SYMPTOM MANGEMENT FOR SHORTNESS OF BREATH/ANXIETY

Symptom management of patients with COVID-19 receiving end-of-life supportive care outside the ICU[1] can be managed by generalist nurses and prescribers. Clinical consultation by the local health authority palliative consult team may be helpful.

Prescriber and nurse utilize a team approach to discuss diagnosis and probable short prognosis with patient and family, ensuring they are aware that medications to manage symptoms may also cause drowsiness.

General information	Dyspnea is the uncomfortable sensation of being short of breath. It may or may not be associated with hypoxia.[3] **Palliative monitoring parameters should be discussed with physician and it is important to assess if symptom relief occurs.** Use the Richmond Agitation Sedation Scale (RASS)[6] if using only benzodiazepines, or Pasero Opioid Sedation Scale (POSS)[5] if on opioids and benzodiazepines **Opioids** are the mainstay of dyspnea management, however, benzodiazepines are helpful adjuvants.[1, 3] Commonly used opioids are morphine and HYDROmorphone, as they can be given by subcutaneous route.[1] (avoid codeine) **Midazolam** is a short-acting hypnotic-sedative drug with anxiolytic, muscle relaxant, anticonvulsant, sedative, hypnotic, and amnesic properties.[6] It belongs to a class of drugs called benzodiazepines. Rapid onset of effects and short duration of action.[6] With multiple doses midazolam gains in potency because of a prolonged plasma half-life.[6] Lorazepam should be tried first as an adjuvant for anxiety, however, for severe anxiety/shortness of breath, midazolam can be used.[1] In palliative care, medication can be given by subcutaneous route: Insert a Subcutaneous butterfly; use a separate butterfly for each medication.[9] Continue to treat underlying medical conditions with regular medications (e.g., digoxin for heart failure or inhalers for COPD) as long as possible.
Symptoms relieved by opioids	• Dyspnea[1] • Cough[1] • Acute respiratory distress and agitation[1] • Relief of these symptoms can conserve energy[1]
Symptoms relieved by benzodiazepines	Anxiety[1, 2]

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<table>
<tr><td>Non-pharmacological</td><td>
Oxygen helps if oxygen saturation is low, or people have an underlying reason for using oxygen (i.e. on home oxygen for COPD). Normally, dying people do not require oxygen if they did not use oxygen before they were dying.[4]

Patient Handout: Breathlessness at home during the COVID pandemic is a useful resource for positioning, breathing techniques and more.

Avoid the use of the following (as they may generate aerosolized COVID-19 particles and infect healthcare workers and family members)[4]:
• Fan
• Oxygen flow greater than 6L/min
• High-flow nasal cannula oxygen
• Continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP)
• All nebulized treatments (bronchodilators, epinephrine, saline solutions, etc.)

A calming presence by a nurse can go a long way to assist patient and family.
</td></tr>
<tr><td>How they work</td><td>
<table>
<tr><th>Medication</th><th>Mechanisms of action</th></tr>
<tr><td>opioids</td><td>Morphine and HYDROmorphone are common opioid analgesics.[2] They work primarily on Mu receptors in the body, to reduce the impulse/sensation of pain; they are CNS depressants.[7]</td></tr>
<tr><td>Midazolam
&
lorazepam</td><td>Midazolam is a short-acting benzodiazepine central nervous system (CNS) depressant.[2]

Benzodiazepines enhance the inhibitory action of the amino acid neurotransmitter gamma-aminobutyric acid (GABA).[2]

Receptors for GABA are targeted by many important drugs that affect GABA function and are commonly used in the treatment of anxiety disorder, epilepsy, insomnia, spasticity, and aggressive behavior.[2]</td></tr>
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<tr><td>Onset and duration</td><td>
Subcutaneous (SC) drug administration is frequent in palliative care patients.[3]

Onset: opioids and midazolam: 15 minutes, subcutaneous
lorazepam: 30 minutes subcutaneous

Duration: less than 2 hours; may need additional dosages
</td></tr>
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Side effects

Medication	Side Effects[2]
Opioids: morphine & HYDROmorphone	Constipation, nausea & vomiting Confusion/delirium Sedation, respiratory depression (less common if start low and go slow)[3]
midazolam	Paradoxical excitation reaction may occur including hyperactive or aggressive behavior Respiratory depression occurs in about 5% patients

Contra-indication

See PDTM: morphine HYDROmorphone midazolam

Reversal agents

Naloxone for opioids[2]

Flumazenil for benzodiazepines[2]

Assessment of symptoms

Assess with validated Symptom Assessment scales: Northern Health or Interior Health or get the person to rate symptom from a 0-10 scale.

Reassess for symptom response after 15 minutes for subcutaneous route (opioids and midazolam); 30 minutes sublingual route (lorazepam).

Assessment of effects of opioids and benzo-diazepines

If patient is on **opioids, use the POSS** to assess level of opioid induced drowsiness[3]
POSS:

POSS	What it means	Nursing Intervention
S	Sleeping	Acceptable, may increase opioid dose
1	Awake and alert	Acceptable; no action necessary; may increase opioid dose if needed
2	Slightly drowsy, easily aroused	Acceptable; no action necessary; may increase opioid dose if needed
3	Frequently drowsy, arousable, drifts off to sleep during conversation	Unacceptable; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory; decrease opioid dose 25% to 50% or notify prescriber for orders
4	Somnolent, minimal or no verbal response to verbal or physical stimulation	Unacceptable; stop opioid; consider administering naloxone; notify prescriber; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory

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Keep goals of care in mind: if patient is actively dying, they will no longer be responsive; clinical judgement and stopping monitoring may be necessary; discuss with prescriber.

If the patient is **only taking benzodiazepines**, use the Richmond Agitation Sedation Scale (RASS) to assess symptom severity and work with prescriber to adjust medication as needed.

Term	Score	Description
+ 4	Combative	Overly combative or violent. Immediate danger to staff.
+ 3	Very Agitated	Pulls/removes tubes or catheters. Has aggressive behavior toward staff.
+ 2	Agitated	Frequent non-purposeful movement.
+ 1	Restless	Anxious or apprehensive but movements not aggressive or vigorous.
0	Alert and Calm	Alert and Calm
- 1	Drowsy	Not fully alert but has sustained (greater than 10 sec.) awakening with eye contact to voice.
- 2	Light Sedation	Briefly (less than 10 sec.) awakens with eye contact to voice.
- 3	Moderate Sedation	Any movement (but no eye contact) to voice.
- 4	Deep Sedation	No response to voice but any movement to physical stimulation.
- 5	Unarousable	No response to voice or physical stimulation.

Reassess for symptom response after 15 minutes for subcutaneous route (opioids and midazolam); 30 minutes sublingual route.

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Procedure for RASS Assessment

Step	Procedure	Score
1	Observe patient. Patient is alert, restless or agitated.	0 to + 4
2	If not alert, state patient's name and say to open eyes and look at speaker. Patient awakens with sustained eye opening and eye contact. Patient awakens with eye opening and eye contact but not sustained. Patient has any movement in response to voice but no eyecontact.	 - 1 - 2 - 3
3	If patient does not respond to voice, physically stimulate patient by shaking shoulder and/or rubbing sternum*: Patient has any movement to physical stimulation Patient has no response to any stimulation.	 - 4 - 5

Dose of opioids	Safety of opioids for dyspnea is well established for end stage organ failure[3] and are recommended for symptom management for those with COVID-19.[1] Review the Symptom management of patients with COVID-19 receiving end-of-life supportive care outside the ICU[1] for further direction on using opioids for those not previously taking opioids and those on opioids already. Regular laxatives (sennosides or PEG) should also be prescribed[1] as constipation is a known side effect.
Family teaching	Engage with your team to ensure comfort is the priority as patients approach end of life. Unmanaged symptoms at time of death will add to distress of patients, family members and bedside staff. Teach patient and family that dyspnea is multifactorial and that dyspnea is not always caused by low oxygen levels.[3] Ask the patient/family about cultural supports or rituals that are important if the person is at risk of transitioning to the spirit world (e.g., prayers, cedar brushing, smudging, visit from Elder).
Link to PDTM	Midazolam morphine HYDROmorphone

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References:

(1) Symptom management of patients with COVID-19 receiving end-of-life supportive care outside the ICU. UBC Division of Palliative Medicine: https://palliativecare.med.ubc.ca/coronavirus/

(2) Vancouver Coastal Health Parenteral Drug Therapy Manual (PDTM): midazolam & morphine

(3) BC Centre for Palliative Care: Symptom Management Guidelines Dyspnea

(4) Canadian Association of Emergency Physicians. End-of-life care in the Emergency Department for the patient imminently dying of a highly transmissible acute respiratory infection (such as COVID-19): https://caep.ca/covid-19/covid-19-clinical-flow-charts-guidelines-and-protocol/

(5) Registered Nurses Association of Ontario - Pasero Opioid -Induced Sedation Scale (POSS) with Interventions: https://ltctoolkit.rnao.ca/sites/default/files/resources/Appendix%20O.pdf

(6) Northern Health: Richmond Agitation Sedation Scale (RASS): https://www.northernhealth.ca/sites/northern_health/files/health-professionals/palliative-care/documents/richmond-agitation-sedation-scale.pdf

(7) Alberta Health Opioids: Information for health providers: https://www.albertahealthservices.ca/assets/info/res/mhr/if-res-mhr-hp-opioid-info.pdf

(8) Patient Handout on Breathlessness: Northern Health: https://physicians.northernhealth.ca/sites/physicians/files/physician-resources/covid-19/breathlessness-home-COVID-19.pdf

(9) Vancouver Coastal Health: Medication: Subcutaneous (Intermittent and Continuous): http://shop.healthcarebc.ca/vch/VCHDSTs/D-00-12-30306.pdf

Further Reading/Information:

Pallium Canada webinar: Managing Dyspnea in Patients with COVID-19 one-hour webinar: https://youtu.be/Z_Pu2peHeHI

Thunder Bay Regional Health Sciences: Video How to Insert a Subcutaneous Butterfly: https://www.youtube.com/watch?v=li47I4861gY

UBC, Division of Palliative Care website - links to different health authorities, COVID specific orders, updated daily: https://palliativecare.med.ubc.ca/coronavirus/