Continuous Subcutaneous Fentanyl Infusion- Clinical Practice Guideline in Acute Palliative Care Settings- Adult Only

Site Applicability

Richmond Health Services (RHS) Supportive Palliative Care Unit (SPCU) to be used in palliative care settings only.

Practice Level

1. Basic Skill
2. Registered Nurse (RN)

Policy Statement

1. Must have Physician orders prior to administering continuous subcutaneous fentanyl infusions
2. Complete fentanyl continuous subcutaneous infusion pre-printed orders
3. Resuscitation equipment must be readily available and accessible when administering continuous subcutaneous fentanyl infusion
4. Naloxone and atropine must be readily available on the unit
5. Renal function and hepatic function lab work should be done as baseline as well as during administration as per Dr.'s discretion
6. Monitor and assess CVS, CNS statues , respiratory system as per recommendation within this guideline
7. Parenteral Drug Therapy Manual (Fentanyl) and Fentanyl Dosage Chart must be used for dosing and dosing adjustments (Appendix C)
8. Dedicate subcutaneous site for fentanyl Infusion only. Do not infuse or administer any other medication through the dedicated site
9. Fentanyl Infusion must be delivered via an infusion pump
10. Must use Pasero Opiod- Induced Sedation Scale (POSS) (In accordance with CPD-P-075) (Appendix A)
11. If patient concurrently receiving Fentanyl as well as sedative infusion such as Midazolam the patient sedation should be assessed using the PASERO opiods sedation scale (POSS) (in accordance with CPD-P 075)
12. Must use recommended pain scale (Numeric Rating Pain Scale, or Faces Pain Scale, or Behavioral Pain Scale for patients who can not communicate (See Appendix D) when monitoring and/or assessing and/or adjusting Fentanyl continuous infusions

Need to Know

- Fentanyl is an opioid agonist used to treat moderate to severe pain
- Mechanism of Action: Binds with stereospecific receptors at many sites within the CNS, increases pain threshold, alters pain reception, and inhibits ascending pain pathways
- Fentanyl is a potent narcotic analgesic with a rapid onset and short duration of action. The principal actions are analgesia and sedation
- Fentanyl doses are charted in **micrograms (mcg)**
- Improper administration of fentanyl can lead to serious complications (see adverse affects); therefore, subcutaneous infusions require close monitoring for drug toxicity and adverse affects
- When infused subcutaneously it may accumulate in the tissue, especially in elderly people, making dosing unreliable
- Fentanyl should be trialed only after traditional opioids have failed to manage the patient's pain (see Appendix B for Equianalgesic Chart). Under certain circumbstances it is necessary to use fentanyl in opiate naïve patients including, renal failure (fentanyl is preffered to morphine and other opitaes

but *must be used with caution*), and adverse reactions/allergies to morphine. (see Appendix C for Suggested Starting Doses if *opiate naïve*)

Indications

- History of persistent, moderate to severe chronic pain
- Oral route is not tolerable or feasible
- Less side effects than hydromorphone
- Non-opioid tolerant patients

Contraindications

- Use with caution: adrenal insufficiency, billiary tract impairment, bradycardia, drug abuse, head trauma, intracranial bleeds, oral mucositis
- Use with caution with severe renal or hepatic impairment
- Use with caution in elderly patients (reduce dosage)
- Use with caution with patients taking monoamine oxidase inhibitors (MAOI's)
- Intolerance or hypersensitivity to fentanyl
- Patients with severe respiratory depression
- Paralytic ileus

Adverse effects

- Cardiovascular: Bradycardia, edema, circulatory depression, tachycardia, hypotension Use with caution with severe renal or hepatic impairment
- Respiratory: Respiratory depression, dyspnea Use with caution with patients taking MAO's
- Central nervous system (CNS): CNS depression, confusion, hallucinations, dizziness, fatigue, headache, sedation, decreased level of consciousness (LOC), seizures, myoclonic movements, blurred vision
- Endocrine & metabolic: Dehydration
- Gastrointestinal: Constipation, nausea, vomiting, xerostomia (dry mouth)
- Local: Application-site reaction erythema, itching
- Neuromuscular & skeletal: Chest wall rigidity (high dose I.V.), muscle rigidity, weakness

Equipment & Supplies

- Refer to Subcutaneous Butterfly Canula- Insertion, Maintenance and Medication Administration
- Infusion pump
- IV tubing
- Obtain pre-prepared fentanyl infusion bag from pharmacy
- Patient chart – doctor's pre printed order

Procedure Guideline

Medication Administration

1. Refer to subcutaneous butterfly cannula-insertion maintenance and medication administration policy
2. Two RN's check physician's orders against the prepared solution IV bag/ document on Medication Administration Record (MAR)
3. Two RN's must check physician's orders against the prepared Fentanyl solution IV bag
4. Flag Fentanyl order with yellow sticker on physician notes form within the patient chart
5. Document on Medication Administration Record (MAR)
6. Set the infusion pump as per physician orders
7. Prime tubing with Fentanyl infusion medication using infusion pump

8. Two RN's must double check correct pump settings against the physician medication orders prior to attaching pump to the patient pre inserted needle-free cap
9. Connect tubing directly to the pre inserted needle-free cap
10. Unclamp tubing and commence infusion at prescribed rate (refer to table below for pre administration assessment)

Assessment & Monitoring

Pre administration Assessment	• Obtain baseline vitals including blood pressure, heart rate, temperature, respiratory rate and oxygen saturation • Obtain baseline pain assessment using the numeric pain scale or faces pain scale or behavioral pain scale • Assess cognition and obtain baseline sedation using Pasero Opioid-Induced Sedation Scale (POSS)
During-administration Assessment	• Assess vitals, including temperature, pulse, respirations, blood pressure and SPO2, along with pain, sedation and adverse reactions • See table below re frequency
Post Medication Discontinuation Assessment	• Assess vitals, including temperature, pulse, respirations, blood pressure and SPO2, along with pain, sedation and adverse reactions • See table above re monitoring frequency
NOTE	• **Note if dosage changes repeat vital signs every 15 min x 1 hour then q4H** • Document assessment, monitoring and findings on relevant documents

Hemodynamic: BP, HR, Temp	**Respiratory: RR, O2 sat**	**CNS: sedation, cognition**	**Pain Scale**
Q 15 mins x 1 H	Q 15 mins x 1 H	Q 15 mins x 1 H	Q 15 mins x 1 H
Q 4 H & PRN	Q 4 H & PRN	Q 4 H & PRN	Q 4 H & PRN
Q shift & PRN	Q shift & PRN	Q shift & PRN	Q shift & PRN
Post Medication/Discontinuation One hour and PRN	Post Medication/Discontinuation One hour and PRN	Post Medication/Discontinuation One hour and PRN	Post Medication/Discontinuation One hour and PRN

Expected Patient Outcomes

Patient will report pain less than or equal to 3/10 using the numeric pain scale, Faces Pain Scale, or Behavioral Pain Scale if client is not able to verbalize level of pain.

Patient Education

- Physician/ RN to inform patient and family re purpose of fentanyl continuous subcutaneous infusion
- In addition, physician/RN to advise patient and/or family to report immediately any of the following reactions: Changes in breathing patterns, chest pain, tachycardia, bradycardia, headache, severe dizziness, syncope, illogical thinking, considerable nausea, significant constipation, diarrhea
- Encourage patient to increase fluid and fiber intake

Evaluation

Client will report managed pain less than or equal to 3/10 using the numeric pain scale, or Faces Pain Scale or Behavioral Pain Scale if client is not able to verbalize level of pain

Documentation

Document in:

- Kardex - the date of insertion, site location, fentanyl dosage and concentration
- Chart - patient's response to procedure as well as teaching
- Chart – family's coping and response to treatment
- Medication Administration Record
- Continuous Subcutaneous Infusion Analgesia and or/Sedation recording Log Recording Log
- Document assessment data prior to infusion, during infusion, and after discontinuation of the infusion

Related Documents/Appendices

1. Subcutaneous butterfly canula- insertion, maintenance and mediation administration
2. Pasero Opioid-Induced Sedation Scale (Appendix A)
3. Equianalgesic dosing for management of acute or chronic pain (Appendix B)
4. Suggested Starting Doses if opiate naïve (Appendix C)
5. Numeric Rating Pain Scale (Appendix D)
6. Faces Pain Scale (Appendix D)
7. Behavioral Pain Scale Appendix D)
8. Continuous Subcutaneous Infusion of Analgesia AND /OR Sedation Recording Log Recording Log

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Developed By

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Reviewed By: RHS Medical Director Palliative Program	**Nov 19, 2014**
Approved By: RHS Medical Director Palliative Program	**Date: Dec 01, 2014**

Date of Approval/Review/Revision

Appendices:

A) Pasero Opioid-Induced Sedation Scale (POSS)

Pasero Opioid-Induced Sedation Scale (POSS)		
Score		**Meaning of Score**
S	Sleep, easy to rouse	**Acceptable**; no action necessary; may increase opioid dose if needed
1	Awake and alert	**Acceptable**; no action necessary; may increase opioid dose if needed
2	Slightly drowsy, easily roused	**Acceptable**; no action necessary; may increase opioid dose if needed
3	Frequently drowsy, rousable, drifts off to sleep during conversation	**Unacceptable;** • stop infusion, hold next oral dose of opioid **and** NOTIFY prescriber for adjustment of opioid orders • monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory • consider administering a non-sedating, non-opioid analgesic for pain i.e. acetaminophen or NSAID
4	Somnolent, minimal or no response to verbal and physical stimulation (use trapezius muscle squeeze for physical stimulation - do not use sternal rub)	**Unacceptable;** • stop opioid • oxygen by mask 10L/min and monitor vital signs • administer naloxone as per order • IMMEDIATELY page Prescribing Service STAT • **PROVIDE AIRWAY and BREATHING SUPPORT** • **DO NOT re-commence opioid therapy prior to patient being seen by the prescribing service physician**

B) Equianalgesic Chart

Drug	IV/IM/Subcutaneous	PO/Rectal/Sublingual	Duration of Action (hours)
Codeine	120 mg	200 mg	3 - 4 hours
Fentanyl	100 mcg (0.1 mg)	-	2 - 3 hours
Fentanyl Transdermal	25 mcg/hour= 30 to 66 mg morphine IV/IM/24 hours	25 mcg/hour= 60 to 134 mg morphine PO/ 24 hours	3 days
Hydromorphone	2 mg	4 mg	3 - 4 hours
Morphine	10 mg	20 - 30 mg	3 – 4 hours
Oxycodone	-	15 – 20 mg	3 – 4 hours

C) Suggested Starting Doses if *opiate naïve*

Subcutaneous PRN	**25mcg** q30 minutes PRN
Subcutaneous infusion over 24hours	**50-100 mcg** titrating gradually according to symptom control. Also chart **25mcg** subcutaneously q30 minutes PRN.
Note: Injectable fentanyl is only available at the concentration of 50mcg/ml and so at higher doses a large volume is needed. It is not convenient to administer large volumes by the subcutaneous route, so it is recommended that at doses higher than **600mcg per 24 hours**, Transdermal Fentanyl (Durogesic) patches are used instead.	

1.Daily Doses

Morphine PO 24 hour dose (mg)	Morphine Subcutaneous 24 hour dose (mg)	Fentanyl Subcutaneous 24 hour dose (mcg)
10	5	50
20	10	100
30	15	150
60	30	300
90	45	450
120	60	600
Patches are used instead. 600mcg is equivalent to a 25mcg/hour Fentanyl Patch. The patient may require a higher dose but this needs to be titrated according to response. PRN dose of subcutaneous fentanyl must be documented.		

2. PRN Doses

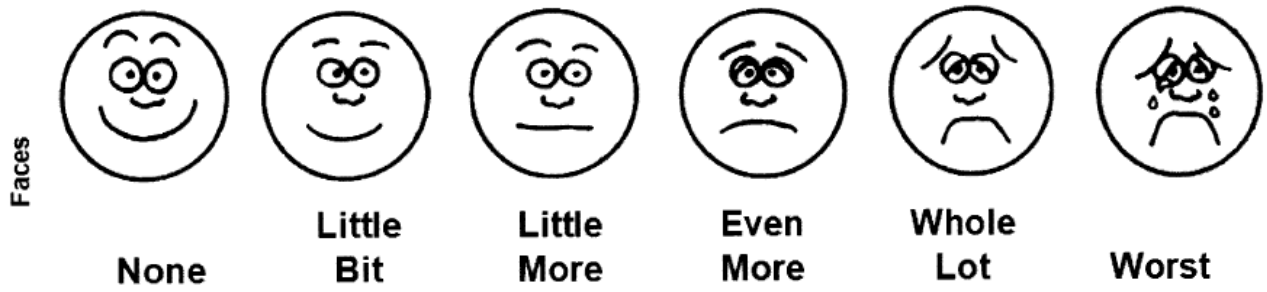
Fentanyl Subcutaneous 24 hour dose (mcg)	Fentanyl Subcutaneous q30mins PRN dose (mcg)
50	12.5
100	12.5
150	25
300	50
450	75
600	100
** The PRN dose of fentanyl for a patient receiving an infusion of 50mcg over 24 hours is 12.5mcg q30 minutes PRN as it is difficult to administer doses smaller than this.*	

D) Pain Scales

If patient can communicate, use 0 to 10 Numeric Rating Scale (NRS):

0	No pain
1to 3	Mild pain
4 to 5	Moderate pain
6 to 7	Severe pain
8 to 9	Very severe pain
10	Worst possible pain

If patient is unable to use the numeric pain scale but is able to communicate, use the Faces Pain Scale:



If patient is unable to communicate, use the Behavioral Pain Scale (BPS):

Observation	Description	Score
Facial expression	Relaxed Partially tightened Fully tightened Grimacing	1 2 3 4
Upper limbs	No movement Partially bent Fully bent with flexation of fingers Permanently retracted	1 2 3 4
Compliance with ventilation	Tolerating movement Coughing Fighting ventilator Unable to control ventilation	1 2 3 4

E) Continuous Subcutaneous Infusion Analgesia and/or Sedation

Richmond Hospital
Part of the Vancouver Coastal Health Authority

CONTINUOUS SUBCUTANEOUS INFUSION ANALGESIA AND/OR SEDATION RECORDING LOG

PCIS LABEL

DATE	TIME	SEDATION SCORE ☐RASS ☐POSS	PAIN SCORE	ANALGESIC Drug: _____		SEDATION Drug: _____		OTHER Drug: _____		RN INITIAL
				Infusion Rate	Bolus	Infusion Rate	Bolus	Infusion Rate	Bolus	
Baseline										

Monitoring Frequency

Hemodynamic: BP, HR, Temp	Respiratory: RR, O2 sat	CNS: sedation, cognition, RASS or Pasero	Pain Scale
Q 15 mins x 1 H	Q 15 mins x 1 H	Q 15 mins x 1 H	Q 15 mins x 1 H
Q 4 H x 24 H	Q 4 H x 24 H	Q 4 H x 24 H	Q 4 H x 24 H
Q shift	Q shift	Q shift	Q shift
Post Medication Discontinuation One hour and PRN	Post Medication Discontinuation One hour and PRN	Post Medication Discontinuation One hour and PRN	Post Medication Discontinuation One hour and PRN

If the patient is Analgesic as well as Sedative Infusion use the POSS scale

Pasero Opioid-Induced Sedation Scale (POSS)	
S	Sleeping, easily roused
1	Awake, alert
2	Occasionally drowsy, easy to rouse
3	Frequently drowsy, rousable, drifts off to sleep during conversation
4	Somnolent, minimal or no response to stimuli

If the patient is only receiving midazolam, use the modified Richmond Agitation Sedation Scale (RASS):

Score	Term	Description
+4	Combative	Overly combative or violent. Immediate danger to staff.
+3	Very Agitated	Pulls/removes tubes or catheters. Has aggressive behaviour toward staff
+2	Agitated	Frequent non-purposeful movement
+1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and Calm	
-1	Drowsy	Not fully alert, but has sustained (>10sec) awakening with eye contact to voice
-2	Light sedation	Briefly (>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	Unrousable	No response to voice or physical stimulation

Procedure

1. Observe patient. Is patient alert and calm (score 0)?

   Does patient have behavior that is consistent with restlessness or agitation (score +1 to +4 using the criteria listed above, under DESCRIPTION)?
2. If patient is not alert, in a loud speaking voice state patient's name and direct patient to open eyes and look at speaker. Repeat once if necessary. Can prompt patient to continue looking at speaker.

   Patient has eye opening and eye contact, which is sustained for more than 10 seconds (score −1)

   Patient has eye opening and eye contact, but this is not sustained for 10 seconds (score −2)

   Patient has any movement in response to voice, excluding eye contact (score −3)
3. If patient does not respond to voice, physically stimulate patient by shaking shoulder and then rubbing sternum if there is no response to shaking shoulder. Patient has any movement to physical stimulation (score −4)

   Patient has no response to voice or physical stimulation (score −5)

Pain Scale

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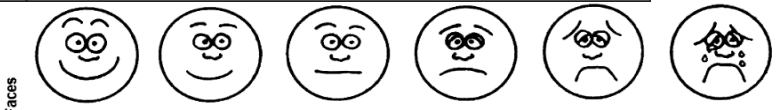
If patient is unable to communicate, use the Behavioral Pain Scale (BPS):



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