



General Anesthesia

This sheet is about exposure to general anesthesia in pregnancy and while breastfeeding. This information is based on published research studies. It should not take the place of medical care and advice from your healthcare provider.

What is general anesthesia?

General anesthesia has been used for medical procedures that require the patient be “put to sleep” so they do not feel pain. General anesthesia can use a combination of gases you breathe in (inhale) and or get through IV (a needle in the vein). General anesthesia is given by expert healthcare providers, and the patient is carefully monitored during the procedure. It is estimated that about 1 in 50 to 1 in 100 (1% to 2%) of women require surgery during pregnancy.

Anesthesia given by inhalation might include halothane, enflurane, isoflurane, or nitrous oxide. Some commonly used IV medications include fentanyl, propofol and ketamine. MotherToBaby has fact sheets on fentanyl: <https://mothertobaby.org/fact-sheets/fentanyl/> and ketamine: <https://mothertobaby.org/fact-sheets/ketamine-ketalar/>.

Can exposure to general anesthesia make it harder for me to get pregnant?

It is not known if general anesthesia could make it harder to get pregnant.

Does general anesthesia increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Some studies suggest there might be a small increase in miscarriage in women who had surgery in the first half of pregnancy. It is unclear whether this is due to anesthesia, a response of the body to surgery, illness in the person who is pregnant, or another reason.

Does general anesthesia increase the chance of birth defects?

Birth defects can happen in any pregnancy for different reasons. Out of all babies born each year, about 3 out of 100 (3%) will have a birth defect. We look at research studies to try to understand if an exposure, like general anesthesia, might increase the chance of birth defects in a pregnancy.

Some studies suggest an increased chance for neural tube defects (an opening in the fetal spine or skull) and issues, such as microcephaly (small head size). However, most studies looking at the chance of birth defects in women who had surgery and anesthesia in the first and early second trimester of pregnancy did not show an increased chance of birth defects.

Does general anesthesia increase the chance of other pregnancy-related problems?

Some studies have suggested an increased chance for other pregnancy-related problems after a surgical procedure with exposure to general anesthesia later in pregnancy. This can include preterm delivery (birth before week 37), lower APGAR scores (scoring system that measures a baby's health at birth), and preeclampsia (high blood pressure and problems with organs, such as the kidneys that can lead to seizures called eclampsia). Other studies have not shown an increased chance of pregnancy complications. As preterm delivery can be influenced by many things, it is unclear if the possible increased chance is due to anesthesia, illness in the person who is pregnant, or other factors.

It is not known if general anesthesia can increase the chance of low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth).

Does general anesthesia in pregnancy affect future behavior or learning for the child?

There are several studies that have suggested that a single, relatively short procedure with exposure to general anesthesia is unlikely to have negative effects on behavior or learning. Women who are pregnant and need surgery, especially for life-threatening conditions, should not be discouraged from the use of general anesthesia. Talk with your healthcare providers about the benefits, risks, and appropriate timing of surgery or procedures requiring general anesthesia.



One study found possible behavior changes in children exposed to general anesthesia during pregnancy. This study had limitations such as a small sample size, and relying on parents' reports. This makes it hard to know if the reported changes were caused by anesthesia or other factors. Another study of 129 children found no major behavior differences overall but did see slightly lower thinking skills in children exposed to general anesthesia, especially during longer or laparoscopic surgeries. However, this study also relied on parents' reports, which can result in over- or under-report symptoms.

In summary, information on whether use of general anesthesia in pregnancy can affect future behavior or learning for the child is limited and mixed. Usually, the benefit of doing the surgery and treating the condition outweighs the risk of an untreated condition in pregnancy.

I work in an office that uses general anesthesia. Could that affect my pregnancy?

Different work settings can result in different exposures. For more information on working as a veterinarian or veterinary technician during pregnancy, please see the fact sheet at <https://mothertobaby.org/fact-sheets/vet-vettech/>. Another fact sheet with general tips on working safely while pregnant can be found at <https://mothertobaby.org/fact-sheets/reproductive-hazards-workplace/>. For more information on your specific risks, contact a MotherToBaby specialist.

Breastfeeding and general anesthesia:

Most anesthetic medications are processed quickly by the body quickly. While there are not many studies looking at breastfeeding after a procedure, most experts suggest that breastfeeding can be restarted as soon as the person who is breastfeeding recovers from the anesthesia and is feeling well enough to breastfeed. Be sure to talk to your healthcare provider about all your breastfeeding questions. For questions on specific medication and breastfeeding, contact MotherToBaby.

If a man has general anesthesia, could it affect his fertility or increase the chance of birth defects?

Studies on general anesthesia and male fertility (ability to get a woman pregnant) are limited. A survey of 5,507 male anesthetists in England found no link with miscarriage, infertility, or birth defects in their children. In general, exposures that fathers or sperm donors have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at: <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/>.

Please click [here](#) to view references.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

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