Opioid Infusion Guidelines for Palliative Care

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Goal of Opioid Infusion Guidelines

- Establish a step by step approach to rational opioid infusion prescribing
- Recognize that an order to “start a Morphine infusion at 1mg/hour and titrate to effect” is pharmacologically unsound and unsafe

Morphine 1 mg/hr and titrate. Why is this inappropriate?

- This order places full responsibility for dose titration upon the nurse.
- It provides no guidance regarding what dose to titrate or dose titration intervals.
- It poses the potential for over dosage by too zealous dose escalation
- Provides only one option for poorly controlled pain – increasing the rate.
- Steady state drug levels are not being achieved with frequent infusion rate changes.

Preferred Dosing Method-- Example

- Begin infusion at 2 mg/hr and give morphine 2 mg q15min for breakthrough pain.
- If patient requires 2 or more doses per hour, increase infusion rate according to titration chart (3 mg/hr)

Why is this preferred?

- Order provides basal rate and breakthrough dose.
- The breakthrough dose has a peak effect within 10 minutes (effect is quicker)
- If breakthrough dose is inadequate, another dose may be given.
- Titration of basal rate is based on the need for breakthrough pain doses

TJUH Opioid Infusion Guidelines for Palliative Care

- These guidelines are for the initiation and titration of continuous opioid infusions with the goal of controlling symptoms in patients experiencing pain and/or dyspnea associated with terminal illness.
- The intent of therapy is to relieve intractable suffering, not hasten death.

TJUH Opioid Infusion Guidelines for Palliative Care

- Opioid naïve patient
  - Start infusion at 1 mg/hr
  - With initiation of therapy, a bolus dose of 2 mg is appropriate
  - If a patient requires 2 or more bolus doses in an hour, the infusion rate should be increased to the next rate according to the titration chart.

Opioid naïve patient

- An increase should not occur more frequently than once per hour.
- Each time the basal infusion is increased, the bolus dose may need to be increased.
- Once the patient's symptoms have been controlled, maintain the current effective infusion rate.

Opioid Naïve Patient-- Morphine

Infusion Rate	PRN Bolus Doses
1 mg/hr	2 mg every 15 minutes
2 mg/hr	2 mg every 15 minutes
3 mg/hr	2 mg every 15 minutes
5 mg/hr	3 mg every 15 minutes
8 mg/hr	4 mg every 15 minutes
12 mg/hr	6 mg every 15 minutes
16 mg/hr	6 mg every 15 minutes
20 mg/hr	10 mg every 15 minutes
26 mg/hr	10 mg every 15 minutes
32 mg/hr	10 mg every 15 minutes
40 mg/hr	10 mg every 15 minutes

Opioid Naïve Hydromorphone

Infusion Rate	PRN Bolus Doses
0.2 mg/hr	0.4 mg every 15 minutes
0.4 mg/hr	0.4 mg every 15 minutes
0.6 mg/hr	0.4mg every 15 minutes
1 mg/hr	0.6 mg every 15 minutes
1.6 mg/hr	0.8 mg every 15 minutes
2.4 mg/hr	1.2 mg every 15 minutes
3.2 mg/hr	1.2 mg every 15 minutes
4 mg/hr	2 mg every 15 minutes
5.2 mg/hr	2 mg every 15 minutes
6.4 mg/hr	2 mg every 15 minutes
8 mg/hr	2 mg every 15 minutes

Opioid Naïve Fentynl

Infusion Rate	PRN Bolus Doses
10 mcg/hr	20 mcg every 15 minutes
20 mcg/hr	20 mcg every 15 minutes
30 mcg/hr	20 mcg every 15 minutes
50 mcg/hr	30 mcg every 15 minutes
80 mcg/hr	40 mcg every 15 minutes
120 mcg/hr	60 mcg every 15 minutes
160 mcg/hr	60 mcg every 15 minutes
200 mcg/hr	100 mcg every 15 minutes
260 mcg/hr	100 mcg every 15 minutes
320 mcg/hr	100 mcg every 15 minutes
400 mcg/hr	100 mcg every 15 minutes

Why were these doses selected?

- Basal infusion rate
  - Going from 1 to 2mg/hr is a 100% increase
  - Going from 10 to 11 mg/hr is a 10% increase
  - Doses are usually increased by 25 to 100% depending on the severity of the pain.

Why were these doses selected?

- Breakthrough pain doses
  - Patient receiving 2 mg/hr receives 2 mg bolus (100%).
  - If patient is receiving 20 mg/hr and the bolus dose remained at 2 mg, bolus dose is only 10% of basal. Patient will not receive relief from bolus if not 25 to 100% of basal.

Opioid Tolerant Patient

- MD calculates the 24 hour dose of the currently used opioid (conversion table)
- Convert to an equianalgesic dose IV morphine and divide by 24 to calculate starting hourly rate.
- If the patient requires 2 or more boluses in an hour, the infusion rate should be increased to the next infusion rate on the titration chart.

Opioid Tolerant Patient

- Do not increase basal rate more than once an hour.
- Each time the basal infusion is increased, the bolus dose may need to be increased.
- Once the patient's symptoms have been controlled, maintain the current effective basal infusion rate.

Opioid Tolerant -Morphine

Infusion Rate	PRN Bolus Doses
1 mg/hr	2 mg every 15 minutes
2 mg/hr	2 mg every 15 minutes
3 mg/hr	2 mg every 15 minutes
5 mg/hr	4 mg every 15 minutes
8 mg/hr	4 mg every 15 minutes
12 mg/hr	8 mg every 15 minutes
16 mg/hr	8 mg every 15 minutes
20 mg/hr	10 mg every 15 minutes
26 mg/hr	15 mg every 15 minutes
32 mg/hr	20 mg every 15 minutes
40 mg/hr	20 mg every 15 minutes

Opioid Tolerant Hydromorphone

Infusion Rate	PRN Bolus Doses
0.2 mg/hr	0.4 mg every 15 minutes
0.4 mg/hr	0.4 mg every 15 minutes
0.6 mg/hr	0.4 mg every 15 minutes
1 mg/hr	0.8 mg every 15 minutes
1.6 mg/hr	0.8 mg every 15 minutes
2.4 mg/hr	1.6 mg every 15 minutes
3.2 mg/hr	1.6 mg every 15 minutes
4 mg/hr	2 mg every 15 minutes
5.2 mg/hr	3 mg every 15 minutes
6.4 mg/hr	4 mg every 15 minutes
8 mg/hr	4 mg every 15 minutes

Opioid Tolerant Fentynl

Infusion Rate	PRN Bolus Doses
10 mcg/hr	20 mcg every 15 minutes
20 mcg/hr	20 mcg every 15 minutes
30 mcg/hr	20 mcg every 15 minutes
50 mcg/hr	40 mg every 15 minutes
80 mcg/hr	40 mcg every 15 minutes
120 mcg/hr	80 mcg every 15 minutes
160 mcg/hr	80 mcg every 15 minutes
200 mcg/hr	100 mcg every 15 minutes
260 mcg/hr	150 mcg every 15 minutes
320 mcg/hr	200 mcg every 15 minutes
400 mcg/hr	200 mcg every 15 minutes

Opioid Palliative Care Protocol—Morphine >40mg/hr

Infusion Rate	PRN bolus doses
40 mg/hr	20 mg every 15 minutes
50 mg/hr	20 mg every 15 minutes
60 mg/hr	25 mg every 15 minutes
75 mg/hr	30 mg every 15 minutes
90 mg/hr	30 mg every 15 minutes
110 mg/hr	40 mg every 15 minutes
135 mg/hr	40 mg every 15 minutes
165 mg/hr	50 mg every 15 minutes
200 mg/hr	50 mg every 15 minutes
240 mg/hr	50 mg every 15 minutes
280 mg/hr	80 mg every 15 minutes
340 mg/hr	80 mg every 15 minutes
400 mg/hr	80 mg every 15 minutes

Opioid Tolerant Palliative Care Infusion requiring doses of Hydromorphone >8mg/hr

Infusion Rate	PRN bolus doses
8 mg/hr	4 mg every 15 minutes
10 mg/hr	4 mg every 15 minutes
12 mg/hr	5 mg every 15 minutes
15 mg/hr	6 mg every 15 minutes
18 mg/hr	6 mg every 15 minutes
22 mg/hr	8 mg every 15 minutes
27 mg/hr	8 mg every 15 minutes
33 mg/hr	10 mg every 15 minutes
40 mg/hr	10 mg every 15 minutes
48 mg/hr	10 mg every 15 minutes
56 mg/hr	16 mg every 15 minutes
68 mg/hr	16 mg every 15 minutes
80 mg/hr	16 mg every 15 minutes

Fentanyl Infusion for Palliative Care Opioid tolerant patient requiring doses > 400mcg/hr

Infusion Rate	PRN bolus doses
400 mcg/hr	200 mcg every 15 minutes
500 mcg/hr	200 mcg every 15 minutes
600 mcg/hr	250 mcg every 15 minutes
750 mcg/hr	300 mcg every 15 minutes
900 mcg/hr	300 mcg every 15 minutes
1100 mcg/hr (1.1 mg/hr)	400 mcg every 15 minutes
1350 mcg/hr (1.35 mg/hr)	400 mcg every 15 minutes
1650 mcg/hr (1.65 mg/hr)	500 mcg every 15 minutes
2000 mcg/hr (2 mg/hr)	500 mcg every 15 minutes
2400 mcg/hr (2.4 mg/hr)	500 mcg every 15 minutes
2800 mcg/hr (2.8 mg/hr)	800 mcg every 15 minutes
3400 mcg/hr (3.4 mg/hr)	800 mcg every 15 minutes
4000 mcg/hr (4 mg/hr)	800 mcg every 15 minutes

Patient Monitoring

- MD will have a choice of monitoring
  - Pain Scale
    - Numeric Pain Scale
    - Wong-Baker Faces Scale
  - Checklist of Nonverbal Pain Indicator (CNPI) Scale
  - Dyspnea Evaluation

CNPI-Checklist of Nonverbal Pain Indicators

The instructions for use of the Non-Verbal Pain Indicators (CNPI)

•***Use this assessment tool a) only for adults and b) ONLY if the adult patient cannot self-report his/her pain.***

•Discuss the patient's individualized signs of pain with the patient's family/significant other

•For patients who are monitored, you may also assess vital signs. Note: B/P, pulse, respiratory rate, pulse oximetry,

•For sedated/paralyzed patients on a ventilator, consider lightening up the sedation/paralytics once/day (check with physician) to assess pain. Adjust analgesics when necessary. Terminal patients are exempt from this.

•Consider medicating the patient with analgesic if the pain score is greater ≥ then the midpoint of subtotal score or total score. The interpretation is as follows '1-2' mild pain, '3-4' moderate pain, '5-6' severe pain.

•If you suspect a patient is in pain (even if the score is not > the midpoint of a subtotal or total score), obtain a score, medicate if appropriate & re-score (re-assess) the patient at the medication's peak effect.

CNPI Tool Directions:

Write an "0" if the behavior was not observed, and a "1" if the behavior occurred even briefly during activity or rest.

Sum up the scores in the "With Movement" column and Sum up the scores in the "At Rest" column for the Subtotal scores.

Total the sub scores to obtain a total score.

1 = behavior occurred even briefly 0 = behavior not observed	With Movement	At Rest
1. **Vocal complaints: Non-verbal** Expression of pain, not in words, but moans, groans, grunts, cries, gasps, sighs		
2. **Facial Grimaces/Winces** (Furrowed brow, narrowed eyes, tightened lips, jaw drop, clenched teeth, distorted expressions)		
3. **Bracing** (Clutching or holding onto side rails, bed, tray table, or affected areas during movement)		
4. **Restlessness** (Constant or intermittent shifting of position, rocking, intermittent or constant hand motions, inability to keep still)		
5. **Rubbing** (Massaging affected areas)		
6. **Expressed vocal complaints: Verbal** (Words expressing discomfort or pain – "ouch" "that hurts", cursing during movement, or exclamation of protest – "stop", "that's enough"		
Subtotal both		
Total score =	_____/12	

Dyspnea evaluation

Respiratory rate > 30

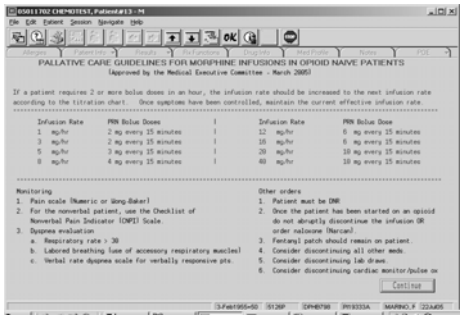
Labored breathing (use of accessory respiratory muscles)

Verbal rating dyspnea scale for verbally responsive patients

i. None
ii. Mild
iii. Moderate
iv. Severe
v. Horrible

TJUH Opioid Infusion Guidelines for Palliative Care

- Other Considerations
  - Once patient is started on an opioid infusion, do not abruptly stop the infusion or give naloxone.
  - Fentanyl patch should remain on the patient.
  - Consider discontinuing other monitoring, medications, and lab draws
  - Patient is a DNR



PALLIATIVE CARE GUIDELINES FOR MORPHINE INFUSIONS IN OPIOID NAIVE PATIENTS

(Approved by the Medical Executive Committee - March 2005)

IF a patient requires 2 or more bolus doses in an hour, the infusion rate should be increased to the next infusion rate according to the titration chart. Once symptoms have been controlled, maintain the current effective infusion rate.

Infusion Rate	PRN Bolus Dose		Infusion Rate	PRN Bolus Dose
1 mg/hr	2 mg every 15 minutes		12 mg/hr	6 mg every 15 minutes
3 mg/hr	2 mg every 15 minutes		16 mg/hr	6 mg every 15 minutes
5 mg/hr	3 mg every 15 minutes		20 mg/hr	10 mg every 15 minutes
8 mg/hr	4 mg every 15 minutes		40 mg/hr	10 mg every 15 minutes

Monitoring
1. Pain scale (Numeric or Wong-Baker)
2. For the nonverbal patient, use the Checklist of Nonverbal Pain Indicator (CNPI) Scale.
3. Dyspnea evaluation
   a. Respiratory rate > 30
   b. Labored breathing (use of accessory respiratory muscles)
   c. Verbal rate dyspnea scale for verbally responsive pts.

Other orders
1. Patient must be DNR
2. Once the patient has been started on an opioid do not abruptly discontinue the infusion OR order naloxone (Narcan).
3. Fentanyl patch should remain on patient.
4. Consider discontinuing all other meds.
5. Consider discontinuing lab draws.
6. Consider discontinuing cardiac monitor/pulse ox

Continue

Pain only becomes unmanageable when the clinicians involved give up. Although I realize that the world in which we live is real, and therefore imperfect, as a physician I consciously adopt the attitude that there is no such thing as uncontrollable pain, only pain that has yet to be controlled.

Quoted by: Dr. Ira Byock (*On Dying Well*)