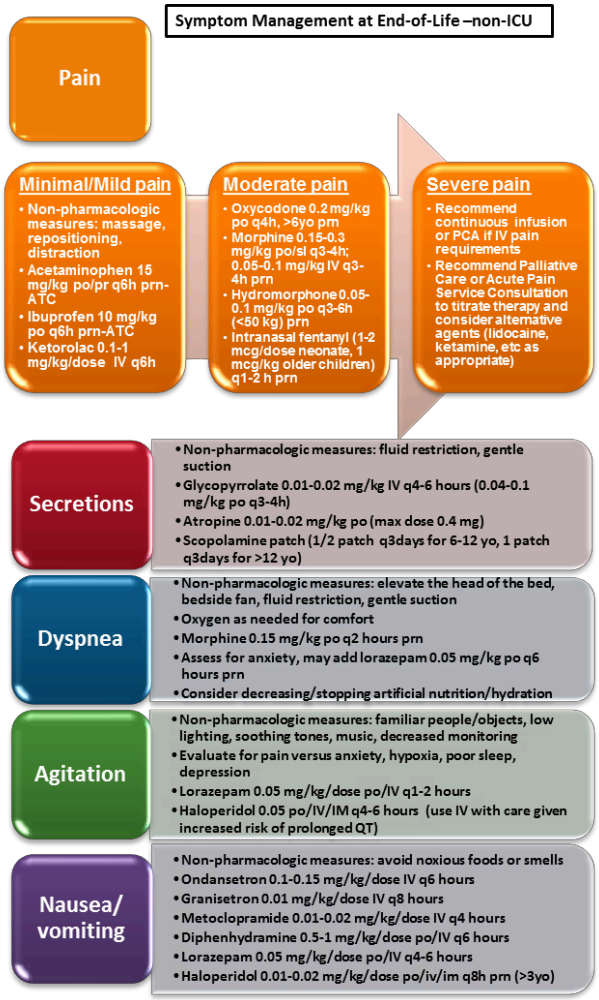


Managing Pain, Dyspnea and Agitation at End-of-life in the **ICU**

Intermittent IV dosing:

Pain or dyspnea starting doses:

Morphine: 0.1 mg/kg **

Hydromorphone: 0.05 mg/kg **

***Reassess every 10 minutes; repeat the dose if distress is present. Once distress is controlled give the total amount it took to control the distress into a single q 3 hour dose. Give 1/3 of this if needed for a breakthrough dose.*

Agitation starting doses:

Lorazepam: 0.05-0.1 to mg/kg q2- 4 hours
(Midazolam has a very short half life)

Haloperidol: 0.05 po/IV/IM q4-6 hours
(use IV with care given increased risk of prolonged QT)

ASSESS DISTRESS

Assess pain: grimace, tachycardia, verbal cues

Assess agitation: writhing, sweating

Assess dyspnea: retractions, flaring, tachypnea (Provide anticipatory guidance if you determine dyspnea is due to terminal respiratory effort)

Family and nurse interpretation and input is essential

Continuous IV infusion:

	Beginning doses	*Later doses may reach or exceed*
Morphine:	0.05 mg/kg/hr	0.1- 5 mg/kg/hr
Hydromorphone	0.01 mg/kg/hr	0.02-1 mg/kg/hr
Fentanyl	1 microgram/kg/hr	2-10 mcg/kg/hr
Midazolam	0.05 mg/kg/hr	0.5-1 mg/kg/hr
Lorazepam	0.02/kg/hr	0.05 -0.2 mg/kg/hr

INCREASE THE DOSE IF DISTRESS PRESENT:

For dyspnea or pain, increase opioid:

Bolus: 1 hour's equivalent dose
AND
Increase infusion rate by 25% to 100%
(25 – 50% if moderate 50 – 100% if severe)

REASSESS EVERY 10 MINUTES

For agitation, increase benzodiazepine infusion rate by 25% to 100%.

Write orders so that the nurse can titrate.

DON'T FORGET

Using opioids with the intent to, and in doses meant to control symptoms is ethically appropriate.

Document in your care note, your plan to assess and treat pain, dyspnea, and agitation.

CHANGE THE OPIOID ONLY IF MYOCLONUS, ITCHING OR DELIRIUM DEVELOPS WITH HIGH DOSING.
(***CONCURRENTLY USING MULTIPLE OPIOIDS IS NOT RECOMMENDED***)

DON'T HESITATE TO CALL FOR HELP or ALTERNATE AGENTS (pager #2288)

Opioid Rotation:

1) Calculate the equianalgesic dose:

Morphine 1mg = Hydromorphone 0.15 mg = Fentanyl 10 micrograms

2) Start the infusion at 50% of the calculated equivalent.

3) Reassess!

Example: morphine is at 12 mg/kg/hour and myoclonus develops. Equivalent hydromorphone is 1.8 mg/kg/hr, decrease initial rate by 50%: 0.9mg/kg/hr.

REASSESS IN 10 MINUTES AND INCREASE AS ABOVE

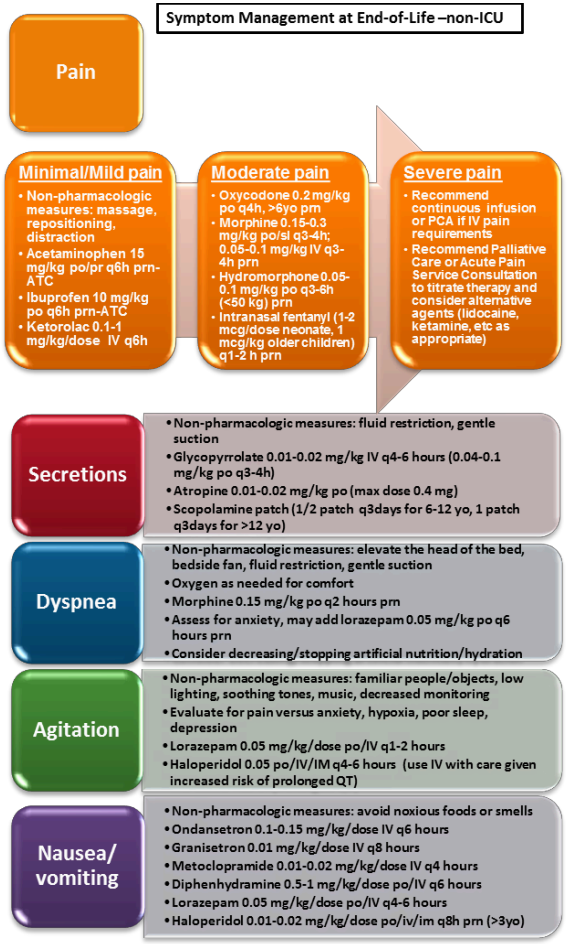
adapted from:

[Algorithms for End-of-Life Care in Anticipated Pediatric Deaths]

University of Michigan

https://open.umich.edu › sites › files › downloads

Symptom Management at End-of-Life –non-ICU



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Approach to ICU Withdrawal

Approach to ICU Withdrawal – continued

Type of Intervention	*Mode of Death*	*Appropriate for…*	*Advantages*	*Disadvantages*	*Don't forget…*
Non-Escalation of Life-Prolonging Therapies	Progression or culmination of underlying disease – usually respiratory or hemodynamic compromise	Patient with terminal progressive disease whose family is uncomfortable withdrawing any life-prolonging therapies	This appropriately allows family to recognize dying as a consequence of disease progression beyond their control.	Can prolong suffering; this method often decreases control over exactly when and how death will occur.	Some families cannot say no to any offered therapy and depend on clinical teams to not offer or not escalate some therapies.
Discontinue Dialysis (HD/PD/CRRT)	• Acidosis • Electrolyte disturbance • Uremia • Fluid overload • Arrythmia • Cardiac arrest	Patient who is not on other forms of life support or whose other forms of life support are being discontinued	• Allows for renal disease to progress to a terminal condition in near term (hours to days) • De-medicalizes care • Uremia can increase sedation	• Can be slow to progress (days) thereby can prolong suffering • Death can be quick (high K) or prolonged (uremia/fluid overload) • Fluid overload can be distressing	If a patient on CRRT has not recovered renal function by approximately 3 months and is not a PD or transplant candidate, some medical services would decline to offer further CRRT.
Discontinue Hemodynamic Support (Inotropes, Vasopressors, VA ECMO)	Hypotension progressing to acidosis, shock, and coma	Patient on significant hemodynamic support	• Hypotension can cause significant sedation, making patients more comfortable. • Patients weaning from very high cardiac support will have a rapid death.	For patients on only moderate support, cessation may not achieve much sedation and may not culminate in death for hours to days. Also, it can precipitate ischemic or CHF symptoms.	If several supports are withdrawn, it is usually preferable to start with hemodynamic support as hypotension is typically sedating and does not cause overt symptoms.
Compassionate Extubation	Hypoxia , hypercarbia, acidosis with secondary hemodynamic collapse	Patient with multi-organ failure, especially if CNS is minimally intact	• De-medicalizes care • Death will be rapid if lung disease is severe	Prompt extubation can result in secretions, obstruction, and acute air hunger that requires prompt response and rapid titration of therapies, especially in the patient with intact CNS.	***Important to stop paralytics first in most cases*** Premedication is helpful to alleviate symptoms.
Stepwise Ventilator Wean Before Compassionate Extubation	Controlled and gradual hypoxia, hypercarbia, and acidosis with secondary hemodynamic collapse	• Patient with irreversible pulmonary disease • Patient with intact CNS not on pressors	• Hypoxia, hypercarbia, and acidosis progress more gradually. • Comfort meds can be titrated step-wise. • Extubation may be better tolerated.	• Can prolong suffering with a high level of technological support and equipment • Can be challenging for some families to see life support	Achieving a comfortable death in the neurologically and hemodynamically intact patient with bad pulmonary disease is particularly challenging. *Symptoms AND family support will require constant attention.*