

*Full Length Research Paper*

# **Cluster of neonatal tetanus: Case series from one traditional birth attendant's home in Uyo, South-South Nigeria**

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**Neonatal tetanus, a completely preventable disease, still contributes to morbidity and mortality in Akwa Ibom State, despite the fact that there should have been a global eradication many years back. It therefore still constitutes a public health problem. The aim of this work is to highlight the importance of continuous educational actions for pregnant women, mother and midwives with a view to preventing neonatal tetanus and promoting the improvement of the quality of life and health of the mother-child binomial, family members and other care givers. This work is a review of delivery practices and intervention measures in a traditional birth attendant's home where four babies delivered at the home presented at the University of Uyo Teaching Hospital with features of neonatal tetanus within a three week period between late June 2005 and July 2005. The intervention measures which included teaching clean delivery practices, proper cord care, involvement of the TBA in counseling sessions and postnatal checks eliminated the incidence of neonatal tetanus in the home. These interventions, when applied to other TBAs will help eliminate neonatal tetanus.**

**Key words:** Cluster, Lay mid wife, newborn, tetanus.

## **INTRODUCTION**

Neonatal tetanus is still a common cause of morbidity and mortality in resource poor nations such as Nigeria (Alhaji, 2013; Fetuga et al., 2010; Ladan et al., 2015). The World Health Organization (WHO) estimated that in 2013,

49,000 newborns died from neonatal tetanus. Globally, neonatal tetanus accounts for 10% of neonatal deaths, down from 14% in 1993 (Liu et al., 2016). Neonatal tetanus is a completely preventable disease (Alhaji, 2013;

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Fetuga et al., 2010; Ladan et al., 2015; Khan et al., 2015; Ibinda et al., 2015). In developing countries, deliveries still take place in unhygienic circumstances, putting mothers at risk of a variety of life-threatening infections, including neonatal tetanus. Poor uptake of antenatal care and practices after delivery contribute to this scourge (Khan et al., 2015). Several targets have been set in the past 20 years by the World Health Organization for its elimination from 1994-2015 but has not been quite successful. For instance, by the end of 2016, eighteen countries, most of them (12) in Sub-Saharan Africa, Nigeria inclusive, had still not reached the maternal and neonatal tetanus elimination status of reducing maternal and neonatal tetanus to such a level that it does not constitute a major public health problem (WHO, 2016). Immunization coverage in Nigeria is poor. Out of 63% of pregnant women in Nigeria, according to 2013 Nigerian Demographic and Health Survey (NDHS) who attend antenatal care of least once, only 40-45% of these women received tetanus toxoid (National Population Commission, Nigeria, 2014). In South-South Nigeria, 48% of women delivered at home and only 73% had protection against tetanus (National Population Commission, Nigeria 2014). The picture is not different in other places (Alhaji, 2013; Fetuga et al., 2010; Ladan et al., 2015).

Inter-cultural diversity brings to fore the myths and legends of a people that influence the behaviour and decisions that pregnant women make. Cultural care diversity as expounded by Leninger (2001) occurs amongst different groups of people in the care of patients. This means that there are differences in meaning, values or acceptable mode of doing things within or between different groups of its inhabitants. The cultural diversity of childbirth practices and cord management contribute to the risk of neonatal tetanus in some climes. In China, it is traditional for untrained birth attendant to throw a bowl to the ground and use a piece of broken porcelain to cut the umbilical cord (Barrett, 1995; Su, 2000). In some part of the world abuse and disrespect of pregnant women can deter women from attending health facilities thereby making them end up with the traditional birth attendants (WHO, 2014). In other parts of the world, other factors influence maternal and child health and access to resources. One of these is religion / spirituality (Malqrist, 2015; Munyarachi, 2016; Aziato et al., 2016), which places women at risk when receiving health care. In some cultures, people run away from orthodox medical practice in order to seek spiritual solace in people who proffer competence in that field. This among other reasons pushes pregnant women to the TBA in Akwa Ibom State.

One of the strategies of elimination of maternal and neonatal tetanus is surveillance for neonatal tetanus (Khan et al., 2015; WHO, 2016; Khan et al., 2013; Galadanci et al., 2007) and intervention when necessary. This was the approach adopted by our team. We thus

present four cases of neonatal tetanus in babies who were delivered at a particular traditional birth attendant's home (TBA) and who were admitted in our facility within three weeks of each other. This report also assessed the strategies instituted by us including clean delivery practices, proper cord care, immunization and immediate post-partum care. The intervention paid off because we no longer had cases of neonatal tetanus who were traced to that TBA.

## LOCATION AND SUBJECTS

The location of the TBA home was in a village which is a few kilometers away from the Uyo Municipality. Uyo is the capital of Akwa Ibom State, in the South-South region of Nigeria. The predominant people are the Ibibios but there are also the Annangs and the Oros as the other major ethnic groups in the State. Nigerians from other parts of the country form a sizable portion of the population. Civil servants form the bulk of the population but there are traders, artisans and subsistence farmers. There is an abattoir in this community which serves the Uyo Municipality. Farmers in this community use cow dung as fertilizers for their crops. The TBA was a 45yrs old woman called "Mma Prophet" who had been practicing traditional Obstetrics for the past 25 years but had no formal training on it. She doubled as a prophetess with a purported ability to foresee and ward off any spiritual harm which ordinarily will not be possible if her patients delivered at a health facility.

She conducted her deliveries in the parlour of a 4-bedroom apartment which was also used by the eleven-member family for other purposes when there were no deliveries. The parlour was the only cemented floor out of all the rooms. The records of deliveries were not kept but she claimed to have delivered between 10-12 deliveries per month. Mackintosh was spread on the floor for deliveries. She usually cut the cord with new blade and dressed the cord with dusting powder and would gently scrub the baby's skin with sand and warm water to remove the vernix caseosa. She used herbs to stop the bleeding in the mothers. Hand gloves were used repeatedly and recycled and were only discarded when they are torn. The babies were discharged within 24 h once they satisfactorily settled their bills. This was an observational intervention study that sought to highlight the importance of continuous educational actions for pregnant women, mothers and midwives with a view to preventing neonatal tetanus and promoting the quality of life and health of mother-child binomial, family members and other care givers.

## CASE 1: QEJ

Place of Delivery: TBA ("Mma Prophet's place")  
Ethnicity: Ibibio

Date of admission: 21/06/05  
 Weight: 3.6 kg  
 Age at presentation: 22 days  
 Gestation: Term  
 Place of Ante Natal Care (ANC): None No tetanus toxoid  
 Sex: M  
 Incubation Period: 20 days  
 Maternal Age: 25 Years  
 Period of onset: 3 days  
 Parity: 1  
 Mother's educational level: Primary  
 History: body rashes x 1/52  
 Inability to suck x 4/7  
 Stiffness of the body x 1/7  
 Cord care: Delivery – new blade for severance of cord, Ligated with black thread, dressed with herbs + breast milk  
 Examination: Ill-looking, febrile (37.8°C), not pale, pustular rashes on face / trunk Resp system, cardiovascular system - no abnormality detected (NAD) except for abdominal rigidity.  
 CNS –Conscious, trismus+, Spasms+, anterior fontanelle normotensive  
 Diagnosis: Neonatal tetanus and neonatal sepsis  
 Outcome: LAMA (Left Against Medical Advice) after 16 days of hospital stay

### CASE 2: RMN

Place of Delivery: TBA (“Mma Prophet’s place)  
 Ethnicity: Ibibio  
 Date of admission: 22/06/05  
 Weight: 2.8 kg  
 Age at presentation: 5 days  
 Gestation: Term  
 Place of Ante Natal Care (ANC): Nil No tetanus toxoid  
 Sex: Male  
 Incubation Period: 5days  
 Maternal Age: 23 Years  
 Period of onset: 24 hours  
 Parity: 2  
 Mother's educational level: Primary  
 Cord care: Cord severed with new blade, ligated with black old thread, dressed with saliva and salt.  
 Examination: Acutely ill-lookng, febrile (38°C), pink jaundiced, trismus<sup>+</sup>  
 Respiratory system, Cardio-vascular system, Abdomen- NAD except for abdominal rigidity.  
 CNS – Conscious, anterior fontanelle normotensive, spasms<sup>+</sup>  
 Diagnosis: Neonatal tetanus and sepsis  
 Outcome: Discharged home after 24 days of hospital stay.

### CASE 3: GEE

Place of Delivery: TBA (“Mma Prophet’s place)  
 Ethnicity: Ibibio  
 Date of admission: 27/07/05  
 Weight: 3.2 kg  
 Age at presentation: 7 days  
 Gestation: Term  
 Place of Ante Natal Care (ANC): Private Clinic Tetanus toxoid: Claims to have received 2 doses of tetanus toxoid  
 Sex: Female  
 Incubation Period: 7days  
 Maternal Age: 26 Years  
 Period of onset: 9 hours  
 Parity: 2  
 Mother's educational level: Secondary  
 Cord care: Severed cord with new blade, ligated cord with new thread, dressed cord with spirit and Macleans (toothpaste)  
 Examination: Pink, cyanosed, febrile (37.8°C)  
 Respiratory system – in respiratory distress but with clear lung field, cardiovascular system, abdomen - NAD except abdominal rigidity.  
 CNS – Conscious, having spasms, Anterior fontanelle – normotensive.  
 Diagnosis: Neonatal tetanus and sepsis  
 Outcome: Died after 3 days of hospital stay.

### CASE 4: NJA

Place of Delivery: TBA (“Mma Prophet’s place)  
 Ethnicity: Ibibio  
 Date of admission: 2/08/05  
 Weight: 2.7 kg  
 Age at presentation: 7 days  
 Gestation: Term  
 Place of Ante Natal Care (ANC): None  
 No tetanus toxoid  
 Sex: Male  
 Incubation Period: 5days  
 Maternal Age: 20 Years  
 Period of onset: 2 days  
 Parity: 1  
 Mother's educational level: Primary  
 History: Inability to suck - 2/7  
 Generalized body stiffness (spasms) – 1/7  
 Pre-admission treatment –rubbed herbal concoction on the body  
 Cord care: New blade for severance, ligation – thread, dressed with herbs and leaves  
 Examination: Ill-looking, vesicles on scalp, herbal

mixture rubbed on the body, not pale anicteric  
Respiratory system, Cardio Vascular system, Abdomen –  
NAD except for abdominal rigidity  
CNS – Conscious, anterior fontanelle normotensive

Diagnosis: Neonatal tetanus

\*Patient was transfused at PCV of 22% at 20days of age.

Outcome: Discharged home after 25 days of hospital day.

## DISCUSSION

Four cases of neonatal tetanus have been reported to have come to our facility within a very short time of each other from one traditional birth attendant's home. TBAs have remained an integral part of medical care of pregnant women in some societies. They fill the gap but very often are unskilled, illiterate and daring. In Northern Nigeria, up to 81% of deliveries are undertaken by people with no formal training of obstetric and neonatal care (Galadanci et al., 2007). This is corroborated by the NDHS in 2003, 2008 and 2013 (National Population Commission, Nigeria, 2014). The reasons why these groups still fill the obstetric gap include transportation difficulties to health facilities on account of distance, religion, culture, poor educational level of most women and cost. For instance, NDHS 2013 indicated high cost of services as one of the reasons why women opt to deliver at TBA's home. There will be need for the government's intervention in this regard. The fact that this TBA combined her delivery practice with prophecies endeared many women to her. Though we cannot assess the influence and workability of this practice, many women from personal communication adduce to their usefulness.

Neonatal tetanus still has a high case fatality rate as seen in this series. Studies in Nigeria have reported case fatalities ranging from 51-67% (Alhaji, 2013; Fetuga et al., 2010; Ladan et al., 2015). In this series, one baby died and another, though he had significantly improved left against medical advice after sixteen days of treatment and his fate is unknown. A mother of one of the patients claimed to have received two doses of tetanus toxoid. Though we lacked the facilities to assess the avidity of tetanus toxoid, it is not surprising that her baby still developed neonatal tetanus as some people may need more doses of Tetanus toxoid to develop sufficient antibodies to pass to the babies to ensure immunity. Additionally, the cold chain might have been broken on account of power outages if solar energy was not in use.

Apart from the neonates having neonatal tetanus, the practice of recycling and using the gloves until they are torn may give rise to a collateral problem of cross-infection and therefore promote the transmission of other infectious agents such as HIV/AIDS. The prevalence of HIV in Akwa Ibom State is 4.8% among adult (15 years and above) with overall prevalence of 2.8% (Adedokun,

2020). Some of the women in the TBA's place might have been HIV positive and this unknowingly might have been transmitted to other patients.

Positive pregnancy experience is desirable and recommended by the World Health Organization (WHO, 2017) and it is to be encouraged. Reparttening or restructuring as enunciated by Leninger (2001) necessitated that therapeutic actions by culturally competent medical personal enabled or assisted the TBA and the mothers to modify personal health behaviours towards beneficial outcomes while respecting the client's cultural values. The shortage of health workers in low-and-middle-income countries have impacted negatively on the achievement of the health-related Millennium Development Goals (MDG). There have been arguments for and against the use of TBA in health service delivery but the World Health Organization has recommended that lay health workers can deliver maternal and newborn health services within the context of promotive and preventive roles (WHO, 2012, 2013). In this way, traditional birth attendants can be used to improve access to care.

In appreciating the fact that deliveries outside the hospital setting might have attendant unhygienic practices as reported in this series, and that neonatal tetanus is a notifiable disease that had long been targeted for elimination, we decided to intervene. The intervention included regular visits to the place, encouragement of use of clean delivery kits, involvement of the TBA in counseling sessions laying emphasis on the immunization programme, including that of the mother and post - natal checks of the mothers and the babies. Other intervention included teaching the TBA to recognize danger signs in the baby and to refer when necessary, teaching preventive practices such as exclusive breastfeeding, good hygiene, ensuring warmth, thereby promoting effective postnatal care.

In conclusion, we have reported four cases of neonatal tetanus from one centre of home delivery and the measures undertaken to reduce the incidence of neonatal tetanus in this home. We recommend that these measures be used to reduce neonatal tetanus in our sub-region. There is need for government's intervention to ensure the workability of the measures espoused. This implies that deliveries in general, should be conducted at institutional level, by qualified target personnel. This will necessitate the availability and accessibility of the new established health service network for the biosafety environment institution. Immunization programme, in this case for neonatal tetanus, as is necessary; the two doses of tetanus toxoid in pregnant women, could be approached by vaccination brigades that will periodically apply the vaccines in the communities, together with health promotion teams. There is therefore need for health education actions on an ongoing basis.

In as much as we may not be able to totally do away

with TBA because of our developmental stage, the roles of TBA should be limited to strengthening health surveillance in the community, as community health agents, leading pregnant women who come to them, so that deliveries would be in a biosafety environment institution. This will ensure the safety of the mother-neonate binomial and of the TBA themselves.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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## Ethical considerations

Ethical approval was sought from the institutional Health Research Committee of the University of Uyo Teaching Hospital.

## ABBREVIATIONS

Antenatal care, **ANC**; Bachelors of Medicine and Bachelors of Surgery, **MBBS**; Central Nervous System, **CNS**; Fellow of the West African College of Physicians, **FWACP**; Left against Medical Advice, **LAMA**; No abnormality detected, **NAD**; Packed cell volume, **pcv**.

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