The main focus of this guideline is to guide physicians through the process of palliative ventilator withdrawal (PVW) once the decision has been made to withdraw Life-Prolonging Treatment (LPT). The decision to withdraw LPT is complex and should be individualized.

- If concern for brain death at any point, refer to the OSUWMC Brain Death guideline and do not proceed with PVW until brain death ruled out or organ procurement agency rules out organ donation.

- **At each step:** Assess for and respond to questions and issues from patient, family, and medical providers.

- **At any point, consider Palliative medicine consult** for concerns regarding decision-making process, symptom management, or anticipatory grief and bereavement support.

- **Consider ethics consult** if concern for ethical conflict.

### Develop Plan of Care

- Discuss goals of care with medical providers, patient/family. Include consultants, nursing, outpatient physicians, social work, chaplaincy. **Attending of record must be involved.**
  - Notify and discuss with patient's primary physician/specialist the decision to withdraw life support.
- Include **patient**, if able to participate, and **family** (must include legal surrogate decision-maker).
- Consider palliative medicine consult.
- Address issues that may interfere with new plan (e.g., ICD, neuromuscular blockade).
- Notify LOOP of planned PVW and likely timeframe for death (if expected)
- Develop plan to optimize comfort based on clinical condition, including:
  - Withdrawal of life prolonging treatments (see Table 2)
  - Symptom management (including current and anticipated symptoms)
  - End of life care plan

**TIME OUT for PVW Procedure:**

- Review plan with team providing care (RNs, RTs, MDs) during and after PVW, including anticipated symptoms and management plan.
- Review plan with family to desired level of detail.
- Ensure that appropriate treatments are immediately available (e.g. medications in room and given if needed before PVW)

### Proceed with Plan for PVW

- Change code status to reflect new goals of care (DNRCC in state of Ohio).
- Monitor and treat symptoms.
- Allow for accommodating visiting hours.

- **Is patient alive ≥ 24 hours after PVW?**
  - YES: Proceed with usual postmortem processes
  - NO: Continue care in current setting.

- **Is death anticipated within 24 hours?**
  - YES: Consider transition to private room outside of ICU, inpatient hospice, etc.
  - NO: Proceed with usual postmortem processes

- **See Postmortem Policy and Procedure, and unit-specific process links, page 5.**

- Bereavement pager 7835.
<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
<th>Drug Class</th>
<th>Drug Examples</th>
<th>Recommended Starting Dose* (See notes below)</th>
<th>Time to Peak Effect</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>Heart Rate &gt;120 bpm</td>
<td>Opioids</td>
<td>Morphine</td>
<td><strong>If opioid tolerant</strong>&lt;br&gt;Consider consulting Palliative medicine before PVW.</td>
<td></td>
<td><strong>Morphine</strong>: 15 minutes (IV)</td>
</tr>
<tr>
<td>distress</td>
<td>Systolic BP &gt;160 mmHg</td>
<td></td>
<td>Hydromorphone</td>
<td></td>
<td></td>
<td><strong>Hydromorphone</strong>: 15 minutes (IV)</td>
</tr>
<tr>
<td>Pain</td>
<td>Respiratory rate &gt;30 breaths per minute (&lt;br&gt;or doubling of baseline)</td>
<td></td>
<td>Fentanyl</td>
<td><strong>If opioid naïve</strong>&lt;br&gt;Morphine: 2-4 mg IV/SQ q15 minutes PRN</td>
<td></td>
<td><strong>Fentanyl</strong>: 6 minutes (IV)</td>
</tr>
<tr>
<td></td>
<td>Sustained facial grimace</td>
<td></td>
<td></td>
<td><strong>If opioid naïve</strong>&lt;br&gt;Hydromorphone: 0.2-0.4 mg IV/SQq15 minutes PRN</td>
<td></td>
<td>If SQ, peak effect = 20 minutes</td>
</tr>
<tr>
<td></td>
<td>Sustained motor movement or posturing</td>
<td></td>
<td></td>
<td><strong>Fentanyl</strong>: 25-50 mg IV/SQ q15 minutes PRN</td>
<td></td>
<td><strong>Fentanyl</strong>: 6 minutes (IV)</td>
</tr>
<tr>
<td></td>
<td>Retractions (intercostal or abdominal) (&lt;br&gt;(respiratory distress)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>If SQ, peak effect = 20 minutes</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>Benzodiazepines</td>
<td>Lorazepam</td>
<td><strong>Lorazepam</strong>: 0.5-1 mg IV/SQ q2 hours PRN</td>
<td><strong>Lorazepam</strong>: variable</td>
<td>All benzodiazepines may worsen agitation due to delirium rather than anxiety.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Midazolam</td>
<td><strong>Midazolam</strong>: 1-2 mg IV q2 hours PRN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delirium</td>
<td></td>
<td>Antipsychotics</td>
<td>Haloperidol</td>
<td><strong>Haloperidol</strong>: 0.5-1 mg IV q1 hour PRN</td>
<td><strong>Haloperidol</strong>: Variable</td>
<td>Increased risk of extrapyramidal symptoms with doses &gt; 3 mg/day.</td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess</td>
<td></td>
<td>Anticholinergics</td>
<td>Atropine</td>
<td>1% eye drops 2-4 drops SUBLINGUALLY q4h PRN</td>
<td><strong>Time to onset varies</strong></td>
<td>Current evidence does not support pharmacologic treatment of terminal secretions.</td>
</tr>
<tr>
<td>secretions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* May substitute equivalent dose of other drugs.

**Note:** If initial dose ineffective, may increase by up to 100% and re-administer as soon as time to peak effect has elapsed. Additionally, for all life supports, anticipate family distress and provide education.
### Table 2: Withdrawal of Life Supports*, Anticipated Symptoms, and Best Treatments for Symptoms

<table>
<thead>
<tr>
<th>Life Support</th>
<th>How / When to Withdraw</th>
<th>Likely Symptoms on Withdrawal of Support</th>
<th>Best Treatments for Symptoms</th>
</tr>
</thead>
</table>
| Mechanical Ventilation | For patients on relatively minimal ventilator settings (PEEP <=10, FiO2 <60%), with limited consciousness, or who are otherwise less likely to demonstrate respiratory distress, proceed with PVW.  
For patients on moderate to high ventilator settings exhibiting respiratory distress or with moderate to high levels of consciousness, consider patient preference (trial of alertness vs. more certain control of respiratory distress) and pathophysiology of disease causing (potential) respiratory distress in choosing between PVW or terminal wean.  
In either case, recommend appropriately aggressive titration of comfort medications for control of symptoms.  
If terminal wean is elected, recommend stepwise reductions in PEEP and FiO2, spending just enough time at each new level to determine whether symptoms will occur and to titrate medications to control symptoms.  
On **initiation of PVW** or at end of terminal wean (symptoms controlled with medications, patient on relatively minimal ventilator settings), three options exist:  
  o Wean ventilator settings to SIMV with minimal rate (e.g., 4) and minimal pressure support (e.g., 5-10); minimize apnea settings and alarm settings and volume.  
    - Warn patient and visitors that that ventilator will continue to deliver breaths occasionally and may alarm when ventilation is below a minimum threshold.  
  o Remove ventilator tubing and apply air or oxygen through ET tube or tracheostomy via T-piece.  
  o Proceed with palliative extubation (ET tube only; routine tracheostomy decannulation not recommended). | Respiratory distress  
Variable breathing patterns | Opioid  
Avoid volume overload  
Education: Variable breathing pattern is expected; pauses between breaths will eventually become longer.  
Be prepared for psychosocial/emotional distress of family. Consider Palliative medicine consult. |
| Paralytic Agents | If paralytic agents have been given, ensure that effects have been reversed prior to PVW (i.e., confirm Train of Four has returned to pre-paralytic agent administration level).                                                                                                                                                                                                                      |                                                                                        |                                                                                                             |
| Endotracheal tube | Often removed when mechanical ventilation stopped.  
In some situations (pulmonary edema, hemoptyis), preferable to keep intubated and provide air/oxygen via T-piece, or maintain on ventilator with minimal settings as above, to prevent respiratory distress or uncontained hemoptyis.                                                                                                                                                      | Respiratory distress  
Excess secretions (**death rattle**) | Opioid  
Education: Excess secretions (**Death Rattle**) are akin to snoring and do not generally cause patient discomfort.  
Atropine sublingual  
Avoid volume overload | |
| Dialysis (Hemo or CRRT) | If volume overload is an issue, remove as much fluid as possible prior to stopping.  
Remove temporary catheter only if causing discomfort.  
Remove permanent dialysis catheter only if causing significant discomfort not sufficiently relieved by trial of systemic and topical agents.                                                                                                                                                     | Respiratory distress  
(volume overload)  
Delirium | Consider additional volume removal before discontinuing dialysis.  
Opioid  
Avoid volume overload (IV meds / hydration).  
Antipsychotic for delirium |
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Implantable Cardiac Defibrillator (ICD)</td>
<td>As soon as decision to forgo CPR is made. In an emergency, may be turned off by affixing large magnet over device. ICD function will return if magnet is removed. Magnet will not discontinue pacemaker function.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Pacemaker</td>
<td>No need to turn off implanted pacemaker unless felt to be prolonging the dying process. In most cases, temporary transvenous pacemaker should be discontinued.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Vasopressors</td>
<td>Discontinue after ensuring comfort after completing palliative extubation or terminal wean (to allow circulation of medications for symptom control during process of extubation/weaning).</td>
<td>None</td>
<td>N/A</td>
</tr>
</tbody>
</table>
| Hydration / Nutrition                            | Hold tube feeds and IV hydration starting ideally 12-24 hours before planned PVW if possible, unless they are providing comfort. Continue maintenance fluids at keep vein open if needed. | Symptoms likely to occur if hydration and/or nutrition continued:  
  - Respiratory distress  
  - Nausea  
  - Abdominal discomfort  
  - Edema  
  - Constipation  
  - Dysphagia | Avoid volume overload                           |
| ECMO / VAD                                       | Cardiothoracic attending must be involved Consult Palliative medicine                   |                                                                                                         |                                      |
| Acute Inhaled Pulmonary Vasodilators (for Refractory Hypoxemia) [For chronic Pulmonary Hypertension, discuss with patient’s specialist.] | Discontinue medication at start of palliative withdrawal of life support measures, before weaning or discontinuing mechanical ventilation. Anticipate potential severe symptom burden 25 minutes after discontinuation of inhaled epoprostenol, or 15 minutes after discontinuation of inhaled nitric oxide. | Severe respiratory distress  
  Anxiety | Aggressive opioid administration/titration  
  Benzodiazepine                                    |
| Lines/Drains/Tubes                               | Nasogastric tube: Discontinue unless needed for continued gastric decompression.  
  Orogastric tube: Discontinue unless needed for continued gastric decompression AND maintaining endotracheal/tracheostomy tube.  
  Urinary catheter: Maintain unless causing discomfort.  
  Temporary central venous catheter: Maintain unless causing discomfort.  
  Swan-Ganz catheter: Discontinue  
  Arterial line: Discontinue  
  Chest tube: Continue current drainage method, control pain.  
  Wound vac system: Discuss with wound care team. |                                                                                                         |                                      |
Related Tools

OSUWMC Policies

- Continuous Pharmacologic Neuromuscular Blockade of the Critically Ill Patient
  - Neuromuscular Blockade Quick Reference
- Do Not Resuscitate (DNR) policy
- Brain Death policy
- Opioid Administration in End-of-Life Care
- Postmortem Policy and Procedure
- Postmortem Care Process
  - UH/Ross
  - UHE
  - James

OSUWMC Guideline

- Brain Death

References


Quality Measures

- Frequency of palliative medicine consults
  - If life support measures were withdrawn, was palliative medicine consulted when appropriate
- Code status changed to DNRCC in EMR by the time of palliative withdrawal
- Percent of patients with expected death in hospital, where ICD was deactivated

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Guideline Approved


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