**MATERNITY UNIT**

**GUIDELINE:**

**IMMEDIATE POST-OPERATIVE CARE OF WOMEN AND BABIES FOLLOWING CAESAREAN SECTION**

**SCOPE:**
All midwives, nurses, obstetricians and paediatricians working in the maternity and neonatal unit

**AUTHOR:**
Core Midwife

**PURPOSE:**
To clarify the postoperative management of women who have undergone emergency or elective caesarean section in order to optimise care and well-being of mother and baby.

**DEFINITIONS:**

- **Caesarean section (c/s):** Surgical incision into the abdominal and uterine wall to achieve delivery of the baby. It is done when continuation of the pregnancy and/or vaginal delivery would be hazardous to the mother or fetus. Caesarean deliveries are categorised as either primary (i.e. first c/s delivery) or repeat (i.e. after previous c/s birth).

**GUIDELINE:**

- A core midwife will receive hand over of care from a nurse from the Post Anaesthetic Care Unit (PACU) and document a care plan for the woman.
- Women are likely to have received spinal/intrathecal morphine as an adjunct during the regional anaesthesia and will require close observations for at least 24 hours.
- The anaesthetists will record spinal morphine on the spinal morphine administration chart. Anaesthetists’ medication orders will be found on the National medication chart.
- While the woman is under secondary care, all observations should be recorded under “post-birth” observations in the Maternity Computer Information System (MCIS). This will automatically populate MEWS on the MEWS chart.
- Re-attach Flowtron stockings to the maternity unit pump if in use.
- An oxygen supply, suction and an ambu-bag must be immediately accessible.
- Naloxone (Narcan) must be available for immediate administration if necessary.
Cot sides must only be used if the woman is at risk of falling from the bed. If they are used the reason for them must be explained to the woman; the call bell MUST be within easy reach; and the fact that they are being used should be documented in her notes.

If cot sides are used, the Foley catheter drainage bags, any surgical drains, nasogastric drains and IV lines must hang freely so as not to catch on the cot side/bed rail thus restricting the woman’s movement or dislodging the line or drain. The woman’s bed should be at the lowest possible position.

The woman should be able to access fluids/food as required and the need for cot sides monitored hourly and removed when no longer required.

**Maternal observations first 24hrs (See Appendix 1)**

- For the first 2 hours post op - check the uterus is contracted at least every half an hour; assess vaginal loss; document all findings. Following this, check uterine involution and contraction as clinically indicated. Note that heavy internal bleeding can occur post c/s and this will not show up in blood pressure recordings initially.
- For the first 4 hours post-operatively - half hourly recordings of heart rate, blood pressure, respiration rate, rousability, pain and side effects. Some of this time frame will have taken place in PACU. 4 hourly temperature recordings.
- After 4 hours - if half hourly observations stable then 2 hourly observations for 24 hours.
- Revert to half hourly observations for 4 hours if further morphine is administered.
- Check wound for bleeding on return from theatre and document if present (see wound care on page 4).
- Check urine colour and amount and document on fluid balance chart.
- IV therapy as per orders from Anaesthetist/Obstetrician – these must be prescribed on the medication chart, orders cannot be taken from the operation notes.
- Diet should be indicated by the obstetrician in the post-natal management plan.
- CBC as requested by the obstetrician post op. Any abnormalities identified from the CBC are to be managed by the obstetrician.
- Continue with the postnatal care plan for the mother and baby which will have been commenced by the midwife providing care in theatre. Assist with breastfeeding and baby care as required by the woman.
- After 24 hours revert to 4 hourly observations of pain score, temperature, pulse and blood pressure if within normal limits.
- Removal of intravenous cannula must be recorded on the peripheral cannulation insertion record and indwelling catheter will be by the obstetricians’ orders, or the first day post-operatively depending upon each individual case.
- Normally both would have been removed within 24 hours.
- Following removal of the IDC, the woman should be encouraged to void urine within 2 hours. The woman may experience some dysuria for the first few times that she micturates and may need Ural sachets prescribing.
Pain relief must be individualised as per flowcharts 1 and 2. Please be aware of signs of morphine overdose in the baby which include:

- Increased sleepiness (i.e. sleeping for more than 4 hours at a time)
- Limpness
- Difficulty nursing or breathing

If signs of morphine overdose are observed, the baby should be taken to NNU for observations.

If morphine is contraindicated, Tramadol may be given but this must be requested using a non PML form. Note that Tramadol may cause an increase in nausea/vomiting.

- The baby should be weighed when possible and the appropriate delivery details entered into the birth register by the core midwife present in theatre.
- The baby’s details should be phoned through to admissions in order to obtain an NHI number giving mothers details; baby’s birthweight; time of birth; sex; General Practitioner; and ethnicity.
- The baby is under the care of the LMC who should visit the mother and perform the initial neonatal examination within 24 hours, and provide any necessary care or negotiate care with the core staff.

**If any problems arise postnatally, contact the on call Obstetrician.**

- The Flowtron stockings should remain in place until the woman is fully mobile. Deep vein thrombosis prophylaxis is now recommended for all post LSCS women. Women with no risk factors who have a scheduled C/S may have clexane or intermittent compression stockings as prescribed. Women with risk factors including a C/S during labour will usually be given clexane with the dose varying according to risk factors. This will be prescribed by either the anaesthetist or obstetrician. Clexane will be administered subcutaneously and usually commenced 6 hours post operatively. If the woman has been on Clexane treatment doses, then she will need an individualised peri-operative anti-coagulation plan documented.
- The Hauora Tairawhiti “Information leaflet for women following c/s” should be explained and given to the woman when she is able to take in the information.
- The woman should be reviewed by the obstetrician daily until care is handed back to the LMC, and a care plan documented.
- The woman and her partner should be given the opportunity to discuss the c/s including the reasons for the c/s and any other issues they may have. This discussion should include the woman’s intended family size and her options for the method of subsequent births in the future, with VBAC promoted as appropriate.
- The woman should be encouraged to mobilise gently as soon as possible, usually within 8 hours of birth.
- The Newborn Metabolic Screening should be taken as soon as possible after 48 hours. This is the responsibility of the LMC, who must negotiate with the core staff if the timing for the test is out of hours for them to take it. It also needs to be sent promptly for testing by the maternity receptionist.
Once the woman is stable, usually following 48 hours, her care may be handed back to the LMC.

Wound Care

- The wound may be sealed with dermabond or with dressings of various types. If a dressing is in place, it is preferable to leave it intact and the wound undisturbed for 48 hours. However if the dressing is soiled or becomes damp it should be changed as the dampness may cause surrounding skin to become macerated and increases the risk of infection. The dressing should be changed using a dressing pack and an aseptic non-touch technique.

- If the wound is oozing in the first 12 hours after the c/s, then a pressure dressing may be required. Remove the op-site dressing using aseptic technique, remove the soaked steri-strips and replace with sterile ones. Clean the wound with normal saline (sterile) warmed to body temperature and dry, then replace the dressing or use an ‘Exu-Dry’ dressing and apply 2 large gauze swabs folded on top of the dressing. This should then be fixed with medipore applying pressure to the wound. The gauze should be taken down after 12 hours or sooner if seepage occurs. If any concerns about the wound, the on call obstetrician can be requested to review.

- An assisted shower may be taken after 24 hours – it is recommended NOT to shower prior to 24 hours as epithelialisation will not have occurred; the dressing should remain intact and dry whenever possible for another 24 hours.

- If a negative pressure wound therapy dressing is in place (NPWT) from Smith &Nephew’s PICO system see Appendix 2 for information for general use.

- Consider using ‘Exu-Dry’ dressing for exuding wounds (ensure that the correct side is placed next to the wound as labeled on the dressing). If the wound needs to be cleaned at any point, use sterile normal saline solution which has been warmed to body temperature.

- After 48 hours the wound should have ‘sealed’ (primary epithelialisation) and the dressing may be removed using ‘remove’ if not coming off easily when stretched horizontal to the skin, or soaked in the shower and removed by the woman or the midwife/nurse. A clean dressing (op-site dressing or post op dressing if a little exudate) may be put on, or sterile gauze given to the woman to protect the wound from chaffing on underwear. If exudate is present, please notify the obstetrician.

- The wound should be checked for signs of infection (see protocol post c/s infection screen as necessary) such as hotness, tender, redness/inflamed or offensive smelling and women should be informed to let the midwife/nurse/LMC know if they have any such symptoms as soon as possible. A swab must be obtained and sent for culture and sensitivity (cc. Infection Control on request form).

- If concerned re wound breakdown, dehiscence or infection during the postnatal period, it is recommended that a discussion takes place with the on call obstetrician/gynaecologist. They may also involve the wound care nurse specialist or the infection control nurse specialist. Special consideration should be given to women who smoke, who are anaemic, who are obese, or who are diabetic as their wound healing may be slower, and are likely to have an increased risk of wound breakdown. If wound needs monitoring and care in the community then a referral should be sent and discussed with the district nurses.
• Instructions for removal of sutures/staples if indicated should be documented and communicated to the LMC. Usually these are taken out within 3 – 7 days post operation (depending upon the Body Mass Index of the woman and the type of c/s incision) and should be left in for no longer than 10 days. If there are any gaps following removal of sutures/staples, steri-strips may be applied to seal the wound. If the wound margins are not approximated, then a small op-site dressing may be applied to the wound.

• NRT should be recommended and prescribed for women who smoke and all women should be encouraged to eat a well-balanced diet with fruit and vegetables and additional protein to encourage wound healing.

All women will be offered a debrief by the Obstetrician on handover from secondary to primary care and provided with written information on VBAC. If a follow up appointment is requested by the woman for a formal debrief, then the LMC or woman will contact the clinic secretary on 8119 to make this appointment.
POST-OPERATIVE PAIN MANAGEMENT FLOW CHART 1

All women to have post-operative pain medications and anti-emetics charted in the correct place on the medication chart by the anaesthetist prior to leaving PACU

All women to be prescribed and offered regular (not prn) paracetamol 1g 6 hourly and 75mg voltaren 12 hourly for 48 hours unless contraindicated (liver disease, asthma, etc.). An explanation is to be given to the woman regarding reason for this to be given – to prevent pain peaks and troughs.

If paracetamol PR 1.5mg or IV 1G given in theatre, next dose of 1g may be 6 hours later. If voltaren PR 100mg was given in theatre, next dose would be as prescribed. Make sure both are charted as given on medication chart as appropriate.

Pain score half hourly for 4 hours and then 2 hourly for 24 hours and 4 hourly for a further 24 hours.

If pain score >4/10 at any time offer further pain relief if appropriate in the following order:
1/ Morphine: subcutaneous (SC) 5 -10mg 2-4 hourly; or Intravenous (IV) titrated to pain score and observations (see chart 2). SC & IV are preferred to intramuscular (IM) morphine as this has a sporadic and erratic mode of action

PLUS Oxycodone controlled release 10mg 12 hourly PO, with the first dose given early after the LSCS with Paracetemol & Voltaren as prescribed above if not contraindicated i.e.asthmatic

2/ Oxycodone immediate release 5mg PRN 6 hourly PO can be administered as a rescue analgesic when oxycodone controlled release with voltaren & paracetemol are insufficient.

(*Tramadol : Use if unable to use morphine & oxycodone controlled release - note ↑risk nausea, consider 50mg as initial dose and if all OK continue to another 50mg before 6 – 8hrs, then 100mg doses PRN)

Recheck pain score 45 minutes after morphine administration. If it remains >4/10 give additional morphine, 50% of previous dose.

*Note Tramadol is contraindicated in women taking anti-depressants (SSRI’s) e.g. fluoxetine, paroxetine, and citalopram.
POST-OPERATIVE PAIN MANAGEMENT FLOW CHART 2 (IV MORPHINE)

Pain score >4/10?

Yes

Morphine as per opioid protocol charted on medication chart?

No

Contact anaesthetist to chart

Prepare a syringe: 10mg Morphine diluted to 10ml with sodium chloride 0.9%

Pain>4/10

Yes

Rousable to voice?

No

Discuss with anaesthetist prior to any morphine administration

Yes

Respiratory rate > 8?

No

BP and HR within normal limits?

No

Less than 10mg IV Morphine in the last hr?

Yes

Inject 2ml IV

Wait 5 minutes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No
APPENDIX 1:

STANDARDS EXPECTED FOR POST OPERATIVE WOMEN IN MATERNITY
(REGARDLESS OF TYPE OF SURGERY i.e., Elective/Emergency LSCS)

POST OPERATIVE OBSERVATIONS INCLUDE:

- Pain control – prevent rather than allowing woman to become uncomfortable. See pain score flow chart.
- Wound check
- PV loss on pads and record ongoing blood loss.
- Check and massage uterus if relaxed to remove any clots and contract uterus, follow PPH guidelines if excessive bleeding
- BP (systolic above 90)
- Pulse rate (<100)
- Oxygen saturations (>93%)
- Respiratory rate (<30)
- Check infusions and run syntocinon through a Baxter pump
- Check all drains and bags
- Check urine output (>30mls hourly. Consider hourly urine measure bag)
- General overall appearance

Please use the post-birth observation chart in MCIS. Additional observations such as a uterus, lochia, pain score, sedation score and block level are to be completed on the post-birth observations in MCIS.

POST OPERATIVE OBSERVATIONS FOLLOWING INTRASPINAL MORPHINE:

- HALF HOURLY FOR FIRST 4 HOURS – then if stable
- 2 HOURLY for next 24 hours,
- Revert to half hourly for 4 hours if IV or SC morphine given. Then 4 HOURLY OBS until discharge.

POST OPERATIVE OBSERVATIONS FOLLOWING G.A. OR EPIDURAL:

- HALF HOURLY OBS FOR FIRST 2HOURS post op (including time in PACU) then if stable
- HOURLY OBS FOR the next 4 HOURS then
- 2 HOURLY OBS FOR the next 6 HOURS (this is a total of 12 hours)
- then 4 HOURLY OBS until discharge as per standard post-operative observations.
- If any complications i.e., PET, infection then O&G to document an individualised plan for that woman.

Please remember we are accountable and that good record keeping is essential, if it’s not documented then it’s not been done!
INTRODUCTION:
This patient handbook will provide you with important information while you are receiving negative pressure wound therapy (NPWT) from Smith & Nephew’s PICO™ system. The handbook will answer basic questions about the therapy. Please keep it in a safe place with other healthcare documents. The handbook includes instructions about how to use the product including:
- Information on what PICO is for
- When not to use the product
- Warnings and precautions for safe and effective use of PICO
- General operation of PICO

WHAT DOES PICO DO?
PICO provides suction known as negative pressure wound therapy (NPWT) which draws out excess fluid from a wound, help perfuse, split, and protect the injured area from bacterial growth and getting dirty to ultimately help promote healing.

HOW DOES PICO WORK?
PICO consists of an NPWT pump connected to an absorbent gentle adhesive dressing. The dressing is applied to the wound bed and extra strips are placed over the outside edge to help hold the dressing in place. When the pump is turned on, air is pulled out of the dressing and excess fluid from the wound will start to enter the dressing. The dressing helps to prevent bacteria from entering the wound. It may also improve blood flow to the wound which will help it to heal.
The therapy pump is battery operated. The batteries may be changed with 2 lithium AA batteries if required. They should only be changed if the battery indicator flashes (see section regarding pump alarms).

HOW MANY HOURS A DAY DO YOU NEED TO USE THE THERAPY?
To get the full benefit, we recommend that you maintain use of the therapy as prescribed by your physician or nurse.

HOW LONG WILL IT TAKE TO IMPROVE YOUR WOUND?
The length of time that the therapy takes to improve a wound is different for every patient. It will depend on your general health, the size and type of wound that you have and the treatment you have been prescribed. In many cases, an improvement in the wound can be seen when the first dressing is changed, but in some cases, it may take several weeks. If your wound shows no improvement, the therapy might be stopped. Your midwife or doctor will discuss when and why it will be stopped when they assess your wound at each dressing change.
WILL IT BE PAINFUL?
The first time the PICO™ pump is turned on, you may feel a slight pulling or drawing sensation. If you experience any pain, please speak to your nurse or doctor for advice. They may prescribe pain-relief medication.

WHAT WILL THE DRESSINGS LOOK LIKE WHEN THE THERAPY IS WORKING?
The dressing will pull down against your skin when the therapy is working and be firm to the touch.

HOW OFTEN WILL THE DRESSINGS HAVE TO BE CHANGED?
The dressings may be left in place for up to 7 days depending on the amount of fluid from the wound. This will depend on the size, type, drainage amount and position of your wound. Your nurse or doctor will determine how often your dressings should be changed.

WILL THE DRESSING CHANGES HURT?
Some people may experience slight discomfort during dressing changes, specifically during cleaning of the wound, depending on the type and position of the wound. If you feel any discomfort, please tell the person who is changing your dressing. This way, they will be able to give you advice and, if necessary, pain-relief medication to help ease the discomfort.

CAN YOU MOVE AROUND WHILE ON THERAPY?
Patients using PICO™ can move around but this will depend on recommendations provided by your nurse or doctor. PICO is discrete and can be easily carried around in a pocket or the PICO bag to allow maximum movement.

WHEN YOU ARE ASLEEP:
Make sure that the PICO pump is placed somewhere safe and cannot be pulled off a table or cabinet onto the floor during sleep. Use/Removal of the extension tube may help whilst sleeping depending on where the wound is situated on the body. Ensure 1meter extension tube is in your PICO kit post initial application and upon discharge.

DISCONNECTION OF THE PUMP FROM THE DRESSING:
The pump may be disconnected from the dressing. There is a connector built into the tubing between the pump and dressing. This should be left screwed together all the time unless there is a requirement to disconnect the pump – such as the need to have a shower. Press the orange button to pause the therapy. Unscrew the two parts of the connector. Place the pump somewhere safe. Once you are ready to reconnect the pump, screw the two halves back together. Ensure your dressing is smoothed down to make sure there are no creases that could cause air leaks. Press the orange button to restart the therapy. The green light will start flashing to show that the pump is starting to apply therapy. If after one minute the orange “air leak” light starts to flash refer to the section regarding alarms.
SHOWERING AND WASHING:
The PICO™ pump is splash proof but should not be exposed to jets of water. It may be disconnected from the dressing if showering is required, as above or placed in a waterproof snap-lock bag. Make sure the tube attached to the dressing is held out of the water and that the end of the tube is pointing downwards so that water cannot enter the tube. The dressing on top of the wound is water resistant. You can shower or wash with the dressing in place, as long as you take care not to expose it to direct jets of water and not to soak it. Soaking the dressing may cause it to fall off.

POSITION OF THE PUMP WHILE THERAPY IS BEING DELIVERED
The PICO™ pump may be carried with you in your pocket or wherever is the most comfortable for you, considering the size and location of the wound. A PICO bag is available if you would prefer to carry it in that way.

HOW DO I KNOW IF THE PICO SYSTEM IS WORKING?
While the PICO pump is working correctly a green light located at the top of the device will flash continuously. The dressing should have a slightly wrinkled appearance and feel firm to the touch.

WHAT HAPPENS IF THE PICO™ PUMP ALARMS?
The PICO pump has a visual alarm for “Low Battery” and “Low Vacuum”. These issues are easily solved, for example: “Low Battery” – The pump will begin to alert you with a flashing orange light (above the battery symbol) when there are 24 hours and less of battery life. The batteries should be changed at this point. Press the orange button to pause the therapy. Take the battery cover from the top of the pump and replace with two new lithium AA batteries. The way in which the batteries should be positioned is displayed inside the battery compartment. Put the cover back on and press the orange button again to restart your therapy. The green light and the orange light above the battery will flash together when the batteries need changing.
"Low Vacuum" – If there is a low vacuum (low suction) in the dressing, a (above a symbol) will alert you and you will hear the pump make a buzzing sound as it tries to get to the right vacuum. The dressing is still capable of absorbing fluid with a low vacuum but the therapy is not being delivered. The vacuum may be low due to an air leak in the seal around the dressing. Check for any small lifts in the dressing and smooth down around the outside of your dressing including the strips with your hands. Press the orange button to restart your therapy. The green light will flash to indicate that the pump is trying to apply therapy. After about one minute, if the orange low vacuum light starts to flash again, the air leak is not yet resolved. Continue to smooth the dressing and strips to ensure there is no entrance for the air and repress the orange button. After one minute, if the green light continues to flash the air leak has been resolved.

Contact your midwife or doctor if you have continuous issues with the flashing low vacuum light.

The orange light will flash like this if the pump cannot reach the proper vacuum level.

WHEN WILL I NEED A NEW PUMP?
The pump is designed to STOP Working after 7 days of continuous use. After this time it will stop and will not restart even with new batteries. All the lights will go off and stay off. Negative pressure wound therapy is not being applied at this point so your nurse or doctor will need to assess the wound in order make a decision what dressing if any will need to be applied. If indicated for PICO™ a new system will be needed. The pump will look like this when it has come to the end of its life.

YOU NOTICE A BIG CHANGE IN THE COLOUR OR AMOUNT OF THE FLUID IN THE DRESSING, FOR EXAMPLE –

- If it changes from clear to cloudy or bright red.
- You see the dressing fill rapidly with blood.
- Your wound looks more red than usual or has a foul smell.
- The skin around your wound looks reddened or irritated.
- The dressing feels or appears loose.
- You experience pain.
- The alarm does not turn off.

If you have any other questions, please speak to your nurse or doctor.
ASSOCIATED DOCUMENTS:
- Information leaflet for women following c/s
- Meconium stained liquor guideline
- Preparation and care of women undergoing caesarean section
- Protocol post c/s infection screen
- Whena/placenta management of disposal policy
- Organisational policy – Use of Bedrails/Cot sides
- Organisational policy – Breastfeeding

REFERENCES:

Authorised By: Head of Department - Obstetrics

Authorised By: CCM - Woman, Child & Youth

Date of Approval: December 2015
Next Review Date: December 2018