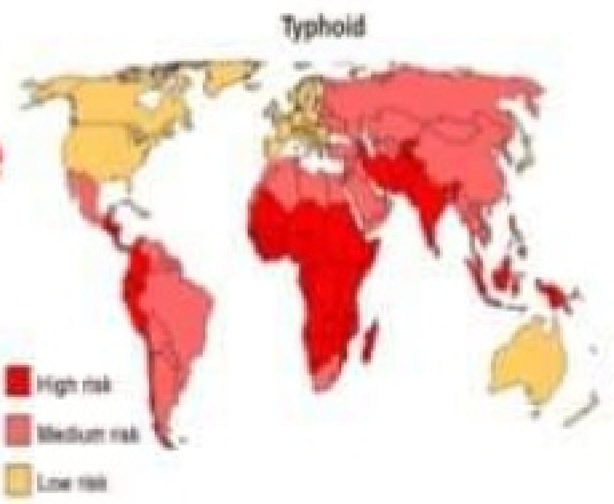
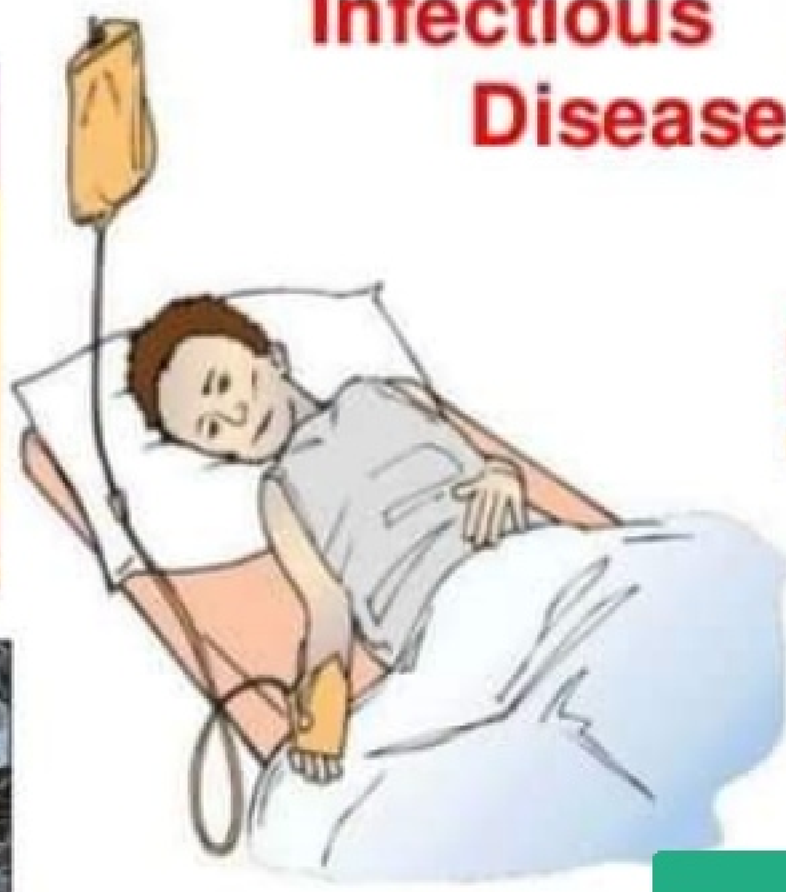
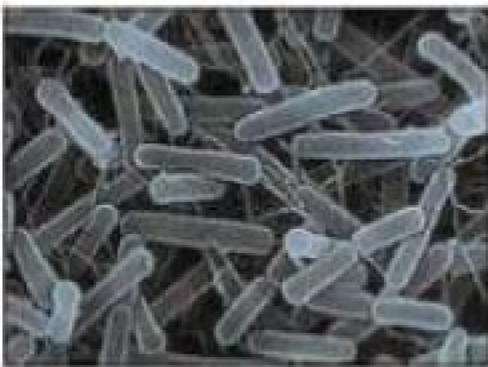
TYPHOID FEVER

Infectious Disease







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TYPHOID FEVER (ENTERIC FEVER)

Definition

Typhoid fever is acute bacterial infection characterized by constitutional symptoms like prolonged pyrexia, prostration and involvement of spleen and lymph nodes. It does not cause life long or even sufficiently prolonged immunity, second attack often occurs.

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Typhoid fever

- 400 cases are diagnosed and treated in the U.S. each year
  - 75% are acquired from traveling internationally
- The disease is common in Latin America, Africa and Asia, where 21.5 million people are affected each year
- It is treated effectively with antibiotics
- The incubation period is 1 to 3 weeks
  - diagnosis is made by blood and/or stool cultures
- Major symptoms:
  - sustained high fever (103°-104° F)
  - weakness
  - stomach pains
  - headache
  - muscle aches
  - loss of appetite
  - constipation is more common than diarrhea, and vomiting is not severe
- For more information, go to: *www.cdc.gov/ncidod/dbmd/disease/typhoidfever_g.htm*

Source: F&M Student Health Services

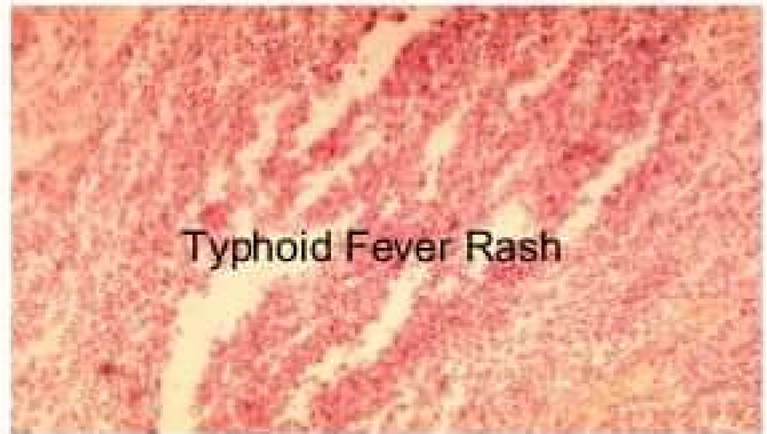
Dan Morris / Intelligencer Journal

Symptoms

- Signs and symptoms are likely to develop gradually — often appearing one to three weeks after exposure to the disease.
- Symptoms include:

Early illness:

- Fever that starts low and increases daily, possibly reaching as high as 104.9 F (40.5 C)
- Headache
- Weakness and fatigue
- Muscle aches
- Sweating
- Dry cough
- Loss of appetite and weight loss
- Abdominal pain
- Diarrhea or constipation
- Rash
- Extremely swollen abdomen



CLINICAL FEATURES

- **First week**: malaise, headache, cough & sore throat in prodromal stage. The disease classically presents with step-ladder fashion rise in temperature (40 - 41°C) over 4 to 5 days, accompanied by headache, vague abdominal pain, and constipation or pea soup Diarrhoea.
- **Second week:** Between the 7th -10th day of illness, mild hepato-splenomegally occurs in majority of patients. Relative bradycardia may occur and rose-spots may be seen.
- **Third week:** The patient will appear in the "typhoid state" which is a state of prolonged apathy, toxemia, delirium, disorientation and/or coma. Diarrhoea will then become apparent. If left untreated by this time, there is a high risk (5-10%) of intestinal hemorrhage and perforation.
- **Rare complications:**

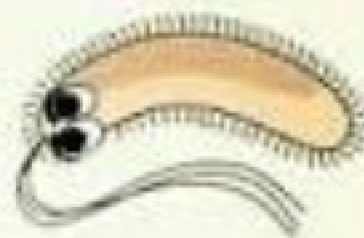
  Hepatitis, Pneumonia, Thrombophlebitis, Myocarditis, Cholecystitis, Nephritis, Osteomyelitis, and Psychosis.

  2-5% patients may become Gall-bladder carriers

FACTS ABOUT TYPHOID FEVER

1. Globally, typhoid causes an estimated 21 million cases and 200,000 deaths every year.

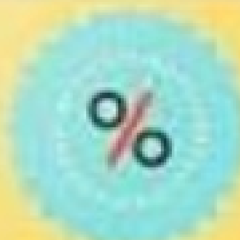
2. Typhoid comes from a bacterium called Salmonella Typhi.



3. The disease may spread through contaminated food, water, or through contact with an infected individual.

4. An estimated 70% of the people infected from typhoid come from international traveling.

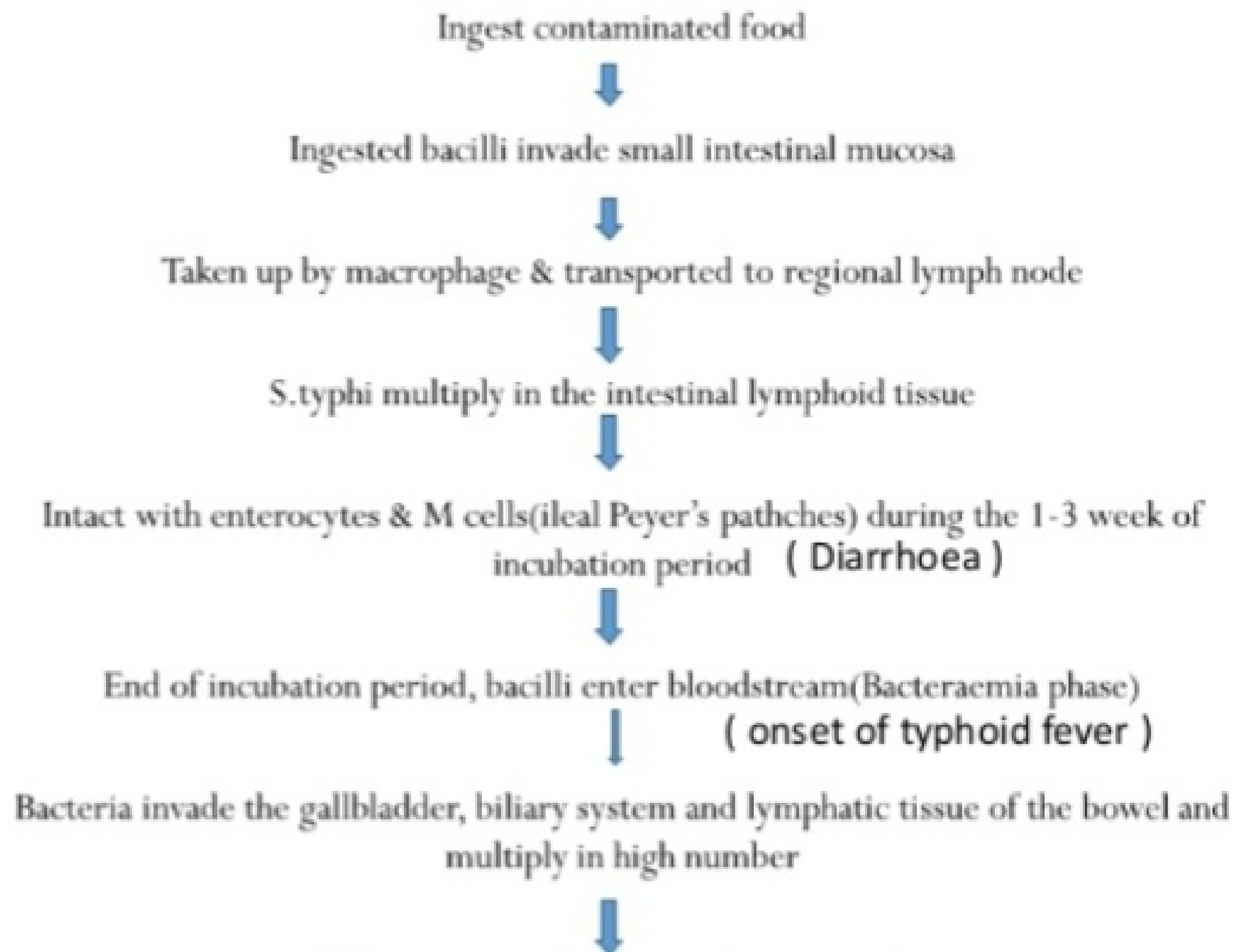
5. About 3 to 5% f people may still carry the typhoid fever bacteria, even if symptoms go away with treatment.



CURES:

- Babul Bark Tea
- Guava Tree Flowers
- Bitter Gourd Leaves
- Carrot Soup

PATHOPHYSIOLOGY



Management of typhoid fever:

- **General**: Supportive care includes
- Maintenance of adequate hydration.
- Antipyretics.
- Appropriate nutrition.
- **Specific**: Antimicrobial therapy is the mainstay treatment. Selection of antibiotic should be based on its efficacy, availability and cost.
- Chloramphenicol , Ampicillin ,Amoxicillin , Trimethoprim &Sulphamethoxazole ,**Fluroquinolones**
- In case of quinolone resistance – **Azithromycin, 3rd generation cephalosporins (ceftriaxone)**

First Line

- Chloramphenicol: pediatric 50 mg/kg/day PO QID for 2 weeks; adult dose 2 to 3 g/day PO divided q6h for 2 weeks *or*
- Ampicillin: pediatric 100 mg/kg/day (max 2 g) QID PO for 2 weeks; adults 500 mg q6h for 2 weeks *or*
- Ciprofloxacin: 500 mg PO BID for 2 weeks, *indicated in multiple-drug-resistant typhoid*
  - Has been used safely in children; WHO recommends as first line in areas with drug resistance to older first-line antibiotics.
  - Fluoroquinolones may prevent clinical relapse better than chloramphenicol (3)[A].
- Ceftriaxone: pediatric 100 mg/kg/day for 2 weeks; adult dose: 1 to 2 g IV once daily for 2 weeks *or*
- Azithromycin: pediatric 10 to 20 mg/kg (max 1 g) PO daily for 5 to 7 days; adult dose: 1 g PO once followed by 500 mg PO daily for 5 to 7 days
- Chronic carrier state
  - Ampicillin: 4 to 5 g/day plus probenecid 2 g/day QID for 6 weeks (for patients with normal gallbladder function and no evidence of cholelithiasis)
  - Ciprofloxacin: 500 mg PO BID for 4 to 6 weeks is also efficacious. Chloramphenicol resistance has been reported in Mexico, South America, Central America, Southeast Asia, India, Pakistan, Middle East, and Africa.
- Contraindications: Refer to manufacturer's profile.

- Precautions: Rarely, Jarisch-Herxheimer reaction appears after antimicrobial therapy.
- Significant possible interactions: Refer to manufacturer's profile for each drug.

Second Line

- Trimethoprim–sulfamethoxazole one double-strength tablet twice a day for 10 days (Note: Drug resistance is common, local resistance patterns and expert consultation should guide treatment.)
- Furazolidone: 7.5 mg/kg/day PO for 10 days; in uncomplicated multidrug-resistant typhoid; safe in children; efficacy >85% cure

Pregnancy Considerations

Ciprofloxacin therapy is relatively contraindicated in children and in pregnant patients.