The focus of this guideline is to guide providers 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 assistance with decision-making process or symptom management.
- Consider Pastoral Care consult for grief and bereavement support.
- Consider Ethics Consult if concern for ethical conflict(s).

### Develop Plan of Care

- Discuss goals of care with medical providers, patient/family. Include consultants, nursing, outpatient providers, social work, and 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 patient’s preferred participants; if patient unable to participate, must include legal surrogate decision-maker. Recommend involvement of legal surrogate decision-maker even for patients with capacity for decision-making, to ensure surrogate understanding for decisions and plan.
- 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, providers) during and after PVW, including anticipated symptoms and management plan
- Review plan with patient/family to desired level of detail
- Ensure appropriate treatments are immediately available (e.g., medications in room and given if needed before PVW)
- Encourage family to participate in patient care (bathing, feeding, etc.) to patient’s and their desired level of involvement

### 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

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- Is patient alive ≥ 24 hours after PVW?
  - **YES** Proceed with usual postmortem processes
  - **NO** Is death anticipated within 24 hours?
    - **YES** Continue care in current setting
    - **NO** Consider transition to private room outside of ICU, inpatient hospice, etc.

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- See Postmortem Policy and Procedure, and unit-specific process links, page 5.
- Bereavement pager 7835.
Table 1. Symptom Management: Common Symptoms, Recommended Treatments, and Cautions

Note: If the patient is comfortable on a medication regimen in place prior to initiating PVW, continue the existing regimen (unless route of administration will need to be changed after initiating PVW). Discontinue all medications not currently serving the current care plan in place.

<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 distress/Pain</td>
<td>Heart Rate &gt;120 bpm</td>
<td>Opioids</td>
<td>Morphine</td>
<td><strong>If opioid tolerant</strong></td>
<td>Morphone: 15 minutes (IV)</td>
<td>Active metabolites accumulate in renal failure (morphine)</td>
</tr>
<tr>
<td></td>
<td>Systolic BP &gt;160 mmHg</td>
<td></td>
<td>Hydromorphone</td>
<td><strong>If opioid tolerant</strong></td>
<td>Hydromorphone: 15 minutes (IV)</td>
<td>In hepatic failure, avoid continuous infusion (fentanyl)</td>
</tr>
<tr>
<td></td>
<td>Respiratory rate &gt;30 breaths per minute (or doubling of baseline)</td>
<td></td>
<td>Fentanyl</td>
<td><strong>If opioid tolerant</strong></td>
<td>Fentanyl: 10 minutes (IV)</td>
<td>If considering continuous infusion, see Protocol for Opioid Administration in End-of-Life Care for information on initial dosing, route, and frequency of administration and dose titration.</td>
</tr>
<tr>
<td></td>
<td>Sustained facial grimace</td>
<td></td>
<td></td>
<td><strong>If opioid tolerant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sustained motor movement or posturing</td>
<td></td>
<td></td>
<td><strong>If opioid tolerant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Retractions (intercostal or abdominal) (respiratory distress)</td>
<td></td>
<td></td>
<td><strong>If opioid tolerant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>Benzodiazepines</td>
<td>Lorazepam</td>
<td><strong>Lorazepam</strong>: 0.5 -1 mg IV/SQ q1 hours PRN</td>
<td>Lorazepam: 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 q1 hours PRN</td>
<td>Midazolam: variable</td>
<td></td>
</tr>
<tr>
<td>Delirium</td>
<td>Treat if symptoms cause distress</td>
<td>Antipsychotics</td>
<td>Haloperidol</td>
<td><strong>Haloperidol</strong>: 0.5-1 mg IV q1 hour PRN</td>
<td>Variable</td>
<td>Increased risk of extrapyramidal symptoms with doses &gt; 3 mg/day</td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Excess secretions</td>
<td>Audible upper airway congestion with evidence of patient distress</td>
<td>Anticholinergics</td>
<td>Atropine</td>
<td>1% eye drops 2-4 drops SUBLINGUALLY q4h PRN</td>
<td>Time to onset varies</td>
<td>Current evidence does not support pharmacologic treatment of terminal secretions.</td>
</tr>
</tbody>
</table>

* May substitute equivalent dose of other drugs.

Note: If initial dose ineffective, may increase by up to 100% and readminister 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>
<tbody>
<tr>
<td>Mechanical Ventilation</td>
<td>For patients on relatively minimal ventilator settings (PEEP &lt;=10, FiO2 &lt;60%), with limited consciousness, or who are otherwise less likely to demonstrate respiratory distress, proceed with PVW.</td>
<td>Respiratory distress</td>
<td>Opioid</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Variable breathing patterns</td>
<td>Avoid volume overload</td>
</tr>
<tr>
<td></td>
<td>In either case, recommend appropriately aggressive titration of comfort medications for control of symptoms.</td>
<td></td>
<td>Education: Variable breathing pattern is expected; pauses between breaths will eventually become longer.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
<td>Be prepared for psychosocial/emotional distress of family. Consider Palliative medicine consult.</td>
</tr>
<tr>
<td></td>
<td>On initiation of PVW or at end of terminal wean (symptoms controlled with medications, patient on relatively minimal ventilator settings), three options exist:</td>
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<tr>
<td></td>
<td>o Wean ventilator settings to Pressure Support or 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 deliver breaths intermittently and may alarm when ventilation is below a minimum threshold.</td>
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<tr>
<td></td>
<td>o Remove ventilator settings and apply air or oxygen through ET tube or tracheostomy via T-piece.</td>
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<td></td>
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<tr>
<td></td>
<td>o Proceed with palliative extubation (ET tube only; routine tracheostomy decannulation not recommended).</td>
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<td></td>
</tr>
<tr>
<td>Paralytic Agents</td>
<td>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).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endotracheal tube</td>
<td>Often removed when mechanical ventilation stopped.</td>
<td>Respiratory distress</td>
<td>Opioid</td>
</tr>
<tr>
<td></td>
<td>In some situations (pulmonary edema, hemoptysis), 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 hemoptysis.</td>
<td>Excess secretions (“death rattle”)</td>
<td>Education: Excess secretions (“Death Rattle”) are akin to snoring and do not generally cause patient discomfort.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Atropine sublingual</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Avoid volume overload</td>
</tr>
<tr>
<td>Dialysis (Intermittent or Continuous)</td>
<td>If volume overload is an issue, remove as much fluid as possible prior to stopping.</td>
<td>Respiratory distress (volume overload)</td>
<td>Consider additional volume removal before discontinuing dialysis</td>
</tr>
<tr>
<td></td>
<td>Remove temporary catheter only if causing discomfort.</td>
<td>Delirium</td>
<td>Opioid</td>
</tr>
<tr>
<td></td>
<td>Remove permanent dialysis catheter only if causing significant discomfort not sufficiently relieved by trial of systemic and topical agents.</td>
<td></td>
<td>Avoid volume overload (IV meds / hydration)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Antipsychotic for delirium</td>
</tr>
<tr>
<td>Life Support</td>
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<td>--------------</td>
<td>------------------------</td>
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<td>-----------------------------</td>
</tr>
</tbody>
</table>
| Implantable Cardiac Defibrillator (ICD) | 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. | None | N/A |
| Pacemaker | No need to turn off implanted pacemaker unless felt to be prolonging the dying process.  
In most cases, temporary transvenous pacemaker should be discontinued. | None | N/A |
| Vasopressors | Discontinue after ensuring comfort after completing palliative extubation or terminal wean (to allow circulation of medications for symptom control during process of extubation/weaning). | None | N/A |
| 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 vacuum system: Discuss with wound care team | | |
**Related Tools**

Advanced Illness Pathway Ordersets
- OSU IP: GEN Comfort Care Pathway [3009]

OSUWMC Policies
- Do Not Resuscitate (DNR) policy
- Brain Death policy
- Opioid Administration in End-of-Life Care protocol
- Postmortem Policy and Procedure
- Postmortem Care Process
  - UH/Ross/Brain and Spine
  - UHE
  - James

OSUWMC Guideline
- Brain Death

**References**


**Quality Measures**

- If life support measures were withdrawn:
  - Percentage of patients with code status changed to DNR-CC in IHIS by the time of mechanical ventilation discontinued
  - Percentage of patients with medications ordered to manage respiratory distress, pain, and anxiety
  - Percentage of advanced illness pathway use

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