THE PAIN ASSESSMENT SCREENING TOOL AND OUTCOMES REGISTRY (PASTOR)
PAIN ASSESSMENTS
When the Institute of Medicine (IOM) published its landmark report in 2011, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research*, one of its high priority recommendations was:

Recommendation 3-6. **Provide consistent and complete pain assessments.** Health care providers should provide pain assessments that are consistent and complete and documented so that patients will receive the right care at the right place and the right time.

The *National Pain Strategy Report*, a plan for operationalizing the IOM report’s recommendations, is more specific. Objective 3 of the *Report’s* Prevention and Care section states, “Pain assessment should be multifaceted and include self-report as well as clinician examination.” It goes further to say that “assessment and outcomes measures should include relevant pain, physical, psychological, and social domains of functioning that conform to the biopsychosocial model of pain as well as patient-reported outcomes and patient-defined goals.”

The next two issues of the PAINS Educational Brief series will highlight two strategies for accomplishing this objective. First we will review PASTOR, the Pain Assessment Screening Tool and Outcomes Registry. PASTOR is a survey that produces a comprehensive 3-page clinician report of a patient’s chronic pain. At its core, PASTOR uses instruments developed by the National Institutes of Health (NIH), collectively known as the Patient Reported Outcomes Measurement Information System (PROMIS), to administer questions in a wide range of pain related areas.

We are grateful to retired Colonel Dr. Chester “Trip” Buckenmaier, Program Director for the Defense and Veterans Center for Integrative Pain Management (DVCIPM), for providing PAINS with the following brief which has been reviewed and approved by the DVCIPM. The next issue of the PAINS Educational Brief series will be authored by Dr. Sean Mackey at Stanford University, who has translated PASTOR for civilian healthcare-providing institutions.

PAINS is committed to collecting and disseminating promising innovative work to improve chronic pain care...
whether via improved clinical or policy approaches. We invite readers to submit innovative initiatives to be considered for publication by the editors of the PAINS Educational Brief series.

**PASTOR / PROMIS:**

The “PROMIS” of patient-reported outcomes data in military pain management

The Army Pain Management Task Force (PMTF) was chartered in August 2009 and tasked with developing a comprehensive pain management strategy. To accomplish its charge, the PMTF visited 28 clinical sites representing a range of care facilities including active military, veterans and civilian sites. Interviews with clinical experts and medical staff elicited opinions regarding pain management capacity, resources, and best practices. A common finding highlighted in the report was the unwarranted variability in pain management practice among civilian, veteran, and active military medical settings. The PMTF findings were published in 2010; the report hypothesized that the relative paucity of actionable clinical patient-reported outcomes data was a significant hindrance for clinicians in making evidence-based choices among pain treatment options.1 Interestingly, subsequent reports on the national pain health crisis also have lamented the poor state of pain outcomes data, including the 2011 Institute of Medicine report, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research* and the recently released National Institutes of Health – *National Pain Strategy Report*. These reports called for the establishment of a comprehensive tool to provide system-wide actionable pain data based on patient-reported outcomes. In response to this call, the PMTF project was established under the title: Pain Assessment Screening Tool and Outcomes Registry (PASTOR).

Pain assessment, like pain management, is bedeviled by “practice variation”

There is little consistency within the pain literature in the instruments selected to measure patient-reported outcomes. For any given outcome domain, there are usually multiple validated measurement instruments available, leading to confusion in comparing and contrasting health outcomes data from different research groups. This makes comparisons among research approaches exceedingly difficult and hinders implementation of system-wide, evidence-based, best practices. This situation is particularly troublesome for pain research since objective measures of pain are lacking (there is no blood test for pain). It was this measurement “Tower of Babel” that prompted the National Institutes of Health (NIH) to establish the Patient Reported Outcome Measurement Information System (PROMIS) with over a $100 million investment to date.3

**PROMIS**

PROMIS measures have several unique features compared to short form questionnaires that are common in clinical research. For any given domain being studied, PROMIS develops item banks of 40 to 70 items that span the entire range of content and levels of a given domain. A domain represents the perceptions, functions, activities, and concerns relevant to the domain being measured. The items of these banks are mathematically calibrated so that they can be administered with computer adaptive testing (CAT).4 CAT administers the items of an item bank adaptively using a computer algorithm. The algorithm selects an initial item and then, after taking into account the patient’s response, selects the next most informative item from the bank. This approach allows for greater measurement precision with significantly less question response burden for the patient. A short video explanation of this unique approach can be found at http://www.dvcipm.org/clinical-resources/pain-assessment-screening-tool-and-outcomes-registry-pastor (accessed September 2015). NIH has developed PROMIS measures for physical, mental, and social health domains. PROMIS measures provide highly validated and standardized methods for obtaining patient-reported outcomes data to inform clinical diagnostic and therapeutic decisions.

**PASTOR – Leveraging the promise of PROMIS**

The PASTOR project had two major goals. The first was to provide the clinician with patient-reported outcomes data in an easily digestible format that could be used
clinically during provider-patient interactions. The second goal was to collect standardized data for use in a pain outcomes registry. The purpose of the registry was to facilitate comparisons between system practices and pain management strategies in order to optimize systems across the military health system (MHS).

PASTOR began with a September 2011 meeting of pain subject matter experts, health outcomes researchers, primary care providers, military medical leaders, and PROMIS scientists to develop a content framework for PASTOR. With the two goals of the project guiding the discussion, experts identified domains and demographic content they considered most informative for clinical interactions and population-based pain research. An additional, unique feature of PASTOR was a set of questions in which patients identify three personally-relevant, functional activities they find to be limited by pain. Responses to these questions are tracked over time as an individualized indicator of patient progress. The final PASTOR content generated by the expert panel is summarized in Figure 1.

As Figure 1 shows, a wide range of domains are included in PASTOR. Traditional collection methods (i.e., classically developed scales, paper and pencil forms) of this amount of information would require hours of effort from both the patient and data analyst. By leveraging PROMIS measures and CAT administration and using computer-based data collection, most patients complete PASTOR in less than 20 minutes. The PASTOR tool has been optimized for different electronic formats allowing patients to complete the questions using their preferred, internet-connected device in the privacy of their own home. PASTOR information is designed to be collected prior to the patient’s appointment, thus freeing critical patient-provider interaction time that is not infringed upon with information collection. Instead, the provider is armed with a PASTOR report that provides a clear and concise summary of the patient’s perceptions of their pain.

The PASTOR Report
In addition to the large amount of clinical data that is stored in the PASTOR registry, providers receive a report that summarizes the collected data to inform the clinical visit. A labeled graphic of the report is provided in Figures 2 and 3 to be referred to while reading the ensuing description.

Section (A) of the first page of the report summarizes pertinent demographic data for the patient that can be adjusted to conform to local medical facility electronic medical record and Health Insurance Portability and Accountability Act (HIPPA) privacy rule compliance needs. A graphic representation of painful areas identified by the patient with the most painful area highlighted is provided in section (B). Additional information on the number of painful locations and morphine equivalents
Date: 17-04-13
Name: Smith, Snuffy Q
Family Preference Code/SSN: 20/1111
DOB: 16-04-44
AGE: 72
RANK: CPT
Home Phone Number: 555-555-5555
Primary Care Manager: Dr. XYZ
Gender: M
Home Address: 123 Sesame Street, Beverly Hills, CA 90210
Case Managed: Yes

Suicide Ideation
"In the past 2 weeks, how often have you been bothered by thoughts that you would be better off dead? ANSWER: "Nearly every day."

Opioid Misuse/Abuse
Negative Screen; Score did not indicate problem.

PTSD
Negative Screen; 0 items were endorsed.

Alcohol Misuse/Abuse
Today’s score: 4
Previous score: 3

Depression
Negative Screen.

Anxiety
Negative Screen.

Number of painful locations
<table>
<thead>
<tr>
<th>Date</th>
<th>11-May-11</th>
<th>05-Aug-11</th>
<th>21-Nov-11</th>
<th>18-Feb-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Morphine Equivalent dose
<table>
<thead>
<tr>
<th>Date</th>
<th>11-May-11</th>
<th>05-Aug-11</th>
<th>21-Nov-11</th>
<th>18-Feb-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>100</td>
<td>100</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Pain Rating

Impact of pain on SLEEP

Impact of pain on ACTIVITIES

Impact of pain on MOOD

Impact of pain on STRESS

Important activities, limited by pain:

0=Unable to perform;
10=Able to perform at the level as before pain began

- Walking for 60 minutes
- Army physical fitness test ability
- Reduce opioid medications for pain

Worst pain in the past 7 days

Average pain in the past 7 days

Walking for 60 minutes
Army physical fitness test ability
Reduce opioid medications for pain
Figure 3. Page 2 of the Patient Assessment Screening Tool and Outcome Registry

**PROMIS Scores**
Scores are reported in PERCENTILES and compared to a sample matched to the US 2000 Census on age, race/ethnicity, and sex. Higher scores indicate BETTER HEALTH.

**Treatment History**

Healthcare providers seen in the past 6 months:
- General practice: 1
- Medical Specialists: 4
- Psychologists, Psychiatrists, other mental health professionals: 2
- Allied health professionals: 1
- Complementary and alternative healthcare professionals: 0

Treatment modalities and effectiveness, in the past 6 months:
- Exercise, physical therapy or occupational therapy.
  - Effective? Yes
  - Moderately
- Physical modalities such as heat, massage, or TENS
  - No
- Behavioral treatment (CBT, relaxation, distraction, etc.)
  - Effective? Yes
  - Not at all
- Non-opioid, non-steroidal anti-inflammatory medications
  - Effective? Yes
  - Very
- Non-opioid, non-steroidal, neuropathic pain medications
  - Effective? Yes
  - Moderately
- Alternative therapies such as acupuncture, hypnosis, yoga or meditation
  - No
  - Moderately

**Opoid Utilization Screener**
Currently taking opiates/opioids/narcotics?
- How long: ≥6 months
- Pain relief: Good
- “Bad days” in past month: 3-5
The collected data will provide clinical leaders with a unique resource for evaluating the success or failure of treatment protocols for any given pain condition.

The “PROMIS” of Big Data

Although considerable information is available on the PASTOR report, significantly more data is collected into the PASTOR registry when the patient completes the PASTOR tool online. The incorporation of the PASTOR tool within routine clinical pain management practices will quickly generate considerable amounts of patient-reported outcomes data. Because PASTOR information is consistently collected using the PROMIS standard, the collected data will provide clinical leaders with a unique resource for evaluating the success or failure of treatment protocols for any given pain condition. Furthermore, when multiple health care facilities use PASTOR, as the DoD is planning to do with its electronic medical record update, opportunities arise to compare systems and different pain therapies through the objective lens of “big data.” For example, the PASTOR database will be a rich resource for predictive modeling (a statistical technique applied to large data sets to predict outcomes based on a series of variables). Accurate modeling of a patient’s pain condition will allow more individualized and informed therapeutic treatment approaches. Additionally, as the field of genomics matures, PASTOR data will become extremely valuable as the mysteries of a patient’s unique genotype and its impact on the phenotypic expression of pain are unraveled.
Another opportunity with PASTOR data is research into the impact of different integrative medicine treatments compared to more traditional and accepted pharmacologic and interventional pain management approaches. As the PASTOR outcome registry grows, so will opportunities to develop a more complete understanding of the impact of different therapies on an individual’s pain condition. Such information will personalize comparative effectiveness results, providing the evidence needed to inform clinical investment in treatment technology and protocols in the future.

**Clinical Pain Management with PASTOR**

The development of PASTOR for pain management comes at a critical time as the country struggles with opioid prescription medication misuse and abuse. As both ancient and novel pain management therapies are introduced into the field of pain management in an effort to de-emphasize opioid therapy overreliance, the need for actionable data at the provider-patient interface has become even more critical. The PASTOR tool helps achieve this goal by providing rigorously validated NIH PROMIS measures of domains that are important to patients while greatly reducing the survey burden to the patient. The tool supports personalized medicine by providing a detailed and individual patient pain portrait that can be used to tailor a multimodal pain treatment plan. Standardized use of the PASTOR tool will support the large, longitudinal databases needed to develop the evidence-backed pain treatment protocols of the future. PASTOR represents a 21st century approach to obtaining quality evidence for evidence-based pain management.

**References**


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