

## An Overview on Communicable Disease

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### ABSTRACT:

Impairments to the vulnerable system can make realities more susceptible to contagious ails and minor able to control or recover from infection, leading to worse consequences. The use of alcohol/ drugs may also reduce the effectiveness of treatment for transmittable conditions. It's important to educate and support guests, as painlessly as their frequenters, about infection prevention and control practices and how to avert healthcare-associated infection. Healthcare providers are in a unique position to educate and empower the public with validation-predicated knowledge about health creation and preventative measures related to infection prevention and control. Through health creation and education, healthcare providers can inform the public about safe and effective prevention methods and address misinformation on social media. help and support from health providers can play a significant part in promoting public awareness and healthy behaviours. The responses to high-impact transmittable conditions will bear continued prioritization as ending the afflictions gets near. Without continued alert, high-impact transmittable conditions can recur or be saluted and return to epidemic situations snappily. Results from PHC demonstrate that the provision of people-centred, integrated, effective interventions against high-impact transmittable conditions is possible. Effective and effective use of people-centred PHC has led to multitudinous health earnings in lower and middle-income countries over the last 30 times.

**KEYWORDS:** Communicable disease, Typhoid, Dengue, Prevention and control, Symptoms.

### I. INTRODUCTION:

An infectious or communicable disease is an illness caused by a living agent or its products that can spread from one person to another<sup>[1]</sup>. An

emergency condition is a state of disarray that occurs during or after a regional conflict or a natural disaster, such as a flood, earthquake, hurricane, or drought. Infectious diseases during emergency conditions can increase the death rate by up to 60 times compared to other causes, including trauma<sup>[2]</sup>. Shockingly, over 40% of deaths in emergencies are a result of diarrhea illnesses, with 80% of these cases affecting children under 2 years of age<sup>[3]</sup>. It's worth noting that there is currently no reliable performance assessment tool to enhance communicable disease surveillance during outbreaks, despite the Centre for Disease Control's (CDC) proposal of potential mechanisms for improving public health in general<sup>[1]</sup>.

### COMMON COMMUNICABLE DISEASES:

- Rhinoviruses
- Coronaviruses
- Influenza
- HIV/ AIDS
- Tuberculosis
- Ringworm
- Typhoid
- Athletes foot
- Malaria
- Cholera
- Dengue

### DENGUE:

Dengue poses a large burden on public health systems worldwide( 4). When infected individuals are asymptomatic or witness a benign febrile illness, a nonage person develops a life-hanging pattern known as severe dengue or dengue hemorrhagic fever. The progression to severe complaints generally occurs after the febrile phase, between days 4 and 6 of illness( 5). The increase in dengue prevalence has been associated with

explosive outbreaks and geographical expansion to new areas( 6). Dengue infections can affect a wide range of complaints of inflexibility, ranging from influenza-like illness( dengue fever; DF) to the life-changing dengue hemorrhagic fever (DHF) or dengue shock pattern( DSS), which, if left undressed, are associated with mortality as high as 20%. Dengue pandemics are known to have passed over the last three centuries in tropical and temperate areas of the world( 7).

**SYMPTOMS:**

1. Basic symptoms: Headache, fever, Gums, Nose and Eyes bleeding.

2. Skin symptoms: Rash's, Bruising, Petechiae, Purpura
3. Vascular symptoms: Leukopenia, Thrombocytopenia, Neutropenia, Late Eosinophilia, Reduced coagulation, Low blood pressure, Shock, Hypovolaemia.
4. Infrequent. Complications. Renal failure, Septennia rupture, Acute pancreatitis, Eri cephalitis, Myocarditis.
5. Other complications: Joint pain, Vomiting, Intestinal bleeding. Hepatic injury, Called bladder thickening. Internal haemorrhaging. Altered haematopoiesis.

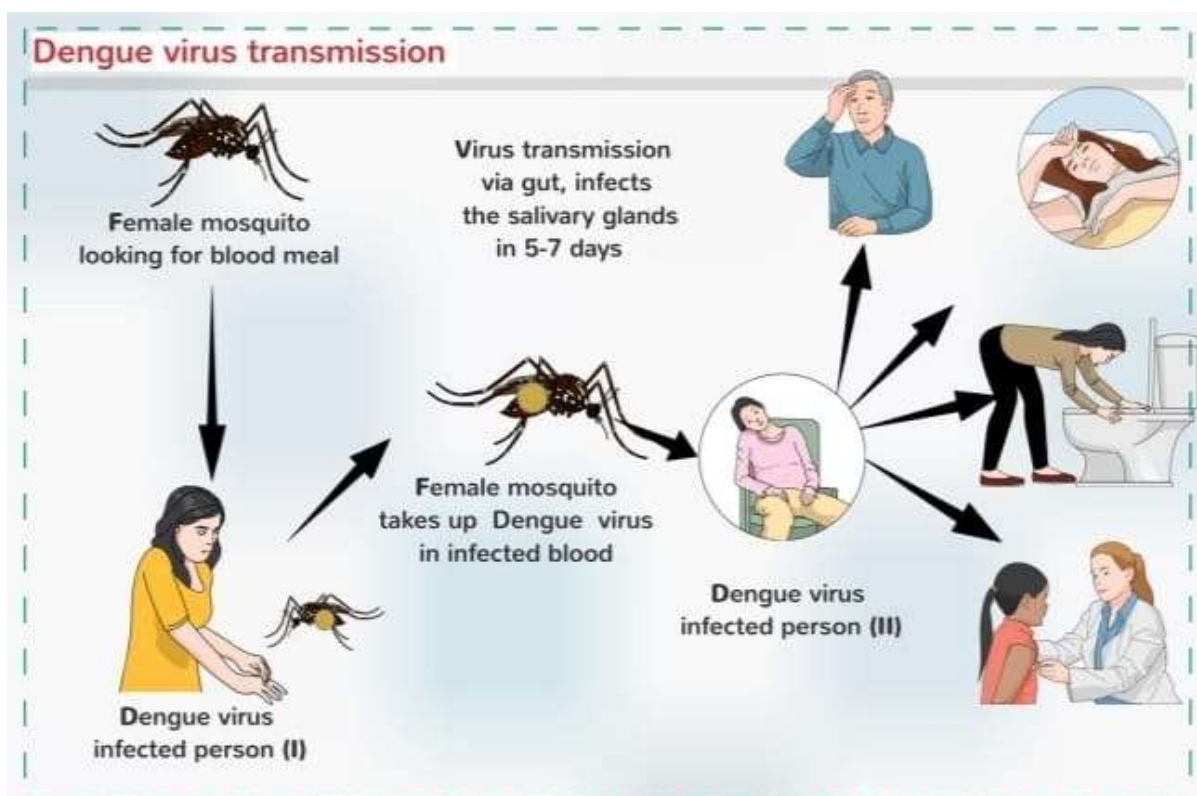


FIGURE 1<sup>[8]</sup>

**TREATMENT:**

- There's no specific treatment, and the dengue vaccine (CYD-TDV ( Deviating®)) is certified only in 20 countries.
- The vaccine isn't yet approved for young children due to low efficacy and safety reasons.
- Cases at risk for dengue can acquire other conditions with analogous clinical features, similar to malaria, typhoid fever, and leptospirosis.

- Symptoms in cases of dengue contagion infections resolve in five to seven days.
- Probative treatments are available for the specific complaints of dengue contagion infection.
- Patients with dengue fever should be advised to maintain their oral fluid intake to avoid dehumidification.
- Fever and myalgias can be managed as demanded with acetaminophen.
- Aspirin or non-steroidal anti-inflammatory agents should generally be avoided because of

the threat of bleeding complications and in children because of the implicit threat of Reyes pattern.

- The most important measure to help the case with dengue fever is to precisely estimate the case for brewing complications, similar to early substantiation of DHF, as described below( 9).

#### **PREVENTION AND CONTROL:**

- The mosquitoes that spread dengue are active during the day.
- Lower the risk of getting dengue by protecting yourself from mosquito bites by using:
- Clothes that cover as important of your body as possible
- Mosquito nets if sleeping during the day, are immaculately nets scattered with nonentity repellent
- Window defences
- Still, it's important to  
If you get dengue.
- Rest
- Drink a plenitude of liquids
- Use acetaminophen( paracetamol) for pain
- Avoid non-steroidal anti-inflammatory medicines, like ibuprofen and aspirin

So far one vaccine( Deviating) has been approved and certified in some countries. still, only persons with substantiation of once dengue infection can be defended by this vaccine. Several fresh dengue vaccine campaigners( 10)

#### **TUBERCULOSIS:**

Tuberculosis, the leading cause of death globally among adults due to an infectious disease, has been recognized as a critical global public health crisis for the past 25 years<sup>[11]</sup>. Despite public health efforts that have saved many lives, progress in controlling, let alone eradicating, tuberculosis has been slow. Drug-resistant forms of tuberculosis are currently poised to become the world's deadliest pathogens, contributing to a quarter of deaths related to antimicrobial resistance<sup>[12]</sup>.

To address this entirely curable disease, which remains one of the most significant global health challenges, ambitious and radical action is imperative. The global tuberculosis situation is undeniably grim, yet there is also a sense of promise and discovery. Substantial progress has been made in understanding the epidemiology, risk factors, and pathophysiology of tuberculosis. Moreover, new diagnostics and treatments for all

forms of tuberculosis infection and disease are on the horizon.

However, ensuring access to these innovations remains a significant challenge for the majority of individuals affected by tuberculosis. Nevertheless, there is growing political will within the tuberculosis community and beyond to address this issue, with a strong focus on the rights of those impacted by the disease. With concerted efforts in the coming decade, there is hope that we can begin to reduce the devastation caused by this age-old disease<sup>[13]</sup>.

#### **TREATMENT:**

A series of clinical trials conducted in India have led to today's tuberculosis (TB) treatment approach. Initially, four drugs are administered for two months, after which two of them are discontinued, and the remaining two are continued for an additional four months<sup>[14]</sup>. This combination of drugs serves two important purposes. First, it addresses the rapid development of drug resistance observed shortly after introducing the first anti tuberculosis drug, streptomycin. Second, it shortens the overall treatment duration from over a year to just six months.

However, this "short-course" TB treatment might not sound as impressive as other antibiotic therapies. Remarkably, the current regimen was established through empirical means, relying on trial and error<sup>[15][16]</sup>. The underlying reasons for the slow response to TB treatment are still not entirely clear. Current research primarily focuses on the intrinsic characteristics of the TB bacteria, such as their ability to enter non-replicating states and exhibit drug tolerance, which means generating subpopulations of cells that are not genetically resistant but are more slowly affected by antibiotics<sup>[17][18]</sup>. Recent findings also suggest that some of the TB drugs may not effectively penetrate certain granulomas. The exact contributions of each of these factors remain a subject of ongoing investigation<sup>[19]</sup>.

#### **PREVENTION AND CONTROL:**

To effectively control tuberculosis (TB), various measures are employed to minimize the transmission of airborne *M. tuberculosis*. These measures encompass both simple approaches, like isolating infected individuals and enhancing ventilation in TB wards by opening windows, and more advanced techniques, such as utilizing high-efficiency face masks and UV irradiation of room

air. Nevertheless, the most potent means of control is treatment. When individuals infected with TB commence therapy, they become significantly less likely to transmit the disease, even though the curative process is lengthy. In regions with a high prevalence of TB, treatment is the cornerstone of control, as quarantining patients with active disease becomes impractical.

Ideally, a TB vaccine could offer the ultimate solution for prevention. Currently, the *Mycobacterium bovis* BCG vaccine, developed in the 1930s at the Pasteur Institute, is widely administered to infants in countries with a high TB burden. This vaccine effectively reduces childhood TB cases, which are associated with severe complications and high mortality rates. Unfortunately, its efficacy against adult TB is limited, with some studies even showing no effectiveness in endemic areas. As a result, despite decades of BCG vaccination in TB-prevalent countries, the disease continues to persist at high rates, highlighting the need for more effective control strategies<sup>[20]</sup>.

#### **SYMPTOMS:**

The severe fever that characterizes typhoid fever can loiter for weeks if undressed. It frequently gets precipitously worse over many days. The incubation period is generally 1- 2 weeks, and the duration of the illness is about 3 – 4 weeks. Three symptoms include( 21)

- Poor appetite
- Generalized aches and pains
- Fever as high as 104 degrees Fahrenheit
- Lethargy
- Headache
- Loss of appetite
- Abdominal pain.
- A rash known as "rose spots" or very light pink dots, typically on the breast or stomach.
- Cough
- Muscle aches.
- Nausea, vomiting.
- Diarrhoea or constipation<sup>[22]</sup>.

#### **TYPHOID:**

Two centuries ago, typhoid fever, also known as enteric fever, was a significant cause of illness and death in the Western world. The situation has greatly improved in the USA and Europe due to improvements in sanitation and overall public health. This once-deadly disease is now quite rare in these regions. However, in

developing countries, especially India, typhoid fever remains a serious health threat<sup>[23]</sup>.

Although typhoid fever primarily affects paediatric populations, it continues to contribute to morbidity and mortality among adults as well. Unfortunately, gathering reliable data on typhoid fever in India presents several challenges. Many fever cases are treated as outpatients, and rural hospitals, which make up a significant portion of the country's healthcare infrastructure, often lack the facilities for blood culture. Furthermore, health clinics and hospitals often do not maintain proper records, making it extremely difficult to estimate the disease's true burden. In India, most typhoid cases are diagnosed clinically or, at best, with the Widal test, which is not entirely foolproof. Given these obstacles, a fresh review of recent advancements in understanding and managing typhoid fever remains relevant, particularly in the Indian context<sup>[24]</sup>.

#### **SIGN AND SYMPTOMS:**

When one ingests *Salmonella* serovar Typhi or Paratyphi A, there is an initial asymptomatic period lasting from 7 to 14 days. The primary symptom during this phase is the presence of a fever. The body temperature gradually increases, often reaching a peak of 39 to 40°C (104 degrees Fahrenheit) during the subsequent week. Fever and the appearance of rashes are the two primary manifestations of this condition.

Typhoid fever is characterised by a progressively rising fever that can escalate over several days. Additionally, some patients may develop a rash, though it doesn't affect everyone. This rash typically consists of rose-coloured spots, primarily appearing on the neck and abdomen<sup>[25]</sup>.

Other associated symptoms may include general discomfort (malaise), headaches, abdominal pain, abdominal distension, and various constitutional symptoms. Constipation is an early symptom, but many patients may experience diarrhoea at some point during the illness. Upon physical examination, healthcare providers may observe elevated body temperature, relative bradycardia, an enlarged spleen (splenomegaly), an enlarged liver (hepatomegaly), abdominal tenderness, and signs of meningitis. Major complications that can arise from this condition include intestinal haemorrhage, intestinal perforation, urinary retention, pneumonia, thrombophlebitis, myocarditis, cholecystitis, nephritis, osteomyelitis, and meningitis<sup>[25][26]</sup>.

### TREATMENT:

Patients experiencing severe infections characterised by symptoms such as frequent vomiting, severe diarrhoea, and abdominal distension should be hospitalised and administered intravenous antibiotics. Chloramphenicol, which was widely used after its introduction in 1948, fell out of favour due to the development of plasmid-mediated resistance and serious side effects like bone marrow aplasia.

To combat chloramphenicol resistance, trimethoprim-sulfamethoxazole and ampicillin were employed in the 1970s, but they too were abandoned due to plasmid-mediated resistance. In 1992, a significant study in Bangladesh addressed multidrug-resistant enteric fever, reporting a 36.58 percent incidence. During the 1980s, ceftriaxone and ciprofloxacin became the preferred drugs of choice.

Fluoroquinolone resistance can be either absolute or selective. Nalidixic acid-resistant strains exhibit lower resistance to fluoroquinolone drugs compared to nalidixic acid-sensitive strains. Despite being resistant to nalidixic acid, susceptibility testing shows vulnerability to fluoroquinolones. Azithromycin, administered once daily for seven days at a 500-mg dosage (10 mg/kg), has shown efficacy. In contrast, cefixime demonstrated higher rates of treatment failure and relapse in some studies compared to fluoroquinolones. At BSMMU, antibiotic susceptibility patterns indicate a higher sensitivity of approximately 78.8%. Third-generation cephalosporins are effective with low rates of relapse (3–6%) and faeces carriage (3 percent). Expatriation is effective when taken in single or divided doses of 2-4 grammes per day<sup>[27][28]</sup>

### PREVENTION AND CONTROL:

The Level and Clark model outlines five levels of prevention for typhoid fever. Primary prevention focuses on health promotion and specific protection, including nutrition, personal hygiene, suitable working environments, and healthy living habits. Specific immunization, good personal hygiene, proper handling of transmission vehicles (food, water, etc.), concurrent and terminal disinfection, vector control, and environmental sanitation are key components<sup>[29][30][31]</sup>.

Secondary prevention involves the use of therapeutic agents when primary preventive measures are unavailable, helping to minimize infection, prevent disability, shorten infectious periods, and possibly prevent death. Tertiary

prevention emphasizes disability limitation and rehabilitation, including comprehensive therapy, hospitalization, when necessary, work therapy in hospitals, and public education to support rehabilitation<sup>[29][30]</sup>.

Controlling typhoid fever relies on hygiene and public health principles, requiring improvements in economic and cultural standards and adherence to personal and public hygiene standards. This approach prevents the transmission of faecal matter from one person to another.

For developing countries, typhoid fever prevention includes disease surveillance, treatment, source control, carrier detection and control, sanitation improvement, food hygiene promotion, prevention of food production contamination, and vaccination for healthy individuals<sup>[32][33][34]</sup>.

### II. CONCLUSION:

In this review, we consider the extent to which these recent global changes have increased the threat of contagious complaint outbreaks, as improved sanitation and access to health care have redounded in considerable progressiveness. Communicable conditions are ails caused by contagions or bacteria that people spread to one another through contact with defiled shells, fleshy fluids, blood products, nonentity mouthfuls, or through the air. There are numerous exemplifications of transmissible conditions, such as typhoid, malaria, tuberculosis, etc.

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