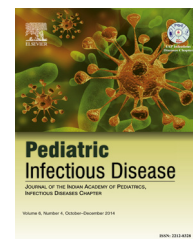


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Original Article

Antenatal care services and neonatal tetanus: An outlook at the northeastern Nigeria

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ABSTRACT

Background: Neonatal tetanus (NNT) is considered as one of the most underreported diseases in the developing countries, seen in the newborn within the first 28 days of life. In the 1989 World Health Assembly and the 1990 world summit for children, WHO/UNICEF together with partner agencies to set up a strategic framework for the elimination of the disease by 1995 and subsequently reviewed to 2015. In spite the global success recorded in the NNT elimination strategy, it is disheartening to note that Nigeria is still among the 25 remaining countries that are yet to achieve the global NNT elimination target as set by the WHO.

Study Design: Retrospective study.

Methods: Quantitative cross-sectional study involving mothers who gave birth to children with NNT within their first 28 days of life. The study used secondary data collected between January 2008 and December 2013.

Results: Using SPSS 22, single sample proportions test and chi-square test of independence was conducted to determine if significant differences in frequency of antenatal care existed between mothers who indicated receiving care and those who did not. Result found that a significant difference did exist; z-statistic ($N = 273$) = 4.50, $p < 0.001$; 95% confidence interval (CI) = 0.308 to 0.421. The Null Hypothesis (H_0) was rejected.

Conclusion: There is need for the Nigerian government to prioritize its activities to encourage and ensure that women within the childbearing age are fully vaccinated with the tetanus toxoid, that pregnant women receive quality ANC services and deliver in functional hospitals.

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1. Introduction

The neonatal tetanus (NNT), one of the vaccine preventable diseases with a high case fatality rate of 70%–100%, is a disease

of the newborn seen within the first 28 days of life. NNT is considered as one of the leading causes of deaths among neonates in the developing countries with a record of about 130,000 neonatal deaths in 2004.^{1–3}

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The disease is caused by a bacterial infection with known as *Clostridium tetani* found especially in the soil, dust and animal faeces. This disease, which is preventable by administering at least two doses of the tetanus toxoid vaccine (TT), is considered as one of the underreported diseases in the developing countries. In spite the increased commitment from governments of countries that have high cases of NNT, it is estimated that only 5% of cases reports to the health services especially within the under-developed countries.^{1,4,5}

NNT occurs within the first 4–14 days of birth (average of 7 days) when unimmunized pregnant mother gave birth to an unprotected child through unhygienic birth practices³ (CDC, 2012). The unhygienic birth practices usually are in a manner in which the newborn is delivered by an untrained and unskilled traditional birth attendant (TBA), delivery through unsanitary conditions, cutting the umbilical cord with contaminated or unsterilized sharp objects (such as scissors, kitchen knife, blade), and dressing of the cord with a cow dung, ghee/surma or charcoal.^{6–10}

The clinical picture in the newborn child manifests as early as the 3rd and up to the 28th day after delivery. The history is that of an apparently healthy newborn that hitherto sucks the breast suddenly stopped sucking. The newborn progressively becomes more rigid with painful convulsions and arching of the whole body. There are situations when the NNT case would not present with a classical presentation but rather the picture is atypical leaving the condition go unnoticed by the mother and eventually go unreported.^{3,6–8}

As part of measures by the global community to address the NNT, the WHO, UNICEF and other partner agencies in 1990 came together and agreed on a strategic framework for the elimination of NNT in 1995; this deadline was finally revised to 2015.^{11,12} The framework for the NNT elimination targets less than 1 NNT case per 1000 live births per annum in every district of every country across the globe. The framework is aimed at ensuring that pregnant mothers attend ANC as part of measures to strengthen routine immunization with the tetanus toxoid, immunization of women childbearing age with 3 doses of the TT vaccine during their life time, hygienic delivery of the newborn, and improved NNT surveillance.^{11,12}

Although Nigeria is among the few remaining countries that could not achieve the NNT elimination, it is encouraging to note that the effort of the global players in the NNT elimination has yielded remarkable improvement with a 93% global reduction in NNT.^{11,12}

The health statistics of the northeastern region, based on the 2008 Nigeria Demographic and Health Survey (NDHS), is presented in Table 1. The total fertility rate is 7.2 (national 5.7), women age 15–19 who are mothers 39% (national 23%), women who gave birth in the last 5 years and received antenatal care from a skilled provider 43% (national 58%), births assisted by a skilled provider 16% (national 39%), births delivered in a health facility 13% (national 35%), children 12–23 months fully immunized 8% (national 23%), children 12–23 months with no immunizations 33 (national 29%), literate women age 15–49/men age 15–49, stands at 23/54 (national 54/77%), and those with no education women age 15–49/men age 15–49, stands at 68/45 (national 36/19%).¹³

Table 1 – 2008 Nigeria Demographic and Health Survey (NDHS) for the North East in comparison to national figure.

2008 Nigeria Demographic and Health Survey (NDHS): North East	Nigeria	North-East zone
Fertility		
Total fertility rate	5.7	7.2
Women age 15–19 who are mothers or now pregnant (%)	23	39
Births that occurred less than 2 years after the preceding birth (%)	24	25
Current use of any modern method (currently married women 15–49) (%)	10	4
Maternal and Child Health		
A. Maternity care		
Women who gave birth in the last 5 years who received antenatal care from a skilled provider ^a (%)	58	43
Births assisted by a skilled provider ^a (%)	39	16
Births delivered in a health facility (%)	35	13
B. Child immunization		
Children 12–23 months fully immunized ^b (%)	23	8
Children 12–23 months with no immunizations (%)	29	33
Literacy		
Literate (women 15–49/men 15–49) (%)	54/77	23/54
No education (women 15–49/men 15–49) (%)	36/19	68/45
^a Skilled provider includes doctor, nurse/midwife, or auxiliary nurse/midwife.		
^b Fully immunized include BCG, measles, and three doses each of DPT and polio.		

2. Methods

This retrospective cross-sectional quantitative research used NNT dataset collected from 2008 to 2013. The sample size for the study was 312 participants who gave birth to NNT babies in the six provinces of the northeastern region of Nigeria. The provinces in the region comprises of Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe. The region, which is less densely populated as compared with the southern region of the country, has poorer economic indices and worse health outcomes when compared with other regions in the country.^{13,14}

Ethical approval for the use of secondary data was obtained from the zonal office of the NPHCDA. The NNT data was collected from eligible participants in the northeast region by trained field officers using a standard tool. Informed consent was obtained from the local authorities and the husbands of these women prior to administering the questionnaire. The participants were well informed in the local language that they understood on the purpose of administering the questionnaire. The information obtained was securely kept in the official database, and restricting data access except to authorize persons.

The research question and hypothesis for this study are:
RQ – Quantitative: Did mothers who gave birth to NNT babies receive ANC?

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