



## Elimination of Maternal and Neonatal Tetanus in India: A Triumph Tale

Kalaivani Annadurai, Raja Danasekaran, Geetha Mani

Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Kancheepuram, Tamil Nadu, India

### Correspondence to:

Dr. Kalaivani Annadurai, Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth, Kancheepuram - 603 108, Tamil Nadu, India. E-mail: [kalaimedicos11@gmail.com](mailto:kalaimedicos11@gmail.com)

**How to cite this article:** Annadurai K, Danasekaran R, Mani G. Elimination of maternal and neonatal tetanus in India: A triumph tale. *Int J Prev Med* 2017;8:15.

### DEAR EDITOR,

In May 2015, India has achieved another significant public health milestone of maternal and neonatal tetanus (NT) elimination.<sup>[1]</sup> Globally, NT accounts for 1% of neonatal deaths.<sup>[2]</sup> As of August 2015, 21 countries have not reached the elimination status worldwide.<sup>[3]</sup> In India, there was a significant decline in the number of reported NT cases from almost 80,000 in 1980 to fewer than 500 cases in 2013.<sup>[1]</sup> According to the World Health Organization (WHO), elimination of NT is defined as an incidence of less than one case of NT in 1000 live births in every district or similar administrative unit across the nation in a year. Once NT elimination is achieved, maternal tetanus is also considered being eliminated.<sup>[4]</sup> India has come a long way since 1977 to achieve this public health milestone.

The strategies which are responsible for successful elimination are increased coverage of maternal tetanus immunization, promotion of institutional deliveries through cash incentives, availability of delivery kit for safe umbilical cord practices, training of auxiliary nurse midwife, and local dais for safe delivery practices under the National Health Mission.<sup>[1]</sup>

Hand washing techniques, delivery practices, traditional birth customs such as application of cow dung over umbilical stump, interest toward immunization, and predominant livestock raising regions are important factors determining the tetanus incidence in India.<sup>[1]</sup> In 1983, tetanus toxoid (TT) was introduced for pregnant mothers. Child summit in 1990 had focused on polio eradication and elimination of maternal and NT in India with increased immunization coverage. With immunization program being universalized to cover entire nation by 1990, it had scaled up the target to 100% of immunization coverage for pregnant women and infants.<sup>[5]</sup>

In 1993, from the review of child survival and safe motherhood program, districts were classified for area-specific action-oriented intervention measures to eliminate tetanus. Districts were classified into three categories depending on TT immunization coverage among pregnant women, NT incidence rates, and proportion of clean deliveries by trained personnel [Table 1]. Taking into account the gender bias as male children were brought to the health facilities than female children, the total caseload of NT for a district was considered two times the reported male NT cases. Preventive measures were accelerated in high-risk areas and further strengthening of surveillance system was ensured in low-risk areas to reduce underreporting of cases.<sup>[6]</sup>

In 1999, WHO, the United Nations Children's Fund (UNICEF), and the United Nations Population Fund (UNFPA) had launched "Maternal and Neonatal Tetanus Elimination initiative" (MNTE) with primary focus on 59 priority countries which include India. The target year for elimination of NT revised from 2000 to 2005

**Table 1: Classification of districts for neonatal tetanus elimination**

Classification of districts <sup>[6]</sup>	Criteria
NT high risk	NT incidence rate >1/1000 live births Or 2 doses of TT coverage <70% Or percentage of clean deliveries by trained personnel <50%
NT control	NT incidence rate <1/1000 live births And 2 doses of TT coverage >70% And percentage of clean deliveries by trained personnel >50%
NT elimination	NT incidence rate <0.1/1000 live births And 2 doses of TT coverage >90% And percentage of clean deliveries by trained personnel >75%

NT=Neonatal tetanus, TT=Tetanus toxoid

and renewed further to 2015. In 2005, the National Rural Health Mission was launched which pushed up institutional deliveries through “Janani Suraksha Yojana” and also trained many traditional birth attendants for safe deliveries.<sup>[7]</sup>

As a long-term measure, immunization of children against tetanus was given utmost importance to provide long-term immunity for the entire population. After successful eradication of smallpox from India, the Expanded Programme of Immunization was launched by Government of India (GOI) in 1977 with BCG, OPV, and DPT with a target of 80% coverage in infancy. This program on immunization was relaunched as the Universal Immunization Programme in 1985 with major change.

In 2011, with the introduction of pentavalent vaccine containing DPT, hepatitis B, and Hib vaccines, the number of injection requirement has been reduced from six to three which further increased the vaccine coverage. Furthermore, Mission “Indradhanush” was launched by GOI in 2014 to cover children who are either partially vaccinated or unvaccinated against seven vaccine preventable diseases which include tetanus. These efforts paid the result, according to a survey by GOI, for 2013–2014, percentage of antenatal mothers who received two or more tetanus immunization was 89.8%, 81.1% of total deliveries were conducted by skilled health provider and about 74.8% of children received three doses of DPT immunization.<sup>[8]</sup>

To conclude, those developing nations which still have not reached elimination status can adopt the successful strategies from India to achieve the goal. Sustainable immunization coverage and clean deliveries should be ensured in India to maintain MNTE as tetanus spores remain in the environment and chances of infection persists. Moreover, further efforts and research should be made in India to convert the current elimination status to eradication.

**Financial support and sponsorship**  
Nil.

## Conflicts of interest

There are no conflicts of interest.


**Received:** 10 Dec 15 **Accepted:** 16 Jan 17

**Published:** 07 Mar 17

## REFERENCES

1. Cousins S. India is declared free of maternal and neonatal tetanus. *BMJ* 2015;350:h2975.
2. Liu L, Oza S, Hogan D, Perin J, Rudan I, Lawn JE, et al. Global, regional, and national causes of child mortality in 2000-2013, with projections to inform post-2015 priorities: An updated systematic analysis. *Lancet* 2015;385:430-40.
3. World Health Organization. Maternal and Neonatal Tetanus (MNT) Elimination. The Initiatives and Challenges. Available from: [http://www.who.int/immunization/diseases/MNTE\\_initiative/en/](http://www.who.int/immunization/diseases/MNTE_initiative/en/). [Last accessed on 2015 Nov 14].
4. Vandelaer J, Birmingham M, Gasse F, Kurian M, Shaw C, Garnier S. Tetanus in developing countries: An update on the maternal and neonatal tetanus elimination initiative. *Vaccine* 2003;21:3442-5.
5. Government of India. Report of National Universal Immunization Program Review 2004. New Delhi: Ministry of Health and Family Welfare, Government of India; 2005.
6. Government of India. CSSM Review, a News Letter on Child Survival and Safe Motherhood Programme, New Delhi; 1993. p. 4.
7. Khan R, Vandelaer J, Yakubu A, Raza AA, Zulu F. Maternal and neonatal tetanus elimination: From protecting women and newborns to protecting all. *Int J Womens Health* 2015;7:171-80.
8. Government of India. Ministry of Women and Child Development. Rapid Survey on Children; 2014-2015. Available from: [http://www.wcd.nic.in/issnip/National\\_Fact%20sheet\\_RSOC%20\\_02-07-2015.pdf](http://www.wcd.nic.in/issnip/National_Fact%20sheet_RSOC%20_02-07-2015.pdf). [Last accessed on 2015 Nov 14].

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online	
<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.ijpvmjournal.net/www.ijpm.ir">www.ijpvmjournal.net/www.ijpm.ir</a>
	<b>DOI:</b> 10.4103/ijpvm.IJPVM_392_15