

## Tetanus Toxoid Vaccination of Pregnant Women in Pakistan

Sir,

Neonatal tetanus (NT) is a serious disease in a newborn baby and a high mortality rate associated with it. In 2008, an estimated 59,000 newborns died due to NT.<sup>1</sup> Globally, NT is responsible for 14% (215,000) of all neonatal deaths (NDs)<sup>2</sup> and approximately 30,000 mothers die due to maternal tetanus each year.<sup>3</sup> Once an infant is infected with tetanus, more than two-third (70%) do not survive. NT ranks as a main but preventable source of infant and neonatal death in many developing countries including Pakistan. Less than 10% cases are estimated under the current reporting system.<sup>4</sup> In developing countries, only 52% of pregnant women are vaccinated with two or more TT doses. The World Health Organisation (WHO) is struggling to eliminate tetanus, since 1989. Pakistan stood among 34 countries, still not achieved NT-free country licence. In 1997, globally the reported death due to NT was estimated as 248,000; and 26,400 of these deaths were from Pakistan with NT mortality rate of 5/1000 live births.<sup>5</sup> In Pakistan, 22,000 NDs occur every year due to maternal and neonatal tetanus.<sup>2</sup> From 2001-2005, Save-the-Children and UNICEF teamed up with the governments of Pakistan, Mali, and Ethiopia in large-scale campaigns to eliminate tetanus so more than 12 million females in Pakistan and almost a million females in Mali were administered the three doses of tetanus toxoid (TT) vaccine. Results from the Ethiopia campaign are being tallied and Pakistan alone, NT deaths have been cut from 28,000 to 14,000 annually.<sup>6</sup>

To explore the demand trend and failure for TT vaccine, the reported data of monthly TT vaccine coverage of pregnant women from January 2009 to September 2014 was taken from Pakistan Bureau of Statistics. Seven forecasting models, namely Box Jenkins, moving average, double moving average, single parameter exponential smoothing, Brown's, Holt's, and Winter's were applied. Among the competing models, Box Jenkins model was found to be superior. Results revealed that TT1, TT2, TT3, and TT4 vaccination coverage of pregnant women has risen since October 2014.

The Government of Pakistan committed to eliminate the maternal neonatal tetanus in 2015, adopted a high risk approach and made good progress in the last decade. In Pakistan, TT immunization coverage ranged from 60% to 74% over the last ten years. This study findings is consistent with the rise in coverage. There are many

reasons behind the low coverage; for instance, demand-failure for TT vaccine, poor knowledge about immunization among reproductive-age women, and insufficient information about the benefits of TT vaccine provided by the media and health-care workers.<sup>7</sup>

This study also identified 5 major areas to address for the elimination of NT in Pakistan: unclean delivery practices of traditional birth attendants (TBA), access and awareness including literacy of NDs among the commons and outreach people, inadequate coverage of TT vaccine particularly TT5, lack of herd immunity, and NDs official as well as non-official secondary data's debatable reliability. Media in cooperation with NGOs could play a vital role in improving the clean delivery practices. Nevertheless, the last 4 areas could be managed better through governmental policy inputs. Therefore, it is the need of the hour to formulate effective strategies in accordance with implementation for the better treatment of NDs in Pakistan.

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*Received: June 09, 2015; Accepted: April 11, 2016.*

