THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Palliative Ventilator Withdrawal

- 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

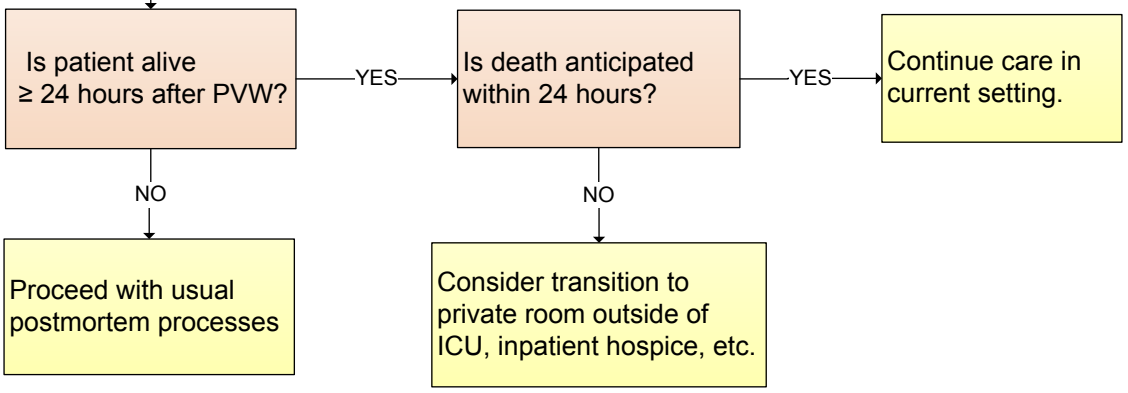
- Discuss goals of care with medical providers, patient/family. Include **consultants, nursing, outpatient physicians, social work, chaplaincy. Attending of record must be involved.**
  - Notify and discuss with patient's primary physician/specialist the decision to withdraw life support.
- Include **patient,** 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.



● 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.

Symptoms	Signs	Drug Class	Drug Examples	Recommended Starting Dose* *(See notes below)*	Time to Peak Effect	Caution
Respiratory distress Pain	Heart Rate >120 bpm Systolic BP >160 mmHg Respiratory rate >30 breaths per minute (or doubling of baseline) Sustained facial grimace Sustained motor movement or posturing Retractions (intercostal or abdominal) (respiratory distress)	Opioids	Morphine Hydromorphone Fentanyl	**If opioid tolerant** Consider consulting Palliative medicine before PVW. **If opioid naïve** **Morphine:** 2-4 mg IV/SQ q15 minutes PRN **Hydromorphone:** 0.2-0.4 mg IV/SQq15 minutes PRN **Fentanyl:** 25-50 mg IV/SQ q15 minutes PRN	**Morphine:** 15 minutes (IV) **Hydromorphone:** 15 minutes (IV) **Fentanyl:** 6 minutes (IV) If SQ, peak effect = 20 minutes	Active metabolites accumulate in renal failure (**morphine**). In hepatic failure, avoid continuous infusion (**fentanyl**). 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.
Anxiety		Benzodiazepines	Lorazepam Midazolam	**Lorazepam:** 0.5 -1 mg IV/SQ q2 hours PRN **Midazolam:** 1-2 mg IV q2 hours PRN	**Lorazepam:** variable **Midazolam:** variable	All benzodiazepines may worsen agitation due to delirium rather than anxiety.
Delirium Nausea	Treat if symptoms cause distress: ○ Inattention ○ Hallucinations ○ Agitation	Antipsychotics	Haloperidol	**Haloperidol:** 0.5-1 mg IV q1 hour PRN	Variable	Increased risk of extrapyramidal symptoms with doses > 3 mg/day.
Excess secretions	Audible upper airway congestion with evidence of patient distress.	Anticholinergics	Atropine	1% eye drops 2-4 drops SUBLINGUALLY q4h PRN	Time to onset varies	Current evidence does not support pharmacologic treatment of terminal secretions.

**** 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			
Life Support	**How / When to Withdraw**	**Likely Symptoms on Withdrawal of Support**	**Best Treatments for Symptoms**
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, 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.	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

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Life Support	**How / When to Withdraw**	**Likely Symptoms on Withdrawal of Support**	**Best Treatments for Symptoms**
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 **Pacemaker Consult Line:** 6-5879 (6 a.m.-6 p.m.)	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 **Pacemaker Consult Line:** 6-5879 (6 a.m.-6 p.m.)	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: o Respiratory distress o Nausea o Abdominal discomfort o Edema o Constipation o 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

- Chan JD, et al. Narcotic and benzodiazepine use after withdrawal of life support: association with time to death? *Chest,* 2004; 286-93.
- Faber-Langendoen K, et al. A prospective study of withdrawing mechanical ventilation from dying patients. *American Journal of Respiratory Critical Care Medicine*, 1996; Abstract (153): A365.
- Lampert R, et al. HRS expert consensus statement on the management of cardiovascular implantable electronic devices (CIEDs) in patients nearing end of life or requesting withdrawal of therapy. *Heart Rhythm*, 2010; 1008-1026.
- Looker ME, et al. Prevalence, impact, and treatment of death rattle: a systematic review. *Journal of Pain Symptom Management*, 2014; 105-122.
- Vella-Brincat J, et al. Haloperidol in palliative care. *Palliative Medicine*, 2004; 195-201.

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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