



MotherToBaby

Medications & More During Pregnancy & Breastfeeding
Ask The Experts

Fact Sheet

by the **Organization of Teratology Information Specialists (OTIS)**

For more information about us or to find a service in your area,
call **(866) 626-6847**. Visit us online at **www.MotherToBaby.org**.

Find us! Facebook.com/MotherToBaby or @MotherToBaby on Twitter

General Anesthesia

In every pregnancy, a woman starts out with a 3-5% chance of having a baby with a birth defect. This is called her background risk. This sheet talks about whether exposure to general anesthesia may increase the risk for birth defects over that background risk. This information should not take the place of medical care and advice from your health care provider.

What is general anesthesia?

General anesthesia is used for medical procedures that require you to be “put to sleep”. It involves the use of a medicine (either through breathing in gases through a mask or intravenously (IV)), which produces unconsciousness and an inability to feel pain. Often a combination of inhaled gases and intravenous medications are used in general anesthesia.

Anesthesia given by inhalation can include halothane, enflurane, isoflurane and nitrous oxide. Some commonly used IV medicines include fentanyl, propofol and ketamine. General anesthesia is given by expert health care providers and the patient is carefully monitored throughout the procedure. It is estimated that 2% of women require surgery during pregnancy. There are different types of anesthesia that can be used for surgery or during labor and delivery. These choices should be discussed with your health care provider.

Can exposure to anesthesia from a surgery cause a miscarriage?

A review of 5 studies suggests there may be a small increase in miscarriage in women who had surgery in the first half of pregnancy. However, it is unclear whether this is due to the anesthesia, or a response of the body to surgery in an affected organ, illness in the mother or another reason.

Can general anesthesia in the first trimester of pregnancy cause a birth defect?

There have been at least 5 studies that have looked at the risk for birth defects in women who had surgery and anesthesia in the first and early second trimester of pregnancy. The studies did not show an increased risk for birth defects.

Can general anesthesia in the first trimester of pregnancy cause other pregnancy complications?

Possibly. Some studies have noticed a chance for premature delivery after a surgical procedure later in pregnancy. Premature delivery is defined as having a baby before week 37.

Can general anesthesia in my third trimester cause learning or behavior problems for my baby?

A single, relatively short procedure with exposure to general anesthesia is unlikely to have negative effects on behavior or learning. Some studies in young children have suggested that long surgical procedures might affect the brain. However, it is not clear if these findings are due to the anesthesia, the condition for which the child needed surgery, or other factors. 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.

I work in an office that uses general anesthesia. Would that affect the baby?

MotherToBaby has fact sheets that talks about possible exposures in the workplace. For anesthesia questions, see the fact sheet on veterinarians: <https://mothertobaby.org/fact-sheets/vet-vettech/pdf/>. MotherToBaby also has a fact sheet with general tips on working safely while pregnant, which can be found at <https://mothertobaby.org/fact-sheets/reproductive-hazards-workplace/pdf/>. For more information on your specific risks, contact a MotherToBaby

specialist: <https://mothertobaby.org/contact-expert/>.

I am breastfeeding and need to have anesthesia for a procedure. Can I continue to breastfeed?

Yes. Most anesthetic medications are removed from 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 mother recovers from the anesthesia and is feeling well enough to breastfeed. Be sure to talk to your health care provider about all of your breastfeeding questions.

What if the father of the baby needs to have a procedure with anesthesia?

There are no studies looking at possible risks to a pregnancy when the father has anesthesia. In general, exposures that fathers have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures and Pregnancy at: <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/pdf/>.

Selected References:

- Allaert SE, et al. 2007. First trimester anesthesia exposure and fetal outcome. A review. Acta Anaesthesiol Belg. 58(2):119-23.
- Allweiler SI, Kogan LR. 2013. Inhalation anesthetics and the reproductive risk associated with occupational exposure among women working in veterinary anesthesia. Vet Anaesth Analg. May;40(3):285-9.
- Andropoulos DB, Greene MF. 2017. Anesthesia and Developing Brains – Implications of the FDA Warning. N Engl J Med. 376(10):905-907.
- Brodsky, JB, et al. 1980. Surgery during pregnancy and fetal outcome. Am. J. Obstet. Gynecol. 138(8); 1165-7.
- Czeizel AE, Pataki T, et al. 1998. Reproductive outcome after exposure to surgery under anesthesia during pregnancy. Arch Gynecol Obstet. 261(4):193-9.
- Dalal PG, Bosak J, Berlin C. 2014. Safety of the breast-feeding infant after maternal anesthesia. Paediatr Anaesth. (4):359-71. doi:10.1111/pan.12331.
- Duncan, P.G., et al, 1986. Fetal risk of anesthesia and surgery during pregnancy. Anesthesiology 64:790-794.
- Mazze, RI and Källén, 1989. B Reproductive outcome after anesthesia and operation during pregnancy: a registry study of 5405 cases. Am. J. Obstet. Gynecol. 161(5); 1178-85.
- Reitman, E, Flood, P. 2011. Anaesthetic considerations for non-obstetric surgery during pregnancy. British Journal of Anaesthesia 107, (S1): i72–i78.
- Rosen, MA. 1999. Management of anesthesia for the pregnant surgical patient. Anesthesiology 91(4);1159-63.
- Sanders RD, et al. 2013. Impact of anaesthetics and surgery on neurodevelopment: an update. Br J Anaesth. 110 Suppl 1:i53-72.
- Smith, BE. 1963. Fetal prognosis after anesthesia during gestation. Analg. 42;521-6
- Shnider, SM, Webster, GM. 1965. Maternal and fetal hazards of surgery during pregnancy. Am. J. Obstet. Gynecol. 92;891-900.
- Sylvester, GC, et al. 1994. First-trimester anesthesia exposure and the risk of central nervous system defects: a population-based case-control study. Am J Public Health 84(11)1757-1760.
- US FDA. FDA Drug Safety Communication. 12/14/16. FDA review results in new warnings about using general anesthetics and sedation drugs in young children and pregnant women. <https://www.fda.gov/Drugs/DrugSafety/ucm532356.htm>

January, 2018