UNIVERSAL PAIN ASSESSMENT TOOL

This pain assessment tool is intended to help patient care providers assess pain according to individual patient needs. Explain and use 0-10 Scale for patient self-assessment. Use the faces or behavioral observations to interpret expressed pain when patient cannot communicate his/her pain intensity.

Verbal Descriptor Scale
- **4**  |  **5**  |  **6**  |  **7**  |  **8**  |  **9**  |  **10**
- **NO PAIN** | **MILD PAIN** | **MODERATE PAIN** | **MODERATE PAIN** | **SEVERE PAIN** | **WORST PAIN POSSIBLE**

WONG-BAKER FACIAL GRIMACE SCALE
- **0**  |  **1**  |  **2**  |  **3**  |  **4**  |  **5**  |  **6**  |  **7**  |  **8**  |  **9**  |  **10**
- **Alert Smiling** | **No humor serious flat** | **Furrowed brow pursed lips breath holding** | **Wrinkled nose raised upper lips rapid breathing** | **Slow blink open mouth** | **Eyes closed moaning crying**

ACTIVITY TOLERANCE SCALE
- **0**  |  **1**  |  **2**  |  **3**  |  **4**  |  **5**  |  **6**  |  **7**  |  **8**  |  **9**  |  **10**
- **NO PAIN** | **CAN BE IGNORED** | **INTERFERES WITH TASKS** | **INTERFERES WITH CONCENTRATION** | **INTERFERES WITH BASIC NEEDS** | **BEDREST REQUIRED**

SPANISH
- **NADA DE DOLOR** | **UNPOQUITO DE DOLOR** | **UN DOLOR LEVE** | **DOLOR FUERTE** | **DOLOR DEMASIADO FUERTE** | **UN DOLOR INSOPORTABLE**

TAGALOG
- **Walang Sakit** | **Konting Sakit** | **Katamiamgang Sakit** | **Matinding Sakit** | **Pinaka-Matinding Sakit** | **Pinaka-Malahang Sakit**

CHINESE
- **不痛** | **軽微** | **中度** | **嚴重** | **非常嚴重** | **最嚴重**

KOREAN
- **통증 없음** | **약한 통증** | **보통 통증** | **심한 통증** | ** 아주 심한 통증** | **최악의 통증**

PERSIAN (FARSI)
- **بدون دم** | **بدر ملاتم** | **درد معتدل** | **درد شدید** | **درد بسیار شدید** | **بدترین درد ممکن**

VIETNAMESE
- **Không Đau** | **Dau Nhẹ** | **Dau Ưa Phải** | **Dau Nắng** | **Dau Thông Nắng** | **Dau Đón Tận Cưng**

JAPANESE
- **痛みがない** | **少し痛い** | **いくらか痛い** | **かなり痛い** | **ひどく痛い** | **ものすごく痛い**
<table>
<thead>
<tr>
<th>Target RASS Value</th>
<th>RASS Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+4</td>
<td>Combative, violent, immediate danger to staff</td>
</tr>
<tr>
<td>+3</td>
<td>Pulls or removes tube(s) or catheter(s); aggressive</td>
</tr>
<tr>
<td>+2</td>
<td>Frequent non-purposeful movement, fights ventilator</td>
</tr>
<tr>
<td>+1</td>
<td>Anxious, apprehensive but movements are not aggressive or vigorous</td>
</tr>
<tr>
<td>0</td>
<td>Alert and Calm</td>
</tr>
<tr>
<td>-1</td>
<td>Not fully alert, but has sustained awakening to voice (eye opening &amp; contact greater than 10 seconds)</td>
</tr>
<tr>
<td>-2</td>
<td>Briefly awakens to voice (eye opening &amp; contact less than 10 seconds)</td>
</tr>
<tr>
<td>-3</td>
<td>Movements or eye opening to voice (but NO eye contact)</td>
</tr>
<tr>
<td>-4</td>
<td>No response to voice, but has movement or eye opening to physical stimulation</td>
</tr>
<tr>
<td>-5</td>
<td>No response to voice or physical stimulation</td>
</tr>
<tr>
<td>ANTICIPATE SEDATION ≤ 72 HOURS</td>
<td>ANTICIPATE SEDATION &gt; 72 HOURS</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Midazolam</td>
<td>Lorazepam</td>
</tr>
<tr>
<td>Propofol</td>
<td></td>
</tr>
</tbody>
</table>
## Signs & Symptoms of Withdrawal

<table>
<thead>
<tr>
<th>Sign</th>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupil dilatation</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Sweating</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Lacrimation</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Rhinorea</td>
<td>Fever</td>
</tr>
<tr>
<td>Piloerection</td>
<td>Tachypnea</td>
</tr>
</tbody>
</table>
**SEDATIVE CONVERSION TABLE**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Infusion Rate</th>
<th>Recommended Lorazepam Starting Dose</th>
<th>IV Infusion Rate</th>
<th>OR</th>
<th>Scheduled IV Bolus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam</td>
<td>≥ 10 mg/hr</td>
<td>4 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 – 9.9 mg/hr</td>
<td>3 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 – 5.9 mg/hr</td>
<td>2 mg/hr</td>
<td></td>
<td></td>
<td>4 mg IV q2h</td>
</tr>
<tr>
<td></td>
<td>2 – 3.9 mg/hr</td>
<td>1 mg/hr</td>
<td></td>
<td></td>
<td>2 mg IV q2h</td>
</tr>
<tr>
<td>Propofol</td>
<td>45 – 60 mcg/kg/min</td>
<td>4 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 – 44 mcg/kg/min</td>
<td>3 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 – 29 mcg/kg/min</td>
<td>2 mg/hr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 15 mcg/kg/min</td>
<td></td>
<td></td>
<td></td>
<td>1 mg IV q2h</td>
</tr>
</tbody>
</table>
## Analgesic Selection

<table>
<thead>
<tr>
<th>HEMODYNAMICALLY STABLE</th>
<th>HEMODYNAMICALLY UNSTABLE</th>
<th>RENAL IMPAIRMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>Fentanyl</td>
<td>Hydromorphone</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
<td>Fentanyl</td>
</tr>
</tbody>
</table>
Is the patient comfortable and at goal?

No

Rule out and correct reversible causes

1. Use nonpharmacologic treatment, optimize the environment

2. Use pain scale to assess for pain

Set goal for analgesia

- Hemodynamically unstable
  - Fentanyl: 25–100 μg IVP q 5–15 min or
  - Hydromorphone: 0.25–0.75 mg IVP q 5–15 min

- Morphine: 2–5 mg IVP q 5–15 min
  - Repeat until pain controlled, then scheduled doses + p.r.n.

3. Use sedation scale to assess for agitation/anxiety

Set goal for sedation

- ≥ 3 days propofol? (except neurosurgery pts)
  - Yes
    - Convert to lorazepam
  - No

4. Use delirium scale to assess for delirium

Set goal for control of delirium

- Haloperidol: 2–10 mg IVP q 20–30 min, then 25% of loading dose q 6 hr

Yes

Reassess goal daily; titrate and taper therapy to maintain goal; consider daily wake-up; taper if > 1 wk high-dose therapy and monitor for withdrawal

IVP doses more often than every 2 hr?

Yes

Consider continuous infusion opioid or sedative

ivanvia infusion? Use a low rate and IVP loading doses

Lorazepam

Benzodiazepine or opioid: taper infusion rate by 10–25% per day

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* Numeric rating scale or other pain scale.
* Riker Sedation-Agitation Scale or other sedation scale.
* Confusion Assessment Method for the ICU.
* See Table 1 for intermittent dosing for specific agents.
Pain Intensity Scales

**Descriptive pain scales**

- No pain
- Mild
- Moderate
- Severe
- Worst possible pain

**Verbal rating score (VRS)**

- No pain
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- Worst possible pain

**Visual analog scale (VAS)**

- No pain
- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- Pain as worst as it could be
- 100
## Pharmacology of selected analgesics

<table>
<thead>
<tr>
<th>Agent</th>
<th>Equianalgesic Dose</th>
<th>Half-life</th>
<th>Metabolic pathway</th>
<th>Active metabolites</th>
<th>Adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl</td>
<td>200μg</td>
<td>1.5-6 hr</td>
<td>Oxidation</td>
<td>No</td>
<td>Rigidity with high doses</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>1.5mg</td>
<td>2-3 hr</td>
<td>Glucuronidation</td>
<td>None</td>
<td>...</td>
</tr>
<tr>
<td>Morphine</td>
<td>10mg</td>
<td>3-7 hr</td>
<td>Glucuronidation</td>
<td>Yes</td>
<td>Histamine release</td>
</tr>
<tr>
<td>Meperidine</td>
<td>75-100mg</td>
<td>3-4 hr</td>
<td>Hydroxylation</td>
<td>Yes</td>
<td>Avoid with MAOIs and SSRIs</td>
</tr>
<tr>
<td>Ketorolac</td>
<td>...</td>
<td>2.4-8.6 hr</td>
<td>Renal</td>
<td>None</td>
<td>Risk of bleeding, GI and renal adverse effects</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>...</td>
<td>1.8-2.5 hr</td>
<td>Oxidation</td>
<td>None</td>
<td>Risk of bleeding, GI and renal adverse effects</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td>...</td>
<td>2 hr</td>
<td>Conjugation</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Agent</td>
<td>Onset after IV dose</td>
<td>Half-life of parent compound</td>
<td>Metabolic pathway</td>
<td>Active metabolite</td>
<td>Unique adverse effects</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------</td>
<td>------------------------------</td>
<td>--------------------------------</td>
<td>-------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Diazepam</td>
<td>2-5 min</td>
<td>20-120 hr</td>
<td>Desmethylation and hydroxylation</td>
<td>Yes</td>
<td>Phlebitis</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>5-20 min</td>
<td>8-15 hr</td>
<td>Glucuronidation</td>
<td>None</td>
<td>Solvent-related acidosis/renal failure in high doses</td>
</tr>
<tr>
<td>Midazolam</td>
<td>2-5 min</td>
<td>3-11 hr</td>
<td>Oxidation</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Propofol</td>
<td>1-2 min</td>
<td>26-32 hr</td>
<td>Oxidation</td>
<td>None</td>
<td>Elevated triglycerides, pain on injection</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>3-20 min</td>
<td>18-54 hr</td>
<td>Oxidation</td>
<td>Yes</td>
<td>QT interval prolongation</td>
</tr>
</tbody>
</table>
Analgesia

• Defined as the blunting of absence of sensation of pain or noxious stimuli
Anxiety

• As many as 90% of ICU patients experience anxiety

• Characterized by a sense of foreboding, worry or doom

• Often out of proportion to the actual risk to the patient

• Amplified by pain
Agitation

• Strong or tumultuous emotion
• Violent motion
• Common in the ICU (71% of patients)
• May have deleterious effects on ICU care
  – Unplanned self extubation, central line removal, injury to the patient or staff
  – Lengthened ventilator and ICU days
Agitation Syndrome

- Defined by a combination of anxiety and increased motor activity

- Agitated patients exhibit continual movement
  - Restlessness, moving side to side, pulling objects
  - Vital signs are elevated, increase in the metabolic rate
  - Ventilator desynchronization

- Remain disoriented in one or several dimensions
  - There may be total lack of awareness
  - Intermittent irrational thoughts, rambling conversation, shouting out or unable to follow commands
Factors contributing to agitation

- Pain – post operative
- Hypoxemia
- Medications – singular or interaction
- Brain injury - traumatic, bleeds, infection
- Mechanical ventilation -
- Co morbid disease – substance use or withdrawal (drugs, alcohol and nicotine)
- Delirium
## Risk Factors for agitation

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 65</td>
<td>2.21</td>
</tr>
<tr>
<td>Medical causes of ICU admission</td>
<td>3.04</td>
</tr>
<tr>
<td>Sepsis</td>
<td>2.61</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>3.32</td>
</tr>
</tbody>
</table>

## Risk Factors for agitation

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of sedatives &gt; 48 hours before agitation</td>
<td>4.03</td>
</tr>
<tr>
<td>Fever (&gt;38.0)</td>
<td>4.52</td>
</tr>
<tr>
<td>Sodium abnormalities</td>
<td>4.95</td>
</tr>
<tr>
<td>– (≤ 134 or ≥143 meq/l)</td>
<td></td>
</tr>
<tr>
<td>Long term use of psychoactive drugs</td>
<td>5.63</td>
</tr>
</tbody>
</table>

Sedation

• The process of establishing a state of mental relaxation or well being
• Alleviate a patient’s sense of anxiety
• It may involve an alteration of a patient’s level of consciousness
• May require the use of amnesic drugs to lessen a patient’s ICU recall
Recommendation-sedation

• A sedation goal or endpoint should be established and regularly redefined for each patient
• The use of a validated sedation assessment scale
• All caregivers should use the same scale
Assessment

• Society of Critical Care Medicine and the Joint Accreditation for Hospitals endorse a method of systematically evaluating a patient's level of agitation, sedation, and pain control.

• Titration of medications need to be standardized so that all caregivers may speak a “universal language”.

• Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult. Crit Care Med 2002;30
Recommendations

• Analgesia - all patient’s have the right to adequate analgesia and pain management
• Sedation of a critically ill patient should be started only after adequate pain control is achieved
• All reversible physiologic causes are corrected
Pain

• Pain assessment and response to therapy should be performed regularly by using a scale appropriate to the patient population
• Patient’s not able to communicate should be assessed by subjective observation of pain-related behaviors
  – Movement, facial expression, respiratory rate, pulse and blood pressure
Withdrawal of sedatives or analgesic agents

- At risk patients
  - ICU stay greater than 7 days
  - Mechanical ventilation
  - Drug use of lorazepam > 35 mg/day or fentanyl > 5 mg/day (or equivalent doses or other medications)
  - Patients with prior substance usage

- Drug reduction – 5-10% per day

- Cammarano WB, Acute withdrawal syndrome related to the administration of analgesic and sedative medications in adult ICU patients. Crit Care Med 1998;26:676-84
Methods of