



Great Ormond Street Hospital for Children NHS Trust: Information for Families

# Pain relief after surgery using Patient Controlled Analgesia (PCA) and Nurse Controlled Analgesia (NCA)

**This information sheet explains about Patient-Controlled Analgesia (PCA) and Nurse-Controlled Analgesia (NCA) after an operation or procedure. It explains how a PCA or NCA works, when it is most suitable and what to expect when your child has a PCA or NCA for pain relief at Great Ormond Street Hospital (GOSH). For more general information about pain relief, please ask for a copy of Pain relief after surgery information sheet.**

## What are PCA and NCA?

Patient or nurse controlled analgesia (PCA or NCA) is a system that allows pain relief medicine to be given as and when your child needs it. It uses a programmed syringe pump, containing a syringe of medicine, which is given into a vein through a thin, plastic tube called a cannula. The machine has a handset with a button that can be pressed to deliver a safe dose (bolus) of pain relief. There may also be a small amount of medicine being infused into the vein continuously (called a background). PCA/NCA is used when a child is unlikely to be able to eat or drink for a few days or if the operation has been more painful so requires stronger pain relief.

When the button is pressed, a dose of morphine is pushed from the syringe, through the tube and into your child's bloodstream via the cannula. It takes between 5 and 10 minutes for the medicine to start working. The pump is programmed with safety features to avoid too much medicine being given. It 'locks out' for a certain length of time, so that even if the button is pushed again, no more medicine will be given. The pump is also set with the maximum amount of medicine that your child can receive. The machine itself is locked with a key so that these settings cannot be altered.



## What is the difference between PCA and NCA?

If your child has PCA, he or she is given control of the handset and can therefore decide when the pain relief is given and how much. This means that your child has control over their pain and can have pain relief without asking a nurse.

**It is important that your child is the only person to press the button.** This is a safety mechanism to stop your child having too much pain medicine. If your child uses too much medicine (although it is limited to a safe amount), he or she will fall asleep so will not be able to press the button again. This allows the medicines to stay at a safe level in your child's body.

Your child will need to be assessed by a member of the Pain Control Service or an anaesthetist to ensure that he or she is:

- Old enough to understand how the pump works and what happens when the button is pushed – most eight year olds can understand this, but some younger children may be able to as well.
- Able to understand when to use the button and for what type of pain.
- Physically able to push the button.

If your child is not suitable for PCA, we will set them up with NCA. This is similar to PCA but is adapted for younger children and those unable to press the button. The nurse will press the button after assessing your child's pain and checking to make sure he or she is not too sleepy. **It is important that the nurse is the only person to press the button.**

Some children start with NCA but swap to PCA when they are starting to recover and wake up from surgery.

## What medicines are used in PCA and NCA?

The pain relief medicine used most often is morphine, which is a strong and effective medicine. The amount of morphine given to your child is carefully worked out according to their age and weight. Morphine is not addictive when given for pain relief. However, children who are on high doses of morphine for more than a week may find that their bodies become used to its effect. When the morphine is no longer required, this can easily be managed by gradually reducing the dose over a few days. This should not delay your child's discharge from hospital or cause any long term problems. As well as morphine from the PCA/NCA, your child will also receive regular paracetamol and possibly a non-steroidal anti-inflammatory drug (NSAID), such as ibuprofen or diclofenac, if suitable for your child. For more information about these medicines, please ask for a copy of Pain relief after surgery information sheet.

## Does morphine have any side effects?

Sometimes the morphine can cause your child to become too sleepy and it may also slow their breathing rate. The nurses on the ward will monitor your child closely for these signs and all children having morphine using PCA/



NCA are prescribed another medicine that can reverse this effect very quickly. Morphine can sometimes make your child feel sick or itchy but reducing the dose can be helpful or other medicines can be prescribed to stop these side effects. While your child is taking morphine, the nurses will carry out hourly assessments of his or her pain, level of sedation (sleepiness) and any side effects.

## **How long will my child use PCA/NCA?**

Most children use the pump for two to five days after the operation, although it can be continued for as long as necessary. The Pain Control Service will review your child every day to check their pain relief. When your child is feeding normally the pump may be switched off and he or she may have morphine by mouth or through a feeding tube.

**If you have any questions about your child's pain, please ask the nurses on the ward, your child's anaesthetist or pharmacist, or a member of the Pain Control Service.**

### **Notes**

Compiled by the Pain Control Service in collaboration with the Child and Family Information Group  
Great Ormond Street Hospital for Children NHS Trust, Great Ormond Street, London WC1N 3JH  
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