

# Sepsis

## Information for women who have sepsis during pregnancy or breastfeeding

The information provided below is for readers based in the United States of America. Readers outside of the United States of America should seek the information from local sources.

### What is sepsis during pregnancy?

Sepsis is a condition in which there are pathogenic (disease-causing) microorganisms in the blood (septicemia) or various other tissues throughout the body, and the body is responding in ways that cause malfunction of organs. The precise definition of sepsis is fairly complex and changes every few years as professional critical care medicine organizations (such as the Society of Critical Care Medicine in the US) tweak sepsis categories to make it easier to study how treatments affect the rate of death and other adverse outcomes. It is possible to develop viral sepsis or fungal sepsis, but most cases of sepsis are bacterial.

Sepsis can result as a complication a variety of infective conditions, such as abdominal infections ([appendicitis](#), [cholecystitis](#), [peritonitis](#)), [pneumonia](#), kidney and other [urinary tract infections](#), central nervous system infections, and through the skin, including from skin infections (cellulitis), from wounds, and through intravenous catheters, including central lines (catheter into a large, deep vein). Sepsis also can develop from infections particular to pregnancy, such as [chorioamnionitis](#) (infection of the fetal membranes), [endometritis](#) (infected endometrial layer of the uterus), retention of products of conception in the uterus (after [spontaneous abortion](#) or stillbirth or after delivery of an infant), and post-partum infections due to entry of bacteria through the birth canal or through a cesarean incision site (this includes endometritis, but also other obstetric infections).

Known as puerperal fever, or childbed fever, post-partum sepsis (maternal sepsis) triggered by a peripartum infection, such as chorioamnionitis or endometritis, is a condition whose incidence peaked in the developed world during the 19th century. The peak was due to an increasing number of women giving birth in hospitals rather than at home in an era when understanding the role of microorganisms in disease was still a few decades away. The crisis came to a head in Vienna of the 1840s, when the Hungarian physician [Ignaz Semmelweis](#) realized that a higher death rate in women tended by

physicians with medical students compared with women tended only by midwives (13-18% versus 2%) had to do with cadavers in a pathology lab. This happened when a colleague, who worked as a pathologist, cut his hand during an autopsy and developed the same disease that was killing the pregnant women. Unlike the midwifery students who worked only with pregnant women, the medical students also participated in autopsies prior to arriving at the maternity ward without washing their hands in between. Semmelweis didn't know that bacteria were killing the women; he hypothesized the culprit to be some kind of particles that were not necessarily alive. However, by instituting a policy in which everybody physicians, midwives, and students of both professions had to wash their hands thoroughly before working with each patient, he decreased the rate of childbirth fever and maternal mortality dramatically, both in the obstetric and midwifery wards. From that point until the mid-1860s, Semmelweis battled with much of the medical community that dismissed his findings and thought it ridiculous to wash their hands. After suffering what was described as a nervous breakdown, Semmelweis was committed to an asylum, where he was beaten by guards and died of his injuries in 1865 at the age of 47.

Over the next decade, the work of Louis Pasteur and Joseph Lister led to the acceptance of the germ theory of disease and the establishment of hand washing and other sanitation procedures. This led to a drop in the incidence of post-partum sepsis, followed by another drop with the advent of sulfa antibiotics in the 1940s.

### **How common is sepsis during pregnancy?**

The reason for recounting the story of Semmelweis, above, is that the incidence of maternal sepsis varies widely between different parts of the world. The incidence of maternal sepsis, particularly due to [group B \*Streptococcus\*](#) organisms, has been reported with varying numbers, ranging from approximately 3 to 40 cases per 100,000 live births, depending on the country and on the criteria used to define sepsis. In some reports, maternal death due to sepsis is reported, in some cases, the numbers are for severe sepsis (including what doctors call septic shock), and in some cases, the numbers are for what is called systemic inflammatory response syndrome (SIRS), a condition that is not called sepsis until the woman is found or suspected to have an infection. However, while the incidence in developed countries such as the UK and the US is relatively low, in certain locations in central Africa, Asia, and the Caribbean, the incidence is much higher, and maternal sepsis is the number one cause of maternal death, reminiscent of the time of Semmelweis.

### **How is sepsis during pregnancy diagnosed?**

Sepsis is diagnosed based on a set of scored criteria related to infection, vital signs, and assessment of the function of various organs and the blood clotting system that are added into what is called the sequential organ failure assessment score (SOFA) score. In making this assessment, doctors also characterize the condition along a spectrum consisting of SIRS (which is kind of like pre-sepsis), sepsis, severe sepsis, and septic shock.

### **Does sepsis cause problems during pregnancy?**

Sepsis is a life-threatening condition with an extremely high mortality rate.

### **Does sepsis cause problems for the baby?**

The life of the fetus is in danger because the mother's life is at extreme risk.

### **What to consider about taking medications when you are pregnant or breastfeeding:**

- The risks to yourself and your baby if you do not treat the sepsis
- The risks and benefits of each medication you use when you are pregnant
- The risks and benefits of each medication you use when you are breastfeeding

### **What should I know about using medication to treat sepsis during pregnancy?**

The main categories of medication for managing sepsis consist of antibiotics to combat the infection, medications to increase blood pressure (vasopressors), along with intravenous fluids. Antibiotic regimens that are compatible with pregnancy can be chosen, but sepsis is a life-threatening condition in which the patient is treated in an intensive care setting. Thus, medications, including agents affecting the cardiovascular system, must be chosen firstly for their ability to save the mother's life.

### **Who should NOT stop taking medication for sepsis during pregnancy?**

Sepsis is a life-threatening condition that is treated with a complex combination of medications, fluid management, and monitoring, some of it through invasive devices. The value of stopping a particular medication depends on a complex assessment.

### **What should I know about choosing a medication for my sepsis during pregnancy?**

It is important to stay in communication with your health care provider as the release of new studies over time can change the outlook on the role of specific medications during pregnancy.

You may find Pregistrys expert reports about the medications to treat this condition [here](#). Additional information can also be found in the sources listed below.

### **What should I know about taking a medication for my sepsis when I am breastfeeding?**

Generally, it is not easy for a woman with sepsis to nurse a baby.

### **What alternative therapies besides medications can I use to treat my sepsis during pregnancy?**

Management of sepsis, saving the mothers life, depends strongly on medications, particularly antibiotics and cardiovascular drugs.

### **What can I do for myself and my baby when I have sepsis during pregnancy?**

Follow the instructions of your physician. Cooperate with your nurses and other health providers.

### **Resources for sepsis in pregnancy:**

For more information about **sepsis** during and after pregnancy, contact <http://www.womenshealth.gov/> (800-994-9662 [TDD: 888-220-5446]) or contact the following organizations:

- [Mayo Clinic. Sepsis](#)
- [Cleveland Clinic. Chorioamnionitis](#)

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## **General information**

It is very common for women to worry about having a miscarriage or giving birth to a child with a birth defect while they are pregnant. Many decisions that women make about their health during pregnancy are made with these concerns in mind.

For many women these concerns are very real. As many as 1 in 5 pregnancies end in a miscarriage, and 1 in 33 babies are born with a birth defect. These rates are considered the background population risk, which means they do not take into consideration anything about the health of the mom, the

medications she is taking, or the family history of the mom or the baby's dad. A number of different things can increase these risks, including taking certain medications during pregnancy.

It is known that most medications, including over-the-counter medications, taken during pregnancy do get passed on to the baby. Fortunately, most medicines are not harmful to the baby and can be safely taken during pregnancy. But there are some that are known to be harmful to a baby's normal development and growth, especially when they are taken during certain times of the pregnancy. Because of this, it is important to talk with your doctor or midwife about any medications you are taking, ideally before you even try to get pregnant.

If a doctor other than the one caring for your pregnancy recommends that you start a new medicine while you are pregnant, it is important that you let them know you are pregnant.

If you do need to take a new medication while pregnant, it is important to discuss the possible risks the medicine may pose on your pregnancy with your doctor or midwife. They can help you understand the benefits and the risks of taking the medicine.

Ultimately, the decision to start, stop, or change medications during pregnancy is up to you to make, along with input from your doctor or midwife. If you do take medications during pregnancy, be sure to keep track of all the medications you are taking.