



## Reasons for non-adherence to vaccination at mother and child care clinics (MCCs) in Lambaréné, Gabon

Norbert G. Schwarz<sup>a,b</sup>, Marjolein Gysels<sup>c</sup>, Christopher Pell<sup>c</sup>, Julian Gabor<sup>a,d</sup>, Meike Schlie<sup>a,d</sup>, Saadou Issifou<sup>a,d</sup>, Bertrand Lell<sup>a,d</sup>, Peter G. Kremsner<sup>a,d</sup>, Martin P. Grobusch<sup>a,e,\*</sup>, Robert Pool<sup>c</sup>

<sup>a</sup> Medical Research Unit, Albert Schweitzer Hospital, Lambaréné, Gabon

<sup>b</sup> Bernhard-Nocht-Institute for Tropical Medicine, Hamburg, Germany

<sup>c</sup> Barcelona Centre for International Health Research (CRESIB), Hospital Clinic, University of Barcelona, Spain

<sup>d</sup> Institute of Tropical Medicine of the University of Tübingen, Germany

<sup>e</sup> Infectious Diseases Unit, Division of Clinical Microbiology and Infectious Diseases, NHLS and School of Pathology, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

### ARTICLE INFO

#### Article history:

Received 4 May 2009

Received in revised form 17 June 2009

Accepted 22 June 2009

Available online 17 July 2009

#### Keywords:

Vaccination

Adherence

Gabon

### ABSTRACT

The aim of this paper is to explore attitudes of mothers towards childhood vaccinations and reasons for non-attendance and non-adherence to mother–child clinics (MCCs). Forty in-depth interviews with mothers of children under 5 years of age revealed positive attitudes towards vaccination that seem at odds with the region's observed low vaccination coverage. Important reasons for MCC non-attendance included distance to the MCC, transport costs, negative experiences at MCCs (such as interactions with unfriendly staff) and mothers' feeling of shame provoked by different, often poverty-associated reasons such as attending the clinic with a dirty or poorly clothed child.

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### 1. Introduction

In 2006 the Acceptability Working Group (AWG) of the Intermittent Preventive Treatment of Malaria in Infants (IPTi) Consortium [1] started a programme of anthropological research to examine issues relating to the acceptability of IPTi. The AWG research in Tanzania, Kenya and Gabon was to be linked to clinical trials of IPTi [2,3], while in Malawi and Ghana it ran parallel to implementation studies. IPTi entails giving an anti-malarial drug to infants at predetermined intervals, regardless of parasitaemia or symptoms. Because routine childhood immunisation is the best functioning system of regular health system contact for infants, it is assumed that IPTi would be most feasible if integrated into the World Health Organisation (WHO)'s Expanded Programme of Immunization (EPI). For this to be possible it is necessary to understand the reasons for non-adherence to routine vaccination, as this will affect the coverage (and effectiveness) of IPTi.

In Gabon the efficacy trial had already been completed [4] when the acceptability study started, so the focus was more on the functioning of EPI than on IPTi per se. This paper reports on findings relating to non-adherence to EPI in the Gabon study site.

Immunisations form the basis of primary health care activities, and it is the most important and sometimes the only activity in primary health care that brings mothers and children into repeated contact with the health system [5]. In Gabon, although antenatal care and birth attendance is relatively high, vaccination coverage is very low: in 2000 only 17% of all children from 12 to 23 months of age had received all recommended vaccinations, and 4% had received no vaccinations at all. Furthermore, the percentage of vaccinated children seemed to decline with age: whereas 89% of children were vaccinated with BCG, which is usually given directly after birth while mother and child are still in the hospital, coverage of DTCP declined over the three doses, from 69% for the first dose to 52% for the second and 38% for the third dose [6]. Apparently the vaccination coverage was higher in the past and decreased from 88% in 1985 [7]. The need to raise vaccination coverage has been recognized and efforts to improve the supply of vaccines avoiding interruptions of vaccine delivery are under way [8].

EPI is one of the most cost-effective measures to prevent disease in infancy and childhood [9–12]. However, its success depends on good coverage with peripheral health centres and a reliable and uninterrupted delivery of vaccines. Furthermore, it depends criti-

\* Corresponding author at: Infectious Diseases Unit, Division of Clinical Microbiology and Infectious Diseases, National Health Laboratory Service and School of Pathology, Faculty of Health Sciences, University of the Witwatersrand, 7 York Road, Parktown, 2193 Johannesburg, South Africa. Tel.: +27 11 489 8537; fax: +27 11 489 8511.

E-mail address: [martin.grobusch@wits.ac.za](mailto:martin.grobusch@wits.ac.za) (M.P. Grobusch).

cally on the cooperation of child caretakers [13,14]. A lack of demand for and hence non-adherence to the programme may be due to the vaccination itself (side effects), attitudes towards vaccination (perceptions that it is a bad thing), limited access to providers (long distances, lack of public transport) or bad experiences when attending MCC.

The following aims were included in the IPTi-AWG study in Gabon:

- explore reasons for not receiving vaccinations after birth;
- investigate reasons for non-adherence to MCCs and vaccinations in infancy over time (waning adherence).

## 2. Methods and setting

### 2.1. Setting

Lambaréné is the main centre of the Moyen Ogouée region and has about 25,000 inhabitants. The town is divided into three parts by the Ogouée river. The main road that crosses Lambaréné connects it to the capital (Libreville, 4 h drive) and the next biggest town (Fougamou, 1 h drive). Most villages are strewn along this road. At the time the survey was carried out, there were two hospitals in town, a private non-profit hospital (Albert Schweitzer Hospital, HAS) and a governmental hospital (HG).

### 2.2. Data collection

Because of the difficulty in finding suitably trained local researchers, consultants were contracted to collect the data. Both quantitative and qualitative data were collected using survey questionnaires, open in-depth interviews, informal conversations and observations. Interviews were carried out in French. A 74-questions-questionnaire was administered to 262 mothers with children less than 5 years attending EPI clinics in Lambaréné. At the 6 secondary schools in Lambaréné the questionnaire was distributed to 599 female students of whom 241 were mothers. These were closed, pre-coded survey-style questionnaires. Results from these questionnaires were used to prepare the list of topics to be addressed in the in-depth interviews, but are not object of this paper. Based on these questionnaires and data (not shown) from informal interviews with community members, health care providers, staff of the research unit and mothers, a list of topics to be addressed in the in-depth interviews was generated. These topics were: vaccination adherence; knowledge, understanding of and attitude towards vaccination; vaccination experiences; clinic experience; traditional and informal immunisation practices; decision-making processes; and malaria and preventive measures. Forty open in-depth interviews with mothers of children under 5 years of age were undertaken, and the data from these interviews are the main focus of this paper. These mothers were recruited from two clinics in the area in which the IPTi trial was carried out. They were selected by convenience sampling, i.e. women attending the clinic who were willing to be interviewed. The interviews lasted between 35 and 45 min and were digitally recorded and transcribed into text files.

#### 2.2.1. Data analysis

Management and coding of the qualitative data was assisted through the use of NVivo 2.0®, QSR, Doral, FL, a qualitative analysis software package. Transcripts were read several times and the emergence of patterns and themes were noted. These were systematically analysed by following the coding procedures outlined by Strauss and Corbin [15], where segments of texts were organised into categories of like meaning and the contents of these categories were compared within and between interviews. The analysis was

carried out jointly with the members of the research team in the context of a workshop. Following a procedure where two people independently worked on the coding framework ensured trustworthiness. This was shared in steps between them and fed back to the other participants of the workshop, which led to further discussion resolving doubts.

#### 2.2.2. Ethics

Ethical clearance for this study was granted by the Comité d’Ethique Regional Independant de Lambaréné. Participants were assured that they would remain anonymous and that the information they gave would remain confidential. The study was undertaken on a voluntary basis and each interviewee gave informed consent for being interviewed.

## 3. Results

### 3.1. Side effects

When specifically asked for side effects, mothers commonly brought up fever and swellings around the injection site. However, in none of the in-depth interviews did the mother state that this was a reason for her not to vaccinate the child. However, when asked, some said they could imagine other women refusing vaccination for this reason, and they sometimes gave examples of women they knew who stopped vaccinations because of side effects. Fever was usually not perceived as a severe problem, but as a more or less normal occurrence, resolved by giving paracetamol to the child. Swollen injection sites were reported frequently but were not perceived as a serious problem. Two reasons for swollen injection sites were frequently mentioned: bad injection technique by the health worker, and/or the mother not holding the child properly. Side effects were sometimes perceived as affecting “weak” children, with the weakness being blamed on external factors like poor nutrition of the mother during pregnancy.

Mother: That depends on the organism of every individual, if the child is weak, then even if you vaccinate, it will still have a fever.

Interviewer: Why is it that this child can be strong and the other one weak?

Mother: I don’t know. It depends on the nutrition of the mother during pregnancy. [30-year-old mother of 5 children]

Sometimes side effects are perceived as a good sign, showing that a vaccination works.

Mother: People say this is good for the child, it causes a scar, so if you vaccinate a child and this does not cause a scar, then you will have to do it again. [32-year-old mother of 5 children]

#### 3.1.1. Attitude towards vaccination

Most of the interviewed mothers were positive about vaccination because it prevents diseases. Though there was some confusion about the distinction between prevention and cure, with some mothers stating that vaccinations can cure diseases. The interviewed mothers did not think that vaccination could cause or exacerbate diseases, though they said that they knew people who did.

Vaccination was perceived as a civil obligation and mothers who did not take their children for vaccination could be accused of neglecting their children.

Mother: ...in the vaccination booklet you will see a vaccination missing. The mother neglected to bring her child to the vaccination. [30-year-old mother of 5 children]

Interviewer: But what is vaccination good for?

Mother: You don't know, but we are obliged to do so, because at the hospital they demand it. [40-year-old mother of 8 children]

Other family members (father, grandparents) do not seem to have a disapproving attitude towards vaccination. Although the decision to attend MCC is usually made by the mother, she may rely on financial resources from the father and may not go if he does not provide the money.

One mother perceived early vaccinations as being more important than late vaccinations, and this may lead to a decline in adherence after initial attendance.

Mother: All vaccinations are important, but the vaccinations given after delivery are more important, because the child has a high risk to catch a disease at delivery. Afterwards the child becomes more and more strong. [19-year-old mother of 1 child]

Unfortunately the question if first vaccinations are more important was not routinely asked to all mothers.

### 3.2. Factors limiting access to health care

If the distance to the MCC facility is considerable, several factors come together that may prevent mothers and child caretakers from bringing their child for vaccination. For example, the further the clinic the more expensive it is to get there and the earlier a mother has to wake up. Greater distances increase the chances of mothers finding themselves at the back of a long queue, or arriving too late for vaccination, which discourages future attendance. Arriving late, mothers are often at the receiving end of negative comments from health care workers and other mothers.

Interviewer: If you miss the early boat and take the boat at 10, will you still arrive in time?

Mother: You arrive in time, but you will be the last in the line. Sometimes you arrive and they have already finished vaccinating. You will be obliged to come back. [23-year-old mother of 2 children living outside Lambaréné at the river]

Interviewer: If you arrive late and they have already finished vaccinating, what do you have to do?

Mother: If the vaccination is finished, you come back for the next appointment.

Interviewer: Did this already happen to you, arriving at the MCC to find out that there is no vaccination?

Mother: Yes, this already happened to me. [23-year-old mother of 2 children living outside Lambaréné at the river]

Going to the MCC may compete with other important tasks like working in the field or going to school. During the dry season, when the water level is low, a lot of families leave Lambaréné for several weeks to live in the lake region for fishing.

Mother: Sometimes she [health worker] grumbles, sometimes she does not vaccinate, she says no, because you were too late for your appointment she even chases us off. . . [20-year-old mother of 3 children]

Mother: You will have to wait until the water rises; now you come here to the hospital. As the women at the hospital do not understand. . . if you tell them that you are coming from the village they say we are liars. [20-year-old mother of 3 children]

Mother. . . if you maybe have your plantation in the forest, the day when they told you to go to the MCC, that is the day you have

time to go into the field, you can neglect to go to the hospital. [40-year-old mother of 7 children]

Interviewer: That also means, that there are women who work and who cannot go for vaccinations of their children?

Mother: Yes there are a lot of mothers, who work and who do not have enough time to bring their children to the hospital. [20-year-old mother of 3 children]

Unavailability of vaccines may not only prevent the currently scheduled vaccination, but lead to pessimism and non-adherence in the future, as women assume that there probably will not be any vaccines on subsequent occasions.

Vaccination and MCC service are free of charge up to 1 year of age. However, during the first year, lack of financial resources remains an important hindrance to access these services, not only because of transport costs. For example, mothers who left the hospital without having paid a hospital bill will not dare to return to the hospital of the MCC, and if they have not paid the fees for a delivery they would not have received a vaccination and MCC booklet. Moreover, when women have to start paying, they tend not to return to the clinic.

Mother: If you are already not able to pay the delivery, you cannot go back to the hospital; you are obliged to stay at home. [30-year-old mother of 5 children]

Somebody, who has an outstanding debt [hospital bill] for example, if he does not have the financial means to settle the debts, he cannot come back. Some people are actually afraid to come back. [Gabonese field worker of the Research Unit of the Albert Schweitzer Hospital]

In government hospitals the MCC is only free for those with Gabonese nationality:

Mother: In the 'General' [government] hospital it is more expensive for foreigners, but at 'Schweitzer' [private hospital] they do not care if you are foreigner or Gabonese. [26-year-old mother of 2 children]

#### 3.2.1. Bad experiences at MCCs

Bad experiences at MCCs may also be a reason for non-adherence after initial attendance. As mentioned above, coming late may provoke negative comments of other attendees or health care workers, and in the worst case a latecomer may not even be able to get the vaccinations on the same day if the MCC is already "booked out". When mothers miss an appointment this could lead to not returning to the MCC again out of fear to be labelled as a bad mother.

Next time they will insult you. They will ask you "Madame, where have you been?" They will insult you. And most of the times, it is the angst as well that influences, sometimes for a good reason if you did not have money. She will insult you. This makes that some mothers don't go there anymore. [30-year-old mother of 5 children]

Negative comments tend to arouse shame, which will discourage the person from coming back. During the in-depth interviews shame was often brought up as an important reason for non-adherence to MCCs. Reasons for mothers feeling ashamed were often related to the condition of the baby. For example, if the baby was malnourished, was wearing dirty clothes, or had scabies. Due to the setting of the MCCs (everything took place in one room) health care workers usually comment on the baby's condition in front of all other mothers. Having missed previous vaccinations may discourage women from going to the MCC as the health workers would find out and comment negatively when checking the vaccination booklet. Very young mothers may have more difficulty in following the

procedures at the MCC; for example, they may need more time to undress and dress their baby or change the nappy, or simply receive negative comments for having a child at such a young age. In addition the MCC may compete with school schedules. Interestingly, shameful situations were mainly reported as something mothers had observed to happen to others and not to themselves (maybe they were ashamed to report a shameful situation).

Mother: If your child is not normal, he has a big head, a meagre body, you will feel ashamed to bring him in front of people. [28-year-old mother of 5 children]

Mother: If the child is not in good health, I cannot leave [to the MCC] because the others will make fun of me, because I have a baby that is not complete. [28-year-old mother of 5 children]

Mother: There are women, who have babies, who suffer from malnutrition, who feel ashamed to bring theirs, because of this malnutrition, because if you arrive at the MCC and the baby is not in a good condition, they [MCC nurses] inevitably confront you because of the baby. That makes you feel ashamed. You cannot bring a baby like that. [30-year-old mother of 5 children]

Interviewer: They growl at people in front of everybody or in private?

Mother: In front of everybody, so that the women will not do it again, they do this in front of everybody. [30-year-old mother of 5 children]

Mother: If you come to the MCC, they will not talk to you in private, they will talk to you in front of everybody, to make sure that next time you will not bring it [the baby] like that, you will change. [20-year-old mother of 1 child]

Mother: If they [other mothers] see that the child does not thrive, they prefer to stay at home, instead of going to the vaccination. Others do that, they prefer to abandon, now if you see that the child has become severely sick, that is when one discovers in the vaccination booklet, that she has not well followed the vaccinations of the child and that is not good. [20-year-old mother of 1 child]

The appearance of the mother herself may also play a role and poor mothers who cannot afford fancy clothes, may feel uncomfortable if others can show-off with more and better clothes.

Mother: Sometimes you have a pair of shoes, that is not good. They already start to stare at you and immediately you feel embarrassed, ... you feel ashamed if you see the others well dressed and yourself badly dressed, you are frustrated. [36-year-old mother of 6 children]

#### 4. Discussion

The vaccination coverage in Gabon that was at a high level in the middle of the 1980s has dramatically decreased since then. There was a contraction of the primary health care sector during the early 1990s in many Sub-Saharan African countries and this was partly due to a waning interest in community health care, the introduction of fees for health care services, and a shift of focus to the district level. At the same time, decision-making was decentralised to the district level, which may have led to a loss of interest on behalf of higher level politicians and thus to a lack of money for the primary health care sector [16]. At the same time that government health care provision deteriorated, diseases like HIV, tuberculosis and malaria led to a sharp increase in demands on the curative services [17]. While vaccination coverage in other African countries like Cameroon, Ghana or Mali recovered [18], this has not happened in Gabon [6,7].

A survey on vaccination coverage in children from Lambaréné revealed that only 64% of children who were regularly followed up in an IPTi longitudinal study had received all scheduled vaccinations. In a control group of children who were not followed up in this longitudinal study only 40% had received all scheduled vaccinations (unpublished data). Lambaréné has two hospitals and children who were followed up in the IPTi trial were all living in Lambaréné or easily accessible villages close to Lambaréné. The low vaccination coverage cannot entirely be explained by problems to access health care.

There was no evidence in the in-depth interviews for outright rejection of vaccination by any of the interviewees; at most, mothers reported having heard of other people disapproving of vaccinations. Fever and local swelling were well known side effects, but were not perceived as reasons not to vaccinate.

The low vaccination coverage in Lambaréné seems to be mainly due to waning adherence after an initial high attendance for the first vaccination(s). Logistical problems play a role and shortages in routine immunisation supplies are common in Lambaréné, having peaked in 2006 with all vaccines being unavailable for 6 months. The discouraging effect of such vaccine shortages on parents and child caretakers who came to the MCC in vain has probably further enhanced the adverse effect of supply shortages on vaccine coverage.

Distance from MCC facilities appears to have been an important factor affecting adherence to EPI: transport costs, loss of time, clinic queues, social stigma and unfriendly, and even aggressive, responses by health staff towards latecomers, all interact to become a strong impediment to future adherence. Fear of rebuke by health staff has been reported in other studies as contributing to non-adherence relating to routine clinic attendance [19].

Insufficient communication, for example, health workers not explaining the purpose of vaccinations to mothers seems to be common in MCCs and may deter mothers from coming back in the future [20–22].

Some mothers do not return to clinic due to having bad experiences during a previous visit. Bad experiences were often related to mothers feeling ashamed about their own or their child's appearance. There is evidence that mothers who felt that they could not dress smartly enough for the approval of other women at the clinic were less likely to attend. This has also been reported in other published studies [3] and is in line with findings from other AWG sites. More worryingly, this shame also extended to the physical and health condition of the child. So, for example, if a mother thought that her child was malnourished, had skin rashes, or generally did not look healthy, she might not attend the clinic in order to avoid criticism from staff and being stigmatised as a bad mother by other women. As a result, mothers of children who most urgently need MCC clinics may be the ones least likely to attend. It is likely that these are the poorest women who have least resources to enable them to dress smartly and whose children have the poorest health status [23].

Poverty remains a main barrier to access to health care [24–27]. However impeding factors may affect anyone and are not restricted to vulnerable subgroups. When a mother, who misses an appointment, is reluctant to go back as fearing being insulted by health workers at the clinic, this may be detrimental for the reputation of MCCs if this mother is a well-respected and influential member of her community.

When interpreting the results one has to bear in mind that some interviewees may have tried to respond to a question in a way they thought desired by the interviewer. For example, mothers who talked about others disapproving vaccination may, to a certain extent, disapprove them themselves. Side effects of vaccination (fever, local swelling) were known to all mothers and most had even encountered them with their own baby. Nevertheless none of the

mothers claimed (admitted) that these side effects might keep them away from vaccinating their baby while at the same time “other mothers” refrained from vaccinations because of side effects. Furthermore people seem to be reluctant to admit having been in a shameful situation and may prefer to report shameful situations they had observed to happen to others.

## 5. Conclusions

In Gabon, primary health care urgently has to be strengthened, and more money from the health sector budget has to be allocated to primary health care to ensure better geographical coverage especially in rural regions. Although cost-effective primary health care structures, that are critical for an equal distribution of access to health care, are weak, a duplication of expensive secondary health care facilities can be observed in selected parts of the country. Improving primary health care will not only increase the vaccination coverage in Gabon, but will also have an impact on maternal and child morbidity and mortality [28–31] and improving adherence to vaccination is also critical for the success of IPTi as it shall be administered at the MCC clinics together with EPI vaccinations.

Vaccine shortages have to be avoided. Children brought in for vaccination should receive it. If a caretaker comes from far away and is sent home because of arriving a bit later than people living close; not only this opportunity to vaccinate the child is lost, but also subsequent opportunities may be missed due to waning motivation to come to the MCC. Vaccination should be provided in a more decentralised way, which requires technical facilities to store and maintain vaccines and trained staff to administer them and provide basic child care (weighing, nutritional counselling).

To avoid mothers feeling humiliated for example through negative comments of health workers in front of other mothers, MCC settings should allow for more privacy by, for example, having separate rooms where the health worker can talk to the mother and examine the baby without spectators. Where the premises do not allow separate rooms a movable screen could help. However, placing vaccination areas out of sight of patient waiting areas may lead to a loss of confidence as mothers then cannot observe anymore what is ‘going on’ [32]. Integrating communication skills into health worker training curricula could be an important tool to improve the mutual understanding between them and attendees of mother–child clinics and thus improve vaccination adherence. Mothers should look forward to the ‘social event’ of the outpatient clinic visit, and not fear shame brought over them through inconsiderate health worker comments.

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