

BACKGROUND INFORMATION

MATERNAL AND NEONATAL TETANUS

DEFINING TETANUS

Tetanus or lockjaw is caused by the germ *clostridium tetani*, which grows in dead tissue, for instance in a wound or in a baby's umbilical cord. The germ is commonly found in the environment, often occurring in soil containing manure. The bacteria form spores that can survive in the environment for years. The toxin produces poisons that affect the nerves that control the muscles, and this causes stiffness. People of all ages can get tetanus.

Tetanus spores get into the body, usually through a punctured wound contaminated with soil, street dust or animal or human feces. In newborns, the disease usually occurs through the infection of the umbilical cord by tetanus spores during delivery. Infection can happen when the cord is cut, or after delivery by "dressing" the umbilical stump with materials contaminated with tetanus spores such as cow-dung.

Tetanus is not transmitted from person to person. A person may become infected if soil or dung contaminates a wound or cut. This may happen, for example, if a wound is made with a dirty tool. Tetanus germs are likely to grow in deep puncture wounds caused by dirty nails, needles, barbed wire, thorns, wood splinters and animal bites.

Globally, tetanus is more common in agricultural regions and in underdeveloped areas where contact with animal excreta is more likely and immunization is inadequate. It is a primary cause of death in rural and tropical areas where neonatal tetanus is common.

The tetanus toxin is carried in the intestine of animals, including man, in which the organism is a harmless normal inhabitant. It is also found in soil contaminated with animal and rarely human feces.

Immunization of women of childbearing age with at least three (optimal five) doses of tetanus toxoid vaccine (TT) provides complete protection against both maternal and neonatal tetanus. A mother protected against tetanus will pass her immunity on to her newborn child for the first two or three months. To sustain immunity, a child must receive three doses of DPT (diphtheria/pertussis/tetanus) through routine immunization services.

MATERNAL AND NEONATAL TETANUS

When tetanus strikes a woman during pregnancy or within 42 days following the delivery, it is called maternal tetanus. Maternal tetanus commonly occurs when a woman delivers her baby in unsanitary conditions, for example, on soil or a dirt floor or during unsafe abortion practices. It is most prevalent where poverty, lack of education and poor living conditions exist and where babies are delivered by untrained attendants.

When a newborn is infected by tetanus during the first 28 days of life it is called neonatal tetanus (NT). When a woman delivers her baby in unsanitary conditions, a newborn baby may become infected if a contaminated knife, razor or any other sharp instrument is used to cut the umbilical cord. Infection may also occur if cow dung or ash is used to dress the stump; it is contaminated by soil or it enters the baby's navel. If the hands of the person delivering the baby are not clean infection may occur. Infants and children may also contract tetanus when dirty instruments are used for circumcision, scarification and skin piercing, and when dirt, charcoal or other unclean substances are rubbed into a wound.

Newborns with neonatal tetanus usually die a painful death. Typically, an apparently healthy baby will stop nursing after a couple of days due to lockjaw, developing stiffness, arching of the body and violent convulsions. Ultimately, breathing becomes difficult, spasms occur more frequently, and in 70 to 100 percent of the cases, infants die a tortuous death.

THE GLOBAL SITUATION

Neonatal tetanus, an entirely preventable disease, kills about 200,000 infants in the first month of life. Ninety percent of these deaths occur in 27 developing countries, making this disease a leading cause of death in the poorest part of the world. However, the disease is largely invisible, because most of the deaths occur at home before the baby reaches two weeks of age. Oftentimes, neither the birth nor the death is reported.

Maternal tetanus is responsible for at least 5% of maternal deaths, approximately 30,000 deaths annually (Faveau, 1991) with an astonishing 100 million women at risk, despite the fact that it can be easily prevented through immunization.

In 1989, the World Health Assembly called for worldwide elimination of neonatal tetanus as a public health problem - a goal further endorsed at the World Summit for Children in 1990. Elimination is defined as the reduction of neonatal cases to less than one case per 1,000 live births in every district of every country.

By 1999, 104 of 161 countries had met the goal, effectively reducing the total number of neonatal deaths by 767,000 annually. However, maternal and neonatal tetanus continues to be a public health problem in 57 countries, where there is poverty, poor health care, low levels of immunization and unsanitary delivery conditions.

As high as the neonatal tetanus toll is, it represents a marked decrease from the 800,000 newborn deaths in 1985, thanks to immunization of pregnant women and promotion of hygienic delivery practices. Maternal deaths from tetanus have also significantly decreased in this same period due to increased levels of tetanus toxoid protection in women and improved clean delivery practices.

Efforts are concentrated on administering three doses of tetanus toxoid to women of childbearing age in areas with no access to antenatal care or routine immunization services, and on promoting clean delivery practices everywhere

THE SITUATION IN ETHIOPIA

Ethiopia was ranked as having the 4th highest number of deaths due to neonatal tetanus in the world, with over 14,000 estimated infants killed. This is understandable with almost 90% of deliveries done at home or in the community by untrained birth attendants, community members, or family members, with only about 30% of women receiving enough protection through vaccination. As a result of this, about 17,900 NT cases with 13,400 Neonatal deaths occur every year. It is estimated that some 2,000 mothers die every year due to maternal tetanus infection. A community based study in 1989 in the southern parts of Ethiopia, now North and South Omo zones showed a mortality rate of 6.7 per 1000 live births accounting for 40% of all neonatal deaths in the community. It may not be much different in the other parts of the country.

The National EPI considers elimination of MNT as one of the priorities in the disease control objectives.

NEONATAL TETANUS ELIMINATION

Elimination is defined as the reduction of neonatal cases to less than one case per 1,000 live births in every district. Tetanus transmission can be prevented during childbirth by improving immunization services, especially for pregnant women, promoting clean delivery and cord care practices and strengthening disease reporting and case investigation systems.

Ethiopia is working to achieve less than one case of Neonatal Tetanus (NT) per 1000 live births (LB) in every zone of Ethiopia annually to meet international goals. This is specifically done through efforts to:

- Administer 3 doses of tetanus vaccine (TT) to all women of childbearing age (15-49 years) with additional emphasis on providing necessary doses to all pregnant women attending routine health services.
- Prioritize the immunization of women of childbearing age (15-49 years) who are living in high risk areas for neonatal tetanus transmission by conducting a series of mass campaigns in identified areas with minimum of 3 doses of TT for all women of childbearing age. Once the TT rounds are completed, routine tetanus toxoid immunization services should be strengthened so those women in the area are fully immunized against tetanus.
- Promote clean delivery and cord care practice.

- Conduct effective neonatal tetanus surveillance.

STATUS AS OF DECEMBER 2004 BY STRATEGY

- 1) 2+ doses of TT for pregnant women nationwide:
- 2) 3+ doses of TT for women of childbearing age in high-risk areas

Since 1999, high-risk areas have been targeted for maternal and neonatal tetanus campaigns, which attempt to reach as many women of childbearing age as possible.

Year	Target Area	Target Population	TT1	TT2	TT3
1999	Gedeo Zone	152,020	96%	94%	80%
2000-1	Arsi, Sidama, West Gojam Zones	1.7 million	100%	89%	77%
2001-2	Eastern Tigray, Central Tigray, South Gondar, South Wollo and East Hararge zones	2 million	97%	84%	72%
2002-3	Illubabor, West Wellega, East Wellega, East Shoa, North Shoa, North Wollo, Oromia , Awi zones	2.6 million	94%	78%	66%

- 3) Promote clean delivery and cord care practices.

Since 1999, the MOH with its partners, UNICEF, and WHO have worked in providing training for traditional birth attendants (TTBA). TTBA provides information and education for families to use trained birth attendants or health facilities. The MOH and its partners also provide clean delivery kits for those TTBA's.

- 4) Conduct effective neonatal tetanus surveillance:

This activity started recently by WHO. WHO Acute Flaccid Paralysis (AFP) surveillance officers integrated neonatal tetanus surveillance and measles surveillance in their routine activities since 2003.

FUTURE STRATEGIES

Ethiopia will continue conducting supplemental immunization campaign in eleven zones and six special woredas targeting 2.1 million women of child bearing age (15-49 years) in 2005. The ministry of health and UNICEF together with other partners will continue to evaluate progress and develop further plans to eliminate neonatal tetanus from Ethiopia. In 2004 Save the Children USA is closely working with MOH and UNICEF in social mobilization activities to eliminate MNT from Ethiopia.