Pain Assessment & Measurement Guidelines

Statement:
"Without regular pain assessment and measurement, pain is undertreated."
(reference) The International Association for the Study of Pain

Evaluation PQRST:
The PQRST method is easy to remind way to do complete pain assessment. This document will follow this approach to guide you in your practice. Your objective is that this method becomes a routine in your daily pain assessment.

P: Precipitating factors
Q: Quality of pain
R: Radiating pain
S: Severity of pain
- Pain scales at the MCH
- How to introduce a pain scale
- Pain measurement with the critically ill patient
T: Temporal factor

Purpose of pain assessment and measurement:
- All patients have the right to have their pain treated (Patient Pain Manifesto CPS, 2001).
- Effective alleviation of pain depends on accurate pain assessment, measurement and documentation.
- Untreated pain may result in the unchecked release of stress hormones, which may exacerbate illness, prevent wound healing, lead to infection, prolong hospitalization and increase the risk of death.

How do we distinguish Assessment and Measurement?
Pain measurement has been traditionally applied to rate pain intensity, generally using a metric scale for proportional evaluation. Assessment on the other hand is a broader concept of the combined measurement itself in connection with the multidimensional pain experience. The key is not only to assign a nominal value to pain, but how to apply appropriate relief measures in a useful and therapeutic process.

Indications/expectations for assessment and measurement:
- Pain assessment and measurement: the 5th Vital Sign
- A baseline pain assessment score upon admission
- That pain be assessed and charted at least q 4h post–op
- That pain be assessed and charted before, during, and after all invasive procedures
- That pain be assessed and charted before and after all therapeutic interventions (e.g. analgesics) to judge their efficacy
- That the potential for pain should be assessed and planned for (e.g.: post-op, transfer to ward, prior to ambulation, removal of chest tubes, etc.)
Before using any of the pain assessment scales, talk with the child about the following:

- Find out what words the child uses for pain, e.g., ouch, hurt.
- Ask the child to give examples of pain (to identify the child’s understanding and use of words pertaining to pain). If he/she has difficulty, ask him/her if he/she has ever fallen down, skinned his/her knee, hit his/her head, etc.
- Help the child practice with whatever pain assessment tool is selected by rating past pain experiences.
- To help the child differentiate between distress and pain, start with assigning a nominal value or measurement to how scared the patient is or how much he or she dislikes being in the hospital. This approach yields a “cleaner” more reliable pain intensity score.
- Be prepared to change scales if the child gets bored or frustrated with the current one.

To verify the child’s understanding of a tool, ask the child to point to or state a number or face that means the following:

- No pain
- The most hurt
- Hurts he has already experienced, picking several of the examples he/she has given
- The hurt he feels now (specify which pain if more than one possible)
- The point at which the pain would be acceptable (okay) for him/her.

1. **Self report**

In general, numerical scales can be used by most children by age 7 to 10 years or older. Numerical scales may range from zero (meaning no pain) to 10, (meaning the worst possible pain). Children better understand vertical scales than horizontal scales.

- **Visual Analog Scale (VAS)**

  **Children > 8 years**

<table>
<thead>
<tr>
<th>10</th>
<th>Most pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>No pain</td>
</tr>
</tbody>
</table>

- **Numerical scale (Visual Analog scale)**

  **How to use?**

  - Children 8 years +
  - Consider using numerical scale only if the child can count to the highest number and understands the concept of proportionality e.g. that 8 is more than 6, Verify this.
  - Use scale in vertical position.
  - Explain that 0 means no hurt (or whatever term the child uses for pain). Going up the scale #1 is a little bit of pain, #3 is quite a bit of pain, #5 is even more, #7 is quite a lot of pain, #9 is a great deal of pain and 10 is the worst pain you have ever had or could ever imagine.
  - Ask « Where are you on this scale right now? » or « How much pain are you in? »

  For future rating, note whether the child needs to point to the scale or is able to verbalize the number.
Coloured (visual) Analog Scale (CAS)

« THERMOMETER »

How to Use It?

- Orient the child to the thermometer in the vertical direction indicating that the 0 at the bottom shows that there is no pain. The child is asked to «slide» the marker along the scale until the intensity (strength) of the colour matches the strength of your pain. No pain is at the bottom of the scale (hardly any colour), and very painful is at the very top (very red).

- Going up the scale, 1 is a little pain, 3 is quite a bit of pain, 5 is even more, 7 is quite a lot of pain, 9 is a great deal of pain, and 10 is the worst pain you have ever had or could ever imagine having.

- Ask the child, «Where are you on this scale right now?» or «How much pain do you have?»

- Record the number on the reverse side that represents the numerical intensity rating of the child’s pain. (0-10)

Children 4 - 5 years and over can use the thermometer with bright red being the most pain and white being the least pain.

Faces Pain Scale- Revised

In the following instructions, say “hurt” or “pain” whichever seems right for a particular child. “These faces show how much something can hurt. This face (point to the left-most face) shows no pain. The faces show more and more pain (point to each from left to right) up to this one (point to right-most face)- it shows very much pain. Point to the face that shows how much you hurt (right now).”

Note: Score the chosen face 0, 2, 4, 6, 8, or 10, counting left to right, so ‘0’= ‘no pain’ and ‘10’=’very much pain’. Do not use words like ‘happy’ and ‘sad’. This scale is intended to measure how children feel inside, not how their face looks.
2. Behavioral

☐ The FLACC (Face, Leg, Activity, Cry, Consolability) Scale

The FLACC scale is a simple framework for quantifying pain behaviors in children who may not be able to verbalize the presence or severity of pain. Five categories of pain behaviors are rated from 0-10. The FLACC tool has been tested as a valid and reliable tool for patients aged 2 months to 7 years and the behavioral categories have shown content validity with CHEOPS and Objective Pain Scale (OPS).

FLACC developed at the University of Michigan, Merkel et al, 1997.

3. Other Pain Assessment and Measurement Tools

At the MCH, the APS recommends using the scales mentioned above that are quick, user friendly and all give a number from 0 to 10 so we are all talking the same language. Exceptions may present themselves. Depending on the setting, the patient population (ex. intubated patients), the time at hand and the cooperation of the patient, there are other pain tools that can be used to measure pain. These can be found in the annex section at the end of this document.
4. **Special Populations:**

- **Non-Communicative/Pre-verbal Patient**

Patients who are unable to communicate verbally because of neurological problems are vulnerable and discrepancies have been found in pain practices in children with and without cognitive impairments (Malviya et al, 2001). These individuals are at risk for pain because: they have medical problems that may cause pain; they often require repeated surgical and therapeutic procedures that are painful; many have behaviours that can mask expressions of pain; and many of the typified behaviours that indicate pain in others may be inconsistent and difficult to interpret in those with cognitive disability (Breau et al, 1998; 2001; 2002).

<table>
<thead>
<tr>
<th>The Non-communicating children’s pain checklist (Breau et al, 2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focal</strong></td>
</tr>
<tr>
<td>Moaning, whining, whimpering</td>
</tr>
<tr>
<td>Crying (moderately loud)</td>
</tr>
<tr>
<td>Screaming/yelling (very loud)</td>
</tr>
<tr>
<td><strong>Social</strong></td>
</tr>
<tr>
<td>Not cooperating, cranky, irritable, unhappy</td>
</tr>
<tr>
<td>Less interaction with others; withdrawn</td>
</tr>
<tr>
<td>Seeks comfort or physical closeness</td>
</tr>
<tr>
<td>Difficult to distract, not able to satisfy or pacify</td>
</tr>
<tr>
<td><strong>Facial expression</strong></td>
</tr>
<tr>
<td>Furrowed brow</td>
</tr>
<tr>
<td>Change in eyes, including squinting of eyes, eyes opened wide; eyes frown</td>
</tr>
<tr>
<td>Turn down of mouth, not smiling</td>
</tr>
<tr>
<td>Lips pucker up, tight, pout or quiver</td>
</tr>
<tr>
<td>Clenches or grinds teeth, chews, thrusts tongue out</td>
</tr>
<tr>
<td><strong>Activity</strong></td>
</tr>
<tr>
<td>Not moving, less active, quiet</td>
</tr>
<tr>
<td>Jumping around, agitated, fidgety</td>
</tr>
<tr>
<td><strong>Body and limbs</strong></td>
</tr>
<tr>
<td>Stiff, spastic, tense, rigid</td>
</tr>
<tr>
<td>Gestures to or touches part of body that hurts</td>
</tr>
<tr>
<td>Protects, favours, or guards part of body that hurts</td>
</tr>
<tr>
<td>Flinches or moves body part away; sensitive to touch</td>
</tr>
<tr>
<td>Moves body in specific way to show pain (head back, arms down, curls up etc.)</td>
</tr>
<tr>
<td><strong>Physical signs</strong></td>
</tr>
<tr>
<td>Change in colour, pallor</td>
</tr>
<tr>
<td>Sweating, perspiring</td>
</tr>
<tr>
<td>Tears</td>
</tr>
<tr>
<td>Sharp intake of breath, gasping</td>
</tr>
</tbody>
</table>
Neonates and Infants

The under treatment of neonatal and infant pain has been an inundated concern for researchers and healthcare professionals in the field of pain management. Under treated pain and stress in neonates has serious physiological implications, short and long term, including negative effects to endocrine, cardiovascular, immunologic, metabolic and neurologic systems. Pain assessment and measurement is a challenge and often presents problems pertaining to the variability of physiologic and behavioral responses coupled by difficulties interpreting signs in a premature newborn. Therapeutic and successful pain management entails pain assessments utilizing specialized measurement tools for premature newborns and infants. Using behavioral measures like facial expressions can be very helpful in getting an insight into how much pain the baby is experiencing. The following figure is a good reference to recognize the different cues to look for when assessing the facial expressions of pain in babies.

At the MCH, the NICU team uses the SUN (Scale for Use in Newborns) measurement tool to assess the level of pain that their little patients are experiencing. It is a multidimensional assessment tool that includes not only behavioural measures but also physiological one (i.e. heart rate, saturation, etc).

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May 2001

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February 2004

Julie Brouillard, CNS/APS and Annik Otis, CNS/APS
August 2008
REFERENCES


McGrath, P.J. CHEOPS, a behavioral scale to measure post-operative pain in children; in Fields HI, et Advances in pain research and therapy, New York, Raven Press, 1985:395-402.


1. **Graphic Rating Scale (GRS)**

   Si l’enfant ne peut utiliser les nombres, considérez une échelle à base de mots.

   Ex.: **BEAUCOUP de douleur ou “sévère” (inscrire 7-10)**

   **MOYENNE douleur** (inscrire 4-6)

   **UN PETIT PEU de douleur ou “faible” (inscrire 1-3)**

   If the child cannot use numbers, consider a word rating scale.

   Ex.: **A LOT of pain or “severe” (chart 7-10)**

   **MEDIUM pain (chart 4-6)**

   **A LITTLE pain or “mild” (chart 1-3)**

2. **The Comfort scale**

   This scale is useful for unobtrusive observation of psychologic and physiologic distress in pediatric patients in the ICU setting. At the MCH, the PICU uses this scale for their intubated patients.

3. **CHEOPS**

   For children awakening from anesthesia. The CHEOPS rates the following signs of distress: facial expression, crying, moaning, thrashing, verbal expression, torso positioning and leg position.

   The Cheops scale has been validated in the PACU for the first few hours post-op for short sharp pain, after which it habituates to long-term pain. It may not track post-op pain well in 3 to 7 years old as pain behavior is inhibited.

   Cheops – For use in PACU – 6 behavioral items – score as indicated. Score of > 8 = pain.

   At the MCH, the PACU used this scale.

4. **Poker Chips (Nancy Hester’s «pieces of hurt»)**

   (Children 4 ½ years +, provided they can count to 4 and understand that a stack of 4 chips is more than 1 chip)

   Use 4 red chips (or coins or paper cut-outs)

   - Child chooses 1 – 4 red poker chips (pieces of hurt).
   - 0 – 4 scale can be converted to 0 – 10
   - Stack the chips one by one
   - Tell the child, these are pieces of hurt. 1 is a little bit of hurt, 2 is a little more hurt, 3 is still more hurt, and 4 is the most hurt you could have.
   - Ask how many «pieces of hurt» do you have?

5. **The Oucher Scale**

   The revised scale is in a poster and small card format and consists of a vertical numerical scale (0-10) on the left and six photographs of children in varying degrees of pain vertically positioned on the right. Variants of the Oucher have been designed and validated for African-American, Caucasian, Hispanic and First Nations.
6. **Pain diary**
Usually includes filling out the time of the day, hourly pain intensity rating, major activity being done, medication taken and dose, other pain relief measures etc (6 years and older, +/- parental help)

<table>
<thead>
<tr>
<th>Time</th>
<th>Pain Rating Scale</th>
<th>Medication type &amp; Amount taken</th>
<th>Other pain relief measures tried or anything that influences your pain</th>
<th>Major activity being done: lying, sitting, standing, walking</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Midnight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 A.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 A.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 A.M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. **Pain drawings**
No standardized procedure. Usually child is given paper and crayons and asked to make a picture of the pain. When the child has completed the drawing, the nurse asks him/her about the picture.

8. **Body outline tool (Eland Colour scale) or APPT (Adolescent Paediatric Pain Tool)**
These tools consist of body outline drawings facing front and back. A child can be asked to make a mark, to shade in the area of pain, or to choose crayons of different colours representing different degrees of pain. Refer to tool at the end of the annexe section (p.13).

9. **CRIES**

**Neonatal post-op pain measurement score**

<table>
<thead>
<tr>
<th>Neonatal pain assessment tool developed at the University of Missouri-Columbia, Krechel et al, 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

**Coding Tips for using CRIES**

**Crying:**

- The characteristic cry of pain is high pitched.
- If no cry or cry which is not high pitched score 0.
- If cry is high pitched but baby is easily consoled score 1.
- If cry is high pitched but baby is inconsolable score 2.

**Requires O2 for Sat > 95%:**

- Look for changes in oxygenation. Babies experiencing pain manifest decreases in oxygenation as measured by TCO2 or oxygen saturation.
- If no oxygen is required score 0.
- If <30% O2 is required score 1.
- If >30% O2 is required score 2.
10. **PIPP (Premature Infant Pain Profile)**

The PIPP is useful for premature and term infants for procedures or post-op pain (Stevens, B.). It is scored in acknowledgement that there are less robust, more subtle pain cues in premature infants, as compared to term infants, i.e.: less crying, weaker grimace, flaccid posturing.

**PREMATURE AND TERM INFANT PAIN PROFILE (P.I.P.P.)**

*B. Stevens, C. Johnston, P. Petryshen, A. Taddio*

*(Also tested for post-op pain in N.I.C.U., Hospital for Sick Children, Toronto, 1998, Bonnie Stevens.)*

<table>
<thead>
<tr>
<th>PROCESS</th>
<th>INDICATOR</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHART</td>
<td>Gestational Age</td>
<td>36 weeks and more</td>
<td>32 weeks to 35 weeks, 6 days</td>
<td>28 weeks to 31 weeks, 6 days</td>
<td>28 weeks and less</td>
<td></td>
</tr>
<tr>
<td>Observe infant 15 seconds - Observe baseline : Heart Rate ___</td>
<td>Behavioral State</td>
<td>active / awake eyes open facial movements</td>
<td>quiet / awake eyes open no facial movements</td>
<td>active / asleep eyes closed facial movements</td>
<td>quiet/sleep eyes closed no facial movements</td>
<td></td>
</tr>
<tr>
<td>Observe infant 30 seconds</td>
<td>Heart Rate Max.</td>
<td>0 to 4 beats / minute increase</td>
<td>5 to 14 beats / minute increase</td>
<td>15 to 24 beats/ minute increase</td>
<td>25 beats / minute incr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2 saturation Min.</td>
<td>0 to 2.4% decrease</td>
<td>2.5 to 4.9% decrease</td>
<td>5.0 to 7.4% decrease</td>
<td>7.5% or more decrease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brow Bulge</td>
<td>None</td>
<td>0 to 9% of time</td>
<td>Minimum 10-39% of time</td>
<td>Moderate 40-69% of time</td>
<td>Maximum 70% of time or more</td>
</tr>
<tr>
<td></td>
<td>Eye Squeeze</td>
<td>None</td>
<td>0 to 9% of time</td>
<td>Minimum 10-39% of time</td>
<td>Moderate 40-69% of time</td>
<td>Maximum 70% of time or more</td>
</tr>
<tr>
<td></td>
<td>Nasolabial Furrow</td>
<td>None</td>
<td>0 to 9% of time</td>
<td>Minimum 10-39% of time</td>
<td>Moderate 40-69% of time</td>
<td>Maximum 70% of time or more</td>
</tr>
</tbody>
</table>

**TOTAL SCORE :**

**Scoring method for the PIPP**

1. Familiarize yourself with each indicator and how it is to be scored by looking at the measure.
2. Score gestational age (from the chart) before you begin.
3. Score behavioral state by observing the infant for 15 seconds immediately before the event.
4. Record the baseline heart rate and oxygen saturation.
5. Observe the infant for 30 seconds immediately following the event. You will have to look back and forth from the monitor to the baby’s face.
6. Calculate the final score.
7. For all age groups, total scores of 6 or less generally indicate minimal or no pain and scores > 12 reflected moderate to severe pain.

**Increased Vital Signs:**

Note: take blood pressure last as this may wake child-causing difficulty with other assessments.

- Use baseline pre-op parameters from a non-stressed period.
- Multiply baseline HR X 0.2 then add this to baseline HR to determine the HR which is 20% over baseline.
- Do likewise for BP. Use mean BP.
  - If HR and BP are both unchanged or less than baseline score 0.
  - If HR or BP is increased but increase is <20% of baseline score 1.
  - If either one is increased >20% over baseline score 2.

**Expression:**

The facial expression most often associated with pain is a grimace. This may be characterized by brow lowering, eyes squeezed shut, deepening of the naso-labial furrow, open lips and mouth.

- If no grimace is present score 0.
- If grimace alone is present score 1.
- If grimace and non-cry vocalization grunt is present score 2.

**Sleepless:**

This parameter is scored based upon the infant’s state during the hour preceding this recorded score.

- If the child has been continuously asleep score 0.
- If he/she has awakened at frequent intervals score 1.
- If he/she has been awake constantly score 2.

A score ≥ 4 indicates that the patient is in pain.

11. **The SUN Tool (Scale for Use in Newborns)**

Modified comfort scale for the intubated infant used in NICU. For more information on this scale, contact the NICU clinical educators or Neonatal Nurse Clinicians.
ELAND COLOR SCALE: FIGURES

Mark each box with color child selects:

No pain
No hurt

Mild pain
A little hurt

Moderate pain
More hurt

Severe pain
Worst hurt

(Indicate child's use of right and left.)

FIGURE 10-3 Eland Color Scale: figures. (Printed with permission of the author, who also gives permission for this to be duplicated and used in the care of children with pain.)