Step 5: Choose Metrics and Develop a Data Collection Plan (Included in HON 2020 Indicators)

Metrics for a pain management quality improvement project are based on the project's scope and aims. Although interest is high on outcomes, a tunnel-vision approach that focuses only on the end result will miss what can happen in the intermediary steps if the end outcomes are not achieved. Thus, metrics should include structure, process and outcomes related to the specific aims of quality improvement goals. Data collection should include at least three key steps in the process improvement measurement including

1) identifying problems or opportunities for improvement,
2) obtaining baseline measurements, and
3) tabulating results after the new improved process has been implemented. Measurements should also be repeated periodically to monitor the new process.
Measures should be few, easy to collect and cover short periods to be most useful.
Evidence-based quality measures can be devised to suit the aims of specific projects. Example indicators include:

- ❏ Pain is treated with regularly administered analgesics
- ❏ A multimodal approach is used
- ❏ Pain is prevented and controlled to a degree that facilitates function and quality of life
- ❏ Patients are adequately informed and knowledgeable about pain management.29

Below are possible data sources and specific measures that can be considered.

5.1 Existing Pain Management Performance Metrics

5.1.1 HCAHPS Survey Patient satisfaction with pain management is publically reported via the HCAHPS post-discharge patient survey, which provides a standardized measure for comparisons of hospitals on topics important to consumers and creates incentives to improve quality of care. The principal audience for this accountability data is the purchasers and potential patients as well as healthcare administrators. A portion of hospitals' Inpatient Prospective Payment System from CMS is linked to performance on a set of quality measures. Pain management is one of six components that are used to calculate an overall score for each hospital, covering the patient's' experience of care domain. This overall score is used in the Hospital Value-Based Purchasing program to incentivize hospitals to improve their scores. The pain management items in the HCAHPS survey are:

1. During this hospital stay, how often was your pain well controlled?
   Answer options: Always, usually, sometimes or never.
2. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?
   Answer options: Always, usually, sometimes or never

Hospitals are compared based on the percentage of patients who report “always” in response to these questions. The HCAHPS items are validated and important to hospitals because they are publically reported and linked to reimbursement. A hospital’s ranking compared to similar hospitals, especially when this ranking is low, can be an important motivator of efforts to invest in and improve pain management. Limitations of the HCAHPS survey are a low response rate and a delay in reporting. Therefore, an impact on these scores may not occur until months after the impact on patient care. Though the survey answers track to a specific unit and service from which a patient was discharged, they reflect a patient’s whole hospitalization experience, and so may be influenced by care provided in other locations, e.g., emergency room, procedures, other units and services that cared for the patient during that hospital stay. These scores reflect heavily on perception and consumer satisfaction around pain management, but do not address safety and misuse issues.

5.1.2 Internal Protected Sources of Data to Drive Quality Improvement In addition to the publically reported HCAHPS scores, internally protected data about pain management can be used to drive improvement:

• **Joint Commission Accreditation Survey Results:** Although Joint Commission accreditation requires hospitals to collect and analyze data on performance, outcomes and other activities to help provide quality care, there are no specific required or standardized Joint Commission pain measures. Based on accreditation survey requests for improvement, many hospitals examine some aspect of documentation of pain reassessments or development and adherence to local policies that address the Joint Commission medication management standards (e.g., construction of PRN range opioid orders with clear indications and avoidance of therapeutic duplication, e.g., two PRN opioid orders).

• **Incident Event Reports:** Voluntary reporting such as Patient Safety Net or other electronic incident databases, adverse drug reports and naloxone events can be used to highlight individual cases of suboptimal pain management or safety issues. These reports can be examined individually or aggregated to analyze trends and factors related to under-treatment, over-treatment and misuse or technology-related problems (e.g., analgesic pump malfunction). Root cause analysis can reveal opportunities to enhance interdisciplinary communication and other processes affecting continuity of care (e.g., medication reconciliation, patient handoffs).

5.2 Suggested Metrics for Hospital Pain Management Improvement Projects In addition to the existing measures listed above, measures can be selected to assess various aspects of a pain management improvement project, including effectiveness of pain management, safety and appropriateness of opioid prescribing, patient satisfaction and utilization. Possible structural and process measures are listed below. Structural Measures:

• Staff knowledge and competency in screening and basic pain management (see Step 3 for examples of key structure aspects)

• **Formulary guidelines for prescribing opioids, especially high-risk, long-acting opioids such as fentanyl patches or methadone**
• **Computer physician order guardrails and best practice alerts**
• **Pain management policies**
• Access to timely specialist consultations and other pain resources, e.g., psychologist, integrative therapies, etc.
• Percent or number of prescribers and/or pharmacists who have registered with the state PDMP program to run opioid-prescribing reports Process Measures:
• Patient and family education/engagement (e.g., opioid safety counseling, side effect education, collaborative goal setting)
• Documentation, e.g., pain screening, comprehensive assessment, pain diagnoses, reassessments, sedation monitoring:

- ❏ Frequency of pain assessment and documentation, e.g., percentage of patients who have pain assessed in accordance with the unit or hospital protocol
- ❏ Percentage of patients who receive a medication or other intervention after a recorded moderate or severe pain score
- ❏ Time to reassessment of pain after an indicated intervention
- ❏ Appropriate completion of scales to gauge opioid sedation / respiratory suppression

• **Drug utilization reviews, for example:**

- Percentage of patients who receive medications or routes that should be avoided, e.g., meperidine, intramuscular injections
- Percentage of patients with moderate or severe pain who receive multimodal analgesia, e.g., at least one non-opioid analgesic
- Appropriate use of as-needed medications prior to pain-inducing activities, e.g., wound care, physical therapy
- Opioid prescribing compliance, e.g., with published guidelines
- Percent of patients who are admitted or discharged on opioid medication for whom a PDMP report was run to screen for misuse or diversion
- Percent of patients discharged on long-acting opioids with an identified prescriber to follow pain management, e.g., primary care clinician or pain or palliative care specialist

Appendix A also lists an example set of measures for an improvement project. Data can be obtained by a variety of methods including patient surveys and medical record audits, incident event reports (e.g., Patient Safety Net and adverse drug reaction reports), drug utilization reviews, reviews of flowcharts detailing how pain is currently managed, systematic observation of current practices and educational needs assessments including survey of staff knowledge and attitudes.30 Because a high degree of precision is not necessary for improvement purposes, small samples, for example 20-30 cases per sample, can be adequate. A common rule of thumb is to aim for 10 percent of eligible events.

For more information about determining a valid sample size for quality improvement

5.3 Patient-Reported Outcome Measures

Any pain management improvement initiative should include some form of patient-reported outcome measures. These measures include pain levels as well as impact on function and satisfaction with pain care. As per Joint Commission accreditation requirements, each hospital must guarantee periodic assessment of pain for their patients. Thus medical records track pain levels, including Numerical Rating Pain Ratings, Visual Analog Pain Ratings and possibly other pain assessments. While pain severity is a good measure to track for improvements with interventions, especially for acute pain, it may be less useful for patients with chronic pain and pain that is not responsive to opioid medications. Standardized surveys, though they are not collected as part of routine care at many hospitals, provide the opportunity to focus on function and quality of life, aspects that are more relevant than pain severity ratings in patients with chronic or non-opioid responsive pain.

The American Pain Society has validated a patient outcome questionnaire designed for quality improvement purposes for adult surgical or medical inpatients experiencing acute or cancer pain (APS-POQ-R, see Appendix B).31 The survey contains 23 items asking for evaluation of pain in the past 24 hours. Survey items include pain severity, pain interference with activity, sleep, emotions, analgesic side effects, pain relief and perceptions of care (e.g., helpfulness of information received, perception of being allowed to participate in decisions about pain treatment as much as the patient wanted, satisfaction with results of pain treatment). The survey can be used as a pre-/post-practice change measure.

5.4 Other Outcome Measures

Depending on the goals and scope of a project, additional outcome measures can be selected. General categories could include adverse events as well as utilization. Adverse events can be collected via incident reports, the medical record or primary data collection. These could include mild to severe events such as opioids side effects (itching, constipation) to respiration depression and ICU transfer or mortality rates. Reports from electronic medical records can be generated to track these outcomes. Care should be taken in choosing, interpreting, and using and reporting these measures. For example, naloxone administrations might indicate overuse of opioids or inappropriate use of naloxone. Naloxone administrations do not necessarily indicate that opioids were used inappropriately, and tracking this measure may lead to undertreatment of pain or reluctance to use needed opioids or naloxone.32 Utilization, including readmissions and length of stay, is a common outcome of improvement projects. Common and appropriate outcomes for pain management improvement projects include hospital length of stay, seven- and 30-day emergency room visits, and 30-day readmissions.

Like HCAHPS scores, these outcomes can be difficult to improve without significant and systematic changes to the healthcare system that focus on both inpatient and outpatient care processes. Furthermore, for medical patients with chronic pain, readmissions may be driven by their underlying medical problems, emphasizing the importance of concurrently tracking pain process measures. Step 6: Deploy Interventions and Monitor Impacts Efforts to improve pain management should focus on improved patient care including assessment, treatment efficacy and safety, as well as organizational structures and processes. The focus should be on increased patient engagement in the treatment plan and implementation of evidence-based treatment regimens customized to fit the circumstances.

A systems approach and framework to design interventions to improve pain management needs to be multilevel as the interventions address the behaviors of providers, patients and the healthcare organization. The goal is continuous improvement of the quality of pain management. Small improvements and progress should be celebrated. No one best method of monitoring applies to all hospitals, although timeliness in audit and feedback is important for information to be useful. Using standardized measures as outlined above in Step 5 allows for comparisons with baseline and tracking improvements over time. Simple control charts (visual representations of change or stability in the process being measured over time) that can be accessed on a hospital's quality website elevate the visibility of the initiative. A control chart can help monitor process stability and control and can display common cause variation inherent in a process. A guide to control charts can be found at: http://www.isixsigma.com/tools-templates/control-charts/a-guide-to-control-charts/.

Key areas of focus for interventions are elsewhere, including examples of possible specific interventions.

Potential Measures for Opioid Safety (ECRI)

Potential Outcome Measures

- Review of patient deaths
- Related peer review cases
- Rapid response team calls related to opioids
- Naloxone usage (possibly excluding PACU, ED, or both)
- Unplanned transfers to intensive care unit owing to opioid-related events
- Unplanned mechanical ventilation owing to opioid-related events
- Opioid-related adverse effects other than oversedation (e.g., delirium, vomiting)
- Patient complaints about untreated pain
- Scores on Hospital Consumer Assessment of Healthcare Providers and Systems survey
- Calls to patient advocates
- Adherence to applicable accreditation standards
- Incidents involving diversion
- Liability or healthcare costs involved in opioid-related adverse events

Potential Process Measures

- Education of patients and family members
- Completion of a risk assessment before prescribing
- Prescribing and administration in accordance with policies
- Reviews of medication utilization (e.g., naloxone, high doses of opioids, long-acting opioids, supplemental oxygen)
- Response to clinical decision support alerts
- Documented patient monitoring in accordance with policies
- Staff understanding of procedures for responding to adverse events