



## Maternal Sepsis Fact Sheet

**Definition:** Sepsis is the body's overwhelming and life-threatening response to infection, which can lead to tissue damage, organ failure, and death.

According to the World Health Organization **maternal sepsis** refers to sepsis that results from infection during pregnancy, childbirth, post-abortion, or postpartum period.<sup>1</sup>

**Who it Hurts:** While sepsis is an equal-opportunity killer, impacting the sick, the well, and people of all ages, some groups are more likely to be affected. These include very young children, older adults, those with a weakened immune system, racial and ethnic minorities, and lower income individuals and families.

**Prevention:** The risk of sepsis can be reduced by preventing or quickly identifying and managing infections. This includes practicing good hygiene, staying current with vaccinations, and seeking treatment when infections are suspected.

**Treatment:** Sepsis is a medical emergency that requires urgent attention and rapid treatment for survival. Sepsis can be treated and, in many instances, lives are saved by using existing and proven protocols.

**Recovery:** Many individuals fully recover from sepsis, while others may have long-lasting effects, such as amputations or organ dysfunction, like kidney failure. Other after-effects of sepsis are less obvious, such as memory loss, anxiety, or depression.

**Symptoms:** When it comes to sepsis, remember **It's About TIME™**:

**T – Temperature** - higher or lower than normal

**I - Infection** – may have signs or symptoms of infection

**M – Mental Decline** - confused, sleepy, difficult to rouse

**E – Extremely ill** – “I feel like I might die,” severe pain or discomfort

If you **suspect sepsis** (observe a combination of these symptoms), see your medical professional immediately, CALL 911, or go to a hospital with an advocate and say, **“I AM CONCERNED ABOUT SEPSIS.”**

### Maternal Sepsis Facts

- The U.S. has the third highest rate of maternal mortality of all high-income countries, with an estimated 2.6 maternal deaths per 10,000 live births.<sup>12</sup>
- In the U.S., Black women are 3.3 times more likely to die from pregnancy-related causes, and American Indian and Alaskan Native women 2.5 times more likely, than white women.<sup>7</sup>
- Maternal sepsis is estimated to complicate 10 cases per 10,000 live births in the U.S.<sup>11</sup>
- Sepsis causes at least 261,000 maternal deaths every year worldwide, accounting for approximately 11% of all maternal deaths.<sup>2</sup>
- Globally, maternal sepsis is estimated at 5.7 million cases each year.<sup>9</sup>
- In a recent analysis of 52 low, lower-middle, upper-middle, and high-income countries, sepsis was estimated to affect 109 women per 10,000 live births.<sup>10</sup> Women from low-income countries were estimated to have the highest rates of sepsis, at 150 women per 10,000 live births.

- Sepsis in pregnancy is associated with an increased risk of preterm birth, prolonged recovery, stillbirth, and maternal death.<sup>3</sup> A recent study found that maternal sepsis was associated with more than 6 times the risk of infant death compared to birth outcomes of healthy mothers.<sup>14</sup>
- Black maternal patients have more than twice the risk of severe maternal sepsis as compared to their white counterparts.<sup>15</sup>
- The number of cases of maternal sepsis is increasing. One study of the National Inpatient Sample, a national database, reported a 10% annual increase in cases of maternal severe sepsis and sepsis-related deaths in the U.S. between 1998 and 2008.<sup>3,4</sup>
- Sepsis is driving increases in pregnancy-related deaths in the U.S.<sup>5</sup> (Pregnancy-related death is defined as the death of a woman while pregnant or within 1 year of the end of a pregnancy.) According to the CDC, 12.7% of pregnancy-related deaths between 2014 and 2017 were due to infection or sepsis. That makes infection/sepsis the second leading cause of pregnancy-related death.
- Infection is a leading cause of pregnancy-related death at several points in the pregnancy timeline.<sup>7</sup> Infection is the third leading cause of death during pregnancy and in the period 1-6 days after delivery (postpartum). Infection is the leading cause of pregnancy-related death during the period of 7-42 days after delivery. Infection, if not properly treated, can lead to sepsis.
- A recent analysis of delivery hospitalizations and postpartum readmissions in the U.S. found that 23% of in-hospital deaths were related to sepsis.<sup>8</sup>
- In the United Kingdom, sepsis accounts for as many as 25% of all maternal deaths.<sup>3</sup>
- More than 50% of women who die from sepsis have one or more chronic co-occurring conditions, including chronic renal (kidney) disease, chronic liver disease, and congestive heart failure.<sup>3</sup>
- Severe maternal morbidity (SMM) refers to complications of labor and delivery that result in significant short- or long-term consequences to a woman's health. SMM affects approximately 60,000 women in the U.S. every year. Sepsis is one of the 10 most frequent causes of SMM.<sup>6</sup>
- Risk factors associated with developing maternal sepsis include not having given birth before (nulliparity), Black race, and public or no health insurance. Other childbirth-related (obstetric) risk factors include cesarean delivery, use of assisted reproductive technologies, and multiple births (e.g. twins or triplets).<sup>3</sup>
- The Society for Maternal Fetal Medicine recently released new recommendations for the diagnosis and treatment of sepsis, including that sepsis and septic shock be considered medical emergencies. Treatment of sepsis in pregnancy should follow the same basic principles as treatment of patients who are not pregnant.<sup>3</sup>
- The Maternal Mortality Review Committee of the CDC recommends that health facilities have sepsis protocols in place and used by staff members as one strategy to prevent future pregnancy-related deaths.<sup>7</sup>

#### Sources

1. World Health Organization, Statement on Maternal Sepsis, 2017. <http://apps.who.int/iris/bitstream/handle/10665/254608/WHO-RHR-17.02-eng.pdf?sequence=1>
2. Say L, Chou D, Gemmill A, et al. Global causes of maternal death: a WHO systematic analysis. *Lancet Glob Health* 2014;2(6):e323-333. <http://www.sciencedirect.com/science/article/pii/S2214109X1470227X>
3. Plante LA, Pacheco LD, Louis JM. SMFM Consult Series #47: Sepsis during pregnancy and the puerperium. *Am J Obstet Gynecol*. 2019;220(4):B2-b10. [https://www.ajog.org/article/S0002-9378\(19\)30246-7/fulltext](https://www.ajog.org/article/S0002-9378(19)30246-7/fulltext)
4. Al-Ostad G, Kezouh A, Spence AR, Abenhaim HA. Incidence and risk factors of sepsis mortality in labor, delivery and after birth: population-based study in the USA. *J Obstet Gynaecol Res*. 2015;41(8):1201-1206. <https://www.ncbi.nlm.nih.gov/pubmed/25976287>
5. <http://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html>
6. Admon LK, Winkelman TNA, Zivin K, et al. Racial and Ethnic Disparities in the Incidence of Severe Maternal Morbidity in the United States, 2012-2015. *Obstet Gynecol* 2018. <https://www.ncbi.nlm.nih.gov/pubmed/30303912>
7. Petersen EE, Davis NL, Goodman D, et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011-2015, and Strategies for Prevention, 13 States, 2013-2017. *MMRW Morb Mortal Wkly Rep*. 2019;68(May 7, 2019).

DOI: <http://dx.doi.org/10.15585/mmwr.mm6818e1>

8. Hensley MK, Bauer ME, Admon LK, Prescott HC. Incidence of Maternal Sepsis and Sepsis-Related Maternal Deaths in the United States. *JAMA*. 2019;322(9):890-892. <https://jamanetwork.com/journals/jama/article-abstract/2749204>
9. Rudd, K. E., Johnson, S. C., Agesa, K. M., Shackelford, K. A., Tsoi, D., Kievlan, D. R., ... & Fleischmann-Struzek, C. Global, regional, and national sepsis incidence and mortality, 1990–2017: analysis for the Global Burden of Disease Study. *The Lancet*, 2020.395(10219), 200-211. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32989-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32989-7/fulltext)
10. Bonet, M., Brizuela, V., Abalos, E., Cuesta, C., Baguiya, A., Chamillard, M., ... & Nabhan, A. Frequency and management of maternal infection in health facilities in 52 countries (GLOSS): a 1-week inception cohort study. *The Lancet Global Health*, 2020. 8(5), e661-e671. [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30109-1/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30109-1/fulltext)
11. Acosta CD, Knight M, Lee, HC, Kurinczuk, JJ, Gould, JB, & Lyndon, A. The continuum of maternal sepsis severity: incidence and risk factors in a population-based cohort study. *PLoS one*. 2013. 8(7). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3699572/>
12. Kassebaum NJ, Barber RM, Bhutta ZA, Dandona L, Gething PW, Hay SI, Kinfu Y, Larson HJ, Liang X, Lim SS, Lopez AD. Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016 Oct 8;388(10053):1775-812. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)31470-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31470-2/fulltext)
13. Acosta CD, Kurinczuk JJ, Lucas DN, Tuffnell DJ, Sellers S, Knight M. Severe maternal sepsis in the UK, 2011–2012: a national case-control study. *PLoS Med*. 2014 Jul 8;11(7):e1001672. <https://pubmed.ncbi.nlm.nih.gov/25003759/>
14. Aoyama K, Park AL, Davidson AJ, Ray JG. Severe Maternal Morbidity and Infant Mortality in Canada. *Pediatrics*. 2020 Sep 1;146(3). <https://pubmed.ncbi.nlm.nih.gov/32817396/>
15. Bauer ME, Bateman BT, Bauer ST, Shanks AM, Mhyre JM. Maternal sepsis mortality and morbidity during hospitalization for delivery: temporal trends and independent associations for severe sepsis. *Anesthesia & Analgesia*. 2013 Oct 1;117(4):944-50. <https://pubmed.ncbi.nlm.nih.gov/24023020/>