Development and Implementation of an Automated, Integrated, Continuous Acute Pain Patient Information Management System (Acute Pain PIMS)

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Introduction

Traditionally, acute pain management consults, procedures, and follow-up have been documented in the medical record as a single point of entry, either by electronic or hand written methods.[1, 2] Pain scores and analgesic requirements during an in-patient admission are subsequently documented independently in different locations in the patient's medical record. Shortcomings with these methods include:

- Data is discontinuous and entered by different teams (APMS, nursing, surgical) at different times.
- Gaps in evaluation and management of pain
- Variability in assessment
- Incomplete documentation
- Inconsistent communication between nursing, APMS, and Surgical teams.

We have developed an **Acute Pain PIMS** that is integrated with the Electronic Medical record (EMR) in our institution.

PIMS *automatically* imports patient information, in a *continuous* fashion, to the acute pain database. Patient information includes: name, *surgical procedure and service, APMS treatment and pain scores, as well as the time and dose of pain medication administered*. The system is searchable and was designed to be robust, so that in the future, other parameters can be added.

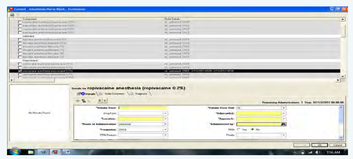
Methods

A team consisting of specialists in Information Technology (IT), billing, acute pain nurses and physicians designed the PIMS in approximately 8 months. Joint Commission (JC) and Centers for Medicare & Medicaid Services (CMS) guidelines and compliance requirements were also built into **PIMS**.

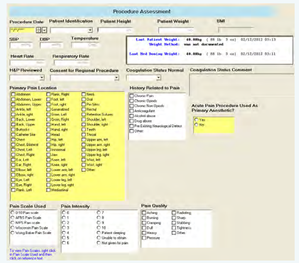
PIMS use has 4 components:

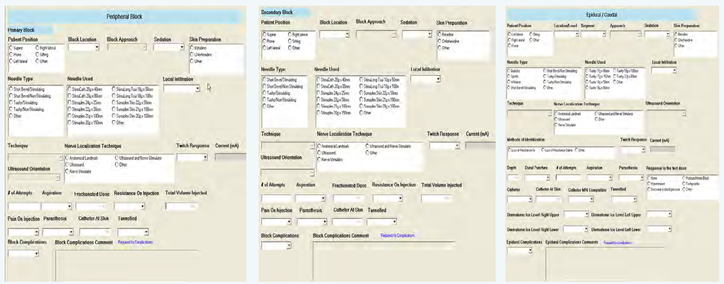
Component A: Acute Pain procedure and medication documentation is completed by the APMS team (resident/attending) performing the acute pain procedure.

Component B: Creation and uploading the document to **PIMS** is completed by the APMS attending after verifying and electronically signing the APMS procedure document.

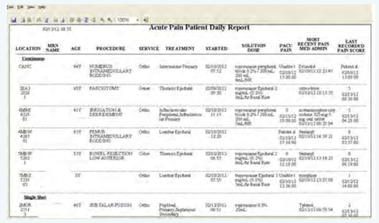


Acute Pain medication documentation





Acute Pain procedure documentation



A report generated with access to the EMR.

Component C: Data entry is completed by the point of care team on the inpatient wards. This is usually the nurse responsible for the patient's care.

Component D: A report can be generated by anyone with access to the EMR. One is also *automatically* generated every 12hr, including all patients having had acute pain procedures in the previous 48 hrs.

Discussion

The implementation of an **Acute Pain PIMS** has led to improvement in our APMS in a number of ways including:

- We are now able to evaluate the efficacy of all Acute Pain procedures in one report before interacting with the patient. This information is also readily available to all care teams.
- Analgesic requirements and pain scores are now monitored *continuously* for 48hrs after acute pain procedure.
- The Acute Pain PIMS links the acute pain procedure details with the patient's pain management. This information has led to better evaluation of the effectiveness of procedure and detection and elimination of gaps in pain management.
- This system fosters communication between care teams.
- The implementation of Acute Pain PIMS, with the inclusion of required fields for documentation, ensures accuracy and compliance with regulatory requirements.
- Utilization of a consistent, validated evaluation tool for peri-operative pain management.

Conclusions

To our knowledge, this is the first report of an ***integrated, continuous, electronic*** APMS data system. We believe implementation of an **Acute Pain PIMS** leads to a better and more comprehensive peri-operative pain management program.

References

1. Gerancher JC, Viscusi ER, Liguori GA, et al. Development of a standardized peripheral nerve block procedure note form. Reg Anesth Pain Med 2005;30:67-71.
2. Neal JM, Wedel DJ. Ultrasound guidance and peripheral nerve injury: is our vision as sharp as we think it is? Reg Anesth Pain Med 2010; 35:335-7.