**////Title: Strategies to Ensure the Worldwide Elimination of Tetanus in Mothers and Neonates**

Tetanus is a serious, potentially fatal disease of the nervous system caused by Clostridium tetani bacteria entering the body. It is characterised by severe stiffness, muscle spasms and breathing difficulties. In some developing countries, tetanus unfortunately still occurs and presents a significant healthcare challenge, particularly in relation to maternal and neonatal (newborn) deaths.

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In 2019, Dr Syed Ahsan Raza at Baylor College of Medicine and Dr Bilal Avan at the London School of Hygiene and Tropical Medicine published their insights into challenges of maternal and neonatal tetanus. They note that targets to eradicate neonatal and maternal tetanus by 2020 have unfortunately failed in 14 countries. These include Afghanistan, Angola, Central African Republic, Chad, Congo, Guinea, Mali, Nigeria, Pakistan, Papua New Guinea, Somalia, Sudan, South Sudan and Yemen.

Dr Raza and Dr Avan point to the lack of adequate immunisation in some countries, along with unclean delivery services and inappropriate umbilical cord care. The majority of neonatal tetanus deaths occur in countries within sub-Saharan Africa and South Asia – areas where poverty is rampant, and access to quality antenatal health care can be extremely limited or even non-existent for mothers. In particular, there is typically a shortage of appropriate information available about safe, clean delivery practices.

The upshot is that the fatality rate of neonatal tetanus can be extremely high. Furthermore, birth and death data are not always recorded, making it difficult to assess the true scale of the difficulty.

Marginalised and displaced populations (such as refugees) are at particular risk of inadequate vaccination and insufficient healthcare information. In addition, in some areas, traditional attitudes may still prevail in which deaths from neonatal tetanus are viewed as the wish of God and immunisation campaigns may be met with suspicion.

There are two main strategies for eliminating neonatal and maternal tetanus. The first is immunisation. Here, the approach most commonly used is the routine immunisation of pregnant women in which the aim is to deliver two doses of tetanus toxoid 1 month apart. An approach known as ‘supplementary immunisation’ is employed in areas deemed to be such high risk for neonatal tetanus that the first approach described may not be effective. This involves making vaccination available beyond standard provision by utilising schools and other community-based settings. To this end, Dr Raza and Dr Avan have called for the support of supplementary immunisation to be increased.

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The second elimination strategy for maternal and neonatal tetanus is improving birth hygiene and practising clean deliveries. In 1988, the World Health Organization published a review of the evidence in support of appropriate care of the umbilical cord. They also summarised clean delivery and cord care practices, referring to these as the ‘six cleans’.

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It is clear that, along with increased vaccination, the existing high neonatal mortality rates in developing countries due to neonatal umbilical cord infections can be effectively reduced by adopting the ‘six cleans’ approach.

For this reason, the World Health Organization has endorsed the supply of clean birth kits in resource-poor settings for many decades. The kits consist of sterilised disposable packages to facilitate the ‘six clean’ practices:

(1) plastic delivery sheet for clean surface

(2) a soap to ensure clean hands and (3) perineum

(4) a blade for clean cutting of the umbilical cord

(5) cord ties/ligand for clean tying of cord, and finally

(6) gauze and spirit for clean post-delivery cord care.

Unfortunately, scarcity of supplies means it is difficult to adhere to the six cleans approach in some settings and behavioural change is required to ensure it is adhered to and considered culturally acceptable.

Dr Raza and Dr Avan conclude that while the use of these cost-effective kits can reduce the incidence of neonatal and maternal infections, research is required to confirm the extent of the benefits.

This video is based on the paper ‘Eliminating Maternal and Neonatal Tetanus and Promoting Clean Delivery Practices Through Disposable Clean Birth Kits’ from the open access journal, Frontiers in Public Health. DOI: https://doi.org/10.3389/fpubh.2019.00339