

# Acceptability of tetanus toxoid vaccine by pregnant women in two health centres in Abidjan (Ivory Coast)

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## Abstract

A study was conducted in two health centres in Abidjan, Ivory Coast (Abobo and Port Bouet) to compare the knowledge of pregnant women regarding tetanus and hepatitis B and to evaluate the acceptability of tetanus immunisation. A total of 124 women were interviewed. In spite of Information Education Communication (IEC) meetings held by midwives focusing on both diseases, knowledge about tetanus appeared to be substantially higher than that about hepatitis B. The acceptability of tetanus toxoid vaccine was good, the only barrier being the fear of useless injections. However, the risk of tetanus transmission during delivery should be better explained to women, who often give birth at home in the presence of traditional birth assistants. The awareness of men should also be raised by information campaigns, using different local networks.

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## 1. Introduction

Many articles have been written on the acceptability of vaccination by the general population [1–5] for diseases covered by the Expanding Program Immunisation (EPI). One study has also been carried out in the Northern part of the Ivory Coast [6]. However, few studies address the acceptability of vaccination by pregnant women.

In the Ivory Coast, as part of the EPI, vaccination against tetanus is proposed to pregnant women and newborn children. Vaccination against hepatitis B is also proposed to newborn children. If it is a woman's first child and she does not have a vaccination card, she receives two injections within 1 month after the fourth month of pregnancy and a booster 1 year after. In other circumstances, she receives only an injection of booster during pregnancy. Up until now, no study has been undertaken on the acceptability of this programme by the women concerned.

Our research is, in fact, part of a larger project that evaluates the reasons for refusal or acceptance to participate in a clinical trial sponsored by Aventis Pasteur, HEPACI. The objective of HEPACI is to compare the effectiveness of two

immunisation strategies against hepatitis B infection in children. The trial has been conducted in four districts of Abidjan: Abobo, Port Bouet, Marcory and Williamsville. Women were enrolled in the third quarter of their pregnancy to determine their hepatitis B serological status. Children received injections of hepatitis B vaccine at birth, and then at 6 and 14 weeks at the first two centres mentioned above, and at 6, 10 and 14 weeks at the last two centres.

In this article, knowledge of pregnant women at the Abobo and Port Bouet centres regarding tetanus and hepatitis B and vaccination to prevent against these diseases is compared, and the acceptability of tetanus immunisation is evaluated.

## 2. Methods

Interviews were carried out over 2 months by Ms. Imba Awa with 124 women receiving prenatal care at the Abobo and Port Bouet health centres. Ms. Awa is an Ivorian anthropological student who speaks and understands French and Dioula (the native and spoken language of many participants to the trial). She introduced herself as a person who studies the quality of information given to the participants in the vaccination trial, and she clarified that she was not part of the medical staff. Women were interviewed after they decided to participate in HEPACI, usually after the third quarterly

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visit of their pregnancy term or after the first or second vaccination session of their child. Anonymity of the interviews was guaranteed. The questionnaire (open and closed questions) included various sections: individual characteristics, knowledge about hepatitis B (symptoms, ways of transmission) and the vaccine, motivation for participation in the trial, persons involved in the decision to participate in the trial, and understanding of the informed consent procedure. Another section dealt with knowledge about tetanus and the acceptability of this vaccine. Ms. Awa also interviewed the medical staff involved in the trial, especially the midwives and social workers.

### 3. Study population

The mean age of the population was 26 years (range: from 15 to 41). Women interviewed were from the following countries: Ivory Coast 71.7%, Burkina Faso 17.7%, Mali 3%, Togo 2.4%, Niger 2%, Nigeria 1.6%, Senegal 0.8%, Guinea 0.8%. Among the women from the Ivory Coast, 30 different ethnic groups were represented. The groups with the highest level of representation were the Baoule (12.6%) and the Bete (7.9%). Major religions represented included: 32.1% Muslim, 62.9% Catholic, 5.0% animist. Professions of the women interviewed were: cleaning woman 37.0%, saleswoman 18.9%, shopkeeper 9.7%, unemployed 0.8%, other 33.6%. Matrimonial status of the women was: married 76.4%, living with a partner without marriage 11.8%, single 11.8%. Forty percent of the study women were illiterate, 37.0% had primary school education, 22.2% had secondary school education, and 0.8% had graduate education and above. Epiinfo was used to analyse the results.

## 4. Results

### 4.1. Knowledge of tetanus and hepatitis B

Women had received information on these diseases through collective sessions of IEC given by midwives and other medical workers in French and in Dioula. Tetanus seemed to be well known by the women: 87.4% declared to know about it, 8.2% declared to know a little about it, and 4.4% declared they did not know about it.

For hepatitis B (after the IEC sessions), results were quite different: 15.7% declared to know, 9.4% declared to know a little about it, and 74.9% declared they did not know about it.

We voluntarily kept the ambiguity of the verb “to know”, which gives an indication of the person’s self evaluation of the biomedical conception of those diseases. For people who speak Dioula and also for the others, the vernacular name of tetanus is the same as in French, i.e. “tetanos”. For hepatitis B, it was more difficult to communicate. The women did not know the word “hepatitis B”. In Dioula, the vernacular name

used by the midwives is “djakouadjokbé”, which actually means a group of symptoms like fever, tiredness, headache, lack of appetite, and it can also be used for malaria. It is almost impossible to translate this word literally.

### 4.2. Perceived route of transmission

We did not give any indication of the route of transmission of the disease to the women, in order to better assess their biomedical knowledge. For tetanus 19.7% responded that the route of transmission was unknown to them; 35.0% responded that it came from ‘untreated cuts or wounds’; 7.9% from ‘dirty objects or used needles’; 34.0% from ‘iron and rust’; 1.0% ‘germs’ and 2.4% ‘lack of vaccines’.

When asked about hepatitis B, 78.4% responded that the route of transmission was unknown to them; 8.7% responded that it came from ‘blood and sexual relationships’; 4.0% from ‘sexual relationships’; 3.9% responded that it was transmitted ‘like malaria’; 1.6% from ‘blood’ and 3.4% responded ‘other’.

### 4.3. Vaccination status

Of women interviewed, 77.1% declared that they were vaccinated against tetanus, 12.6% declared they were not vaccinated and 10.3% did not know whether they were vaccinated or not because they have received many injections and could not read their vaccination card. When asked about hepatitis B vaccination, 15.0% of the women declared that they were vaccinated, 79.5% declared that they were not vaccinated and 5.5% did not know or indicated that maybe they were vaccinated.

### 4.4. Why have women been vaccinated against tetanus?

When asked why they have been vaccinated against tetanus, 6.6% responded ‘due to an injury’; 34.8% ‘during pregnancy’ without further details; 7.0% ‘during pregnancy’ for protection of themselves, the baby, or both; 19.2% ‘to protect themselves or to stay healthy’ and 32.4% responded they did not know or do not know whether they have been vaccinated.

The danger associated with cutting the umbilical cord outside a health centre is not really perceived. This is important if we take into account that 20% of women who come to those two medical centres will give birth at home or in their family setting.

### 4.5. Attitude towards tetanus toxoid vaccination during pregnancy

When asked about their attitude towards tetanus toxoid vaccination during pregnancy, 73.8% of the women replied that they ‘agree or would agree to receive the vaccine’; 22.2% did not agree to receive the vaccine and 4.0% did not

know. The majority of women who disagreed to receive the vaccine already had been vaccinated against tetanus, however it is interesting to note that none mentioned cultural reasons (such as local representation of the body, health or the disease) or side effects.

Agreement to be vaccinated was sometimes given unconditionally (31%) but often depended on the price of the vaccine, the need for the vaccine (depending on the vaccines a woman has already received), the husband's agreement, or explanations given by the midwives.

#### 4.6. *Do women need the agreement of someone to get tetanus vaccination?*

When asked if they need the agreement of someone else in order to be vaccinated for tetanus, 73.2% of women responded 'no'. Women argued that vaccines are good for their health and for the health of their children. Sometimes they prefer not to ask their husband, who is likely to refuse if asked. Of women interviewed, 26.8% replied 'yes' that they did need to get the agreement of someone else. In this case, the person whose agreement is requested is the husband (87.5%). A majority of those women are Muslim from the Ivory Coast, Burkina Faso or Mali. The agreement of the husband is considered necessary because he is the head of the family, the decision maker and he controls the money. For the EPI strategy in Ivory Coast, it is therefore important to inform the men through village chiefs.

#### 4.7. *Is vaccination compatible with the pregnancy period?*

When questioned about whether they thought that vaccination was compatible with the pregnancy period, 84.3% answered 'yes', 1.6% 'no' and 14.1% 'maybe' or 'do not know'. For a large majority of women, the perception of their body during the pregnancy allows the injection of the vaccine.

#### 4.8. *Do women believe that an injection during pregnancy can protect a newborn against tetanus?*

When asked about their feelings regarding whether or not vaccination during pregnancy can protect a newborn against tetanus, 82.7% of women interviewed answered 'yes', 3.9% 'no' and 13.4% 'maybe' or 'do not know'. Without any knowledge of the mechanism of the protection, a majority of women believe that what is good for them is good for their children.

## 5. Discussion

The acceptability of tetanus toxoid vaccine can be considered to be good if we refer to the interviews of women, as well as the midwives and the nurses involved in the tetanus

immunisation programme. This acceptance is demonstrated by the following:

- (1) A certain familiarity with the name of the disease, which is the same in Dioula as in French. An appropriate translation of hepatitis B in Dioula is more difficult. The inappropriate juxtaposition of biomedical nosology and vernacular nosology is a frequent problem.
- (2) A good understanding of the etiology of the disease and the disease's symptoms, probably acquired through IEC sessions, and advice given in different health centres and discussions with other women. According to the midwives, IEC sessions would sometimes change an initially unfavourable opinion. Indeed, for many women, an injection of tetanus toxoid vaccine during pregnancy was perceived as delaying the moment of delivery.

The quality of information cannot explain all these results because IEC sessions were also given for hepatitis B and the results are not as good. We note that tetanus has been known to women longer than hepatitis B. Tetanus toxoid vaccine has also been included in the EPI for the past 30 years. Finally, women often know a person who contracted this disease. They also have many children who are often wounded and when they bring them to the health centre, the children receive an injection of the vaccine.

To the question "why have you been vaccinated against tetanus", many women responded by giving the date of the immunisation (during pregnancy) without further details. This result suggests that more information on the reasons for the tetanus immunisation during pregnancy needs to be given.

Otherwise, women—whatever their nationality, ethnic group, religion or social origin—did not really express objections about immunisation during pregnancy. The perceived danger comes from systematic vaccination or injections that do not take in account their vaccinal status (which is sometimes difficult to assess if the vaccination card is missing).

In this study, some declarative bias from the interviewed women or paramedical staff cannot fully be excluded. However, the origin, the scientific training of the investigator and the climate of confidence she built, reduced the risk of that happening.

Another study that was conducted in the north of the country (the sanitary district of Bouna) [6] gave convergent results. Consistent findings with respect to knowledge of the biomedical representation of tetanus were also reported. The most common word used by the Koulongo to refer to this disease is also "tetanos". The word "danguêgnangô" (danguê = iron, gnanô = disease) is also sometimes used. This word refers to the etiologic origin of the disease, which is also well known by the population. Among interviewees, 63.7% declared that this disease is caused by being wounded with dirty objects made of iron or wood. Symptoms were also well known and described as characterised by a high fever followed by a general contraction of the body. For

86% of the interviewed persons, the person becomes stiff and convulses. We note that the role of traditional healing in the origin of neonatal tetanus (a dirty knife or blade, or the application of leaves, cow dung, spider's webs, and wasps' nests) is not perceived or declared.

In this study, no questions about the role of traditional healing in the etiology or in the prevention of the disease were asked. It would have been interesting but it was not the main objective of the study. Therefore, no conclusions regarding the influence of traditional healing on vaccination can be made.

## 6. Conclusion

Tetanus vaccination can be considered to be well accepted in the case of Abobo and Port Bouet health centres. Knowledge of tetanus has been acquired through educational activities held by health professionals in those centres. The effect of this activity seems to have been reinforced by informal discussions between mothers about their children's health. In contrast, in spite of IEC sessions given by midwives, hepatitis B is far from being well known.

However, the risk of tetanus transmission during delivery should be better explained to women, who often give birth at home in the presence of traditional birth assistants. The awareness of men should also be raised by information campaigns, using different local networks.

By repeatedly providing comprehensible information, by using different media and by showing, where applicable, that there is no contradiction between the biomedical and the vernacular conception of disease, it will be possible to improve knowledge on immunisation of preventable diseases, while respecting cultural differences.

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