

Eliminating maternal and neonatal tetanus

Tetanus remains a significant cause of maternal and neonatal deaths, taking the lives of more than 180,000 newborns and between 15,000 and 30,000 mothers in 2002. The condition develops when a bacterium, *Clostridium tetani*, infects a cut or wound. Unclean delivery or abortion practices can result in maternal tetanus, while neonatal tetanus is caused by the unhygienic care of the umbilical cord or umbilical stump in babies. In the absence of intensive hospital care, neonatal tetanus is nearly always fatal. As with other causes of maternal and neonatal deaths, most of the fatalities from tetanus take place in sub-Saharan Africa and Asia, especially in poor and marginalized communities where women have limited or no access to quality health care and little knowledge of safe delivery practices.

Tetanus is readily preventable through the vaccination of adult women and through hygienic delivery practices. Increasing implementation of both measures, particularly immunization of pregnant women, has significantly reduced the number of cases and deaths from maternal and neonatal tetanus since 1980, the earliest year for which comprehensive data are available. In 1988, tetanus was responsible for causing around 800,000 neonatal deaths, and more than 90 countries reported one or more cases of neonatal tetanus per 1,000 live births at the district level. By mid-2008, the number of countries reporting one or more cases of maternal and neonatal tetanus at the district level had dropped to 46.

Immunization has been among the most significant counteractions against maternal and neonatal tetanus. Tetanus toxoid has proved efficacious against the disease, with two doses providing protective concentrations of antitoxins in the majority of cases, and almost 100 per cent immunity after the third dose. The global rate of vaccination against neonatal tetanus for pregnant women has risen sharply since 1980, when it stood at just 9 per cent, to 81 per cent in 2007. Nonetheless, this still leaves almost 1 in every 5 newborns without protection. In part, this is due to missed opportunities for vaccinating pregnant women who visit facilities to receive antenatal services, to women arriving too late for immunization, or to the failure to provide post-partum immunization to protect future pregnancies.

Those at risk of tetanus live in communities that have little access to health and immunization services. To reach them, an innovative solution – dubbed the ‘high-risk approach’ – was initiated. This approach aims to immunize all women of childbearing age living in areas deemed to be high risk with at least two doses of tetanus toxoid (TT) vaccine. The risk factors for tetanus, which include unhygienic delivery practices and lack of immunization, are explained to the communities. Improvements in delivery practices are promoted, and surveillance for neonatal tetanus is strengthened. Booster shots are provided to women with no recorded history of receiving tetanus toxoid vaccine when they were children.

The high-risk approach has been widely adopted, enabling 64 million women to receive at least two doses of tetanus toxoid

between 1999 and 2005. The results have been impressive at the country level:

- In *Nepal*, before immunization started in the early 1980s, surveys showed high rates of neonatal tetanus among newborns. After the introduction of immunization of adult women and the implementation of the high-risk approach, the rate had fallen by 2005 to less than 1 death from neonatal tetanus per 1,000 live births in every district.
- A survey conducted in *Egypt* in 1986 indicated that for every 1,000 children born, 7 would die of neonatal tetanus, with rates of 10 per 1,000 live births in rural areas. Following implementation of the high-risk approach, by 2007, the rate was brought down to less than 1 death per 1,000 live births in all districts.
- In the mid-1980s, *Bangladesh* had a high rate of neonatal tetanus, which stood at 20–40 cases for every 1,000 live births in some parts of the country. At that time, only 5 per cent of women of childbearing age were immunized with tetanus toxoid and only 5 per cent of pregnant women were able to have a clean delivery. Adoption of the high-risk approach helped Bangladesh reduce its mortality from neonatal tetanus to less than 1 death per 1,000 live births by 2008.

Some places have used the high-risk approach to deliver other interventions alongside tetanus toxoid vaccine, including measles vaccine (e.g., Kenya, Southern Sudan) and vitamin A (e.g., Democratic Republic of the Congo). Others, such as Ethiopia, Uganda and Zambia, have incorporated the approach in mechanisms for delivering packages of essential interventions. A key benefit of the high-risk approach is that, in addition to reducing neonatal tetanus, it diminishes inequities in access to maternal and neonatal health care within countries and shows that it is possible to deliver health interventions to populations that have often been forgotten or omitted.

See References, page 109.