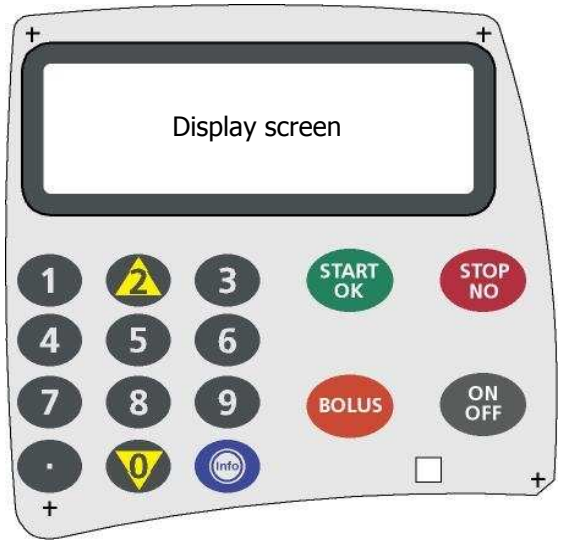
Guidelines for the Management and Administration of Epidural Infusions using the McKinlay BodyGuard Ambulatory Infusion Pump

This device is used for all patients receiving an epidural infusion in the WGH. This form of analgesia is primarily used to control post-operative pain after major surgery.

McKinlay BodyGuard Ambulatory Infusion Pump



Detail of Keypad
The number 2 and 0 buttons are also used for scrolling up and down the menu screen.

Staff Education
All nursing staff should have completed the NHS Lothian Epidural Training Programme and infusion device training prior to operating the pump or caring for the patient with an epidural infusion.

Patient Education
The anaesthetist will choose the patients who are appropriate to receive this form of analgesia. The anaesthetist will explain the procedure and details for postoperative epidural care. An epidural information leaflet is available to support information provided by all members of the multidisciplinary team.

Pre-prepared Infusion Bags
250ml bags of Bupivacaine 0.1% and Fentanyl 2mcg/ml
250ml bags of Bupivacaine 0.1%

Who To Contact For Advice

Monday - Friday 08:00 - 18:00
Clinical Nurse Specialist Acute Pain: **Bleep 8292**

Outwith above hours and weekends call the on call Anaesthetist **Bleep 8112**

Infusion Administration Sets
MicroSet for Epidural giving set for use with McKinlay BodyGuard Pump. Giving sets are yellow to distinguish them from other infusion sets. The infusion giving set is connected to the epidural catheter via a filter.

Mckinlay Bodyguard Epidural Infusion Device
The BodyGuard pump will operate on battery or mains electricity. There is a dedicated mains cable for use with this device only, this plugs in at the bottom of the device. The device must be connected to mains electricity as soon as possible.
The infusion bag is locked away in a clear plastic lock box.

Care And Cleaning
Before connecting the pump to a new patient and if contaminated by spillage, clean the unit with a water dampened lint free cloth – *do not use any products containing xylene, acetone or similar solvents. Do not immerse any part of the pump or power lead in water or cleaning solution.*

Pump Operation

Access codes

To operate, programme and configure the BodyGuard Ambulatory Infusion Pump three access codes are required:

Level One	CODE 700	Allows user to run preset protocols and titrate infusion rate.
Level Two	***	Allows authorised users to deliver Clinician Activated Bolus or loading dose.
Level Three	***	Allows authorised users to set up or modify standard infusion protocols & change pump configuration parameters.

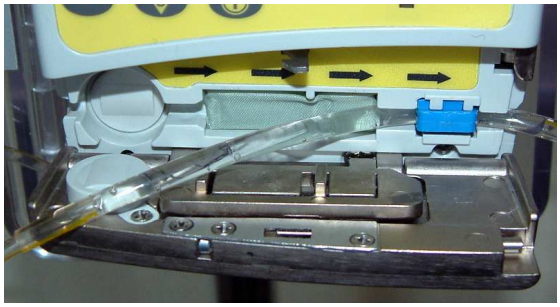
Priming the giving set – all sets contain a check valve to prevent reflux/free-flow so prime as follows:

N.B. Use aseptic technique with all fluid path connections. Remove protective coverings as set up progresses.

1. Open infusion fluid and attach to drip stand. Open giving set & remove protective cover from spike. Open fluid port on infusion bag and insert piercing spike in fluid port.

2. Open door of pump using latch on right side of door.

3. Insert giving set into the pump by placing the key into the keyway as shown. Close the pump door until the catch clicks.



4. Press the power on key 

a short beep will sound as pump performs self test.

5. Enter Level One access code as requested on display screen. Press 

6. Main menu will appear. Select **Prime** from the main menu and press 

Pump will prompt you to ensure the giving set is disconnected from patient.

   Press 

again to commence priming. A display confirms priming in progress. You may stop priming at any time by pressing 

Running a pre-set protocol – Level One users can select & run pre-set protocols.

1. After loading & priming a set display returns to main menu and **Select Protocol** is highlighted. Press 

2. Display prompts **New Patient?** Press 

to clear previous history & volume infused counters or press 

if you want to retain patient history data (i.e. if switching protocols on the current patient).
3. Scroll to select protocol as per prescription
   A Bupivicaine/Fentanyl
   B Bupivicaine 0.1% only
4. Infusion summary screen shows **bag volume, volume left, volume infused** (zero if New Patient confirmed) and then prompts you to press 

   Screen then displays **rate, bolus total & lockout** (for use with PCEA which is not in use) Press 

again.
5. Display prompts Start Infusion? Press 

to start infusiopn.

Rate titration during infusion – infusion will always default to 10ml/hour at start up, if a different infusion rate is prescribed the rate can be changed while the infusion is running.

1. Key in the rate required using the numeric keypad and press 

2. If rate is within the preset limits the access code prompt will appear. Enter Level One access code and press 

3. A beep is heard and the rate is changed as confirmed by the display.

End of Infusion – when the pump alarms and displays **end of infusion.**

1. Press 

and enter Level One code, press 

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1. Scroll down to **Change Bag,** press 

to confirm.
2. Display shows **Start New Bag**? Press 

to confirm.
3. Infusion summary screen appears. Volume infused should show the total of all previous bags used on this patient. Press 

to confirm
4. Display shows **Start Infusion?** Press 

to commence infusion.

To change bag before end of infusion – if bag expired or infusion fluid prescription changes.

1. Press 

to suspend infusion.

2. Press and hold 

until main menu appears. Scroll to **Change Bag** and press 

Change infusion bag as per prescription after two nurse check.

3. Infusion summary screen appears. Volume infused should show the total of all previous bags used on this patient. Press 

to confirm

4. Display shows **Start Infusion?** Press 

to commence infusion.

Viewing & Interpreting Current Patient History

1. If using the pole mounted LED charger the large display will alternate every 20 seconds between the current rate and the VI (volume infused). The VI is the total volume delivered since the current patients treatment began.
2. Pressing 

repeatedly whilst the pump is running will display:-
    a. Volume infused
    b. Battery charge level
    c. Boluses attempted and given (last 24 hours only)
    d. Review protocol
    e. Time & date
3. Press 

to enter stop mode then 

shows last 24 hours boluses & volume summary.

    Pressing 

again and the up & down arrows (2 & 0) allows the user to review this data hour-by-hour starting with the most recent. Further presses of the info key allow graphical data on bolus usage and volume usage for the last 24 hours to be displayed.

Useful tips

To return to main menu from stop mode (before end of infusion) – press and hold 

for a couple of seconds then press again to return to main menu.

To view patient history – Press 

repeatedly during operation scroll through Volume infused (total for current patient), battery level, bolus attempts vs. given (only for last 24 hours) & current program review screen.
Press 

and then 

to view the last 24 hours boluses and volume given and then 

again followed by UP or DOWN arrow keys to scroll through last 24 hours hour-by-hour.

To lock the keypad – Press and hold 

during operation and wait for the bar to go from unlocked to locked. Repeat this procedure to unlock the keypad. Whilst the keypad is locked the STOP key will operate for obvious safety reasons but the pump cannot be returned to the main menu as described above or turned OFF ensuring that if the pump is stopped it will alarm after 2 minutes unattended.

Trouble-shooting & alarms

Description	Result	Possible Cause	Required action
Air in line / Upstream occlusion	Infusion stops	Air present in giving set Occlusion of set upstream of pump (kinked/trapped) The line was not primed correctly	Disconnect line from patient and prime air from set Clear upstream occlusion Check air is primed from the line
Down Occlusion	Infusion stops	Set is kinked or clamp is on downstream of the pump Access device is locked Set is loaded incorrectly	Straighten the set and/ or open the clamp Change/flush the access device Reload the set correctly
Pump unattended	Alarm sounds	2 minutes elapsed without a button press during set-up Pump left in stop state for more than 2 minutes	Press start/OK to resume
Low battery	Infusion will continue but pump will only run for around 30 minutes LED blinks red	30 minutes of battery life are remaining	Place the pump in the charger or use the battery cable to connect it to the DC socket on the rear of the charger
End battery	Pump operation stops	Battery is depleted	Place the pump in the charger or use the battery cable to connect it to the DC socket on the rear of the charger
System error	Pump operation stops	System internal error has occurred	Record the code number displayed on the screen and contact local or McKinlay service personnel
End of infusion	Delivery stops	Current infusion protocol has completed. Volume to be infused has been delivered	Turn of the pump or return to main menu to change bag
Missing key	Pump will not start	Administration set loaded incorrectly User loading a non-proprietary set	Load set with key positioned correctly in the keyway Check set is a dedicated BodyGuard set
Lock Mode	All keys except the STOP/NO are inactive	Keypad lock is on	Turn keypad lock off by holding the info key until the lock is off

Practice based competency

Name_____ Ward_____

Competency	Achieved	Not achieved	Date	Assessor
Define the type of device				
Describe the main features of the device				
Identify appropriate giving set for use with BodyGuard infusion pump				
Outline how administration set interacts with pump				
Set up the system for use, load and prime administration set				
Identify charger features, connection to pump and significance of LCD indicators				
Identify battery characteristics				
Understands the BodyGuard security access system and relevant access codes				
Access, select and run pre-set protocols and understand consequences of OK & NO answers to **New Patient?** prompt				
Interpret display screen information				
Change infusion rate within pump parameters (i.e. from 10mls/hr to 8mls/hr)				
Able to deliver clinician activated bolus and to view the number and volume of CA boluses delivered in last 24 hours				
Access & interpret current Patient History information				
Outline consequences of alarm status and conditions under which the pump will alarm including corrective action				
Change bag at end of infusion				
Able to return to main menu from STOP state				
State care & cleaning of the pump				

COMPETENCY	ACHIEVED / NOT ACHIEVED	DATE	ASSESSOR
Discuss observations required for a patient receiving an epidural infusion			
Discuss potential side effects of epidural bupivacaine administration			
Discuss potential side effects of epidural opioid administration			
Preventive and corrective strategies for the above			
What would you do if the Epidural catheter becomes detached from the bacterial filter?			
Explain safe removal of the epidural catheter?			
What are the advantages of epidural analgesia?			
What are the disadvantages of epidural analgesia?			
What are the contraindications to epidural catheterisation?			
Discuss adjunct analgesics used with epidural infusions			
Discuss stopping the Epidural and step down analgesia			