

## 1: THOUGHTS ON TYPHOID FEVER; ITS ETIOLOGY, PATHOLOGY, ABORTION AND TREATMENT. | J

*The objects that are sought to be accomplished by the issuance of this book are: First, to present to the members of the medical profession so much evidence of the truth of the startling declaration that typhoid fever can be aborted as will induce a large number of physicians to give antiseptic.*

What are the causes and risk factors? Typhoid is caused by bacteria called *Salmonella typhi* S. Its main method of transmission is the oral-fecal route, generally spreading in contaminated water or food. It can also be passed through direct contact with an infected person. In addition, there are a small number of people who recover but still carry S. Some regions have a higher incidence of typhoid. Worldwide, typhoid fever affects more than 26 million people per year. The United States has about cases per year. When traveling to countries that have higher incidences of typhoid, it pays to follow these prevention tips: This vaccine is a one-dose injection. You can have a booster dose every two years. This vaccine is not for children under age six. It takes at least a week after the last dose to work. You can have a booster every five years. How is typhoid treated? A blood test can confirm the presence of S. Typhoid is treated with antibiotics such as azithromycin, ceftriaxone, and fluoroquinolones. A stool culture can determine if you still carry S. Without treatment, typhoid can lead to serious, life-threatening complications. Worldwide, there are about , typhoid-related deaths a year. With treatment, most people start to improve within three to five days. Almost everyone who receives prompt treatment makes a full recovery.

*This book is a revision of the various essays of the author, most of which have been published from time to time in this [www.enganchecubano.com](http://www.enganchecubano.com) "theory" being: 1.*

In some people, signs and symptoms may return up to two weeks after the fever has subsided. When to see a doctor See a doctor immediately if you suspect you have typhoid fever. If you are from the United States and become ill while traveling in a foreign country, call the U. Consulate for a list of doctors. If you develop signs and symptoms after you return home, consider consulting a doctor who focuses on international travel medicine or infectious diseases. Causes Typhoid fever is caused by virulent bacteria called *Salmonella typhi*. Fecal-oral transmission route The bacteria that cause typhoid fever spread through contaminated food or water and occasionally through direct contact with someone who is infected. In developing nations, where typhoid fever is established endemic, most cases result from contaminated drinking water and poor sanitation. The majority of people in industrialized countries pick up typhoid bacteria while traveling and spread it to others through the fecal-oral route. This means that *Salmonella typhi* is passed in the feces and sometimes in the urine of infected people. You can also become infected by drinking water contaminated with the bacteria. Typhoid carriers Even after treatment with antibiotics, a small number of people who recover from typhoid fever continue to harbor the bacteria in their intestinal tracts or gallbladders, often for years. These people, called chronic carriers, shed the bacteria in their feces and are capable of infecting others, although they no longer have signs or symptoms of the disease themselves. Risk factors Typhoid fever remains a serious worldwide threat especially in the developing world affecting an estimated 26 million or more people each year. Worldwide, children are at greatest risk of getting the disease, although they generally have milder symptoms than adults do. Work in or travel to areas where typhoid fever is established endemic Work as a clinical microbiologist handling *Salmonella typhi* bacteria Have close contact with someone who is infected or has recently been infected with typhoid fever Drink water contaminated by sewage that contains *Salmonella typhi* Complications Intestinal bleeding or holes The most serious complications of typhoid fever intestinal bleeding or holes perforations in the intestine may develop in the third week of illness. A perforated intestine occurs when your small intestine or large bowel develops a hole, causing intestinal contents to leak into your abdominal cavity and triggering signs and symptoms such as severe abdominal pain, nausea, vomiting and bloodstream infection sepsis. This life-threatening complication requires immediate medical care. Other, less common complications Inflammation of the heart muscle myocarditis Inflammation of the lining of the heart and valves endocarditis Pneumonia Inflammation of the pancreas pancreatitis Kidney or bladder infections Infection and inflammation of the membranes and fluid surrounding your brain and spinal cord meningitis Psychiatric problems, such as delirium, hallucinations and paranoid psychosis With prompt treatment, nearly all people in industrialized nations recover from typhoid fever. Without treatment, some people may not survive complications of the disease. Prevention In many developing nations, the public health goals that can help prevent and control typhoid fever safe drinking water, improved sanitation and adequate medical care may be difficult to achieve. For that reason, some experts believe that vaccinating high-risk populations is the best way to control typhoid fever. Vaccines Two vaccines are available. One is injected in a single dose at least one week before travel. One is given orally in four capsules, with one capsule to be taken every other day. Neither vaccine is percent effective, and both require repeat immunizations, as vaccine effectiveness diminishes over time. Frequent hand-washing in hot, soapy water is the best way to control infection. Wash before eating or preparing food and after using the toilet. Avoid drinking untreated water. Contaminated drinking water is a particular problem in areas where typhoid fever is endemic. For that reason, drink only bottled water or canned or bottled carbonated beverages, wine and beer. Carbonated bottled water is safer than uncarbonated bottled water is. Ask for drinks without ice. Use bottled water to brush your teeth, and try not to swallow water in the shower. Avoid raw fruits and vegetables. To be absolutely safe, you may want to avoid raw foods entirely. Steaming hot foods are best. Wash your hands often. This is the single most important thing you can do to keep from spreading the infection to others. Use hot, soapy water and

scrub thoroughly for at least 30 seconds, especially before eating and after using the toilet.

**Diagnosis** Medical and travel history Your doctor is likely to suspect typhoid fever based on your symptoms and your medical and travel history. But the diagnosis is usually confirmed by identifying *Salmonella typhi* in a culture of your blood or other body fluid or tissue.

**Body fluid or tissue culture** For the culture, a small sample of your blood, stool, urine or bone marrow is placed on a special medium that encourages the growth of bacteria. The culture is checked under a microscope for the presence of typhoid bacteria. A bone marrow culture often is the most sensitive test for *Salmonella typhi*. Although performing a culture test is the mainstay for diagnosis, in some instances other testing may be used to confirm a suspected typhoid fever infection, such as a test to detect antibodies to typhoid bacteria in your blood or a test that checks for typhoid DNA in your blood.

**Treatment** Antibiotic therapy is the only effective treatment for typhoid fever. Commonly prescribed antibiotics

Commonly prescribed antibiotics include: In the United States, doctors often prescribe this for nonpregnant adults. Another similar drug called ofloxacin also may be used. Unfortunately, many *Salmonella typhi* bacteria are no longer susceptible to antibiotics of this type, particularly strains acquired in Southeast Asia. This may be used if a person is unable to take ciprofloxacin or the bacteria is resistant to ciprofloxacin. This injectable antibiotic is an alternative in more-complicated or serious infections and for people who may not be candidates for ciprofloxacin, such as children. These drugs can cause side effects, and long-term use can lead to the development of antibiotic-resistant strains of bacteria.

**Problems with antibiotic resistance** In the past, the drug of choice was chloramphenicol. Doctors no longer commonly use it, however, because of side effects, a high rate of health deterioration after a period of improvement relapse and widespread bacterial resistance. In fact, the existence of antibiotic-resistant bacteria is a growing problem in the treatment of typhoid fever, especially in the developing world. In recent years, *Salmonella typhi* has also proved resistant to trimethoprim-sulfamethoxazole, ampicillin and ciprofloxacin.

**Other treatments** Other treatments include: This helps prevent the dehydration that results from a prolonged fever and diarrhea. If your symptoms are severe, go to an emergency room or call or your local emergency number.

**Information to gather in advance** Pre-appointment restrictions. At the time you make your appointment, ask if there are restrictions you need to follow in the time leading up to your visit. Your doctor will not be able to confirm typhoid fever without a blood test, and may recommend taking steps to reduce the risk of passing a possible contagious illness to others.

**Recent exposure to possible sources of infection.** Be prepared to describe international trips in detail, including the countries you visited and the dates you traveled. Your doctor will also need to know your vaccination history.

**Questions to ask your doctor.** Write down your questions in advance so that you can make the most of your time with your doctor. For typhoid fever, possible questions to ask your doctor include: What are the possible causes for my symptoms? What kinds of tests do I need? Are treatments available to help me recover? I have other health problems. How can I best manage these conditions together? How long do you expect a full recovery will take? When can I return to work or school? Am I at risk of any long-term complications from typhoid fever?

**Treatment** What to expect from your doctor Your doctor is likely to ask you a number of questions. Being ready to answer them may reserve time to go over any points you want to talk about in-depth. Your doctor may ask: What are your symptoms and when did they begin? Have your symptoms gotten better or worse? Did your symptoms briefly get better and then come back? Have you recently traveled abroad? Did you update your vaccinations before traveling? Are you being treated for any other medical conditions? Are you currently taking any medications?

## 3: Typhoid fever - Treatment - NHS

*Excerpt from Typhoid Fever and Its Abortive Treatment The objects that are sought to be accomplished by the issuance of this book are: First, to present to the members of the medical profession so much evidence of the truth of the startling declaration that typhoid fever can be aborted as will induce a large number of physicians to give antiseptic medicine a fair and faithful trial in this.*

Typhoid and paratyphoid fever are most often acquired through consumption of water or food that has been contaminated by feces of an acutely infected or convalescent person or a chronic, asymptomatic carrier. Transmission through sexual contact, especially among men who have sex with men, has been documented rarely. In the United States, approximately culture-confirmed cases of typhoid fever and 80 cases of paratyphoid fever caused by S. Cases of paratyphoid fever caused by serotypes Paratyphi B tartrate negative and Paratyphi C are rarely reported. Other high-risk regions for typhoid and paratyphoid fever include Africa and Southeast Asia; lower-risk regions include East Asia, South America, and the Caribbean. Headache, malaise, and anorexia are nearly universal, and abdominal pain, diarrhea, or constipation are common. Hepatosplenomegaly can often be detected. A transient, macular rash of rose-colored spots can occasionally be seen on the trunk. Fever is commonly lowest in the morning, reaching a peak in late afternoon or evening. This clinical presentation is often confused with malaria, and typhoid fever should be suspected in a person with a history of travel to an endemic area who is not responding to antimalarial medication. Untreated, the disease can last for a month. The serious complications of typhoid fever generally occur after 2–3 weeks of illness and may include life-threatening intestinal hemorrhage or perforation. Multiple cultures increase the sensitivity and may be required to make the diagnosis. Stool culture is not usually positive during the first week of illness, so blood culture is preferred. Urine culture has no higher diagnostic yield than stool culture for acute cases. The Widal test is unreliable but is widely used in developing countries because of its low cost. It is a serologic assay that may react in patients with typhoid or paratyphoid fever, but is not specific and false positives may occur. Serologic assays are not an adequate substitute for blood, stool, or bone marrow culture. Because there is no definitive serologic test for typhoid or paratyphoid fever, the initial diagnosis often has to be made clinically. The combination of a history of risk for infection and a gradual onset of fever that increases in severity over several days should raise suspicion of typhoid or paratyphoid fever. Typhoid fever is a nationally notifiable disease. Injectable third-generation cephalosporins are often the empiric drug of choice when the possibility of fluoroquinolone resistance is high. Azithromycin and ceftriaxone are increasingly used to treat typhoid fever or paratyphoid fever because of the emergence of multidrug-resistant strains, although increasing resistance to azithromycin in Typhi strains has been documented outside the United States. Additional data on antimicrobial resistance among enteric fever cases in the United States can be found at [www.cdc.gov](http://www.cdc.gov). Patients treated with an antibiotic may continue to have fever for 3–5 days, although the height of the fever generally decreases each day. Patients may actually feel worse during the several days it takes for the fever to end. If fever in a person with culture-confirmed typhoid or paratyphoid fever does not subside within 5 days, alternative antimicrobial agents or other foci of infection such as abscesses, bone or joint infections, and other extraintestinal sites should be considered. For paratyphoid fever, food and water precautions are the only prevention method, as no vaccines are available. Two typhoid vaccines are available in the United States: Available typhoid vaccines offer no protection against paratyphoid fever. The time required for primary vaccination differs for the 2 vaccines, as do the lower age limits. Primary vaccination with ViCPS consists of one 0. A booster dose is recommended every 2 years for people who remain at risk. Primary vaccination with oral Ty21a vaccine consists of 4 capsules, 1 taken every other day. The capsules should be kept refrigerated not frozen, and all 4 doses must be taken to achieve maximum efficacy. Each capsule should be taken with cool liquid no warmer than What to do when a dose of the oral vaccine is missed or taken late is unclear. Some suggest that minor deviations in the dosing schedule, such as taking a dose one day late, may not have a large effect on how well the vaccine works. However, we are unaware of any studies showing the effect of such deviations; thus, if 4 doses are not completed as directed, optimal immune response may not be achieved.

A booster dose is recommended every 5 years for people who remain at risk. Adverse reactions should be reported to the Vaccine Adverse Event Reporting System by visiting <https://www.cdc.gov/vaers/>. However, the benefits of vaccinating pregnant women may outweigh potential risks when the likelihood of typhoid exposure is high; the inactivated vaccine ViCPS may be considered in these situations. Live attenuated Ty21a vaccine should not be given to pregnant women or immunocompromised travelers, including those infected with HIV. The intramuscular vaccine presents a theoretically safer alternative for immunocompromised travelers. The Advisory Committee on Immunization Practices does not recommend against vaccinating household contacts of immunocompromised people with Ty21a; although vaccine organisms can be shed transiently in the stool of vaccine recipients, secondary transmission of vaccine organisms has not been documented. The only contraindication to vaccination with ViCPS vaccine is a history of severe local or systemic reactions after a previous dose. Neither vaccine should be given to people with an acute febrile illness. Theoretical concerns have been raised about the immunogenicity of live, attenuated Ty21a vaccine in people concurrently receiving antimicrobial agents including antimalarial chemoprophylaxis, viral vaccines, or immune globulin. Available data do not suggest that simultaneous administration of oral polio or yellow fever vaccine decreases the immunogenicity of Ty21a. If typhoid vaccination is warranted, it should not be delayed because of administration of viral vaccines. Simultaneous administration of Ty21a and immune globulin does not appear to pose a problem.

### 4: Typhoid fever - Symptoms and causes - Mayo Clinic

*Typhoid fever symptoms are poor appetite, headaches, generalized aches and pains, fever, and lethargy. Approximately 3%-5% of patients become carriers of the bacteria after the acute illness.*

Some people with typhoid fever or paratyphoid fever develop a rash of flat, rose-colored spots. What do you do if you think you have typhoid fever or paratyphoid fever? The only way to know for sure if an illness is typhoid fever or paratyphoid fever is to have a sample of blood or stool poop tested for Salmonella Typhi or Salmonella Paratyphi. If you have a high fever and feel very ill, see a doctor immediately. If you are traveling outside the United States, you can usually call the U. For more information about medical care abroad, see Getting Health Care Abroad and a list of International Joint Commission-accredited facilities. External How are typhoid fever and paratyphoid fever treated? Typhoid fever is treated with antibiotics. Resistance to antibiotics is increasing in the bacteria that cause typhoid fever and paratyphoid fever. When bacteria are resistant to antibiotics, the bacteria are not killed and their growth is not stopped. To help guide treatment, your doctor may order special tests to see if your type of Salmonella is antibiotic-resistant. People who do not get treatment can continue to have fever for weeks or months, and can develop complications. Even if your symptoms seem to go away, you may still be carrying Salmonella Typhi or Salmonella Paratyphi. If so, the illness could return, or you could pass the bacteria to other people. In fact, if you are a health care worker or work at a job where you handle food or care for small children, you might be barred prevented legally from going back to work until a doctor has determined you no longer carry the bacteria. If you are being treated for typhoid fever or paratyphoid fever, it is important to do the following: Keep taking antibiotics for as long as the doctor has recommended. Wash your hands carefully with soap and water after using the bathroom, and do not prepare or serve food for other people. This will lower the chance that you will pass the bacteria on to someone else. Have your doctor test your stool poop to be sure no Salmonella Typhi or Salmonella Paratyphi bacteria remain in your body.

## 5: Typhoid: Symptoms, treatment, causes, and prevention

*Search the history of over billion web pages on the Internet.*

Chest congestion Abdominal pain and discomfort If you experience any of the above or similar symptoms immediately consult your obstetrician. The high grade fever becomes constant and is often accompanied with abdominal cramps. The treatment of enteric fever is mainly with antibiotics that destroy the Salmonella bacteria but the use of antibiotics is restricted during pregnancy and this is the main problem with typhoid treatment during pregnancy. If you notice high grade fever immediately report it to your obstetrician for further diagnosis and proactive treatment. If left untreated, typhoid fever might last for a month or even more so immediate treatment is very important. It becomes fatal and can cause death. If fever is not treated, the symptoms worsen and the infected person may: Typhoid vaccine can be taken orally or in an injectable form. Oral vaccine is not considered safe during pregnancy though injectable ones can be safe. Insufficient research has been carried out on the subject. Moreover, typhoid vaccines do not provide full protection against the infection. However babies after birth are vaccinated for typhoid fever within first year of their birth. Salmonella is notoriously famous for causing abortion especially if left untreated. The infection can reach the baby to potentially put you at a risk of miscarriage, pre-mature birth or a low birth weight baby. Septic and early second trimester abortions are often seen in typhoid affected pregnant women. Because most typhoid patients are restricted to liquid diet, there is a good chance that you and your baby miss out on healthy nutrition. If the typhoid affected pregnant woman receives proper treatment the child born is usually healthy and safe. Here is a gist of what to avoid if you want your pregnancy to be protected from the hazards of typhoid fever. Hygiene and personal cleanliness are very important aspects in the prevention of typhoid fever. Wash hands with soap and water before and after every meal Use a sanitizer if soap and water are not available Use boiled water for cooking and washing fruits and vegetables before cooking Eat well cooked food as heating kills bacteria Do not eat raw fruits and vegetables Avoid eating food items and beverages from the street vendors Use clean glasses and other utensils for drinking and eating food items Even ice can also be contaminated, so avoid taking ice from street vendors If you buy mineral water bottles, check whether they are sealed and the cap is properly intact Do not drink water from pots and public taps What Are The Complications Of Typhoid? Here are mentioned some serious health ailments that can result as complications of typhoid fever:

## 6: Typhoid fever - Wikipedia

*Typhoid fever and paratyphoid fever have similar symptoms*µ. People usually have a sustained fever (one that doesn't come and go) that can be as high as 104° F (40° C). Other symptoms of typhoid fever and paratyphoid fever include.

**Diagnosis** Medical and travel history Your doctor is likely to suspect typhoid fever based on your symptoms and your medical and travel history. But the diagnosis is usually confirmed by identifying *Salmonella typhi* in a culture of your blood or other body fluid or tissue. **Body fluid or tissue culture** For the culture, a small sample of your blood, stool, urine or bone marrow is placed on a special medium that encourages the growth of bacteria. The culture is checked under a microscope for the presence of typhoid bacteria. A bone marrow culture often is the most sensitive test for *Salmonella typhi*. Although performing a culture test is the mainstay for diagnosis, in some instances other testing may be used to confirm a suspected typhoid fever infection, such as a test to detect antibodies to typhoid bacteria in your blood or a test that checks for typhoid DNA in your blood. **Treatment** Antibiotic therapy is the only effective treatment for typhoid fever. Commonly prescribed antibiotics Commonly prescribed antibiotics include: In the United States, doctors often prescribe this for nonpregnant adults. Another similar drug called ofloxacin also may be used. Unfortunately, many *Salmonella typhi* bacteria are no longer susceptible to antibiotics of this type, particularly strains acquired in Southeast Asia. This may be used if a person is unable to take ciprofloxacin or the bacteria is resistant to ciprofloxacin. This injectable antibiotic is an alternative in more-complicated or serious infections and for people who may not be candidates for ciprofloxacin, such as children. These drugs can cause side effects, and long-term use can lead to the development of antibiotic-resistant strains of bacteria. **Problems with antibiotic resistance** In the past, the drug of choice was chloramphenicol. Doctors no longer commonly use it, however, because of side effects, a high rate of health deterioration after a period of improvement relapse and widespread bacterial resistance. In fact, the existence of antibiotic-resistant bacteria is a growing problem in the treatment of typhoid fever, especially in the developing world. In recent years, *Salmonella typhi* has also proved resistant to trimethoprim-sulfamethoxazole, ampicillin and ciprofloxacin. **Other treatments** Other treatments include: This helps prevent the dehydration that results from a prolonged fever and diarrhea. If your symptoms are severe, go to an emergency room or call or your local emergency number. **Information to gather in advance** **Pre-appointment restrictions.** At the time you make your appointment, ask if there are restrictions you need to follow in the time leading up to your visit. Your doctor will not be able to confirm typhoid fever without a blood test, and may recommend taking steps to reduce the risk of passing a possible contagious illness to others. **Recent exposure to possible sources of infection.** Be prepared to describe international trips in detail, including the countries you visited and the dates you traveled. Your doctor will also need to know your vaccination history. **Questions to ask your doctor.** Write down your questions in advance so that you can make the most of your time with your doctor. For typhoid fever, possible questions to ask your doctor include: What are the possible causes for my symptoms? What kinds of tests do I need? Are treatments available to help me recover? I have other health problems. How can I best manage these conditions together? How long do you expect a full recovery will take? When can I return to work or school? Am I at risk of any long-term complications from typhoid fever? **What to expect from your doctor** Your doctor is likely to ask you a number of questions. Being ready to answer them may reserve time to go over any points you want to talk about in-depth. Your doctor may ask: What are your symptoms and when did they begin? Have your symptoms gotten better or worse? Did your symptoms briefly get better and then come back? Have you recently traveled abroad? Did you update your vaccinations before traveling? Are you being treated for any other medical conditions? Are you currently taking any medications?

## 7: Typhoid Fever and Its Abortive Treatment

*Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.*

Typhi is human-restricted, these chronic carriers become the crucial reservoir, which can persist for decades for further spread of the disease, further complicating the identification and treatment of the disease. These areas have a lack of access to clean water, proper sanitation systems, and proper health care facilities. For these areas, such access to basic public health needs is not in the near future. She was forcibly quarantined as a carrier of typhoid fever in for three years and then again from until her death in In BC, a plague, which some believe to have been typhoid fever, killed one-third of the population of Athens, including their leader Pericles. Following this disaster, the balance of power shifted from Athens to Sparta, ending the Golden Age of Pericles that had marked Athenian dominance in the Greek ancient world. The ancient historian Thucydides also contracted the disease, but he survived to write about the plague. His writings are the primary source on this outbreak, and modern academics and medical scientists consider typhoid fever the most likely cause. In, a study detected DNA sequences similar to those of the bacterium responsible for typhoid fever in dental pulp extracted from a burial pit dated to the time of the outbreak. A pair of epidemics struck the Mexican highlands in and, causing an estimated 7 to 17 million deaths. Typhoid fever killed more than settlers in the New World between and This disease may also have been a contributing factor in the death of 12th US President Zachary Taylor due to the unsanitary conditions in Washington, D. The worst year was, when the typhoid death rate was per, people. Major Walter Reed, Edward O. Shakespeare, and Victor C. Vaughan were appointed August 18, , with Reed being designated the President of the Board. The Typhoid Board determined that during the war, more soldiers died from this disease than from yellow fever or from battle wounds. The Board promoted sanitary measures including latrine policy, disinfection, camp relocation, and water sterilization, but by far the most successful antityphoid method was vaccination, which became compulsory in June for all federal troops. The most notorious carrier of typhoid fever, but by no means the most destructive, was Mary Mallon, also known as Typhoid Mary. In, she became the first carrier in the United States to be identified and traced. She was a cook in New York who was closely associated with 53 cases and three deaths. Mary quit her job, but returned later under a false name. She was detained and quarantined after another typhoid outbreak. She died of pneumonia after 26 years in quarantine. Development of vaccination[ edit ] During the course of treatment of a typhoid outbreak in a local village in, English country doctor William Budd realised the "poisons" involved in infectious diseases multiplied in the intestines of the sick, were present in their excretions, and could be transmitted to the healthy through their consumption of contaminated water. Almroth Edward Wright developed the first effective typhoid vaccine. In, Karl Joseph Eberth described a bacillus that he suspected was the cause of typhoid. Today, the bacillus that causes typhoid fever goes by the scientific name Salmonella enterica enterica, serovar Typhi. Citing the example of the Second Boer War, during which many soldiers died from easily preventable diseases, Wright convinced the British Army that 10 million vaccine doses should be produced for the troops being sent to the Western Front, thereby saving up to half a million lives during World War I. For the first time, their casualties due to combat exceeded those from disease. Russell, a U. It eliminated typhoid as a significant cause of morbidity and mortality in the U. Most developed countries saw declining rates of typhoid fever throughout the first half of the 20th century due to vaccinations and advances in public sanitation and hygiene. In, the chlorination of public drinking water was a significant step in the US in the control of typhoid fever. The first permanent disinfection of drinking water in the U. Credit for the decision to build the chlorination system has been given to John L. Today, the incidence of typhoid fever in developed countries is around five cases per million people per year. A notable outbreak occurred in Aberdeen, Scotland, in In 2005 an outbreak in the Democratic Republic of Congo resulted in more than 42, cases and deaths. Deaths from typhoid fever William Henry Harrison, the 9th President of the United States of America, died 32 days into his term, in This is the shortest term served by a United States President.

Gerard Manley Hopkins , English poet, died of typhoid fever in

## 8: Typhoid Fever | Disease Directory | Travelers' Health | CDC

*In fact, the existence of antibiotic-resistant bacteria is a growing problem in the treatment of typhoid fever, especially in the developing world. In recent years, Salmonella typhi has also proved resistant to trimethoprim-sulfamethoxazole, ampicillin and ciprofloxacin.*

Read now Treatment The only effective treatment for typhoid is antibiotics. The most commonly used are ciprofloxacin for non-pregnant adults and ceftriaxone. Other than antibiotics, it is important to rehydrate by drinking adequate water. In more severe cases, where the bowel has become perforated, surgery may be required. Typhoid antibiotic resistance As with a number of other bacterial diseases, there is currently concern about the growing resistance of antibiotics to *S.* This is impacting the choice of drugs available to treat typhoid. In recent years, for example, typhoid has become resistant to trimethoprim-sulfamethoxazole and ampicillin. Ciprofloxacin, one of the key medications for typhoid, is also experiencing similar difficulties. Some studies have found *Salmonella typhimurium* resistance rates to be around 35 percent. Causes Typhoid is caused by the bacteria *S.* Washing fruit and vegetables can spread it, if contaminated water is used. Some people are asymptomatic carriers of typhoid, meaning that they harbor the bacteria but suffer no ill effects. Others continue to harbor the bacteria after their symptoms have gone. Sometimes, the disease can appear again. People who test positive as carriers may not be allowed to work with children or older people until medical tests show that they are clear. Prevention Countries with less access to clean water and washing facilities typically have a higher number of typhoid cases. Vaccination If traveling to an area where typhoid is prevalent, vaccination is recommended. Before traveling to a high-risk area, getting vaccinated against typhoid fever is recommended. This can be achieved by oral medication or a one-off injection: Consists of 4 tablets, one to be taken every second day, the last of which is taken 1 week before travel. Shot, an inactivated vaccine, administered 2 weeks before travel. Vaccines are not percent effective and caution should still be exercised when eating and drinking. Vaccination should not be started if the individual is currently ill or if they are under 6 years of age. Anyone with HIV should not take the live, oral dose. The vaccine may have adverse effects. One in people will experience a fever. After the oral vaccine, there may be gastrointestinal problems, nausea, and headache. However, severe side effects are rare with either vaccine. There are two types of typhoid vaccine available, but a more powerful vaccine is still needed. The live, oral version of the vaccine is the strongest of the two. After 3 years, it still protects individuals from infection 73 percent of the time. However, this vaccine has more side effects. The current vaccines are not always effective, and because typhoid is so prevalent in poorer countries, more research needs to be done to find better ways of preventing its spread. Eliminating typhoid Even when the symptoms of typhoid have passed, it is still possible to be carrying the bacteria. This makes it hard to stamp out the disease, because carriers whose symptoms have finished may be less careful when washing food or interacting with others. Avoiding infection Typhoid is spread by contact and ingestion of infected human feces. This can happen through an infected water source or when handling food. The following are some general rules to follow when traveling to help minimize the chance of typhoid infection: Drink bottled water, preferably carbonated. If bottled water cannot be sourced, ensure water is heated on a rolling boil for at least one minute before consuming. Be wary of eating anything that has been handled by someone else. Avoid eating at street food stands, and only eat food that is still hot. Do not have ice in drinks. Avoid raw fruit and vegetables, peel fruit yourself, and do not eat the peel.

## 9: Typhoid fever - Diagnosis and treatment - Mayo Clinic

*Typhoid fever, also known simply as typhoid, is a bacterial infection due to Salmonella typhi that causes symptoms. Symptoms may vary from mild to severe and usually begin six to thirty days after exposure.*

In some people, signs and symptoms may return up to two weeks after the fever has subsided. When to see a doctor See a doctor immediately if you suspect you have typhoid fever. If you are from the United States and become ill while traveling in a foreign country, call the U. Consulate for a list of doctors. If you develop signs and symptoms after you return home, consider consulting a doctor who focuses on international travel medicine or infectious diseases. Fecal-oral transmission route The bacteria that cause typhoid fever spread through contaminated food or water and occasionally through direct contact with someone who is infected. In developing nations, where typhoid fever is established endemic, most cases result from contaminated drinking water and poor sanitation. The majority of people in industrialized countries pick up typhoid bacteria while traveling and spread it to others through the fecal-oral route. This means that Salmonella typhi is passed in the feces and sometimes in the urine of infected people. You can also become infected by drinking water contaminated with the bacteria. Typhoid carriers Even after treatment with antibiotics, a small number of people who recover from typhoid fever continue to harbor the bacteria in their intestinal tracts or gallbladders, often for years. These people, called chronic carriers, shed the bacteria in their feces and are capable of infecting others, although they no longer have signs or symptoms of the disease themselves. Risk factors Typhoid fever remains a serious worldwide threat especially in the developing world affecting an estimated 26 million or more people each year. Worldwide, children are at greatest risk of getting the disease, although they generally have milder symptoms than adults do. Work in or travel to areas where typhoid fever is established endemic Work as a clinical microbiologist handling Salmonella typhi bacteria Have close contact with someone who is infected or has recently been infected with typhoid fever Drink water contaminated by sewage that contains Salmonella typhi Complications Intestinal bleeding or holes The most serious complications of typhoid fever intestinal bleeding or holes perforations in the intestine may develop in the third week of illness. A perforated intestine occurs when your small intestine or large bowel develops a hole, causing intestinal contents to leak into your abdominal cavity and triggering signs and symptoms such as severe abdominal pain, nausea, vomiting and bloodstream infection sepsis. This life-threatening complication requires immediate medical care. Other, less common complications Inflammation of the heart muscle myocarditis Inflammation of the lining of the heart and valves endocarditis Pneumonia Inflammation of the pancreas pancreatitis Kidney or bladder infections Infection and inflammation of the membranes and fluid surrounding your brain and spinal cord meningitis Psychiatric problems, such as delirium, hallucinations and paranoid psychosis With prompt treatment, nearly all people in industrialized nations recover from typhoid fever. Without treatment, some people may not survive complications of the disease. Prevention In many developing nations, the public health goals that can help prevent and control typhoid fever safe drinking water, improved sanitation and adequate medical care may be difficult to achieve. For that reason, some experts believe that vaccinating high-risk populations is the best way to control typhoid fever. Vaccines Two vaccines are available. One is injected in a single dose at least one week before travel. One is given orally in four capsules, with one capsule to be taken every other day. Neither vaccine is percent effective, and both require repeat immunizations, as vaccine effectiveness diminishes over time. Frequent hand-washing in hot, soapy water is the best way to control infection. Wash before eating or preparing food and after using the toilet. Avoid drinking untreated water. Contaminated drinking water is a particular problem in areas where typhoid fever is endemic. For that reason, drink only bottled water or canned or bottled carbonated beverages, wine and beer. Carbonated bottled water is safer than uncarbonated bottled water is. Ask for drinks without ice. Use bottled water to brush your teeth, and try not to swallow water in the shower. Avoid raw fruits and vegetables. To be absolutely safe, you may want to avoid raw foods entirely. Steaming hot foods are best. Wash your hands often. This is the single most important thing you can do to keep from spreading the infection to others. Use hot, soapy water and scrub thoroughly for at least 30 seconds,

especially before eating and after using the toilet.

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