GOAL 2: Achieve maternal and neonatal tetanus elimination (Indicator G2.1)

**Highlights**

- The GVAP target for 2015 was not achieved – only 19 of the 40 Member States required to meet the GVAP milestone for 2015 had achieved elimination since 2010 – maternal and neonatal tetanus (MNT) continued to be a public health problem in 21 Member States at the end of 2015.
- The remaining 21 countries have developed their MNT elimination plans of action as part of comprehensive multi-year planning.
- A total of 38 of the 59 priority Member States (64%) had achieved MNT elimination as of December 2015.
- One of the headline stories of 2015 was India’s achievement of MNT elimination. This was the result of successful strategies to improve access to tetanus toxoid (TT) vaccination and health systems strengthening, which increased access to health service delivery in general, including antenatal care and institutional delivery.
- Levels of coverage of antenatal care and skilled attendance at birth from the most recent surveys are presented in the GVAP Secretariat report 2014. These very important aspects of MNT elimination rely heavily on the performance of the health systems and often progress slowly unless there is a concerted effort by governments, as seen in China and India.

**DEFINITION OF INDICATOR**

An incidence of < 1 case of neonatal tetanus per 1000 live births per year in all districts or similar administrative units of a country (please refer to GVAP Secretariat Report 2013 (1) for more information); the neonatal tetanus indicator acts as a proxy for maternal tetanus.

To monitor sustainability of elimination, the routine Expanded Programme on Immunization (EPI), reproductive health and surveillance data will be used, as sustainability is directly linked to health system strengthening with a focus on routine delivery of immunization, antenatal care (ANC), clean delivery, clean cord care practices and surveillance activities.

Note that the guidelines that will provide an opportunity to periodically review and monitor the elimination status are being finalized, and will offer a menu of options for the countries to choose and adapt based on the findings from the risk analysis.

**TARGET**

(From 2010 baseline, with 40 countries still to achieve elimination):

- 10 countries eliminated neonatal tetanus (NT) by 2012
- 22 countries eliminated NT by 2013
- 36 countries eliminated NT by 2014
- 40 countries eliminated NT by 2015

**DATA SOURCES**

- WHO-UNICEF joint reporting forms (JRF)
- Country health management information system reports
- Country disease surveillance reports
- Immunization coverage survey reports
- Multiple Indicator Cluster Survey (MICS) reports, Demographic and Health Survey (DHS) reports and any other reports of immunization and reproductive health programme reviews
- Reports of maternal and neonatal tetanus elimination (MNTE) validation surveys
Introduction and background

Tetanus is an acute, potentially fatal disease caused by a neurotoxin produced by the bacterium *Clostridium tetani* that is commonly found in the soil and in the intestinal tracts of animals and humans. As such, the disease cannot be eradicated. Maternal and neonatal tetanus (MNT) are forms of generalized tetanus affecting mothers during pregnancy, due to unclean abortion or delivery, and infants during the first month of life. Neonatal tetanus infection begins when *C. tetani* spores are introduced into the umbilical tissue during delivery. The organisms produce a neurotoxin at the site of the umbilical cord wound which passes into the blood stream of the newborn infant and then into the central nervous system. This results in motor neuron hyperactivity, hypertonia and muscle spasms. Death occurs as a result of paralysis of the respiratory muscles and/or inability to feed.

The global estimate of neonatal tetanus deaths declined from over 780,000 in 1988 to 49,000 in 2013 (2) due to the implementation of recommended strategies by countries. The main activities implemented include TT vaccination (including campaigns in high-risk districts), improvement in clean delivery and clean cord care practices and integration with antenatal care services. For example, China and India focused on strengthening their health systems through promoting institutional delivery including use of incentives such as maternity waiting homes, cash grants and provision of free services to the mother and newborn child within the first week of birth. And Ethiopia and Malawi placed more community-based health workers in antenatal care services who also advocate for other health interventions such as immunization and improvement in clean delivery practices. The Democratic Republic of Congo is another example of proactive prevention – 89% ANC, 80% skilled attendants at birth and 82% reported TT2+ coverage, with currently only 14 out of its 516 districts being at high risk for MNT.

At the global level, the development of guidelines for sustaining MNT elimination is completed, and is awaiting a review by the SAGE WG on MNTE and broader tetanus prevention before its finalization and dissemination. This will provide a menu of options to countries on appropriate responses that may be required following periodic desk reviews of MNT risk indicators.

Results

- In 2012, six Member States – Burkina Faso, Cameroon, China, Guinea Bissau, Timor-Leste and the United Republic of Tanzania – were validated as having eliminated MNT. With four Member States validated in 2011 (Ghana, Liberia, Senegal and Uganda) in addition to Ethiopia (excluding Somali region) and the third of the four phases in Indonesia, the milestone for achieving elimination in ten additional countries between 2010 and 2012 was thus met.
- In 2013, five additional Member States (Cote d’Ivoire, Gabon, Iraq, Lao People’s Democratic Republic and Sierra Leone) and three additional states in India (Delhi, Mizoram and Uttarakhand) achieved elimination (bringing the total number of states that achieved elimination in India to 18 out of 35 at the time).
- In 2014, Madagascar attained MNT elimination as well as 12 additional states of India.
- In 2015, three Member States (Cambodia, India and Mauritania) and 16 of 17 regions of the Philippines achieved elimination.

As of December 2015, a total of 38 out of the 59 priority Member States (64%) have achieved MNT elimination (see Figure 1.3). Since 2010, the total number of countries that achieved elimination is 19 of the 40 required to meet the GVAP milestone for 2015. It is envisaged that almost all of the remaining 21 Member States will achieve elimination by the DoV target of 2020 if the implementation challenges are addressed.
Figure 1.3: Member States with validated elimination of maternal and neonatal tetanus (as of December 2015)*

- Not eliminated
- Eliminated prior to 2000
- Eliminated since 2000

* This includes Ethiopia (except Somali region), 30 of 34 provinces in Indonesia and 16 of 17 regions in the Philippines.

In addition, TT supplementary vaccination campaigns targeting women of reproductive age (15–49 years) were conducted in nine Member States9 in 2015, raising to 52 the total number of countries that have implemented TT SIAs from 1999 to 2015 (Figure 1.4). Figure 1.5 shows the cumulative number of women or reproductive age receiving at least 2 doses of TT during supplementary immunization activities (SIAs).

Figure 1.4: The 52 Member States that implemented TT SIAs between 1999 and 2015

- Countries achieved MNTE without TT SIAs between 1994 and 2015
- Countries having initiated or expanded SIAs between 1999 and 2015
- MNT eliminated before 2000


* Angola, Chad, Ethiopia, Haiti, Indonesia, Mali, Pakistan, South Sudan, Sudan.
Discussion

Areas requiring focus in order to maintain progress towards the attainment of MNTE in all countries

The SAGE WG on MNTE and broader tetanus prevention set up in September 2015 is expected to provide the much needed orientation on where to focus to ensure that the remaining priority countries attain elimination, but also to ensure that all countries that have achieved elimination receive the necessary guidance to sustain their elimination status. The issue of gender and geographic inequity in access to TTCV is also to be addressed, as well as the US$ 135 million (inclusive of TT Uniject cost of US$ 37 million) funding gap that is a serious challenge to the global goal for achieving MNTE. Figure 1.6 shows that lack of funding makes it difficult to conduct the SIAs that will help to achieve MNTE and reach the unreached women. Ownership and contributions by national governments have proven instrumental in the achievements to date, as has funding by private sector contributions (e.g. Kiwanis International, Procter & Gamble) and UNICEF national committees. To maintain the momentum, it is now time for individual and collaborative fundraising efforts by all MNTE partners to tap bilateral and multilateral donors.

TT Uniject is needed for use particularly in the 10 countries where there are serious issues with accessing high-risk populations, primarily due to geographical difficulties and/or security challenges. The use of TT Uniject by lay health workers after brief training in Afghanistan, Ghana, Mali, Pakistan and Somalia in the past has led to coverage levels of at least 80% for TT3 (unpublished country reports), and an assessment of the experiences of the use by the Program for Appropriate Technology in Health (PATH) found that the vaccine was correctly administered, safe injection technics were applied and no side-effects were reported (Unpublished data from a presentation from BASICS II, for the WHO TechNet Consultation 22–25 March 2003, Antalya, Turkey).

More effective integration between EPI and ANC as well as with other elimination efforts is required to address inequities, for example through the implementation of initiatives such as the Reaching Every Child approach or the Mother & Child Health Days implemented in the most underserved communities. A package of interventions can be integrated into this effort. WHO recommends at least four ANC visits to give adequate opportunity for a pregnant woman to be assessed, and to receive all her doses of TTCV based on her tetanus vaccination status, besides delivery of other high-impact lifesaving interventions (3).

Figure 1.5: Cumulative number of women of reproductive age protected with at least 2 doses of TT during SIAs/year


10 Afghanistan, Central Africa Republic, Chad, Mali, Nigeria, Pakistan, Somalia, Sudan, South Sudan, Yemen.
Figure 1.6: Trend in women of reproductive age targeted with TT SIAs – extent of activities dependent on availability of funds

Source: WHO/UNICEF MNTE database, as of 1 July 2016. Data for 2015 are provisional.

Update for 2016

- Three additional countries (Equatorial Guinea, Indonesia and the Niger) have been validated as having eliminated MNT between January and July 2016.
- Pre-validation assessments are being planned for the Democratic Republic of Congo, Ethiopia and Haiti later in 2016.

References