

# Recommendation of Tetanus Toxoid Vaccination for Pregnant Females in a Country that Achieved Elimination of Maternal and Neonatal Tetanus. A commentary on the Study: Knowledge and Health Beliefs of Reproductive-age Women in Alexandria about Tetanus Toxoid Immunization

Azza A. Mehanna\*

Health Education and Behavioral Sciences Department, High Institute of Public Health, Alexandria University, Egypt

\*Correspondence should be addressed to Azza Mehanna; [hph.Amehanna@alexu.edu.eg](mailto:hph.Amehanna@alexu.edu.eg)

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## Abstract

The study “knowledge and health beliefs of reproductive-age women in Alexandria about tetanus toxoid immunization” has shed a new light on the attitude of obstetricians in Alexandria (Egypt) towards recommending tetanus toxoid vaccination to pregnant females. According to the study, the use of tetanus toxoid vaccine among females in child-bearing age in Alexandria was low. Intriguingly, most of the studied women revealed that throughout their antenatal care visits, their obstetricians, notably those of the private sector, never brought up the issue of tetanus toxoid vaccination, even worse, when women, who had some knowledge about the vaccine, inquired about their need to receive it, obstetricians did not recommend for vaccination. This discussion around vaccination is important for all in the health sector and the patients.

**Keywords:** Maternal and neonatal tetanus; Tetanus toxoid vaccination; Vaccine recommendation; Pregnant females

Maternal and neonatal tetanus (MNT) is a life-threatening disease, its case fatality approaches 100% in absence of medical care. It is linked to miscarriages, abortion, unhygienic delivery conditions, and poor cord care practices [1,2]. The incidence and mortality from MNT vary between different countries and regions of the world. In the United States, tetanus in the newborn is eliminated with only one case being reported in the last 10 years, whereas, in many developing countries, the incidence and mortality of neonatal tetanus remains startlingly high [3-5]. In Egypt, the disease has been eliminated since 2014, hence, it does not pose a substantial public health threat in Egypt for the time being [6,7]. However, routine tetanus toxoid immunization of pregnant women remains part of the antenatal care (ANC) service provided to females in the public health sector which is the main source for tetanus toxoid vaccination in Egypt [7,8]. The question I pose here is: Should tetanus toxoid vaccine (TTV) be recommended for all females in childbearing age worldwide or should it be recommended only in some countries or areas and on what basis?

While interviewing the studied females, we noticed that the majority mentioned that throughout their ANC visits, their obstetricians never brought up the issue of tetanus toxoid vaccination, even worse, when women, who had some knowledge about the vaccine, inquired about their need to receive it, obstetricians did not recommend for vaccination. This attitude was most often adopted by health care providers of the private sector, according to the interviewed females. Similar observations were reported by Hassan et al., Mortada et al., and Ahmed et al. [9,10,11]. Being a mother of two children who lives in Alexandria (Egypt), I had a similar experience. My private obstetrician never brought up the subject of MNT immunization and on inquiring about the need to do so, my obstetrician’s answer was that my delivery would occur in a well-equipped hospital that applied infection control measures, so there was no need for vaccine uptake. Is this argument valid? Does the use of hygienic techniques in delivery substitute for vaccine intake? If we considered this reasoning to be valid, is it an absolute or conditioned validity? What are the standards of optimal delivery conditions, of effective

immunization programs and of good post-exposure prophylaxis that ensure the validity of this argument?

It is worth mentioning though, that the minority group of sampled females who received ANC in primary health care (PHC) centers- affiliated to the Egyptian ministry of health and population (MOHP)- were more likely to take the vaccine and achieve a positive immunity status (at least two doses of TTV during last pregnancy (TT2+)) [12,13]. In a similar vein, a study conducted in Cairo (2016) indicated that the ANC was mostly done in private clinics and that most of the mothers who had their ANC at a PHC center were fully protected (72.6%) compared to 28.7% of those who received their ANC in private clinics [9]. The superior position of the private sector regarding ANC service utilization is further demonstrated by a recent study examining ANC in low-income and middle-income countries (2018) [14] and by the final report of the Egyptian DHS, 2015 [7].

One plausible explanation is that most of the high and middle social class women, who are usually better educated and more capable of delivery in private well-equipped hospitals, utilize the private medical sector for ANC [9,12,15]. This may interpret the discrepancy between the attitudes of private sector health care providers and public sector health care providers who seem to be more committed to the MOHP guidelines regarding tetanus toxoid vaccination. This may also provide justification for the tendency of lower social class and less educated women to achieve positive immunity status compared to the more educated, higher social class women [9,12] and explains why rural births are more likely to be fully protected than urban births [7].

Providing health education to pregnant females is one of the components of ANC provided in PHC centers [9,15]. In spite of the notable variation in the perceived quality of ANC services provided in urban versus rural PHC centers, it seems that education about TTV does not receive much attention in both [9,10,15]. Noteworthy is the finding of Hassan et al. that health education had a significant effect on TTV uptake and immunity status, where 61.8% of mothers who received health education on TTV showed full protection compared to only 30.8% of those who did not receive it [9].

Mass media and social media have the undeniable advantage of reaching a large number of populations in a relatively short time and the merit of swaying public perception and opinion. Regrettably, media is underutilized as a source of education on tetanus toxoid vaccination for pregnant females in Egypt [9,12].

Some local community efforts to enhance ANC- including TTV uptake- exist on the ground. NGOs such as Caritas-

Egypt organize health education sessions on TTV among other components of ANC [16]. Some academics and professionals working in the field provide TTV education as volunteers or as part of their job [10]. Some places provide ANC services -including education on TTV- to the public at reasonable prices as The Alexandria Regional Center for Women's Health (ARC). ARC is a non-profit and research center concerned with women's health and development in Egypt and its neighboring countries [17]. Other places as charitable dispensaries offer ANC services including education on TTV for poor women at a nominal fee or free of charge [9].

Literature has emphasized the influence of effective health care provider recommendation on vaccine receipt [18-21]. Pregnant females perceive their obstetricians' opinions to be the most important cue to taking the vaccine [9,12,19]. Accordingly, a salient key to designing interventions to enhance TTV receipt among pregnant females is to help providers-especially in the private sector acknowledge the need to and the importance of the vaccine as indicated by the national policy. Along with education, setting ambitious, but, attainable country-specific targets and making these targets known at the health facility level is recommended by the WHO as part of the Global Vaccine Action Plan [22]. Setting pre-defined targets may motivate health care providers to achieve the target and detect drawbacks leading to further interventions to address them, thus, improving TTV coverage. The maternal immunization and antenatal care situational analysis project (2020) confirms that increased use of targets is more frequent in low-income and middle-income countries (LMICs) with high potential for protection of mothers and their infants from vaccine preventable diseases (VPDs). These countries more often reported vaccinating over 90% of pregnant women at facility-based ANC services compared to the other LMICs countries [23].

In this regard, I assume that it's time to resolve any ambivalences obstetricians may have concerning the importance of TTV receipt by pregnant females and to reach a consensus built on a robust evidence-based reasoning instead of giving a tentative opinion based on anecdote and speculation.

## Conclusion

This commentary aims to spark a dialogue around this unresolved issue of TTV recommendation for pregnant females in a country that eliminated MNT, and calls for the participation of all relevant parties including researchers, obstetricians, decision makers and media in the debate. Several queries should be raised in this debate: Should the decision to take the vaccine be based primarily on the socio-economic status of the pregnant female? Do we have to inquire about the cord care practices adopted

by the mother which, in some cultures, imply applying contaminated materials to the umbilical cord? What are the standards upon which we decide that the hospital in which the delivery will be performed will not be a possible source of infection? Finally, should ineffective or non-recommendation of tetanus toxoid vaccination for pregnant females be accepted as a logic consequence to the elimination of MNT in some country or area or should it be viewed as an alarm to a probable re-elevation of the disease rates in this country or area? Putting into consideration that the progress in reducing neonatal mortality is lagging behind the target (target 3.2) set by the Sustainable Development Goals (SDGs), launched in 2015, to end preventable deaths of newborns and children under five years of age by 2030 and to reduce neonatal mortality to a maximum of 12 per 1,000 live births [24-26].

### Availability of Data and Materials

The study upon which the commentary was based “knowledge and health beliefs of reproductive-age women in Alexandria about tetanus toxoid immunization” has been published.

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### Competing Interests

The author reports no conflicts of interest in this work.

### Authors Contributions

AM conceptualized, wrote and revised the manuscript.

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