



Assessment and Management of Pain in a Resident Medical Clinic

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MANAGEMENT OF A PATIENT'S PAIN IS AN IMPORTANT GOAL IN OUTPATIENT primary care offices. Increasingly, panels such as The **Joint Commission on Accreditation of Healthcare Organizations (JCAHO)** include pain assessments as a marker for quality of care. A physician's ability to recognize pain and document pain management plans has important implications for accreditation and reimbursement, as well as patient outcomes.

The identification of pain, often referred to as the fifth vital sign, is now standardized by a visual analog scale. This score is documented upon each clinic encounter. The question arises as to whether the clinician is responding to this score and if there are variables that affect such acknowledgement, documentation, and management.

In the resident-run **Medical Primary Care Unit (MPCU)** at Rhode Island Hospital, nurses address pain upon patient intake using the standardized pain scale and document it in on the patient encounter form. In November 2009, a change was implemented with the goal of improving both assessment and management of pain. This change entailed the nurse asking the patient to localize their pain, and documenting the location on the intake sheet with the hopes of facilitating the clinician's acknowledgment of the pain.

Table 1. Patient Characteristics (pre and post intervention combined)

Age +/- Range	47.9 (18 – 78)
Male	38 (42.7%)
Female	51 (57.3%)
Caucasian	40 (45%)
African American	30 (33.7%)
Hispanic	37 (41.6%)
Other	10 (11.2%)
English speaking	49 (55%)
Uninsured	13 (14.6%)
Average number of problems addressed / visit +/- standard deviation (SD)	4 +/- 1.7
Psychiatric Disease	39 (43.8%)
Patients with history of Alcohol or substance abuse	22 (24.7%)
Average Number of providers seen in study period +/- SD	3 +/- 1.7

METHODS

In a quality improvement study, for which Rhode Island Hospital IRB approval was obtained, we reviewed the impact of the above intervention on physician's ability to address and document pain management in continuity notes. Our primary outcome was the acknowledgment of the patient's pain in the assessment and plan of the clinic encounter form in compliance with JCAHO guidelines. Specifically, we noted if "pain" was addressed in the assessment and plan or if the problem listed in the assessment and plan clearly linked the disease process to the pain (e.g. osteoarthritis causing knee pain). As a secondary analysis, we examined whether a variety of demographic data and patient factors (stated below) influenced whether or not pain was addressed in the assessment and plan.

Primary and secondary outcomes were assessed using random chart review for a two year period between Sept 1, 2008 and Sept 1, 2010. This time period was then divided into the pre-intervention period (before November 2009) and post-intervention. If there was an encounter between Sept 1, 2008 and November 2009 and a different encounter between Nov 2009 and Sept 2010, those visits were both included. Multiple encounters between either of the two specified periods resulted in one encounter being chosen at random. Exclusion criteria included patients on a pain contract or those without pain greater than four on a one-to-ten pain scale. A variety of demographic and patient characteristics were collected, including gender, age, ethnicity, race, spoken language, insurance status, history of alcohol or substance abuse and psychiatric disease, chief complaint of the patient encounter, number of problems addressed at each visit, and measurements of continuity. These characteristics were then analyzed to identify any possible confounders or associations (as a secondary outcome).

The pre-intervention data was analyzed separately from the post-intervention data, thus precluding the need for each chart to have both a pre and post intervention encounter. For both primary and secondary analysis, chi-square analysis was used to determine the rate of effectiveness of the intervention in obtaining at least one of the two outcomes. Inter-rater variability was calculated using an ANOVA calculator.

RESULTS

135 charts were reviewed. 46 charts were excluded because there were no visits with a pain scale ≥ 4 . 89 charts were included which yielded 73 pre-intervention and 52 post intervention encounters, totaling 125 encounters. 65.9% of sampled clinic

Table 2. Chi-square analysis of primary and secondary outcomes.

Variable (n)	Number (%)	Odds Ratio	P value
Post-intervention	52 (69.2)	0.85	0.7
Pre-intervention	73 (65.7)		
Male	54 (64.8)	1.2	0.7
Female	71 (69.0)		
Good continuity	43 (58.1)	1.847	0.16
Bad continuity	82 (71.9)		
Substance abuse	35 (57.0)	1.85	0.14
No substance abuse	90 (71.0)		
Psychiatric disease	54 (62.9)	1.4	0.44
No psychiatric disease	71 (70.4)		
White	57 (64.9)	1.2	0.7
Non-white	68 (69.1)		
English speaking	67 (59.7)	2.12	0.059
Non-English speaking	58 (75.8)		
Uninsured	22 (72.7)	0.73	0.62
Insured	103 (66.0)		
Pain 4-7	72 (72.2)	0.58	0.18
Pain 8-10	53 (60.4)		
Pain as chief complaint (CC)	31 (93.5)	0.09	0.0003
Pain is not C.C.	94 (58.5)		
Age > 65	12 (66.6)	1.027	1.0
Age <65	113 (67.2)		
4+ problems / visit	70 (72.8)	0.558	0.17
1-3 problems / visit	55 (60.0)		
3+ providers	103 (70.8)	0.41	0.079
1-2 providers	22 (50.0)		
Hispanic	53 (73.5)	0.59	0.25
Non-Hispanic	72 (62.5)		

population reported at least 4/10 pain on at least one visit during the study period dates, and 42.4% had severe pain (8/10 or higher). No patients in the study sample were under a narcotic contract. Average age was 47.9, 57.3% female, 42.7% male, average number of providers seen during study period was 3.28. Additional demographic data are featured in Table 1.

There were 125 patient-encounters included in analysis of the primary and secondary outcomes. Among all encounters, before and after the intervention, the primary outcome was met 66% of the time. Nurses adhered to the intervention strategy 85% of the time.

In chi-square analysis, the quality improvement initiative was not found to make a statistically significant impact on the primary outcome (69% vs. 65%, $P=0.7$). Among all characteristics studied in the secondary outcome, only “chief complaint mentioning pain” was associated with a positive primary outcome (94% vs. 59%, $P=0.0003$). Additional secondary outcome findings are listed in Table 2. ANOVA calculations for inter-rater reliability showed no statistical difference between researchers when measuring the primary outcome during either the pre-intervention period ($p=0.49$) or the post-intervention period ($p=0.99$).

DISCUSSION

Our research indicates that our intervention was not successful in increasing pain documentation compliance. This may be due to the fact that our compliance at the outset was better than expected, or may be a function of the loosely defined definition of what constituted a positive encounter within the pre-intervention data—thus elevating the rate of compliance overall. A higher powered study and more clearly defined pre-intervention criteria may further demonstrate this effect.

Prior to our intervention, pain was addressed at a surprisingly high rate of nearly 70%.

The only variable that was statistically significant in augmenting the rate at which pain was addressed was if the chief complaint of the encounter was centered around a primary pain issue. No other measured variable impacted assessment and management of pain. It appears MPCU clinicians may be better at addressing pain in patients who are not in their continuity pool, as indicated by the large, though non-statistically significant difference in outcome in the low continuity patients compared with the high continuity patients.

In order to further increase compliance with pain documentation and management, our group recommends an education session for clinicians in the MPCU to discuss pain management goals, policies, and procedures. In addition, educating the clinic population on the MPCU’s pain management goals may also result in patients who are more assertive regarding their pain management needs.

Pain is recognized as the fifth vital sign, and is an important component to patients’ medical illness, and overall well being. JCAHO has standardized the documentation of pain, and has indicated pain assessment as a quality of care indicator. In the MPCU, we found that physicians address pain at a high rate overall, but our quality improvement initiative was not able to further increase compliance with JCAHO recommendations.

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The authors and/or their significant others have no financial interests to disclose.

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