

# Perspective on Neonatal Tetanus

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## PERSPECTIVE

Tetanus is a deadly disease that attacks the nerves and muscles of the body. It starts off as a skin wound contaminated by bacterium that is commonly found on the ground. Initially, there is a headache and jaw stiffness that gradually spreads to the neck, making abdominal muscles rigid, leading to spasms and fever. As the bacterial toxin circulates even more, it negatively affects the nerve activity leading to more spasms with excruciating pain and respiratory failure. All this while, the person is conscious, thereby making Tetanus a dreadful disease. Without treatment, tetanus can lead to death. Vaccination is the best protection against this deadly disease.

Neonatal tetanus is a generalized tetanus infection of the newborn. It usually gets transmitted from an unvaccinated mother and enters the body through infection of unhealed umbilical stump. This typically happens when the umbilical cord is cut using unsterile instruments. It is one of the leading causes of new born deaths in the developing world. Onset and progression is faster in neonatal than non-neonatal cases. However, it is a preventable disease – immunization of the mother and using hygienic practices during child birth can greatly reduce the risk of this disease and prevent more than 3 million infant deaths annually.

Infants who have not acquired passive immunity from an immunized mother are at risk. It usually occurs through infection of the unhealed umbilical stump, particularly when the stump is cut with a non-sterile instrument. Neonatal tetanus mostly occurs in developing countries, particularly those with the least developed health infrastructure. It is rare in developed countries.

In many affected countries, there was a lack of awareness of maternal and neonatal tetanus and how to prevent it. Education and immunisation campaigns have been launched in the remaining countries at risk and are targeted particularly at pregnant women. Education focuses on hygienic birth practices and infant cord care as well as the need for immunisation.

In Egypt, the number of cases of neonatal tetanus dropped from 4,000 to fewer than 500 annually as the result of an immunisation campaign. In Morocco, neonatal tetanus accounted for 20% of neonatal deaths in 1987 but only 2% in 1992. In 1998 in Uganda, 3,433 tetanus cases were recorded in newborn babies; of these, 2,403 died. After a major public health effort, Uganda in 2011 was certified as having eliminated tetanus.

On 15 May 2015, the World Health Organization (WHO) declared India free from maternal and neonatal tetanus. India has reduced its infant mortality rate (IMR) from 380 per 1000 live births in 1990, to 40 in 2015, and its maternal mortality rate (MMR) from 540 per 100,000 to 167 in the same years. The national health programme was started in 1983 by the Government of India, when all pregnant women were given two doses of tetanus vaccine. The number of deaths from tetanus dropped from 79,000 in 1990, to less than 500 in 2013 and 2014.

## Neonatal Tetanus Symptoms

Neonatal tetanus starts showing symptoms in newborns about 8 days post birth. Common symptoms to watch out for are.

- Rigidity of muscles with spasms
- Irritability (continuous crying)
- Grimacing of face & restlessness
- Poor feeding / suckling ability

## Neonatal Tetanus Risk Factors

- Typical risk factors include the following:
- Unvaccinated pregnant mother
- Unhygienic conditions during child birth
- Animals / livestock kept near the vicinity of home
- Use of traditional methods for umbilical cord management (rat faeces, ash, herbs)
- Unclean hands and unsterilized instruments
- Newborn exposure to raw soil / dust
- Lack of awareness of symptoms / access to primary health care

## Neonatal Tetanus Diagnosis

Tetanus is often difficult to detect so the prognosis is largely based on clinical evaluation. Cultures from tetanus patients oftentimes fail to show presence of the bacterium. Even presence of tetanus antibodies is not a reliable indicator of the disease presence. Given this challenge, differential diagnosis is relied upon and various

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associated conditions are investigated to draw up a conclusion. In case of neonates, it must be differentiated from metabolic disorders (eg: hypocalcaemia), meningitis, seizures, etc.

### **Prevention**

The spores which cause tetanus are present everywhere, so the only prevention is immunization. Three properly spaced doses of tetanus toxoid vaccine are recommended for women of childbearing age, either before or during pregnancy; this will protect their future babies from neonatal tetanus after delivery.

### **Medication**

Immunological approach has proven to have the biggest impact

on preventing neonatal tetanus. The vaccination with Tetanus toxoid is considered highly effective, stable, safe and relatively inexpensive. It can be administered safely during pregnancy and when handled safely, provides protective and long lasting immunity against tetanus. The antibody response is quite slow during the first dose but improves rapidly with multiple doses. It is advisable that a third booster shot is also administered to ensure longer protection.

Instead of traditional substances for umbilical cord care, usage of topical anti microbial solutions / creams leads to a dramatic improvement in reducing infections and mortality. Additionally, it also helps in controlling sepsis and other bacterial pathogens during the cord cutting procedure.