

Local Guideline and Procedure



John Hunter
Children's Hospital
CHILDREN, YOUNG PEOPLE AND FAMILIES



Health
Hunter New England
Local Health District

Document number: JHH_JHCH_0127

Paediatric Intravenous opioid infusions (PCA or NCA or Continuous)

Sites where Local Guideline and Procedure applies	John Hunter Hospital and John Hunter Children's Hospital
Target audience	Medical and Nursing staff in JHCH, JHH ED and PARU
This Local Guideline and Procedure applies to:	
1. Adults	No
2. Children up to 16 years	Yes
3. Neonates – less than 29 days	No
Keywords	PCA, NCA, patient-controlled, nurse-controlled, analgesia, continuous opioid infusion, CADD Solis Ambulatory Infusion, pain, paediatric, JHCH
Description	The document provides guidance in the prescribing, administration and management of paediatric patients requiring an opioid infusion to ensure patient safety.

Go to [Guideline](#) and [Procedure](#)

Document registration number	13.17
Replaces existing document?	Yes
Registration number and dates of superseded documents	JHCH 13.17 2014

Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- [NSW Health Policy Directive 2017_032 Clinical Procedure Safety](#)
- [NSW Health Policy PD 2005_406 Consent to Medical Treatment](#)
- [NSW Health Policy Directive PD 2017_013 Infection Prevention and Control Policy](#)
- [N.S.W. Health Policy Directive PD2013_043 Medication Handling in NSW Public Hospitals](#)
- [N.S.W. Health Policy Directive PD2016_058 User applied Labelling of Injectable Medicines, Fluids and Lines](#)
- [NSW Health PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating](#)
- JHCH 3.19 [Recognition of the deteriorating paediatric patient](#)
- JHCH Guideline 13.33 [Bowel Management for Opioid-induced Constipation](#)

Note: Over time links in this document may cease working. Where this occurs please source the document in the PPG Directory at: <http://ppg.hne.health.nsw.gov.au/>

Local Guideline and Procedure note	This document reflects what is currently regarded as safe and appropriate practice. The guideline section does not replace the need for the application of clinical judgment in respect to each individual patient but the procedure/s require mandatory compliance . If staff believe that the procedure/s should not apply in a particular clinical situation they must seek advice from their unit
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	manager/delegate and document the variance in the patient's health record.
Date initial authorisation	March 2018 (JHH CQPC)
This document contains advice on therapeutics	Yes Approval gained from JHH Quality Use of Medicines Committee on 17th October 2017.
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PURPOSE AND RISKS

The use of intravenous opioid infusions is associated with significant risk as described by the Clinical Excellence Commission⁴ including:

- Poor patient selection
- Inadequate pain relief
- Errors in administration
- Ineffective clinical reviews
- Inadequate prescribing
- Poor response to patient changes
- Use of non-standard equipment and protocols
- Unnecessary duplication of charts and prescriptions
- Poor parent/family education
- Failure to minimise adverse effects

These risks will be reduced by using this clinical guideline to inform care.

These risks are minimised by:

1. Thorough patient selection assessment
2. Thorough independent checks when setting up the pumps
3. Regular monitoring and early response and escalation to adverse effects

Risk Category: Clinical Care & Patient Safety

GLOSSARY

Acronym or Term	Definition
CERS	Clinical Emergency Response System
IV	Intravenous
NCA	Nurse-controlled analgesia is an infusion that allows a Registered Nurse to administer pre-programmed small doses of an opioid agent by pressing a button attached to a programmable pump. The nurse-administered boluses are used to supplement a background infusion as clinically indicated.
COI	Continuous opioid infusion is an infusion that may be, but not regularly, supplemented by additional opioid boluses. The additional doses are administered either from a separate syringe or by temporarily altering the setting of the infusion pump.
PCA	Patient-controlled analgesia is an infusion that allows a patient to self-administer intermittent small doses of an opioid agent as required by pressing a button attached to a pre-programmed pump.
SPOC	Standard Paediatric Observation Chart
PARU	Post Anaesthetic Recovery Unit
PEDOC	Paediatric Emergency Department Observation Chart

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GUIDELINE

This Guideline does not replace the need for the application of clinical judgment in respect to each individual patient.

Effective delivery and monitoring ensures serum opioid concentrations are maintained at the optimal analgesic level for the individual patient, whilst minimising side effects. PCA/NCA provides greater dosing flexibility and can be more effective for managing incidental pain compared with intramuscular injections and continuous infusions².

When intravenous opioid analgesia is indicated, initial bolus doses are used to establish analgesia. Thereafter, analgesia is usually maintained using one of the 3 modalities:

- 1) **Patient-controlled analgesia (PCA)**
- 2) **Nurse-controlled analgesia (NCA)**
- 3) **Continuous opioid infusion (COI)**

Prescribers must understand the pharmacology and pharmacokinetics of the opioid administration method, clinical indications, contraindications, monitoring and management of adverse effects.

Nursing staff involved in the preparation and management of opioid infusions must:

- Have knowledge of pain and pain assessment in infants, children and adolescents of varying cognitive development (See My Health Learning Paediatric SKIP modules: Pain Assessment and Pain Management)
- Have knowledge of the monitoring requirements
- Have knowledge and skills in the use of the delivery devices
- Maintain safe medication administration practice (See My Health Learning module: Patient-controlled analgesia)

Children and their parents/carers must be informed and educated about the medication and delivery method.

A. INITIAL PATIENT ASSESSMENT

Before an intravenous opioid is prescribed for the maintenance of analgesia, the patient should have a full medical assessment including:

- consideration of the presenting condition and level, expected duration and type of pain
- level of organ function (e.g. renal and hepatic function will affect drug dosage and response)
- concurrent health problems and medications (including review of MedChart)
- allergies and past reactions and responses to opioids
- level of consciousness
- airway, respiratory and cardiovascular status
- compliance of the family

Criteria for PCA include:	Criteria for NCA include:
Patient's developmental age \geq 5 years	Patient's development age \leq 5 years
Patient physically <u>able</u> to press the button	Patient <u>unable</u> to press the button
Patient <u>able</u> to understand the concepts of pain and the PCA	Patient <u>unable</u> to understand the concepts of pain and the PCA
An undertaking by the family not to press the button on behalf of their child under any circumstances	An undertaking by the family not to press the button on behalf of their child under any circumstances

A **continuous opioid infusion** should only be considered if there are factors excluding the use of either a PCA or NCA infusion, for example non-compliance.

SAFETY ALERT

Do not commence an intravenous opioid infusion if the child has any signs of respiratory depression or is heavily sedated

Patient and Family education

During assessment of the patient and family they should receive instruction on the:

- Rationale for using PCA/NCA/COI
- Use of PCA/NCA machine, its safety features and monitoring involved
- Explanation for the need for frequent observations, including pain assessment
- Symptoms and signs of relevant adverse reactions and instruction for parents/carers to notify nursing staff if they have any concerns regarding their child's condition
- A [parent fact sheet](http://www.hnekidshealth.nsw.gov.au) on PCA/NCA is available on the HNEkidshealth webpage at: <http://www.hnekidshealth.nsw.gov.au>

B. PRESCRIBING A PCA/NCA OR COI

A medical officer using must use the following charts at JHCH to prescribe opioid infusions:

Paediatric PCA/NCA chart GNS79 B2	Paediatric Opioid Infusion GNS79 A2
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NB: There is also a NSW Health Chart available SMR130.026

The APS should be informed if an infusion is commenced; however, any medical officer can initiate the order.

The prescriber (medical officer) must ensure:

- An **adequate loading dose** of opioid is provided prior to commencing maintenance analgesia (improves effect)
- The **opioid chart** includes:
 - The correct patient identification label with the patient's name printed and initialled, and the patient's allergies and weight documented
 - Indication of whether the concentration being prescribed is standard or not
 - Indication of the mode to be used on the PCA/NCA chart i.e. PCA or NCA
 - Prescribed drug and concentration
 - Prescribed parameters of the infusion according to the mode of delivery
 - Signature, date, and **clearly** printed prescriber's name and contact number
- **Anti-emetic medication** is charted for nausea and vomiting
- **Aperients** are charted as per JHCH 13.33 [Bowel Management- Opiate Induced Constipation Guideline](#)
- **Ceasing** of any pre-existing charted opioids, or document the decision to continue these in consultation with the Admitting Specialist or Acute Pain Service
- **Notification** and consultation with the medical staff who will monitor and review the child with the ongoing infusion (i.e. Admitting Team and/or the Acute Pain Service)
- **Suitability** for transfer out of an acute area such as the Emergency Department

The prescription does NOT need to be recharted each day. Only rechart when:

- 1) More space is required to document syringe loading and programming (after the fourth syringe); or
- 2) The concentration or other program parameters need to be altered

The Acute Pain Service will review all **referred** patients with an opioid infusion daily and as needed.

SAFETY ALERT

Patients receiving an opioid infusion should not receive opioids by any other route, unless in consultation with the Admitting Paediatric Specialist or the Acute Pain Service.

PROCEDURE

This procedure requires mandatory compliance.

Staff Preparation

It is mandatory for staff to follow relevant: “Five moments of hand hygiene”, infection control, moving safely/safe manual handling, documentation practices and to use HAIDET for patient/carer communication: **H**and hygiene **A**cknowledge, **I**ntroduce, **D**uration, **E**xplanation, **T**hank you or closing comment.

Equipment Requirements

- Alcohol-based hand rub
- Personal Protective Equipment: according to standard and transmission based precautions
- Appropriate pump and giving sets
- Prepared medication syringe
- Line labels
- Alcohol swabs

Patient Preparation

It is important the child and the parent/carers understand the concept of PCA, including the safety features, and the need for frequent observations and monitoring including:

- That the child’s parent/carer must NOT administer a dose, but they can encourage their child to use it as required
- The signs of pain and expected adverse reactions to the medication
- Instruction for parents to notify nursing staff if they have any concerns regarding their child’s condition

For NCAs the parent/carers can still be involved in identifying signs of pain and adverse reactions and working with the nursing staff to ensure pain relief is provided pre-emptively before procedures as well as in response to ongoing pain.

A parent fact sheet on PCA/NCA is available on the HNEkidshealth webpage at:

<http://www.hnekidshealth.nsw.gov.au>

1. INFUSION PREPARATION

Only Medical officers (MOs) & Registered Nurses (RNs) may prepare and commence an opioid infusion:

- A blue intravenous syringe label must be completed and signed by the two clinicians (in accordance to NSW Health line-labelling policy PD2016_058) and be secured to the syringe **ensuring** that the label and syringe markings are legible
- All intravenous opioid infusions in children are administered as a sideline infusion via a specific pump. Only dedicated administration sets that have integrated anti-siphon and anti-reflux valves are to be used. This line also needs to be labelled according to the NSW Health PD2016_058 (line-labelling policy) with an appropriate blue label and white medication label
- A maintenance infusion must be infused past the anti-reflux valve when the patient is receiving an opioid infusion via syringe pump
- A new infusion must be prepared every 24 hours to ensure drug stability

2. MANAGEMENT OF THE INFUSION SYSTEM

- The key for the syringe pumps for infusion pumps is kept on the “DD” keys on each ward (PARU carry spares)

SAFETY ALERT

Two clinicians (RN and/or MO) must independently check any opioid infusion parameters when the infusion is commenced, reloaded, reprogrammed or ceased.

- The current infusion pumps in the JHCH are:

PCA/NCA
Alaris™ IVAC™ PCAM™ syringe pump



- For step-by-step programming instructions see Appendix 1 and Appendix 2 for changing syringe
- Setting up an intravenous opioid infusion must always include two clinicians (RN and/or MO) independently checking:
 - Preparation of the syringe
 - Opioid infusion program and parameters when the infusion is commenced, reloaded, reprogrammed or ceased
 - Locking of the infusion pump
- The patient ONLY should use the hand piece for a PCA
- The nurse ONLY should use the hand piece for a NCA (this may be modified in the palliative care setting)
- The infusion and documentation should always be reviewed at clinical handover and at transfer by two clinicians (RN and/or MO)

3. PATIENT MANAGEMENT AND MONITORING

- **Prior** to the patient being transferred from the PACU or Emergency department on a **PCA** the patient must demonstrate competence using the PCA device
- The accepting ward need to be **notified** if the patient being transferred is on a **NCA**
- Hourly patient observations for the first six hours are required on commencement of an opioid infusion, followed by second hourly observations providing the patient remains stable. In the palliative care setting, the frequency of observations may be reduced as documented by the prescriber

SAFETY ALERT

The clinician (RN/MO) assuming a patient's care at any clinical handover point must check the syringe and pump settings against the prescription (i.e. on transfer or start of shift)

- Patient monitoring and documentation includes:
 - Rate of infusion and progressive total
 - Number of attempts and successful boluses when in PCA/NCA mode
 - Sedation Score (AVPU)
 - Pain score (use age-appropriate scale and record the scale used in the first column of the observation section so that all nursing staff will use the same scale for that child) – this score needs to be attended prior to any NCA boluses and reviewed 15 minutes post any NCA bolus
 - Pulse and respiratory rate
 - Oxygen saturations
 - Temperature and blood pressure 4-hourly

SAFETY ALERT

ALL Clinical observations are to be documented on the relevant SPOC/PEDOC chart ONLY

- Patients and parents are to receive ongoing education during the period of usage
- Blood components/products can be infused via a three-way tap positioned at the end of the extension set to enable pain management to continue (Flippin Blood, 2012, p 13) although it is preferable for a separate lumen or cannula to be used
- Opioid infusions must not be disconnected to facilitate showering or mobilisation
- A nursing or medical escort and clinical handover is required if the patient with an opioid infusion leaves the ward area for any reason as per [JHH_JHCH_BH_0051: Patient Transfer & Escort: Intra-facility](#) guideline
- Clinical handover at the beginning of each shift and on transfer must include:
 - Review of PCA program and check against the prescription
 - Line label verification
 - Patient observation review

Sedation and Respiratory Depression

Closely monitor sedation scores and respiratory rates as an increase in sedation and/or a decrease in respiratory rate may indicate impending overdose

If **sedation** score ≥ 2

and/or

If **respiratory** rate **falls (decreases)** into the YELLOW section of the SPOC/PEDOC chart

Actions:

1. STOP the opioid infusion (including remove the PCA button)
2. Increase frequency of vital signs and continually monitor oxygen saturations
3. Give oxygen at 12 L/min via face mask, assist ventilation if indicated
4. Instigate a Clinical Review or Rapid Response according to CERS
5. Prepare to administer naloxone as per established protocols after medical assessment (note naloxone has a short half-life and symptoms can reoccur)

SAFETY ALERT

Naloxone must be available on all wards caring for patients with an opioid infusion

Nausea & Vomiting

This is a **common** side effect of opioids and is made worse when the patient is moving

Actions:

1. Assess pain, as unrelieved pain may also cause nausea and vomiting
2. Monitor patient's BP, as hypotension and dehydration may cause nausea and vomiting
3. Administer anti-emetics as prescribed
4. Contact Admitting Medical Officer (AMO)/Acute pain Service if anti-emetics are ineffective

Insufficient Analgesia

Insufficient analgesia (increased pain score) can be the result of either insufficient drug received or increasing pain because of changes in condition or increased activity.

Actions:

1. Assess IV access for patency
2. Check IV and administration sets and anti-reflux valve
3. Check syringe and pump for amount of drug infused over the previous hour
4. Review patient education and encourage PCA use as per prescription/review NCA use as per prescription/increase background as prescribed
5. If no improvement after 15 minutes, instigate a Clinical Review as per CERS

Pruritus

Is a direct opioid effect **secondary** to histamine release. Pruritus may not result in redness or a rash.

Actions:

1. Administer antihistamine (if prescribed)
2. Contact AMO or Acute Pain Service to review and prescribe medication. If unrelieved after dose instigate another review for consideration of either low-dose naloxone or opioid rotation

Urinary Retention

Opioids can increase sphincter tone leading to urinary retention. This is **unusual** in children.

Actions:

1. Assess patient including fluid balance; and
2. Instigate a Clinical Review according to CERS, and consider bladder scan to ascertain volume or dehydration as cause of anuria

Hypotension

Opioids may induce histamine release and cause peripheral arterial and venous dilation. Orthostatic hypotension may occur and manifest as dizziness. If the blood pressure **decreases** into the YELLOW zone of the SPOC/PEDOC chart:

Actions:

1. Instigate a Clinical Review and increase frequency of observations
2. If hypotension is severe (shock) STOP the infusion and instigate life support measures and Rapid Response according to CERS and consider all possible causes for the hypotension

Myoclonic jerks

Most often, the pharmacological mechanisms responsible for this adverse effect are not clear but usually resolve after withdrawal of the offending drug

Actions:

1. Contact AMO or Acute Pain Service
2. Consider opioid rotation

4. STOPPING the opioid INFUSION and PLANNING “STEP-DOWN” ANALGESIA

- The treating team or Acute Pain Service can cease PCA/NCA/COI regimens
- The MO ceasing the infusion must prescribe replacement oral pain relief to be commenced before the infusion is ceased
- For guidance in making clinical decisions about analgesic drugs and modalities contact the Acute Pain Service
- The PCA/NCA/COI order needs to be clearly cancelled and signed
- On cessation of an opioid infusion:
 - Ensure oral pain relief is commenced before cessation, if clinically needed
 - Two clinicians (MO and/or RN) must witness disposal of the remaining opioid in the syringe and record the discarded amount and sign the prescription infusion chart (any discrepancy requires reporting)
 - The pump needs to be cleaned and returned to PACU
 - Pain assessment needs to be ongoing and documented on the SPOC/PEDOC chart, using the age-appropriate scale
 - If pain score > 5 and not resolved by replacement analgesia, contact the AMO or Acute Pain Service

IMPLEMENTATION, MONITORING COMPLIANCE AND AUDIT

The implementation of this guideline will be communicated to all staff using the email distribution lists and within the JHCH/JHH, through education boards, educator network and clinical network streams. Guideline and procedures will all be available through HNELHD PPG directory and HNEKidshealth site.

Compliance will be monitored in collaboration with the Acute Pain Service (APS). The Acute Pain Service maintains a database that collects the following information:

- Opioid and average daily dose, date commenced and ceased and
- Pain scores, adverse effects and complications

Incidents associated with opioid infusions are captured via the IIMS reporting system and reviewed monthly by the JHCH QUM committee and quarterly by APS.

APPENDICES

Appendix 1: Programming an ALARIS™ IVAC™ PCAM™ Infusion System

Appendix 2: Changing Syringe in an ALARIS™ IVAC™ PCAM™ Infusion System

REFERENCES

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9. Australian Medicines Handbook Pty Ltd. (2017) AMH Children's Dosing Companion <https://childrens.amh.net.au.acs.hcn.com.au/?acc=36422>
10. Department of Health South Australia / Australian Red Cross Blood Service 'Flippin blood' 2nd Edition, June 2012

Appendix 1: Programming an ALARIS™ IVAC™ PCAM™ Infusion System

1. The prescribed opioid is loaded into a 50 mL Luer lock syringe. The syringe volume should be made up to total of 50 mL with the prescribed diluent
2. After priming the lines, clamp the administration set with slide clamp
3. Connect Alaris™ IVAC™ PCAM™ to the AC power supply
4. **Open** the Alaris™ IVAC™ PCAM™ pump cover by inserting the key in the lock located on the left side of the pump and turning the key clockwise. **Then remove the key**
5. **Load syringe** into the pump ensuring the syringe plunger is correctly located in the slots on the plunger holder. Squeeze the finger grips on the plunger holder and slide the mechanism until the finger flanges on the syringe barrel locate in the slot. Gently advance the syringe until the finger



flanges touch the front of the slot closest to the syringe tip. This action will prevent delay at the start of the treatment. Rotate the syringe clamp anticlockwise until it locks onto the syringe barrel

6. Place key into keyhole on the front face of the pump, turn key to the **first** position (Set Mode)



7. The pump will now turn on and conduct a self-test
8. The pump will then ask you various questions that need to be answered using the arrow keys at the bottom of the panel as indicated on the LCD screen
9. The first question is “**NEW PATIENT?**”
 - “**YES**” to reset the patient history to zero for a new patient
 - “**NO**” will retain all previous patient history-> It will ask you to “**Confirm**” before you can proceed to the next step
10. “**MODIFY PROTOCOL?**”
 - Carefully select the protocol. (“**PROTOCOL SUMMARY A**” will appear automatically)
 - Use the “**Next Protocol**” button to scroll down until the desired drug protocol appears. This is based on the drug prescribed (morphine, hydromorphone or fentanyl) and the child’s weight. For children who weigh more than 50 kg, select the relevant adult protocol
 - For each protocol summary, a default drug concentration will appear – for safety reasons this is set as the lowest dose for the lowest weight in the selected weight band. It will need to be modified for most children

The ALARIS™ IVAC™ PCAM™ default pump protocols are:						
	Protocols A-J	Patient Group	Drug	Default Concentration	Default Lockout	Default Bolus Dose
A	ADULT MORPH	> 50 kg - adults	morphine	1 mg/mL	5 min	1 mg
B	ADULT FENT	> 50 kg - adults	fentanyl	10 microgram/mL	5 min	15 microgram
C	ADULT HYDROM	> 50 kg - adults	hydro-morphone	200 microgram/mL	5 min	200 microgram
D	MORPH 3-9 kg	3 - 9 kg	morphine	30 microgram/mL	15 min	60 microgram
E	MORPH 10-19kg	10 - 19 kg	morphine	100 microgram/mL	15 min	200 microgram *
F	MORPH 20-49kg	20 - 49 kg	morphine	200 microgram/mL	5 min	400 microgram
G	FENT 3-9 kg	3 - 9 kg	fentanyl	1 microgram/mL	15 min	1 microgram
H	FENT 10-19kg	10 - 19 kg	fentanyl	2 microgram/mL	15 min	3 microgram *
I	FENT 20-49kg	20 - 49 kg	fentanyl	3 microgram/mL	5 min	6 microgram
J	SPEC PROG 5mg/mL	Adults only	tramadol or high dose morphine	5 mg/mL	5 min	5 mg

SAFETY ALERT

Two clinicians (RN and/or MO) must independently check the drug protocol selected to avoid confirmation bias

* Also has continuous background infusion as part of the default setting

11. Once you have selected the appropriate protocol select “**MODIFY PROTOCOL**”.

SAFETY ALERT

NEVER change the drug name because the dosing units will stay as for the original drug and may result in over- or under-dosage

12. To **change** the parameters of the protocol, select “**MORE ↓**” until the required parameter is highlighted.

- When the required prescribed parameter is highlighted, select “**ALTER**”
- Select the + or – button until the correct dose or unit is entered
- Select “**CONFIRM**”
- If you need to change any other parameter, repeat the above steps
- Once the protocol has been modified to match the prescription, select “**OK**”

13. When the displayed protocol **matches** the prescription, turn the key to the green position (Run Mode) and **remove** key



14. "CONFIRM PROTOCOL" -> Two RNs must carefully review the protocol -> to do this select "OK"
15. "CONFIRM SYRINGE" The pump will default to the BD PLASTIPAK syringe type, which is the most common stock -> Select "OK"
16. If you are using a different type of syringe -> select "CHANGE TYPE" until the correct syringe appears -> select "OK"
17. "COVER OPEN" will flash -> **Close** the syringe cover
 - **Connect** the giving set to the patient's IV line and secure appropriately
 - **Unclamp** the PCA administration set side-clamp
 - **Press** the green "start" button located toward the left face of the pump



- **If PCA** is prescribed; give the hand piece to the patient to begin PCA administration and **educate** the patient on its use. The patient handset is suitable for all ages



The green light (administration button) in the handset will indicate the following:

- It will shine constantly when bolus doses are available
- It will flash when a bolus dose is being delivered successfully
- It will be extinguished during the lockout periods after PCA/NCA doses

SAFETY ALERT

The **patient ONLY** should use the hand piece for a **PCA**

The **nurse ONLY** should use the hand piece for a **NCA** (this may be modified in the palliative care setting)

Appendix 2: Changing Syringe in an ALARIS™ IVAC™ PCAM™ Infusion System

SAFETY ALERT

Two clinicians (RN and/or MO) must independently check any opioid infusion parameters when the infusion is commenced, reloaded, reprogrammed or ceased

1. **Press** the orange “stop” button located toward the left face of the pump



2. **Clamp** the PCA administration set with slide clamp
3. Obtain Alaris™ IVAC™ PCAM™ key and open the pump cover, remove the old syringe and insert new syringe as per Section 5.1 and follow the prompts accordingly
4. **Close** the cover
5. **Reconfirm** protocols with 2 clinicians (RN and/or MO) as per PCA/NCA prescription (if changes are required return to Section 5.1 re “MODIFY PROTOCOL”)
6. **Press** the green “start” button
7. **Remove** the Alaris PCAM key directly from the left side of the pump

SAFETY ALERT

With the second clinician (RN and/or MO), empty appropriately, discard the used syringe and sign the prescription