



## Overview

A cesarean section (c-section) is a surgery used to deliver a baby through a cut in the abdomen and uterus. Pain relief medicine (anesthesia) is required for c-sections to minimize pain and keep you safe. The following information will help you learn about anesthesia for c-section and what to expect before, during, and after your surgery. A pain relief doctor (anesthesiologist) will be with you during your c-section and will answer any questions you have.

## Before Your C-section

Your anesthesiologist will meet with you before surgery to talk about your medical history, do an exam, and discuss the different anesthesia options for your c-section. A nurse will place an IV in your arm, draw blood, and give you fluids. You will be given medicines that help with stomach acid and lower the risk of infection.

There are two types of anesthesia that are safe for c-sections:

- Regional (spinal, epidural or combined spinal/epidural)
- General

## Regional Anesthesia

Regional anesthesia allows you to be comfortable and alert during the birth of your baby. Local anesthetic is injected around the nerves in your back to block pain and make your belly and legs frozen. There are 3 types of regional anesthesia that may be used for c-section: spinal, epidural, or combined spinal/epidural. Your anesthesia team will give you a small dose of morphine through the spinal or epidural to relieve your pain for up to 12-24 hours after surgery.

## Spinal Anesthesia

Spinal anesthesia is the most common type of anesthesia used for planned c-sections. A small dose of anesthetic is injected into the spinal fluid that surrounds your spinal cord in your back. You will be frozen from your chest to your toes and your legs will feel very heavy. You will be awake for your baby's birth without feeling any sharp pain.

### Procedure: Spinal Anesthesia

- You will sit on the side of the bed or lay on your side.
- You will slouch and round your back like the letter "C".
- Your anesthesiologist will feel your hips and spine and may scan your back with an ultrasound to pick the best area for the procedure.
- Your back will be cleaned with soap that will feel cold.
- Local anesthetic ('freezing') medicine will be injected into the skin area where the spinal will be placed. You may feel discomfort for a few seconds as the medicine is injected.
- A small spinal needle will be inserted through the 'frozen' skin, between the bones in your lower back. You may feel an ache or pressure as this is done but it does not usually hurt.
- A small amount of medicine will be placed in the spinal fluid and then the needle is removed.
- You will lay on your back, and the bed may be tilted slightly to the side and head down.

## Combined Spinal/Epidural Anesthesia

A combined spinal/epidural (CSE) technique allows your anesthesiologist to provide immediate spinal anesthesia, and to give more medicine through an epidural tube, if required, for your comfort. A CSE may be used if you have had prior c-sections or other abdominal surgery, if the c-section is expected to take longer than normal, or if a previous epidural or spinal has not worked well enough.

### Procedure: CSE Anesthesia

- Very similar to the spinal anesthesia described above.
- Your anesthesiologist will insert a small flexible plastic tube into the epidural space between the bones of your lower back.
- The epidural tube is taped to your back and will remain in place during surgery.

## Epidural Anesthesia

If you received an epidural during your labour, this epidural may also be used to make you comfortable for your c-section. Stronger medicine is given through the epidural when you move from your labour room to the operating room. It takes 15-20 minutes to numb your belly for surgery. You will be able to feel pressure and tugging during surgery, but nothing sharp. It is common to shiver, or to feel your arms shake when given strong epidural medication. This is not dangerous but may be uncomfortable. If your labour epidural is not working well, it may need to be replaced before surgery.

## Benefits and Risks of a Spinal/Epidural/CSE for C-Section

<b>Benefits</b>	<ul style="list-style-type: none"><li>• You are awake for the birth of your baby.</li><li>• Your support person is allowed in the room during the c-section.</li><li>• Pain relief is fast (10-20 minutes).</li><li>• Pain relief lasts 12- 24 hours after your surgery.</li><li>• Reduces the risk of blood clots in your legs or lungs (DVT).</li><li>• You can do “<a href="#">skin-to-skin</a>” with your baby in the operating room while the doctors finish your c-section.</li></ul>
<b>Common Side Effects</b>	<ul style="list-style-type: none"><li>• Low blood pressure.</li><li>• Shivering/shaking – this can be intense but is not dangerous.</li><li>• Itching.</li><li>• Small bruise at site of spinal/epidural.</li><li>• Tingling or shock sensations down one leg while giving the anesthetic injection in your back, please let your doctor know if this is happening.</li><li>• Patchy block (areas of your belly remain ‘unfrozen’), which may be corrected by additional or different medications.</li></ul>
<b>Common Risks</b> ~1/20 to 1/100	<ul style="list-style-type: none"><li>• A severe headache, lasting for several days, that may need specific treatment.</li><li>• 1-5% of patients may need a spinal/epidural replaced.</li><li>• A spinal/epidural may not work fully and you may need a general anesthetic (go to sleep).</li></ul>

<b>Uncommon risks</b> ~1//1000 to 1/10,000	<ul style="list-style-type: none"> <li>• Medication or allergic reaction</li> <li>• High levels of freezing causing difficulty breathing or thinking</li> <li>• Temporary nerve injury: numb patch or muscle weakness</li> </ul>
<b>Rare risks</b> ~1/10,000 to 1/100,000	<ul style="list-style-type: none"> <li>• Infection around the brain or spinal cord (meningitis or abscess)</li> <li>• Permanent minor nerve injury</li> </ul>
<b>Extremely rare risks</b> ~1/100,000 to 1/200,000	<ul style="list-style-type: none"> <li>• Bleeding/hematoma around spinal cord.</li> <li>• Permanent severe nerve injury including paralysis.</li> <li>• Cardiac arrest: this can be from a high block, irregular heart rate, or severe medication reaction.</li> </ul>

## General Anesthesia

General anesthesia is a medication that causes unconsciousness. You will be asleep (unconscious) during the c-section. General anesthesia may be used in emergency situations when there is not enough time to use regional anesthetic. It may also be used if you have a medical condition (bleeding disorder, severe preeclampsia, extensive prior back surgery, heart problems) and can't receive an epidural/spinal, or if the epidural/spinal is difficult to put in place. General anesthesia can quickly make you unconscious so that surgery can start immediately to deliver your baby. Your support person is not allowed in the operating room during a general anesthetic but may be able to see the baby once it is born.

<b>Procedure: General anesthesia</b>	
	<ul style="list-style-type: none"> <li>• Monitors will be used to watch your heart (blood pressure cuff, EKG) and lungs (oxygen sensor).</li> <li>• You will be given a mask to breathe pure oxygen.</li> <li>• A tube will be placed in your bladder to drain your urine.</li> <li>• Your belly will be cleaned with soap.</li> <li>• A drape will be put up to keep the surgical area sterile.</li> <li>• Medicine will be given to you through the IV in your arm which will make you fall asleep (go unconscious).</li> <li>• You will feel firm pressure on the front of your neck as you fall asleep.</li> <li>• After you are asleep a breathing tube is placed through your mouth and into your windpipe to help you breathe during surgery.</li> <li>• At the end of surgery, the breathing tube is removed, and you are moved to the recovery area with your baby.</li> <li>• You may receive freezing medication (TAP block) on the side of your belly while you are asleep to help with the pain of surgery.</li> </ul>

## Benefits & Risks of General Anesthesia

<b>Benefits</b>	<ul style="list-style-type: none"> <li>• General anesthetic is the fastest way to make a person unconscious for surgery in an emergency.</li> <li>• You will not feel pain during surgery.</li> </ul>
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<b>Common side effects</b>	<ul style="list-style-type: none"> <li>• Low blood pressure</li> <li>• Nausea/vomiting</li> <li>• Sore throat</li> <li>• Shivering/shaking</li> <li>• Sleepiness</li> </ul>
<b>Risks</b>	<ul style="list-style-type: none"> <li>• Difficulty placing breathing tube, chipped tooth, split lip</li> <li>• Small scratch to the front of your eye (you don't blink while under general anesthesia)</li> <li>• Muscles aches, nerve injury</li> <li>• Allergy or adverse reaction to medication</li> <li>• Awareness during surgery</li> </ul>
<b>Extremely rare risks ~1/100,000 to 1/200,000</b>	<ul style="list-style-type: none"> <li>• Heart attack, stroke</li> <li>• Death or other severe complication</li> </ul>

### During your C-section

Your anesthesia team will monitor you during your c-section to make sure you are safe and not in pain. It is normal to feel touch, pressure, and movement during the surgery if you have a regional anesthetic.

**Your anesthesia team will check to make sure the spinal/epidural is working.  
Your c-section will not start until you are comfortable.**

<b>Procedure: C-section preparation</b>
<ul style="list-style-type: none"> <li>• Your anesthesiologist will see if you can feel temperature and light touch in the c-section site.</li> <li>• Your surgeon will test your ability to feel pain by pinching you around the c-section site to make sure it doesn't hurt.</li> <li>• A tube will be placed in your bladder to drain urine.</li> <li>• Your vagina and belly will be cleaned with soap.</li> <li>• A drape will be set up to keep the surgical site sterile.</li> <li>• You will feel pressure and pushing on your belly while your doctors deliver your baby.</li> <li>• Your support person will be with you during your c-section.</li> </ul>

### After Your C-section

After the surgery is over, you and your baby will move to the recovery room. The nurses will make sure you are safe by checking your vital signs and pain levels. The anesthetic takes 6-10 hours to wear off completely. You may feel tingling in your legs as it starts to wear off.

### Pain Relief after C-section

It is normal for you to feel discomfort after a c-section. On a 0-10 scale, the goal is for your discomfort to be 5 or less. Your doctors and nurses will check in with you to understand your discomfort and help make you more comfortable.

#### Pain relief options:

- You will take acetaminophen (Tylenol) and Naproxen regularly in the hospital and when you go home to decrease inflammation and pain.
- If your discomfort is not managed with Tylenol and Naproxen, your doctor may recommend taking an opioid medication (morphine-type drug) when in hospital.
- Local anesthetic ointment around your c-section incision site.

#### For more information

Ask your doctor or nurse if you can speak with an anesthesiologist.