N. (2018). Randomised Controlled Trial on the Effectiveness of Audible Timed Reminders for Simulated Serial Pain Score Documentation in an Emergency Department. <i>Medicine & Health</i>, 13(2), pp.114-121. http://eds.b.ebscohost.com.proxy-hs.researchport.umd.edu/eds/pdfviewer/pdfviewer?vid=2&sid=018e1634-5531-45d6-85c9-f25e4b45d744%40sessionmgr4007</p>					<p>Level II</p>
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The objectives of this study are i) to document and compare the mean of documentation performance score (DPS), the variability of time intervals from giving medication to</p>	<p>Experimental-Randomised Control Trial done in an emergency department utilizing a simulated environment. (Pilot study).</p>	<p>Sampling Technique: Simple Random Sampling Convenience</p> <p># Eligible: Staff nurses with minimum qualification of diploma in nursing (number not stated)</p>	<p>Control: Standard practice (no use of audible reminder).</p> <p>Intervention: Audible alarm reminders programmed at set intervals to alert nurses to reassess pain.</p>	<p>DV: Pain documentation performance score which was stated to be “the percentage completed task within each run per subject,</p>	<p>Statistical Procedures(s) and Results:</p> <p>The documentation performance score for the intervention group was 94.45% compared</p>

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<p>documentation of first pain score and the time intervals of subsequent pain score observation between timer device group and control group, and ii) to determine user acceptance of timer device in pain score documentation based on utility, suitability and preference.”</p>		<p># Accepted: 20 Nurses with no hearing impairment issues, more than 3 months experience, and those who consented. Nurses were classified based on their experience and qualifications, participants then selected a number from boxes labeled 1-4 which contained 20 cards labeled A or B (A or B represented groups with timer and groups without timer)</p> <p>Control: 10 participants (10 diploma and 0-degree nurses)</p> <p>Intervention: 10 participants (9 diploma and 1-degree nurses)</p> <p>Power analysis: Power of 80% resulted in selection of 10 participants per group. Alpha testing found difference in performance score to be 33.3. Risk of type II error minimal.</p>	<p>Intervention fidelity (describe the protocol): In this simulated environment each participant was given a total of 5 “simulated patients” and times were recorded for assessment of pain score, medication given, and reassessment of pain. This was done using the alarm reminder for the intervention group. The control was timed with use of alarm.</p>	<p>which was out of a total of nine specific tasks”</p> <p>Measurement tool (reliability), time, procedure: The numeric pain scale was used for measurement; nurses used the initial pain rating, in addition to the reassessment score which was performed after the alarm was sounded. The participants were given simulated patients who were brought in at 20- and 40-minute intervals during this study. A “documentation performance score” was calculated as the percentage of completed assessments per subject.</p>	<p>to 72.22% in the control group ($p < 0.05$) A formula to calculate power and sample size was used and the difference in mean performance was 2 and the standard deviation was 1.5. Significance was determined using the Wilcoxon-Mann-Whitney t-test. Intervention group documented reassessments more often than control group. Intervention group with mean performance score of 8.5 compared to control group with score of 6.5. Improvement was noted in pain reassessments in this study. 90% of nurses reported the timer helped them to document pain assessment.</p>
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TIMED REMINDERS TO IMPROVE PAIN DOCUMENTATION

		Group Homogeneity: Homogenous between both intervention and control groups in nursing experience shown by p value of (0.95) on Table 1 for age and nursing experience.			
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Table 2*Synthesis Table*

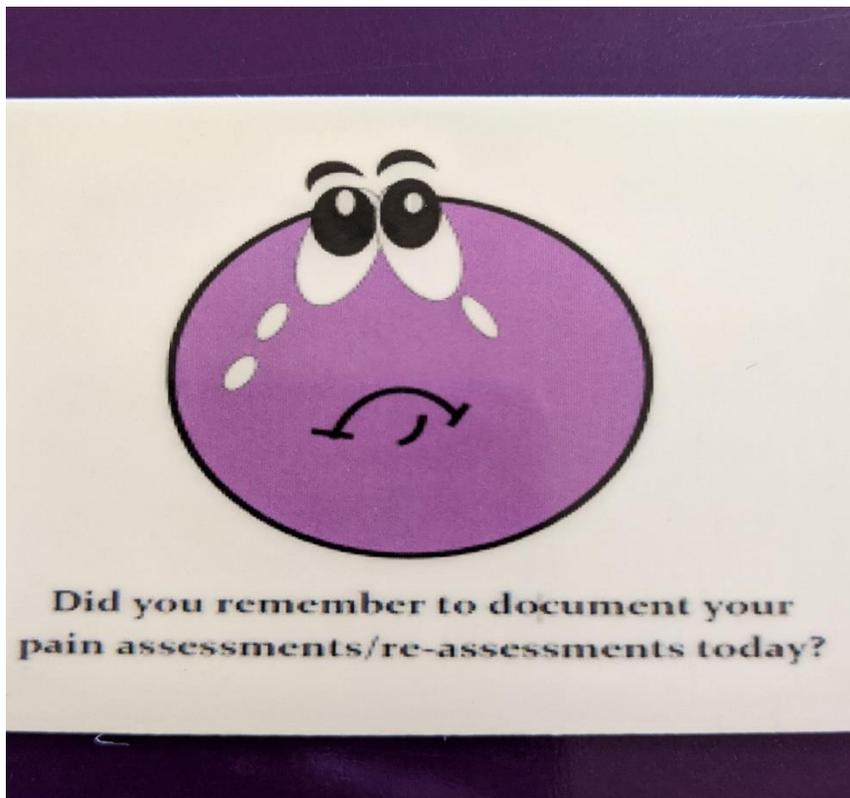
Evidence Based Practice Question (PICO): Does the implementation of a pain assessment reference model to include mandatory reminders in the electronic health record improve nurse's adherence to documentation of pain reassessment within one hour of administration of oral pain medication on an inpatient psychiatric unit in a large community hospital.			
Level of Evidence	# of Studies	Summary of Findings	Overall Quality
I	1	Ista et al. (2013) and used several methods to improve nurse's documentation of pain assessments to improve adherence rates. Ista et al. (2013) suggests there is not one preferred method to improve adherence rates. This was due to heterogeneity among strategies applied in various clinical studies. Nurse education, feedback, modification to guidelines, and coaching were among strategies applied.	B (Good), an adequate number of articles were included in this systematic review with a total of 23 studies. These articles contained consistent results. It was stated that when strategies are implemented to improve pain assessment documentation there is an improvement in adherence rates to the documentation of pain reassessments. Conclusions were relatively definitive with recommendations that were consistent. The implementation of strategies to improve follow up of pain assessment showed an improvement in 50% of the studies observed with an 80% adherence rate. Strategies implemented included mostly educational and feedback strategies in addition to one on one coaching, revised pain management flowsheet, updated patient material, and modified guidelines.
II	1	According to Von et al. (2018), the implementation of a timer device to improve documentation of pain scores in an emergency department was shown to be useful in managing pain. It was helpful in increasing frequency of	C (Low Quality). RCT pilot study with small sample size of 20. The documentation performance score among the intervention group showed improvement with a mean performance score of 8.5 compared to the control group with score of 6.5. See my comments in the evidence

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		assessments completed as well as improving patient satisfaction. There was a high level of acceptance among nurses who participated.	review table. However, difficult to generalize conclusions based on study being done in a simulated environment. This study was conducted in an emergency department as well, making it difficult to generalize to other clinical settings.
IV	1	According to Ali et al. (2018), a pain information model was evaluated and revised for potential input and use in an electronic medical record. This model was supported by researchers after capturing data from the electronic health records across several health care facilities. The model is based off data obtained from all health care systems included. The finalized model contains concepts most relevant to assessing pain. Many redundancies were found across electronic health records. These discrepancies were noted, and adjustments made to improve the documentation of pain.	B (Good)., Sample size for the design of this case control study was appropriate; ten informatics nursing researchers from medium to large size health care institutions. Recommendations were based off thorough evaluation of several health care facilities electronic health records with many using the same system (Epic EHR). The resulting model was able to identify concepts most relevant to pain assessments and was constructed using real electronic health record data. Conclusions were generalizable due to the variety locations selected, the population size, and diversity of clinical settings as well as the subjects having access to pain resources with one participant being a pain management specialist while others utilized pain experts within their facility.
V	1	According to Hoffecker et al. (2017), in addition to education and feedback, improvements made to the electronic health record to include design structure changes making entry of data into pain assessment flowsheets more user-friendly and accommodating will increase the rates of adherence. Standard formats to document pain, insertion of cues and prompts, and having presentation of information that is in line with care practices will assist in enhancing documentation efficiency.	B (Good). Eighteen studies were included, design changes such as user centered designs that can simplify the documentation process in the electronic health record will assist to improve documentation of symptom management and recommendations for improvement were provided.

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Figure 1: Visual Aid Displayed in all Work Areas to Remind Nurses to Reassess and Document Numeric Pain Ratings



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Figure 2: Weekly Staff Recognition Certificate Posted in Medication Room to Congratulate those who have Documented 100% of Pain Reassessments each Week

Congratulations

*TO THOSE DOCUMENTING
100% OF THEIR PAIN
REASSESSMENTS*

awarded to

Names listed here

in recognition of your dedication, passion, and hard work

Rebecca L. Noll, DNP Student UMB
Name/Title of Presenter

(Current week)
Date

TIMED REMINDERS TO IMPROVE PAIN DOCUMENTATION

Figure 3: Run Chart displaying Weekly Percentages of Pain Reassessment Documentation posted in Nurses Station each Week to display Unit Adherence Percentages

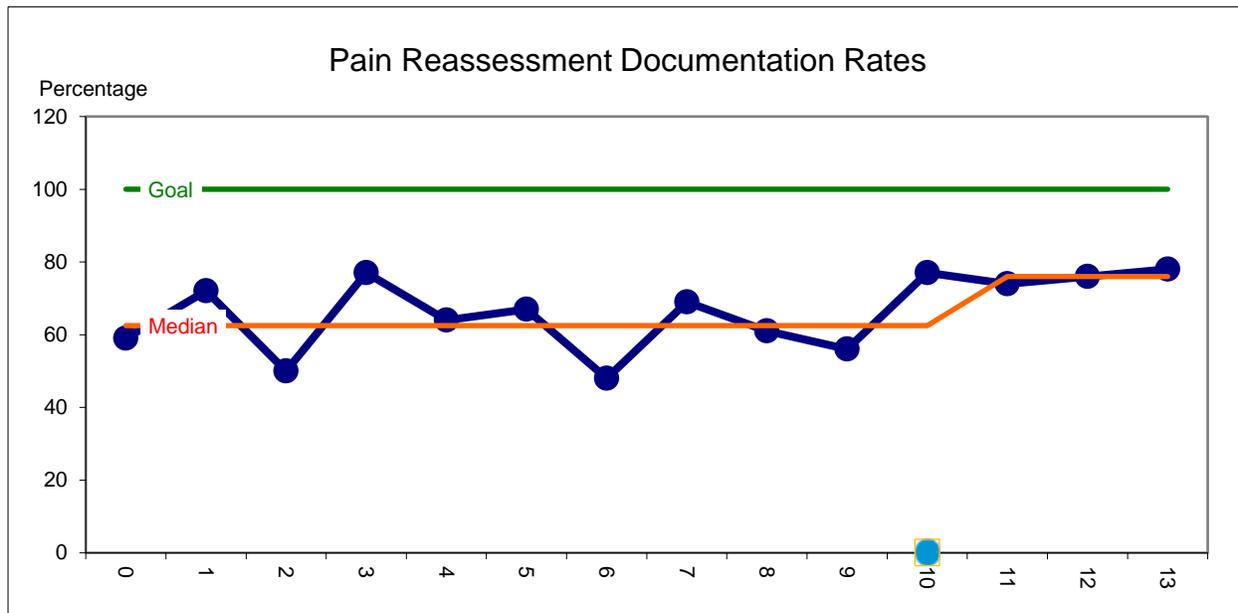
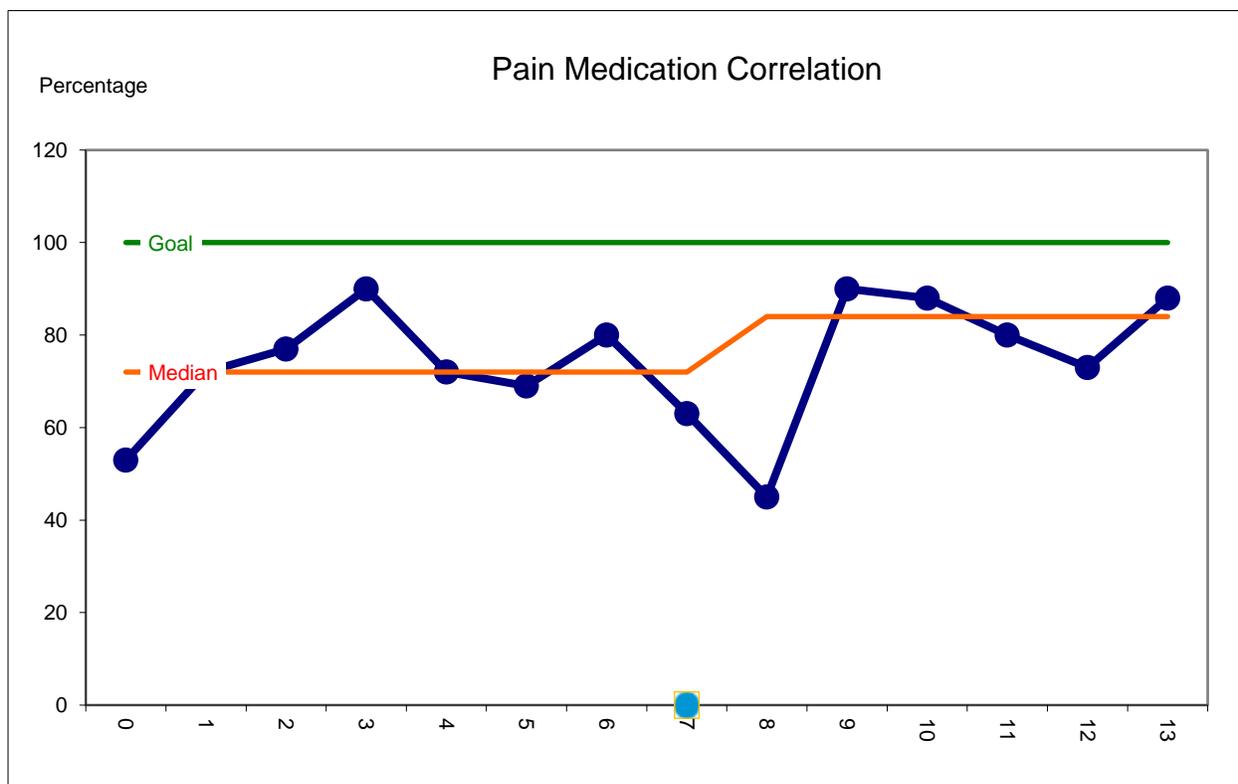
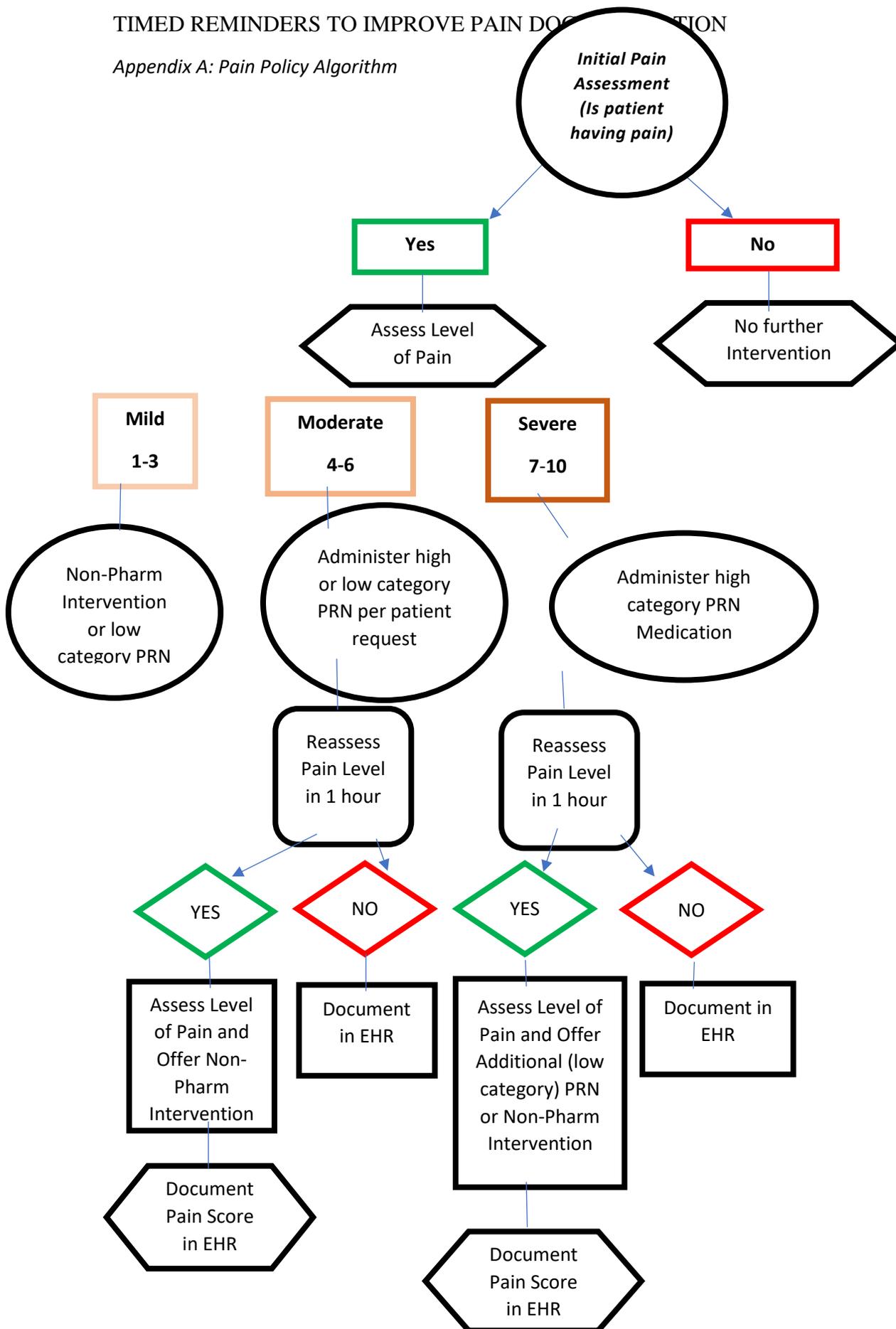


Figure 4: Run Chart Displaying Weekly Percentages of Pain Medication Correlation to Pain Rating



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Appendix A: Pain Policy Algorithm



TIMED REMINDERS TO IMPROVE PAIN DOCUMENTATION

*Appendix B: Pain Documentation Tracking Form***Pain Reassessment Documentation Compliance Tracking**

DATE	Number of Pain Reassessments Documented in EHR	Number of Pain Medications administered	Number of Medications administered Correlating to Pain Rating
8/28-9/4			
9/5-9/11			
9/12-9/18			
9/19-9/25			
9/26-10/2			
10/3-10/9			
10/10-10/16			
10/17-10/23			
10/24-10/30			
10/31-11/6			
11/7-11/13			
11/14-11/20			
11/21-11/27			

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*Appendix C: Pre-Implementation Survey***PRE-IMPLEMENTATION****STAFF SURVEY**

1. I assess and document my patients initial pain level when administering prn pain medications.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
2. I reassess and document my patients pain level within one hour of administering prn pain medications.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
3. I currently use an electronic health record reminder to assist in documenting pain reassessment scores.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
4. Pain assessment policy is accessible and easy to locate.
 - a. Yes
 - b. No
5. I administer the category of PRN medication correlating to the patients' numeric pain rating.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never

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*Appendix E: Post Implementation Survey***Post Implementation Staff Survey**

1. I assess and document my patients initial pain level when administering prn pain medications.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
2. I reassess and document my patients pain level within one hour of administering prn pain medications.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
3. I currently use an electronic health record reminder to assist in documenting pain reassessment scores.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never
4. Pain assessment policy is accessible and easy to locate.
 - a. Yes
 - b. No
5. I administer the category of PRN medication correlating to the patients' numeric pain rating.
 - a. Always
 - b. Most of the time
 - c. Sometimes
 - d. Never