



END OF LIFE SYMPTOM MANAGEMENT

Neonatal Intensive Care Unit

East Bay Newborn Specialists Guideline

PURPOSE:

This document supports the Neonatal Intensive Care Unit (NICU) team members in the management of symptoms associated with the end of life (EOL) for the neonatal and infant patients in the NICU.

SUPPORTIVE INFORMATION:

The World Health Organization defines pediatric palliative care as “the active total care of the child's body, mind, and spirit, and also involves giving support to the family”.¹ The Palliative Care team provides insight and support, and serves as an adjunct to, not to supplant the role of, the primary care provider. The aim of palliative care is to soothe, comfort, relieve, and prevent symptoms associated with a life limiting disease, and to improve the quality of life for the patient.

Patients in the NICU often have complex medical conditions, complicated further with emotional, social and spiritual challenges of the families involved. Consequently, many of these patients are best served by a well-organized team approach. The role of the Palliative Care team is to support the goals of both the healthcare team and the family. Early consultation with the Palliative Care team, especially as uncertainty of outcomes arises, can help families feel assured that they will be supported throughout the dying process, thus preventing suffering of the infant.²

Examples of patients who will benefit from early referral to Palliative Care for supplemental support include, but are not limited to, patients with congenital and chromosomal anomalies, extreme prematurity with and without complications of severe BPD, Grade IV IVH, PVL, etc..., severe birth asphyxia and hypoxic ischemic encephalopathy, severe neurologic injury and/or poor neurodevelopmental prognosis, complex cardiac anomalies, life threatening organ failure.

When considering EOL care specifically, refer to the [UCSF Benioff Children's Hospital Oakland End of Life Policy \(5.2\)](#). The transition to EOL care requires a partnership with parents and other members of the healthcare team. The goal of EOL care is to provide each patient with a comfortable, dignified death without pain or suffering. Interventions to relieve distressing symptoms should be provided to each infant without hesitation. It is the provider's obligation to treat the objective signs of discomfort and pain as experienced by the infant.

In addition, families experience distress related to gasping, noisy breathing or other symptoms. This distress should be handled with reassurance, emotional support and anticipatory guidance. Appendix A offers strategies and suggestions for supporting these families.

Prepare for all symptoms to occur and have a documented plan for each symptom. It is important to document the plan of care clearly, including the plan for meeting family's goals and for achieving comfort for the patient. This way the plan is clear for everyone who will be caring for the infant.

ETHICAL AND LEGAL CONSIDERATIONS:

- Treatment decisions should be guided by what is considered to be in the infant's best interests.
- Parents have an obligation and are presumed to act in the best interest of the child.
- If treatment decisions cannot be reached together between parents, primary healthcare providers, and the Palliative Care team, an ethics consult should be requested.
- There is no legal or ethical difference between withdrawal of care and withholding of treatments³, including artificial hydration and nutrition.
- It is appropriate to administer opioids and sedatives with the intent of relieving distressing symptoms. This is related to the Principle of Double Effect.

PRINCIPLE OF DOUBLE EFFECT:

The "Principle of Double Effect" asserts that it is morally acceptable to unintentionally cause harm to a patient with foreseen side-effects if the intention is to bring about a good effect. This principle is often used to explain the administration of medications that can potentially cause respiratory depression, when the medication administration is intended to relieve pain or suffering.⁴

Recent research indicates that the use of narcotics in EOL care may not hasten or cause death. Administration of opioids and benzodiazepines does not seem to effect median time to death for patients, even those withdrawn from support.⁵

In summary, it is morally permissible to use opioids and benzodiazepines in doses intended to alleviate symptoms, even if respiratory depression may occur. Clear documentation of the intended goals of treatment, including those of the family, is important. See *DOCUMENTATION* section.

TRANSITION TO END OF LIFE CARE:

- Stop unnecessary medications and painful interventions, including:
 - IV sticks
 - blood draws
 - routine vital signs
- Discuss with parents/caregivers about the removal of all unnecessary medical equipment, including cardiopulmonary monitors.⁶
- Orogastric or nasogastric tubes may be left in place for medication administration. However, these should be removed if parents/caregivers wish.
- Neuromuscular blockade with medications should be discontinued for an appropriate period of time before withdrawal of ventilator support. It is not acceptable except under very special circumstances to extubate a chemically paralyzed patient.

SYMPTOMS & INTERVENTIONS

The perception of pain is present as early as 16-18 weeks gestation, although motor responses to pain may not always be present.⁶ The absence of behavioral and physiological signs of pain does not indicate an absence of pain or discomfort. It is generally accepted to presume that pain exists for infants in all situations that are considered painful for adults.

Every patient has the right to be free of pain and discomfort. Parents and/or caregivers are often aware of subtle changes and needs of the infant. Listen to all parent/caregiver concerns and reassure that everything will be done to ensure the comfort of the infant, although symptoms may not be relieved entirely. Symptoms at EOL can be very distressing to the family and cause increased agitation in the infant. It is imperative to discuss with family that symptoms will be mitigated, but may not be able to be resolved completely throughout the dying process. Reassure the family that the infant will be made as comfortable as possible.

When initiating pharmacologic intervention, consider what access the infant has as well as the scheduling required for medications and ease of administration. The *least* invasive route should be used for pharmacologic interventions. If no IV access is present, utilize the enteral route (including oral, naso/orogastric tube, gastrostomy, buccal or sublingual), and the intranasal route. Subcutaneous route can be used, if IV access is difficult and symptom management is unsuccessful with enteral routes. Opioids, such as morphine and fentanyl, are absorbed as well subcutaneously as intravenously.⁷

NON-PHARMACOLOGIC INTERVENTIONS:

Non-pharmacologic interventions should always accompany pharmacologic interventions. Below is a non-exhaustive list of non-pharmacologic interventions that may provide comfort or mitigate symptoms at end of life:

- Skin-to-skin holding/Kangaroo care
- Sucking/Pacifier/oral sucrose solution
- Swaddling or containment
- Rocking-holding
- Music therapy
- Listening to recordings of loved one's voices
- Massage therapy
- Oral care using moist swabs, using breast milk or colostrum if available
- Petroleum jelly to lips
- Minimal stimulation, including lowering lights and keeping sound to a minimum
- Bedside fan
- Bathing/swaddled bathing

RESPIRATORY DISTRESS

Respiratory distress can increase as end of life progresses. Retractions, tachypnea, nasal flaring, grunting and gasping are all indicators of respiratory distress.

Non-pharmacologic interventions that may be especially helpful include elevating the head of bed, side lying, prone, being held, and providing a bedside fan.

PHARMACOLOGIC INTERVENTIONS:

Opioids can be administered to reduce symptoms of respiratory distress. Opioids work not only to reduce pain and anxiety, but can help to calm respiratory centers and reduce central sensitivity to hypoxia and hypercapnia.⁸

Benzodiazepines can help to decrease the anxiety related to respiratory distress. The combination of benzodiazepine use with opioids has been shown to significantly reduce respiratory distress.

| RESPIRATORY DISTRESS | | | | |
|-----------------------|--|--|-----------------------------|--|
| Medication | Route | Dose | Frequency | Comments |
| <i>Opioid</i> | | | | |
| Morphine | Enteral/SL | 0.06-0.15 mg/kg/dose ^{6,9} | q 2 hrs ¹⁰ | |
| | IV-Bolus/SQ | 0.02-0.05 mg/kg/dose ^{6,9,11} | q 2 hrs ¹⁰ | Initially may be given every 10-15 min as needed to reach comfort ⁸ |
| | IV-Continuous | 0.01-0.02 mg/kg/hr ^{8,11} | | |
| <i>Benzodiazepine</i> | | | | |
| Lorazepam | Enteral | 0.02-0.05 mg/kg/dose ^{6,9} | q 6 hrs ⁹ | |
| | IV-Bolus | 0.02-0.05 mg/kg/dose ^{6,9} | q 6 hrs ⁹ | |
| Midazolam | Enteral | 0.2 mg/kg/dose ⁹ | q 2-4 hrs ¹⁰ | |
| | Intranasal Sublingual buccal | 0.1-0.2 mg/kg/dose ¹¹ | q 1-4 hrs ^{3,6,10} | IV preparation can be used for intranasal, sublingual, buccal route ⁸ |
| | IV-bolus | 0.05-0.15 mg/kg/dose ^{6,9,11} | q 2-4 hrs ¹⁴ | |
| <i>Other</i> | | | | |
| Oxygen | Little evidence exists to whether oxygen is beneficial for respiratory distress at EOL. Oxygen may be given through non-invasive means, assess for relief of symptoms of respiratory distress. | | | |

SECRETIONS

Oral secretions may increase during the end of life, becoming especially apparent with loss of ability to swallow or cough. Congestion can be related to increased fluid in the airway, such as from saliva in the oral cavity, tracheal-bronchial secretions related to the inability to clear the airway, or from decreased airway size related to edema, hypertrophy of the muscles in airway or increase resistance and turbulence.¹²

Non-pharmacologic interventions that may be especially helpful include gentle suctioning or wiping of secretions from mouth, and prone positioning.

PHARMACOLOGIC INTERVENTIONS:

Anticholinergics are used to inhibit salivation and reduce excessive secretions. They should be used at the first sign of congestion as they do not dry up secretions that are already present. If excessive secretions exist related to pulmonary edema, consider diuretics.¹⁰

| SECRETIONS | | | | |
|-------------------------|------------|--|---------------------------|--|
| Medication | Route | Dose | Frequency | Comments |
| <i>Anticholinergics</i> | | | | |
| Atropine | Sublingual | 1-2 drops of 1% ophthalmic solution ⁹ | q 1 hr | Effects local secretions |
| Glycopyrrolate | Enteral | 0.04-0.1 mg/kg ^{6,11} | q 4-8 hrs ^{6,11} | Alternative for excessive secretions when atropine ineffective |
| | IV Bolus | 0.004-0.01 mg/kg ^{6,11} | q 3-4 hrs ¹¹ | |

AGITATION

Brain injury, malformations, or iatrogenic neonatal abstinence syndrome from long term exposure to opioids or benzodiazepines can cause agitation in infants.³

Non-pharmacologic interventions that may be especially helpful include skin-to-skin holding, swaddling or containment, and assessment of other additional causes of agitation such as dyspnea or wet/dirty diaper.

PHARMACOLOGIC INTERVENTIONS:

Benzodiazepines are helpful in reducing agitation at end-of-life. When combined with opioids they have a synergistic sedative effect.¹³

| AGITATION | | | | |
|------------------------|------------------------------------|---|-----------------------------|---|
| Medication | Route | Dose | Frequency | Comments |
| <i>Benzodiazepines</i> | | | | |
| Lorazepam | Enteral | 0.05-0.1 mg/kg (max 2mg/dose) ¹⁰ | q 2-4 hrs ^{3,10} | |
| | IV Bolus | 0.05-0.1 mg/kg ¹⁰ | q 2-6 hrs ^{3,11} | |
| Midazolam | Enteral | 0.25-0.5 mg/kg (max 20mg/dose) ^{6,10,14} | q 2-4 hrs ¹⁰ | |
| | IV Bolus | 0.05-1 mg/kg (max dose 5mg/dose) ¹⁰ | q 2-4 hrs ¹⁴ | |
| | IV continuous | 0.01-0.06 mg/kg/hr ^{6,11,14} | | Consider if giving frequent boluses doses ¹³ |
| | Intranasal Sublingual Buccal | 0.2-0.4 mg/kg ^{3,6,10,14} | q 1-4 hrs ^{3,6,10} | IV preparation can be used for intranasal, sublingual, or buccal route ⁸ |
| <i>Barbiturates</i> | | | | |
| Phenobarbital | Enteral | 2-3 mg/kg in 2-3 divided doses ¹¹ | q 8-12 hrs ¹¹ | |
| | IV Bolus | 2-3 mg/kg in 2-3 divided doses ¹¹ | q 8-12 hrs ¹¹ | |

PAIN

Pain must be assessed frequently during the end-of-life, taking into account both CHO Modified NPASS scores and parental/family reports. All concerns of pain should be managed pharmacologically and non-pharmacologically. The goal of pain management at EOL is to maximize comfort for the infant, unlike acute pain therapy where management of pain is focused on a balance between minimizing cardiorespiratory side effects and maximizing pain relief.

Pain should be assessed at least every 4 hours during EOL using the CHO Modified NPASS scale.¹⁵ Reassessment of pain should be done within one hour of pharmacologic interventions.¹⁵ Medications should be ordered for around the clock therapy as well as a prn dose available for break through pain.

Non-pharmacologic interventions that may be especially helpful include containment, pacifier, and skin to skin holding.

PHARMACOLOGIC INTERVENTIONS:

Pain medications should be administered around the clock using the *least* invasive route possible while managing pain control. Interventions should be tailored to each individual based upon their response to the intervention. Anticipate the need for analgesia rather than reacting to pain scores after the fact.

Mild pain management can be managed with non-opioid analgesics, including acetaminophen and oral sucrose solution (24%).

Moderate to severe pain should be managed with opioid analgesics with the addition of non-opioids as an adjunct when necessary.

Opioids are important for pain management at EOL. Use of opioids *does not* hasten death.¹³

When choosing opioid for pain management, it is important to consider the opioid naivety of the patient. Those have been on long term opioids may require higher dosages.

At the end of life, there is no maximum dose for opiates. Therefore starting at lower dosages and titrating for effect is appropriate.¹³ Changes in the amount and frequency of opioid doses is dependent upon effectiveness of pain alleviation through assessment of pain score, behavioral and physiologic measures and risk factors for pain.¹⁶ Severe pain may also require the addition of acetaminophen as an adjunct to treatment.

Significant adverse effects associated with opioids in EOL care are unusual and often dissipate after 2-3 days of use. Benefits must be weighed against burdens of opiate use.

| PAIN | | | | |
|------------------------------|---------------|--|------------------------------------|---|
| Medications | Route | Dose | Frequency | Comments |
| <i>Non-opioids</i> | | | | |
| Acetaminophen | Enteral | 10-15 mg/kg/dose ^{11,15,17} | q 4-6 hrs ^{3,11,15} | |
| | IV Bolus | 7.5-15 mg/kg/dose ^{11,15,17} | q 6-8 hrs ^{11,17} | |
| | PR | 20 mg/kg/dose ³ | q 4-6 hrs ^{3,6} | |
| Oral Sucrose Solution | Oral | 0.05-0.5 mL/dose ¹⁷ | PRN for short term procedural pain | |
| <i>Opioids</i> | | | | |
| Morphine | Enteral | 0.08-0.5 mg/kg/dose ^{3,6,11} | q 2-6 hrs ^{3,6,11} | No maximum dose during EOL care Dose determined in part by naivety of patient to opioids |
| | IV Bolus | 0.02-0.1 mg/kg/dose ^{3,6,11,15} | q 2-6 hrs ^{6,11,14,15} | |
| | IV Continuous | 0.01-0.03 mg/kg/hr ^{3,10,11,15} | | |
| | SQ | 0.02-0.1 mg/kg ^{10,14} | q 2-4 hrs ^{10,14} | |
| Fentanyl | IV Bolus | 0.5-3 mcg/kg/dose ^{3,6,10,11} | q 2-4 hrs ^{3,6,10,11} | |
| | IV Continuous | 0.5-3 mcg/kg/hr ^{3,6,10,11} | | |
| | Intranasal | 1.5 mcg/kg ¹¹ | | May repeat half dose every five minutes to effect, but not to exceed total dose of 3 mcg/kg ¹¹ IV preparation can be used for intranasal ⁸ |

DOCUMENTATION

Clear documentation of the patient's plan of care, including the family's goals of care, is imperative to ensuring clear communication and collaborative care of patient and family needs. This includes having a clear plan in place to be implemented when symptoms of end of life become apparent.

Documentation should include clear intentions for treatment.

For example:

“Family and health care team have agreed that patient is at end of life and medications will be ordered to manage end of life symptoms without the intent to hasten death.”

Documentation should include any interactions with the family, including family meetings and discussions of end of life logistics, such as autopsy.

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DATE: September 2015

REVIEWED: S. Bennett MD, A. D'Harlingue MD (Presented to EBNS Division Meeting 9/28/2015)

REVIEW DUE: Sept. 2018

Appendix A

FAMILY SUPPORT & COMMUNICATION STRATEGIES

- 1) Tips for talking with parents and families.³
 - a) Always refer to the infant by first name.³
 - b) Meet in a quiet, comfortable place and allow time for discussion.³
 - c) Use trained interpreters for all families who speak a foreign language or are hearing impaired.³
 - d) Be respectful. Use clear, honest language and openly communicate all information in a calm, empathetic, reassuring and unhurried manner.³
 - e) Avoid terms like “withdrawal of care” or “there is nothing else for us to do” as these can convey abandonment to the family.³ Instead discuss redirecting treatment to improve symptoms and avoid pain and discomfort and improve quality of life. This is an active choice to reduce suffering.³
 - f) Avoid euphemisms and use plain language. Use the words “death” and “dying.”³
 - g) Understand that parents may underestimate long-term consequences of their decisions.⁶
 - h) Silence is appropriate and can be powerful. Practitioner silence can give the family time for reflection and enable them to respond to difficult information. Try to avoid filling these silences.
 - i) Address the issue of guilt. Assure family they did nothing wrong and that there is nothing that they could have done.³ In cases involving drug use, suspected non-accidental trauma, and other special cases, consult social services for guidance.
 - j) Address the family’s spiritual and cultural needs. Consider having family invite a trusted member of their religion, their own culture or the hospital chaplain to the meetings.⁶
 - k) Help family prepare for postmortem logistics, such as funeral, cremation, or memorial arrangements, mortuary choices and breast milk suppression as appropriate. Social workers, chaplain and Palliative Care team are available to help families with these concerns.
- 2) Provide psychosocial support for family.³
 - a) Redirect family from cure to hope for improving quality of life and comfort.³
 - b) Reframing hope for a cure to hope for relief of suffering for both family and child, for the good days or weeks that may be left, and for experiences of care and love to fill the time that remains.²
 - c) There are some ill infants who do not respond to intensive medical interventions and technology, a time when these therapies are no longer the best choice for that infant, and their family. These infants are candidates for cessation of curative care and transition to “purely palliative” or comfort care.²
 - d) Do not hesitate to refer family to social workers, chaplain or Palliative Care team.³
 - e) Early consultation with Palliative Care team, especially as uncertainty of outcomes arises, may help families feel assured they will be supported throughout the process, which can prevent suffering of the infant.²

- 3) Prepare the family for the death.³
 - a) Deliver information to family in an empathetic way in a calm quiet environment.³
 - b) Assess what is meaningful for families, such as holding their infant, breastfeeding or meeting other members of the family while the infant is still alive.⁶
 - c) Lift visitation restrictions as able and increase time family allowed to spend with infant.³
 - d) Reassure parents that every effort will be made to keep the infant as comfortable as possible.³
 - e) Discuss possibility of autopsy, if appropriate.
 - f) Sensitively discuss what is going to happen and how the infant is going to look, if parents would like.² Contact Palliative Care for resources such as the family handout “The Last Days to Hours of Life: What You Can Expect”.
 - i) Physical changes: color progression to pale/grayish, lethargy, decreased spontaneous breathing with retractions progressing to agonal respirations, episodes of apnea and bradycardia, feeding intolerance, cool extremities and decreased urine output.³
 - ii) Prepare parents for noisy breathing that occurs as the infant is close to death due to secretions in the airway. There is no evidence that this is distressing to the patient, but the family may find this intolerable.⁶
 - g) Transfer infant to the Reflection Room if appropriate for EOL care and/or post mortem care. Refer to the [UCSF Benioff Children’s Hospital Oakland Palliative Care: Reflection Room Policy \(23.2\)](#).
- 4) Ensure meaningful memories have been created.³
 - a) Allow parents to hold, feed, bathe, dress and spend time with infant.³
 - b) Allow parents to bring in toys, blankets and clothes to make infant’s space more like home.
 - c) Allow family to take the infant outside, if appropriate.
 - d) Lift visitation restrictions as able to ensure family and friends are able to meet the infant.
 - e) Allow rituals of blessing, naming, baptism or recognition of life.
 - f) Offer physical mementos such as footprints, handprints, pictures, lock of hair, blankets, or toys.³
- 5) Care for yourself and colleagues.
 - a) Emotions are normal, but do not make the family feel as though they must comfort you.³
 - b) Take care of yourself and your team. Support each other on the team, especially during these emotional times.
 - c) For particularly challenging situations, it is appropriate to advocate for a staff support or debriefing meeting with Nurse Psychiatric Liaison, Psychiatry Department, Palliative Care Team and/or chaplain. Employees are encouraged to contact our Employee Assistance Program at [ClaremontEAP.com](#) to access supportive services.