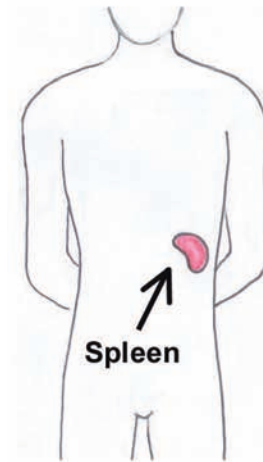


Precautions for People Without a Functioning Spleen

What is the spleen?

The spleen is an organ located in the upper left side of the abdomen, tucked under the rib cage, behind the stomach. It is normally about the size of a person's fist. The spleen produces antibodies and filters bacteria from the blood. This helps the body to fight infections.



What are the risk factors for a non-functioning spleen?

- Surgical removal of the spleen (splenectomy)
- High dose of radiation (at least 40 Gy/4000 cGy) to the spleen
- Currently active chronic graft-versus-host disease (cGVHD) (occurring following bone marrow or stem cell transplant).

What problems can occur in people with a non-functioning spleen?

People without a spleen or those who have a spleen that is non-functioning are at increased risk for developing serious infections. These infections can be fatal if not treated immediately. The types of infections most likely to occur in people without a functioning spleen are those caused by encapsulated bacteria (germs with an outer coating that protect them from the body's immune system). Some common types of encapsulated bacteria include *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Neisseria meningitidis*.

What are the signs of infection?

Fever is a sign of infection. Often, fever is caused by a virus (like the flu) and not by dangerous bacteria. However, there is no way to know if bacteria are the cause of a fever unless a blood culture is done (by taking a blood sample and testing it for the presence of bacteria). Unfortunately, it takes anywhere from a few hours to a few days for the blood culture results to become available. **Therefore, whenever you have a fever you must be treated with antibiotics as if you had a serious infection**, at least until the blood culture results are known.

Other symptoms of infection include unusual tiredness, muscle aches, chills, headache, vomiting, diarrhea, and abdominal pain. These symptoms can be warning signs of

infection even if you do not have a fever. Check with your healthcare provider if you develop these symptoms. Take your temperature regularly any time that you develop symptoms of illness. If you are having symptoms that you are not sure are related to an infection, contact your healthcare provider for further recommendations.

What should I do if I get a fever?

If your temperature is **101°F (38.3°C) or higher you should:**

- **Seek immediate medical attention (even if you are taking antibiotics).**
- **Tell your healthcare provider that you do not have a functioning spleen.**
- **Report any symptoms** that you are experiencing (such as those listed above).
- **Have a blood sample taken** for blood count and culture.
- **Receive a strong antibiotic** (by injection into a vein or muscle), at least until the blood culture results are available.

Is there anything I can do to prevent infections?

Vaccines: Vaccines may reduce your chances of a serious infection. **We recommend that you receive the Pneumococcal, Meningococcal, and HIB** (Haemophilus influenzae type B) vaccines. Check with your healthcare provider to see whether you have had all of these vaccines and whether you need booster doses (additional doses given after the original vaccine). Everyone should have a booster dose of Pneumococcal vaccine, which should be given at least 5 years after the first shot and when the person is at least 10 years old. **Many healthcare providers also recommend yearly influenza (flu) vaccine**, in order to reduce the risk of bacterial infections that can sometimes occur as a complication of the flu. It's also important to know that **even if you have received vaccines, you are still at risk for infection**, because **vaccination is not 100% protective**.

Antibiotics: Some healthcare providers may recommend that you take daily preventive (prophylactic) antibiotic pills, such as penicillin, with the hope of preventing serious bacterial infections. Others may give you a prescription to have on hand and instruct you to start taking antibiotics at the first sign of illness. Still others may recommend a prescription for antibiotics only if you are traveling to an area where it will be difficult to obtain medical care. **In any case, whether or not you are taking antibiotics, it is essential that you seek immediate medical attention any time that you develop fever, chills, or other symptoms of serious illness.** Delaying a medical visit for even

a few hours can be very dangerous for you, because if you do have a bacterial infection, it can worsen rapidly.

Other precautions:

Because you do not have a functioning spleen, you are also at increased risk for problems with the following infections:

Malaria: If you travel to countries where malaria is common, take special precautions to avoid getting malaria. Ask your healthcare provider for anti-malarial medications before you travel to infested areas. During travel, use insect repellants and other protective measures, such as netting and protective clothing.

Animal/Human Bites: Animal and human bites can result in serious bacterial infections. If you receive a bite that breaks the skin, you should seek immediate medical attention for treatment with antibiotics.

Ticks: People without a functioning spleen are at increased risk for an infection caused by *Babesia*, a germ transmitted by deer ticks. These ticks are most commonly found in the northeastern United States and in some European countries. (Note: this is **not** the type of germ that causes Lyme disease). You should wear protective clothing and use insect repellants when going outdoors in tick-infested areas. If you receive a tick bite while in an area infested with *Babesia*, you should remove the tick and talk to your healthcare provider about what to do.

How will my healthcare providers know about my non-functioning spleen?

Be sure to tell all of your doctors, dentists, and other healthcare providers that you do not have a functioning spleen. You should also **wear a medical alert emblem** (bracelet or necklace) so that in case you are unable to communicate in a medical emergency, you will be readily identified as not having a functioning spleen.

We also recommend that you carry a wallet card, such as the one below, with guidelines for healthcare professionals regarding the management of fever in people without a functioning spleen.

Wallet Card for Patients Without a Functioning Spleen

MEDICAL ALERT:

Asplenic Patient

Patient Name: _____

Physician Name: _____

Physician Phone: _____

Medical Alert: Asplenic Patient

This patient is asplenic and at risk for potentially fatal, overwhelming infections. Immediate medical attention is required for fever of $\geq 101^{\circ}\text{F}$ (38.3°C) or other signs of serious illness. Suggested management includes:

- 1) Physical exam, CBC and blood culture.
- 2) Administration of a long-acting, broad-spectrum parenteral antibiotic (e.g., ceftriaxone) accompanied by close clinical monitoring while awaiting blood culture results.
- 3) Hospitalization and broadening of antimicrobial coverage (e.g., addition of vancomycin) may be necessary under certain circumstances, such as the presence of marked leukocytosis, neutropenia, or significant change from baseline CBC; toxic clinical appearance; fever $\geq 104^{\circ}\text{F}$; meningitis, pneumonia, or other serious focus of infection; signs of septic shock; or previous history of serious infection.

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Additional health information for childhood cancer survivors is available at
www.survivorshipguidelines.org

Note: Throughout this *Health Links* series, the term "childhood cancer" is used to designate pediatric cancers that may occur during childhood, adolescence, or young adulthood. *Health Links* are designed to provide health information for survivors of pediatric cancer, regardless of whether the cancer occurred during childhood, adolescence, or young adulthood.

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