BASICS II

Impact of Delivery Technologies on Increased Access. TT-Uniject Report Mali

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LYDIA A. D'ALOIS, OPERATIONS & RESEARCH TECHNICAL OFFICER;
BRÉHIMA SANOGO;
JULES MILLOGO, EPI TECHNICAL OFFICER;
SIDIBÉ DIARRA, MALI MOH ;
BA PLOWMAN, DEPUTY DIRECTOR FOR PRM/OER ; AND
ROBERT STEINGLASS, EPI TECHNICAL FOCUS AREA LEADER

1600 WILSON BLVD., SUITE 300
ROSSLYN, VIRGINIA 22209

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Acronyms

AHO	Area Health Officer, English title given to ICPM, *Infirmier Chef de Poste*
BASICS	Basic Support for Institutionalizing Child Survival
CNI	National Center for Immunization (*Centre National d'Immunisation)*
DHO	District Health Officer, English title given to *Chef-Médecin du District*
DOR	drop out rate
ICC	Inter-Agency Coordinating Committee
MNTE	Maternal and Neonatal Tetanus Elimination
MOH	Ministry of Health
TBA	Traditional Birth Attendant
TT	tetanus toxoid
UNICEF	United Nations International Children's Emergency Fund
USAID	U.S. Agency for International Development
VAT	vaccination against tetanus
VVM	vaccine vial monitor
WHO	World Health Organization

Executive Summary

Low maternal tetanus toxoid coverage stimulated the need to find new ways to vaccinate less accessible populations of women of child-bearing age in Mali. The limited number of health staff and the multiple advantages of the newly developed tetanus toxoid-filled Uniject™[1] (TT-Uniject) encouraged the notion of having lay persons vaccinate. Thus, a study was executed to determine whether community-based volunteers (CBVs) in Mali were capable of using TT-Uniject and whether this role for CBVs would be socially accepted.

The study was executed by BASICS II during the 2002 Maternal and Neonatal Tetanus Elimination (MNTE) Campaign with the Republic of Mali Ministry of Health (MOH) and partners Save the Children USA - Mali and UNICEF. Two of six districts participating in the 2002 campaign were selected to participate in the TT-Uniject study. Their selection was based on existing coverage and accessibility for supervision.

Three methods were used to collect data during two different time periods: informant interviews, focus groups, and a survey comprised of observations and interviews. Informant interviews were conducted in October, 2002, with key individuals who had participated in the first two rounds of the campaign held in June and July of 2002. During the final round in February, 2003, a sample of CBVs was selected to: 1) observe administration of TT-Uniject, 2) interview the CBV, and 3) interview one of the CBV's clients. In addition, focus groups were held with CBVs and with health staff.

Results showed that TT-Uniject was correctly administered by CBVs, most of whom had no formal schooling and among whom only half had taken literacy courses. Not only was the injection correctly administered, but CBVs also applied safe injection practices, and they were well accepted socially. CBVs and health staff both felt that CBVs could administer TT-Uniject in routine vaccination programs, and that they would do so without being recompensed. Health staff suggested that CBVs be incorporated into routine vaccination by designating the area health officer, who is in charge of the primary health care facility, as the CBV's supervisor and by using existing community health workers (*relais*)as the intermediary between the primary care center and the CBV. This structure would facilitate restocking CBVs with TT-Uniject and providing the MOH with vaccination data, giving the MOH a direct and credible link into the social fabric of the community's women of child-bearing age.

[1] Trademark of Becton, Dickinson, & Company. The device was developed by the Program for Appropriate Technology in Health (PATH) with support from the United States Agency for International Development HealthTech project.

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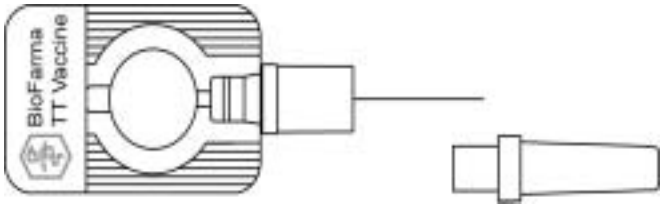
Introduction

Since 1986, Mali has had a program to vaccinate children and women of reproductive age against tetanus. Despite this effort, routine data showed coverage for calendar year 2001 around 61% for children and 38% for women[2]. The 2001 Demographic and Health Survey (DHS) showed similar coverage for women (32% had two or more doses of tetanus vaccine), but coverage for children was considerably lower: 34% were vaccinated by 12 months of age[3]. Data also showed substantial differences in coverage based on locality of residence: women in the capital, for example, had 55% coverage versus 25% for women residing in rural areas (DHS, Table 8.4, 2002). Risks presented by low coverage are amplified by the fact that 61% of births are at home. While such low coverage can be partially explained by "inadequate personnel who are obliged to work with dilapidated equipment in a poorly organized system," it is also due to problems of geographic access, cultural characteristics, and lack of financing (*Direction Nationale de la Santé, 2002)*. Given these circumstances, Mali was one of three countries in West Africa selected by UNICEF and WHO to participate in a maternal and neonatal tetanus elimination campaign (*Direction Nationale de la Santé, 2002*).

New technologies have resulted in the development of injection devices that can be used by non-health workers. Notable is the pre-filled, auto-disable injection device called Uniject™[4]. Since tetanus vaccine is relatively heat stable, tetanus filled Uniject devices could be used outside of the cold chain. It has been expected that tetanus toxoid filled Unijects, TT-Uniject, would enable innovative approaches to expand TT coverage by administration by lay providers with a more flexible cold chain storage and transport in areas of limited health facility infrastructure and/or staff shortages with a capacity to overcome acceptability concerns.[5] The goal is to use it in areas and with populations less accessible, and in parallel with usual methods of vaccination against tetanus (VAT), such as auto-disable syringes and multi-use vaccine vials.

Figure 1

TT-Uniject Pre-filled Syringe



[2] "*Activités du PEV: Doses Administrés et Taux par Antigène et par Cercle*", Health Information System (*Système d'Informatique de Santé*), MOH, Bamako (Fadalie), Republic of Mali.
[3] Ballo, et al., 2002, Table 8.4, p. 112, and Table 8.10, p. 122.
[4] Trademark of Becton, Dickinson, & Company. The device was developed by the Program for Appropriate Technology in Health with support from the United States Agency for International Development HealthTech project.
[5] Anonymous, introductory page (no number), 2002.

The multiple advantages of the TT-Uniject, described by Quiroga, *et al*. (1998), and the context of tetanus vaccination in Mali encouraged the notion of having lay persons use the Uniject to improve tetanus vaccination coverage. Given the high percentage of home deliveries in Mali, the most appropriate lay person was the traditional birth attendant (TBA). An additional advantage to involving TBAs was that their social status and communication with women and community leaders might reduce social resistance to vaccinating women, a recurring problem in specific areas of Mali.

The use of TBAs employing Uniject in Mali was anticipated to differ from previous TBA-Uniject experiences. This was, however, somewhat difficult to assess due to the fact that TBA characteristics were not fully described in previous reports.[6] Table 1 below compares the Mali context with that of two other published experiences.

Table 1

Comparison of Characteristics of TBAs Administering Uniject in Reported Studies

Characteristic	Experience		
	Mali	*Bolivia - Tetanus*[7]	*Indonesia - Hepatitis B*[8]
Type of birth attendant (BA)	Community-based traditional BA, self-employed	Not specified, but apparently community-based traditional BA	Trained village midwives participating in Indonesian MOH Healthy Start for Child Survival program
Method of selection for participation	Selected by village	Unknown	Midwives participating in program
Gender	Only women	2/3 women 1/3 men	Not specified – presumed only women
Age	Vast majority expected to be over 40 years	Unknown	Unknown
Number of years of formal education	Expected to be zero or near zero	Not specified, but at least some education[9]	Not specified, but at least some education[7]
Literacy	Expected to be nonliterate	Not specified, but literate[10]	Not specified, but literate[8]
Prior injection experience	Presumed none	About half had experience	Since 1989 these midwives have been routinely vaccinating newborns and women
Other conditions			Uniject replaced standard disposable syringes or reusable syringes with multidose vials

Initially, the idea was to have the TBAs provide tetanus vaccination during community-based prenatal care visits, much as it was done in Bolivia (Quiroga, *et al*., 1998). Members of the Inter-agency Coordinating

[6] Lack of description of TBA characteristics in reported studies is a problem noted in the TBA meta-analysis conducted by Sibley and Sipe (Academy for Educational Development SARA Project with the American College of Nurse Midwives and USAID, March 2002).
[7] Quiroga, *et al*., 1998.
[8] Sutanto, et al., 1999.
[9] Per phone conversation with Carib Nelson, October 2002.
[10] Per phone conversation with Carib Nelson, October 2002.

Committee (ICC), however, expressed concern that TBAs could not correctly employ TT-Uniject. As a result, it was decided that TBAs would administer TT-Uniject during a campaign – under strict and continuous supervision of health personnel – before considering TBA participation in routine administration of tetanus vaccine, which, due to its nature, would not allow such strict supervision.

Incorporation of Community-Based Volunteers into the Campaign

The 2002 MNTE campaign targeted six of the 55 districts[11] in Mali, all selected because of increased risk for tetanus based on the number of declared tetanus cases in mothers and newborns. The campaign was planned and executed as a partnership with the MOH involving a number of agencies, including BASICS II, UNICEF, WHO, and Save the Children USA. The population targeted was women of reproductive age, that is, from 15 years through 44 years of age. Based on tetanus toxoid coverage and ease of access for supervision, two of these six districts, Bougouni in Sikasso Region and Bla in Ségou Region, were selected to use TT-Uniject administered by volunteers.[12]

Operationalization of the campaign was the same in all districts. The only differences between the two study districts and the four other districts were the material used for vaccination and the personnel administering the vaccine: Whereas the four districts used the standard approach of health personnel administering vaccine with syringes and multiple-dose vials of tetanus toxoid, the two Uniject districts had lay persons, namely, TBAs, vaccinating with the TT-Uniject device. Since this latter approach employed lay people, it required that they be trained in the use of the device.

Selection and Training of CBVs

With support from local MOH staff, volunteer vaccinators were to be selected based on two factors, namely, that they were women who were practicing traditional midwifery in the community, and that they were selected by the community to participate as a volunteer in the MNTE campaign. This approach was to be implemented by first discussing with the district health officer (DHO) the idea of using TBAs to administer TT-Uniject, and then discussing the criteria for selecting the TBA. Three selection criteria were stipulated: 1) acceptability by the majority of townspeople, 2) physical capacity to use the Uniject (namely, read the vaccine vial monitor (VVM) and activate the device), and 3) interest in participating in the activity. Subsequent to these discussions, the DHO met with his area health officers (AHOs) and requested that they have each town select a volunteer to immunize women during this campaign. AHOs were to carry out this request by meeting with town chiefs and discussing the TBA selection criteria. Town chiefs later notified the AHO of the selected person.

Training of volunteers was carried out in a pyramidal fashion using three positions:

- Trainer of Trainers (TOT), two in number, one each from BASICS II/Mali and UNICEF/Mali;
- Trainers, who were MOH district staff, namely, DHO and AHOs; and
- Volunteer vaccinators, who were Community-Based Volunteers (CBVs).

Each TOT provided one-day of instruction (about six hours) to the DHO and the AHOs in the assigned district. In turn, each AHO trained the CBVs in his/her area in a two-day session immediately prior to the first round of the MNTE campaign in June, 2002. Volunteers were deselected at the end of training in the event of physical incapacity (associated with advanced age: trembling hands, visual impairment, etc.) or other reasons that rendered the person inappropriate. A refresher course after the first round had been considered, but it had been unclear whether or not it would be necessary, and the additional cost[13] made it unattractive. When the third round of the campaign was delayed several months, however, it was

[11] Actually, there were 49 districts plus the six communes of Bamako.
[12] The other four districts were Kadiolo and Sikasso in Sikasso Region, Kolokani in Koulikoro Region, and Djénné in Mopti Region.
[13] TBAs were given per diem for participating in the training. This was 2000 CFA for transport plus 1000 CFA for food; however, instead of giving the 1000 CFA directly to the TBA, it was used to pay a local person to prepare and serve the food at the training site.

decided that a four-hour session to verify skills with reinforcement training, if necessary, was advisable. This was provided in the same pyramidal fashion seven months after the first training, just before the third round in February, 2003.

The campaign within each district was implemented with the usual four campaign staff roles, namely:

- District Coordinator, who was the DHO;
- Supervisor of Vaccination Teams, who was a doctor or AHO;
- Supervisor of Vaccinators, who was the AHO for each primary health care center; and
- Vaccinator.

There were two differences between non-study and study districts, one related to who played the role of the last position and the other to the materials used: 1) the vaccinator was a health personnel in non-study districts, e.g., health agent, while it was a CBV in study districts; and 2) non-study areas used the usual materials, namely, auto-disable (AD) syringes and multi-use vials of vaccine, whereas study districts used TT-Uniject.

Purpose of Study

The purpose of this study was to determine whether TBAs as community-based volunteers (CBVs) were capable of using TT-Uniject, and whether clients would be satisfied with having CBVs, who are non-health persons, administer vaccine. Three indicators were employed:

1. percentage of CBVs who correctly used Uniject device;

2. percentage of CBVs' clients who were satisfied with having a non-health volunteer administer the TT-Uniject; and

3. as additional evidence of community acceptance, no difference in either T1 coverage or in drop out rate (DOR) between the two study districts and the four non-study districts, everything being equal.

Methodology

While T1 coverage and DOR were assessed as a routine activity of the campaign, additional data were collected for the first two indicators, namely, CBV performance and acceptance of them by the community. These data were collected by a combination of observations and of interviews, both individual and group. Observations were conducted during the campaign and focused on CBV performance and the environment of the vaccination site. Interviews were with key informants, CBVs and their clients, and with health staff. A summary of data collection is given in Table 2.

Table 2

Summary of Data Collection

Data Collection Method		Data Collected on or	
Category	***Sub-Category***	**From**	**Date**
Interviews	Individual	Key informants: DHO and other persons involved with MNTE	October, 2002
	Individual	CBVs	February, 2003
	Individual	Clients of CBVs	February, 2003
	Group	CBVs	February, 2003
	Group	Health staff	February, 2003
Observations	Individual	CBVs	February, 2003
Coverage and drop-out	Campaign monitoring tools	Data reported by district to MOH immunization office	June, 2002; July 2002; February, 2003

Additional presentation of details on methodology will be limited to those relating to CBV performance and acceptance.

Observations

Observation data were comprised of two components, CBVs vaccinating clients and the environment in which the vaccination was conducted. See Appendix 2 for the instruments.

CBV observation was the source of data for the TT-Uniject Performance Indicator (PI). This measured the correct usage of the device, as well as the vaccinator's performance of other tasks to yield a composite score based on eight tasks (see results section). To reduce the likelihood of observation effect, the interviewer observed and recorded multiple injections, but, unknown to both the interviewer and interviewee, only one injection – the last one observed – would be used for analysis.

The vaccination environment was observed at the end of the day after completing all vaccinations in a community. This was primarily to check disposal aspects and allowed for a comparison with data collected by direct observation of CBVs and interviews with CBVs during the vaccination activity.

Interviews

Interviews were with both individuals and groups (Table 2). Results, with instruments, are in Appendix 2.

CBVs were interviewed to obtain social and demographic information, and background on TBA experience.

Client interviews were to determine client satisfaction. These were conducted as an exit interview immediately after vaccination, thus permitting performance measurement data and satisfaction data on the same client. This facilitated analyses to determine if there were any associations between CBV performance and client satisfaction. One client per CBV interviewed, selected as the sixth and last vaccinated person.

Group interviews employed the focus method and were conducted separately with AHOs and CBVs. One focus group was conducted with each group and in each study district.

Sampling

Sampling method varied, depending upon the data collection method.

Survey of CBVs and Their Clients

The target population for study was CBVs using TT-Uniject. While initially we thought we could conduct the study with all of the CBVs, the logistics of coordinating the vaccination campaign schedule with that of the interviewer schedule precluded this idea.

Sample size was calculated based on the proportion of CBVs who correctly used the Uniject device employing the PI (see above). The standard formula for determining the sample size for knowing a proportion was applied, that is,

$n = ((z^2)(P)(Q))/d^2$
where n is the sample size,
Z is the value for confidence interval, also known as alpha;
P is the proportion expected;
Q is equal to 1 – P;
d is the margin of error, also known as beta.

Applying a CI of 95% and a margin of error of 0.05, the sample size that was necessary was 388.

A composite census was created using the list of names and towns of CBVs for the training before round 1 (conducted in June, 2002) plus the lists of persons who received per diem in rounds one and two, eliminating those who were health staff. The comprehensive list included the name of the town[14] and yielded 656 names, 210 in Bla and 446 in Bougouni, and all believed to be women. These numbers differed from those anticipated based on logistics plans: in Bla, for example, there were 24 health areas comprised of 228 villages, yet, there were only 210 volunteers' names[15] and they were associated with 18 areas. The differences, in part, were because some health areas did not have an AHO, thus, vaccination was going to be done with support from other AHOs. A similar situation existed for Bougouni. In the end, a total of 404 names were systematically selected from this list, 114 from Bla and 290 from Bougouni (see Table 3).

The CBV was selected in association with a town. Interviewers were instructed to go to the town (following the vaccination schedule) and interview the CBV. In the event that the identified CBV was not vaccinating in the town but some other CBV was, the interviewer was to conduct the interview with whoever was vaccinating.

Site Observation

This was a sample of convenience: Upon finishing the vaccinations in a town, or at the end of each day of data collection, the interviewer was to observe the site and record the observations. This would provide a minimum of 120 sites if each of 24 interviewers collected data on five (5) days.

[14] It is not uncommon to have more than one person with the same name, thus, the name of the town helps to identify the particular individual.
[15] Generally there was one CBV per village, although a few towns has more than one and some small villages had none.

Table 3

TBA Study Population, by District

Districts (*Cercles*)	Estimated Population of Women Aged 15 – 49 yrs	Number of TBAs			
		Identified for Training	Trained for 1st Round	In List for Sampling	Selected for Study[16]
Bla	53,500	250	188	210	114
Bougouni	88,548	450	417	446	290
Total	**142,048**	**700**	**605**	**656**	**404**

Group Interviews

Focus group interviews were held with all health staff and a sample of CBVs. To facilitate ease of transport, both interviews were held were held on the same day at the respective district health office, which is located in a town roughly in the center of the health service area and that serves as a local transportation hub.

Health staff included all Area Health Officers (AHOs) in each study district, namely, 22 persons in one district (Bla) and 23 in the other (Bougouni). The interview was conducted as part of normal activity debriefing.

To ensure attendance of *CBVs* in their focus group discussion and because of transport challenges, each AHO was to bring a CBV of his or her choice to participate in the CBV group discussion. Thus, while the AHO group was a census, the CBV group was a sample of convenience.

Data Collection

Interviewers/observers were selected from among residents of the respective district and who had experience in conducting interviews. Following the advice of the Bla DHO, Dr. Alassane Dicko, interviewers were especially sought among the agents from the program *Action de Développement Sociale,* because of their ability to communicate with local residents and because they are trained for all types and aspects of data collection.

Survey interviewers were trained for data collection in one day by the two lead study personnel. The questionnaire was comprised of the four parts previously mentioned and were organized in the following order: observation of the CBV administering TT-Uniject injection, interview with the client, interview with the CBV, and, when the interviewer was present in a town that just completed vaccination, an observation of the site was conducted. A total of 22 interviewers – 6 in Bla and 13 plus 3 in Bougouni – were trained. Although the questionnaire was available in both French and Bambara, interviews were conducted in Bambara, although most were recorded in French language due to literacy skills.

Interviewers for focus groups interview was to be carried out by two local interviewers experienced in conducting focus groups and group interviews. One person acted as facilitator and the other as note taker. Both interviews were to be conducted in Bambara, rather than French. The group summarized their own main points, which were documented in front of the group on a presentation tablet.

We anticipated having 24 interviewers, 6 in the district of Bla and 18 in the district of Bougouni. Six interviewers from Bla traveled to Bougouni to participate in a single training with a total of 19 interviewers to standardize the method of data collection. Training was executed in one day and was comprised of use of and practice with the TT-Uniject device, the questionnaire, and role playing both as interviewer and as observer.

[16] Systematic sample with all injection volunteers from the two districts pooled as a single population.

Each district had one supervisor whose role was to facilitate coordination of vaccination schedule between the district office and health area offices and support the interviewer in accomplishing the data collection. Interview forms were collected and reviewed by the supervisor on a continuous basis as interviews were completed, with any remaining forms collected at the end of the last day of interviewing. The periods of data collection were: for Bougouni: Monday, February 17th through Monday, February 24th; and for Bla, Wednesday, February 19th through Monday, February 24th (2003).

Data Handling

For group interviews, the notes recorded on paper in front of the group were entered into a digital document and statistics were calculated.

Survey data (observation of TBA, interview with TBA, interview with client, and observation of the site) were entered into the software Integrated Statistical Survey Analysis. Analysis was performed with Epi Info, version 6.04b (Dean, *et. al.*, 1994).

Results

The study was conducted on CBVs who participated in round three of the MNTE campaign. This group was not exactly the same group that participated in rounds one and two, and not every community had a CBV nor did every health area have CBVs. Yet we estimated that some 75% of health areas and 90% of communities participated, and CBVs surveyed were selected in an unbiased fashion. Nonetheless, it is unknown what the implications are of not having CBVs from every health area or for every community identified in the districts' logistics plans.

Some diversion from plans while implementing data collection may have impacted results as well. Data quality, for example, was assured through selection of qualified and experienced interviewers and through training. Five survey interviewers were added in Bougouni, and these interviewers did not go through training with the other 13 interviewers of that district. In addition, also in Bougouni, no data were collected from one health area due to oversight of a misplaced list.

While these limitations should be kept in mind when reviewing the data and conclusions, we think that the results give a reasonably accurate portrayal of the realities of using CBVs' use of TT-Uniject in Mali.

Presented below are major findings, intermingling results for focus group discussions and for the survey. A total of 42 Area Health Officers and 35 CBVs participated in group discussions (Table 4). As noted in Table 5, observations on or interviews with CBVs and her client resulted in 343 respondents for analysis. The number of site observations was 181. Results were considered significant when the probability value was less than 0.05. Significant probability values in tables are identified by an asterisk. For further details, the reader may want to refer to the questionnaires (survey and focus groups) in Appendix 2, which give the frequencies and numbers for each response, question by question.

Table 4

Number of Focus Group Participants, by District

District	Number of AHOs	Number of CBVs
Bla	22 of 22	17 of 114
Bougouni	20 of 23	18 of 290
Column Total	42 of 45	35 of 404

With respect to the survey, since there had been difficulty in creating a complete list of CBVs and this was the basis for sampling, we first needed to assure that our sampling method was reasonable. To do this we compared, by district, the numbers on the sampling list with the numbers on the third round refresher training lists. While the numbers trained for the third round were greater than those for the first round, they were similar to those of the sampling list (Table 5). This at least assured that the trained CBV census was probably complete, even though it did not allow us to know about replacements.

Of the 404 CBVs sampled, 343 were included for data analysis. Reasons for loss (15%) were clustered into eleven categories. The two most frequently cited reasons were that the CBV was not present at the vaccination site[17] (one out of five missing records) and unaccounted missing (one our of six). Other reasons included lack of coordination with vaccination team, health staff doing vaccination, and CBV not allowed to vaccinate due to unacceptable performance.

Table 5

Numbers of CBVs Participating in Study, by District

Districts	Number of CBVs		
	Selected for Study[18]	Trained for 3rd Round	Number for Analyses
Bla	114	205	94
Bougouni	290	445	249
Total	**404**	**650**	**343**

Among the 343 analyzed, 83% were the individual identified on the sampling list and she was vaccinating in the town identified on the list. The other 17% had been replaced (in the same town).

Characteristics of the CBVs

General

All 343 respondents were women. Most, 57%, were over 45 years of age while only 4% were under 30 years of age, the remainder being between 30 and 45 years, inclusive. Seven out of 10 had been residing in the town of interview (and of vaccination) since marriage. An additional two out of ten had lived in the town since birth or since young.

While only two out of 10 had attended school (22%), half (49%), had taken literacy courses[19]. The characteristic of having taken literacy courses interacted with age, with younger CBVs (equal to or less than 45 years of age) more than twice as likely to have taken literacy courses compared to older CBVs (over 45 years of age).

[17] Diverse excuses were cited for the CBVs absence, including, for example, that she was attending a funeral or sick .
[18] Systematic sample with all CBVs from the two districts pooled as a single population.
[19] There was no attempt to determine if the respondent could read.

Recruitment of CBVs

Focus groups showed that recruitment was carried out as planned, that is, the AHO contacted the town chief and the town chief subsequently presented the candidate to the AHO. Nine out of 10 AHOs recruited a CBV from each town in his/her area, and most recruited one per town, a perspective confirmed by data from the CBVs. While intending to have one CBV per town, some AHOs recruited more than one because of interest in replacing the CBV for a variety of reasons, including dissatisfaction with the CBV's performance and disagreements with neighbors. Seven out of 10 towns selected the CBV by general assembly (73%). The village health committee was involved in the selection in an additional two out of 10 towns. AHOs were satisfied with the communities' selections of CBV. They felt that the community consensual process was an important method used in the selection process and would like to see the selection criteria continue to be applied, perhaps with even more rigor.

Experience and Practice as a TBA

While one in five stated she had been a TBA for at least ten years and another one out of five had been practicing for 5-9 years, 5% had zero years practicing as a TBA.

During the 10-11 weeks prior to interview[20], almost half (47%) of the CBVs had not provided prenatal counseling while two of the 343 CBVs had counseled more than 100 pregnant women. Among the rest of the CBVs, the average number counseled was fewer than nine, or about one woman every week.

Delivery data paralleled counseling data. One out of three had not assisted at any births (30%) and one CBV had assisted at more than one-hundred deliveries. The rest of the CBVs assisted at one or two births per week for a total of 18 births over 10-11 weeks (average of 18.0). Since birth rate is seasonal, an attempt was made to determine the number of births at which the volunteer assisted over the past year[21]. Many found it difficult to answer this question, thus the data were not reliable. More than one out of five, however, stated that she had not assisted at any births (23%). Since it would have been expected that someone who is supposed to be a TBA would have assisted with at least one delivery in a 12 month period, some interviewers recognized the conundrum and asked for additional information or the respondent volunteered an unsolicited comment. As such, 56 questionnaires had comments written on them, but since these comments were not routinely collected and are from only a small percentage of questionnaires, the data can not be interpreted as representative of the group. Nonetheless, they give us some insight into the context of a large percentage of CBVs not having any deliveries. Among these 56 CBVs, 19 (34%), the largest single group, said they were apprentices and that deliveries were done by the "real" TBA. Three said that now all deliveries must be done in the MOH maternity center, and, in another case, that she assists at deliveries only when the MOH midwife is absent. Four more respondents stated that they were recruited just for the vaccination campaign, with two of them specifying that they were not TBAs. Focus group data confirmed that there were respondents who were not TBAs, 17% of the total.

Training

While CBVs in the focus group said they were able to use the TT-Uniject after the first training and most AHOs agreed to have the CBV participate in the campaign after completion of the first training, one out of six AHOs did not agree; all of these AHOs were from the district of Bla. These data may show a divergence between CBVs and AHOS of perspective on CBVs' performance using TT-Uniject. It was noted, however, that although overall most AHOs trained more CBVs after the first training, there was a

[20] The actual question was, "Since El Eid (December 6, 2002), to how many women did you provide prenatal counseling?" Since interviews were conducted between February 17th and 24th, 2003, this makes the time period about 2.5 months.

[21] Like the prenatal counseling question, this was worded using an event, the most important holiday in Mali, which had occurred the week before data collection on February 12th, 2003. This provided a clear event marker to estimate one year from the Tebaski held on February 23, 2002.

significant difference between districts with significantly fewer Bla AHOs having done so compared to Bougouni AHOs, one out of four versus three out four, respectively.

Interview (survey) data with CBVs showed that most participating in the third round (63%) had the originally planned training (before the first round plus refresher before third round). An additional 7% had two trainings (but not the two planned trainings) while 10% had a third training. Thirty-one of the 36 who had extra (a third) training were from Bla District. Seventeen percent had only one training (whether the first or third planned training or some other training), while 3% stated that they had not had any training.

Thus, both focus group and survey data showed that the number of trainings and satisfaction with TBA performance after the first training differed significantly by district.

Use of TT-Uniject

Seven out 10 CBVs had participated in all three rounds of the 2002 MNTE campaign. Three out of 20 had participated only in one round and the same number had participated in two rounds. Twelve percent said they had given injections prior to using Uniject.

Supervision during Campaign

Supervision of the CBVs during vaccination was very close, reflecting the restriction made by the ICC: Virtually all CBVs (97%) had at least one health personnel in her immediate vicinity, and more than half (58%) had someone so close to her that they could touch her. Three-fourths of them were constantly watched or checked by the health personnel while only 6% were not watched at all.

Performance Indicator (PI)

One out of two CBVs (46%) completed all tasks correctly. Performance in one district (Bla) was significantly better than in the other (Bougouni), as reflected by the fact that virtually all CBVs in Bla correctly executed 7 of the 8 tasks, versus only 5 of tasks in Bougouni, and the mean PI (MPI) was significantly greater – 7.4 ± 0.7 versus 7.0 ± 1.2, respectively[22] (Table 6). These differences were due to poorer performance in Bougouni for two tasks and similar performance for the six other tasks. Among these six tasks, five were correctly executed by at least nine out of ten CBVs, namely: correct decision with VVM, used sterile technique, injected at the correct site on the arm, didn't recap the needle, and correct disposal of the device. The sixth task, emptying the vaccine reservoir of the device, was one which CBVs in both districts had more difficulty – 25% did not fully empty it. For this observation, interviewers were instructed to record "No" for the statement "CBV completely emptied the Uniject" (question 24) if s/he was able to squeeze the reservoir of the used device to produce *any* vaccine that issued from the needle; we did not attempt to have the interviewer quantify the amount. The fact that less than 3 out of 10 CBVs did not completely empty the device should not present a problem, however, since the manufacturer overfills the drug reservoir "so that the desired delivery dose is ensured despite some residual liquid seen in the product"[23].

MPI was significantly greater for women less than 45 years compared to those greater than 45 years, 7.4 ± 0.8 versus 6.9 ± 1.2[24], respectively. These overall differences between districts and between age groups were due to the significantly lower value for the older group in Bougouni district (Table 7).[25]

[22] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data, P = 0.025.
[23] Girindre Beeharry, Bekton-Dickinson, electronic message of April 28, 4:23 PM, 2003.
[24] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data, P = 0.000.
[25] ANOVA: between age group for Bla, P = 0.115; between age group for Bougouni, P = 0.000.

Table 6

% CBVs Who Correctly Executed PI Task, in Rank Order of Performance and by District

Order of Task	Task Description (question number in questionnaire)	District		Total	Rank Order* by Performance
		Bla (N=94)	*Bougouni (N=249)*		
8	Placed device directly into sharps container (21)	99	100	100	1
1	Correctly determined vaccine vial monitor (VVM) (14)	97	96	96	2/3
5	Injected in correct body location (18)	99	95	96	2/3
4	Used sterile technique (17)	97	92	94	4
7	Did not recap needle (19)	89	93	92	5
3	Correctly/easily activated device (16)	93	74	79	6
2	Easily opened package (15)	94	71	77	7
6	Completely emptied reservoir (24)	70	76	75	8

*Greatest percentage correct is ranked first.

Table 7

Comparison of MPI ± SD (number of CBVs) by Age and District

Age Groups	Districts		Comparison between Districts, (within age group) P value[26]
	Bla	Bougouni	
Age ≤45 years	7.5 ± 0.6 (55)	7.3 ± 0.9 (93)	0.436
Age >45 years	7.2 ± 0.9 (39)	6.8 ± 1.3 (156)	0.119
Comparison between Age Groups (within district) P value[27]	0.143	0.003*	

Table 8

Comparison of MPI ± SD (number of CBVs) by Age, Controlling for Literacy Courses and District

Age (in years)	Took Literacy Courses			
	Yes		No	
	District		*District*	
	Bla	Bougouni	Bla	Bougouni
≤ 45	7.5 ± 0.5 (27)	7.5 ± 0.7 (60)	7.4 ± 0.7 (27)	6.9 ± 1.3 (31)
> 45	7.4 ± 0.7 (18)	6.9 ± 1.3 (58)	6.9 ± 0.9 (20)	6.7 ± 1.3 (94)
Comparison by Age (within literacy courses and district) P value[28]	0.961	0.025*	0.065	0.475

[26] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.

[27] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.

Table 9

Comparison of MPI ± SD (number of CBVs) by TBA Experience, Controlling for Age

Experience as TBA (in years)	**Age**		
	≤ 45 years	> 45 years	**All**
≤ 1	7.5 ± 0.7 (57)	7.2 ± 1.2 (41)	7.4 ± 0.9 (98)
2 through 4	7.3 ± 1.1 (53)	6.8 ± 1.1 (42)	7.1 ± 1.1 (95)
5 through 9	7.1 ± 0.7 (27)	6.8 ± 1.4 (48)	6.9 ± 1.2 (75)
10 or more	7.7 ± 0.5 (11)	6.7 ± 1.1 (64)	6.9 ± 1.1 (75)
Comparison of TBA Experience (within age group) P[29]	0.119	0.102	0.013*

Table 10

Comparison of MPI ± SD (number of CBVs) by TBA Experience, Controlling for District

TBA Experience (in years)	**District**		
	Bla	Bougouni	**All**
≤ 1	7.5 ± 0.5 (37)	7.3 ± 1.1 (61)	7.4 ± 0.9 (98)
2 through 4	7.2 ± 0.8 (37)	6.9 ± 1.3 (58)	7.1 ± 1.1 (95)
5 through 9	7.3 ± 1.1 (10)	6.9 ± 1.3 (65)	6.9 ± 1.2 (75)
10 or more	7.4 ± 0.8 (10)	6.8 ± 1.1 (65)	6.9 ± 1.1 (75)
Comparison of TBA Experience (within district) P[30] =	0.547	0.052*	0.013*

[28] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.
[29] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.
[30] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.

Table 11

Comparison of MPI ± SD (number of CBVs) by TBA Experience, Controlling for Age and District

TBA Experience (in years)	**Age**			
	≤45 years		>45 years	
	District		*District*	
	Bla	Bougouni	Bla	Bougouni
≤ 1	7.5 ± 0.5 (24)	7.5 ± 0.7 (33)	7.5 ± 0.7 (13)	7.0 ± 1.4 (28)
2 through 4	7.3 ± 0.7 (23)	7.2 ± 1.3 (30)	7.1 ± 1.8 (14)	6.6 ± 1.3 (28)
5 through 9	7.7 ± 0.5 (4)	7.1 ± 0.7 (163)	7.0 ± 1.3 (6)	6.8 ± 1.5 (42)
10 or more	8.0 ± 0.0 (4)	7.5 ± 0.5 (7)	7.0 ± 0.9 (6)	6.7 ± 1.1 (58)
Comparison of TBA Experience (within age group and district) P value[31]	0.191	0.151	0.423	0.358

Table 12

Comparison of MPI ± SD (number of CBVs) by Training and District

	District		
	Bla	Bougouni	**All**
Training	7.4 ± 0.7 (93)	7.0 ± 1.2 (245)	7.1 ± 1.1 (338)
None	8.0 ± 0.0 (2)	6.7 ± 2.5 (4)	7.2 ± 2.0 (6)
One of any training (planned or ad hoc)	7.5 ± 0.7 (13)	6.6 ± 1.3 (46)	6.8 ± 1.2 (59)
Two trainings (but not the 2 planned trainings)	7.2 ± 0.4 (9)	7.1 ± 1.2 (15)	7.1 ± 0.9 (24)
The two planned trainings (before 1st and 3rd rounds	7.5 ± 0.6 (29)	7.1 ± 1.1 (175)	7.2 ± 1.0 (214)
Three trainings	7.1 ± 0.9 (30)	5.0 ± 1.9 (5)	6.8 ± 1.3 (35)
Comparison by Training (within district) P[32]	0.094	0.004*	0.022*

[31] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.

[32] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.

Table 13

Comparison of MPI ± SD (number of CBVs) by Training, Controlling for Age Group and District

	Age			
	≤45 years		>45 years	
	District		*District*	
Training	Bla	Bougouni	Bla	Bougouni
None	8.0 ± 0.0 (2)	8.0 ± 0.0 (1)	NA	6.3 ± 2.9 (3)
One training (any one, ad hoc or planned)	7.5 ± 0.5 (9)	7.2 ± 0.9 (18)	7.3 ± 0.9 (4)	6.1 ± 1.3 (28)
Trained twice: Ad hoc plus refresher	7.3 ± 0.5 (8)	7.2 ± 1.1 (5)	7.0 ± 0.0 (7)	7.0 ± 1.2 (10)
Trained twice: planned training	7.6 ± 0.6 (24)	7.4 ± 0.8 (66)	7.5 ± 0.7 (15)	7.0 ± 1.2 (109)
Trained 3 times (2 planned plus 1 ad hoc)	7.3 ± 0.8 (12)	3.0 ± 0.0 (1)	6.9 ± 0.9 (18)	5.5 ± 1.7 (4)
Comparison by Training (within age group and district) P value[33]	0.332	0.320	0.555	0.008*

As previously noted in the section discussing general aspects of the CBVs, school attendance (yes or no response) and having taken literacy courses (yes or no response) were characteristics significantly associated with age[34]. The characteristic of school attendance was not pursued, since the vast majority, 78%, had never attended school. We did, however, control for age and literacy during analyses to determine any interactions with MPI. While MPI was greater for those who had taken literacy courses, the difference was not significant (using P <0.05). Table 8 shows, however, that there were interactions between having taken literacy courses, age, and district. Controlling for these three factors resulted in a significantly higher score for younger women in Bougouni for the group who had taken literacy courses.

The association of significantly lower MPI with greater number of years of experience as a TBA disappeared when age was controlled[35] (Table 9). All of the difference was due to Bougouni (Table 10), and the difference disappeared when both age and district were controlled (Table 11).

MPI also was evaluated with respect to training. Again there were significant differences and these differences disappeared when age or district were controlled Tables 12 and 13). It was further noted that the number of trainings significantly differed (P < 0.01) between districts, with 33% of Bla's CBVs having received three trainings compared to only 2% of Bougouni's CBVs. While a lack of sufficient numbers in each cell[36] in Table 12 made interpretation a challenge, some patterns seemed to emerge:

1) In both districts, comparing scores within the district, the MPI for the older age group was lower than that of the younger age group for every training group.
2) Within a district and an age group, the greatest MPI was associated with the planned training[37].

[33] ANOVA, Mann-Whitney or Wilcoxon 2-Sample or Kruskal-Wallis H (equivalent to chi square) for non-parametric data.
[34] Chi-square P < 0.00.
[35] Using four categories: ≤1 year (n=99), 2-4 years (n=96), 5-9 years (n=75), and 10 or more years (n=76), chi-square P = 0.137.
[36] By convention, a cell should have at least five cases.
[37] Namely, two days of training before the first round (in June, 2002) and one-half day refresher training just before the third round (in February, 2003).

3) Within a district and an age group, the lowest MPI was associated with three trainings (typically the planned training plus an additional *ad hoc* training), although in Bla this also was the MPI two other training/age group cells (younger age group with an ad hoc plus refresher training, and older age group with anyone training).

Two inferences can be drawn from these data when considered along with the training information. First, the origin of these differences may be due to a poor match of training methods with CBVs' learning skills. Specifically, the training materials weren't designed to meet the learning needs of older adult learners who were primarily non-literate. Secondly, the tendency for lower MPI values for those with three trainings suggested the possibility that weaknesses in the volunteer's performance were recognized by the AHO and that the AHO attempted to improve the performance by providing supplementary training.

Injection Safety

In addition to the technical aspects of vaccinating with Uniject, other safety aspects were assessed, namely, accidental pricks with the needle and disposal of the Uniject. The latter was assessed in three different ways, one by interview with the volunteer and two by observation, one observation was of the volunteer at work while administering the injection and the other was of the vaccination campaign site at the end of the day.

With respect to accidental prick, 5% admitted to having pricked herself with the Uniject needle.

Observations during vaccination revealed several aspects with regard to disposal. All but one of 345 volunteers had a safety box available and that 99% (343 of 345) disposed of the Uniject by placing it in the safety box. These data suggested that of the two volunteers who did not dispose of the Uniject in the safety box, one didn't have a safety box available so used what ever the receptacle was while the other volunteer, despite having a safety box, placed the Uniject elsewhere. Virtually none of the volunteers had Unijects on the ground or otherwise available to the public 340 out of 344 (99%). Only 10 of the 345 volunteers (3%) had Unijects sticking out of the top or sides of the box.

When asked what the volunteer would do with the safety box or container of used Unijects at the end of the day, the vast majority of volunteers (92%) said they would give it to the vaccination team supervisor or other health personnel. Fourteen persons (4%) said they didn't know what they would do, while 13% said they would drop it in the latrine or dispose of it in some other way. Two persons (1%) said they would leave the container where it was.

Vaccination sites were observed in 181 of the 346 (52%) interview locations. All but one site (99%) were using safety boxes. Ten percent said they were using other containers as well, including open cartons and baskets as well as plastic bags; some of these were specified as used for the disposing of the packages rather than the device. The person who took the Unijects from the site was virtually always health personnel (179 of 182, 98%). Disposal in the three remaining cases was by burning, burning plus burying, or disposal in an unknown manner under the direction of the Area Health Officer.

Since using Uniject, 6% said they had given some other type of injection. The relative risk of a CBV who had never administered an injection before using TT-Uniject to giving an injection after using TT-Uniject was zero[38].

[38] Among the 302 TBAs who had never given injections before using TT-UNIJECT, 7 had given injection after using UNIJECT. This was compared to the 40 women who had given injection before, of whom 15 had given injection since UNIJECT as follows. Thus, the relative risk (RR) of a TBA who had never given an injection before TT-UNIJECT experience giving an injections after TT-UNIJECT experience was: (7/302)/(15/40) = 0.06, 95% CI is 0.03 < RR < 0.14.

Social Acceptability

Acceptability of the CBV administering TT-Uniject was evaluated in two ways, by client exit interviews during the survey and by campaign data.

Exit interviews showed that 4% of the clients said this was the first time they had ever received an injection. Almost three-fourths of those who had received injections before felt that the injection that day was less painful than other injections. Since in this population bleeding is a strongly undesired experience, clients were asked whether or not they had bled after the injection. Almost two-thirds (64%) said no. Asked whether or not the injection was well done, 86% said yes.

The client was asked several questions with respect to having the CBV do the vaccination. Eighty-two percent thought it was good to have the CBV do the vaccination and only 6% thought it was not good. Almost 100% (97%-99%) said that in the future they would come for a vaccination given by the CBV, that they would come for a vaccination with the Uniject, and that they would come again if the CBV were vaccinating again with Uniject.

Vignette

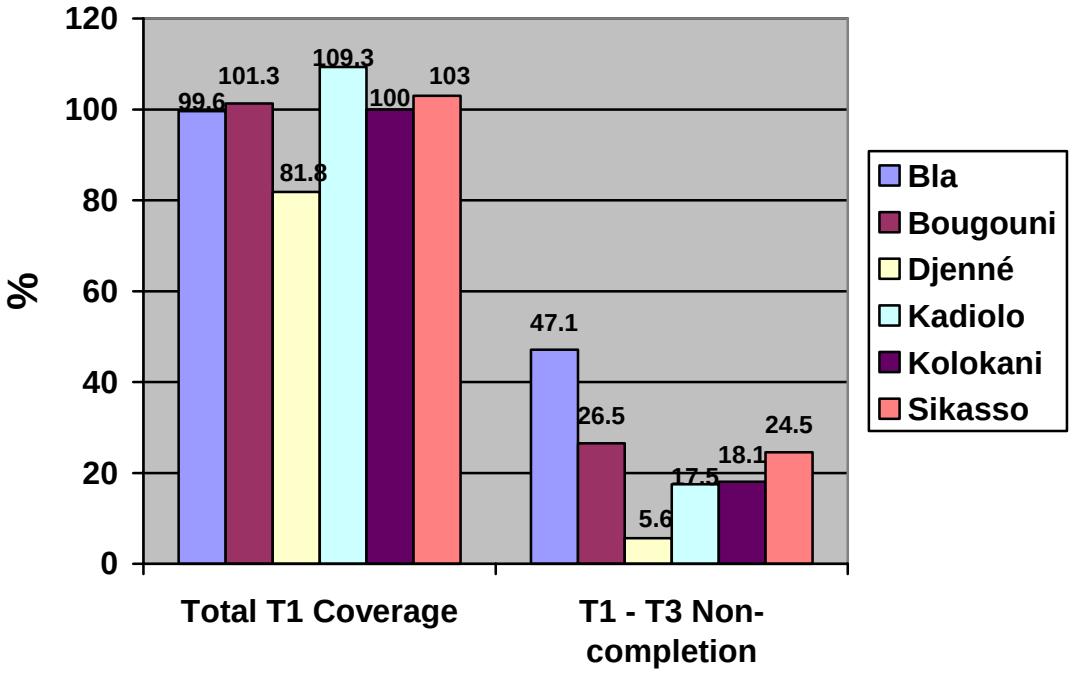
Overcoming Social Barriers

One of the reasons for involving community CBVs in vaccination was to extend into the inaccessible populations in communities. An example of how this functions was offered by a case encountered in the town of Kamona in Bla Health Are of Bla District. A woman was brought to the vaccination area (under a tree) by the volunteer CBV administering TT-Uniject during the third round of the campaign. The woman, who was of the Dogon ethnic group and a servant to a village resident, was pregnant with her sixth child. She did not speak either of the national languages (Bambara and French), and the person who interpreted for her was not available at the time we were in the village. The CBV, however, was able to relate her history because she had been seeing her during this pregnancy. While this was the woman's sixth pregnancy and she had a child who was about 15 years of age, TT-Uniject was the first ever injection she had received. Everyone present said that, given the language and social barriers, it would have been unlikely that this woman would have come for vaccination without the insistence of the CBV.

Campaign coverage and drop out rate were used as an overall indicator of social acceptance of TT-Uniject and of the CBV administering the injection. Data from the second round showed that both coverage and drop out rate in the districts using TT-Uniject were no different from those in the four districts using standard materials and technique. The MNTE 2002 report from the third and final round, however, showed that while coverage in the two study districts was similar to that in the four non-study districts, incomplete vacation seemed greater (Figure 2). This may have reflected the recurring problems with rumors in the study districts, especially in Bla. During the third round in Bla, for example, at least 18 towns had refused vaccination, all of which had refused during earlier rounds as well. The method for overcoming resistance was to send to the town a team comprised of at least the AHO, the DHO (or his appointed representative), and, when appropriate, a representative of the local municipal authority. This team would meet with the Town Chief and discuss the reasons for vacation and reassure that this was not a family planning method. Upon satisfaction of the arguments, the Town Chief assembled the heads of households in the community and explained the situation. Usually this resulted in an immediate decision to accept the vaccination, although occasionally there was continued resistance, and continued dialogue. At the time of leaving Bla after the third round, for example, the lead author was aware that of six communities refusing vaccination, four had been scheduled, one was to be scheduled, and one continued to refuse vaccination.

Figure 2

Total T1 Coverage and T1 to T3 Non-Completion, Mali MNTE 2002[39]



[39] Data for immunization coverage and drop out differ, depending on the source report. Data reported here are taken from the MOH July 24, 2003. While these data are being revised, they are employed here to maintain coordination with Republic of Mali Ministry of Health officially reported data. Probably trends and relative comparisons could be safely made, but figures should not be viewed as. Results were calculated as follows: *T1 coverage:* total number of women with one dose of tetanus vaccine after three rounds divided by the estimated population; *T1 to T3 non-completion:* total T1 minus T3 divided by total T1. (Note that this is an overestimate of drop-out, since it uses the sum of the total number of women who received T1 during the three rounds, whereas drop-out usually uses the number from round 1 only. The use of the term "non-completion" is to avoid confusion with the standard definition for drop-out.)

Lessons Learned and the Future

Several major findings were provided by the Mali TT-Uniject study:

1. Injection with TT-Uniject was correctly administered by female volunteers selected by their communities to participate in the campaign. Most of these volunteers were TBAs or apprentice TBAs.

2. Correct administration of TT-Uniject occurred despite the fact that at least half of the volunteers could not read.

3. CBVs administering TT-Uniject applied safe injection practices. This conclusion was supported by data from diverse sources, including observation and interview, which consistently showed that the community volunteers applied safe injection practices.

4. CBVs administering TT-Uniject were socially accepted.

5. Significant performance differences in administering TT-Uniject existed among study districts, much or most of which seemed associated with the amount and approach to training.

6. Having administered injection with Uniject had no association with volunteers giving other injections afterward.

7. TT-Uniject was accepted by women in Mali.

8. Health staff thought that having CBVs give the vaccination could reduce their work burden, allowing them to do other activities, which cannot be done by lay people.

9. Both health staff and CBVs believed that the involvement of CBVs would improve TT coverage.

10. Both health staff and CBVs thought that the CBVs could administer TT-Uniject in the context of routine vaccination.

11. The suggested structure for incorporating CBVs into the routine vaccination system was to have the AHO serve as her supervisor and have the community health worker serve as the liaison between the AHO and the CBV for the purposes of restocking the CBV with TT-Uniject and transmitting data to the MOH.

Next Steps

The major next step is to create a strategy and implementation plan for incorporating into routine vaccination the TT-Uniject administered by CBVs who are community volunteers. Such a plan needs to take into consideration differing scenarios, including which health areas and villages will use this approach and which will not, and which health areas have all deliveries in a MOH facility. Creation of a decision algorithm based on current coverage rates, drop out rates, accessibility, and social factors may facilitate decision-making by region and by district. Many other facets need to be considered as well, including, for example, the logistics of delivering Uniject to the district health offices[40], changing roles of CBVs, distribution of Uniject to community volunteers, restocking volunteers with TT-Uniject, data management, and supervision of the community volunteers.

The Mali Uniject study showed that the door is open for the MOH to safely extend vaccination services into a population that accepts the volunteered services of CBVs to vaccinate using TT-Uniject.

[40] Our experience with the first round showed that one needs to keep in mind that the heat of the desert environment of Mali may necessitate logistic management that is not required in more moderate climates.

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Appendix 1

Summary List of Key Field Staff

Study Director
Lydia A. D'ALOIS

Field Trainers and Supervisors
Bla District, Lydia A. D'ALOIS
Bougouni District, Bréhima SANOGO

District Health Directors
Bla District, Dr. Alassane B. DICKO
Bougouni District, Dr. Drissa B. OUATTARA

Data Entry

Seydou Moussa TRAORÉ

Appendix 2

Data Collection Instruments

with Results

A. Survey

B. Focus Groups

A. Survey

Form for Uniject Study – Day of Campaign

01 Interviewer *(write your identification #)*: ____ [Total of 24 interviewers]

02 Date of interview *(DD/MM/YY)*: ___ ___/02/03 [Data collection from February 17-24, 2003]

03 District *(circle one)*: 1 Bla [= 94, 27%] 2 Bougouni [= 249, 73%]

04 Name of Health Area *(write the name)*: _____

05 Name of Village *(write the name)*: _____

06 TBA's Name *(previously selected)*: _____

07 This TBA is *(circle one)*: 1 Present [= 286, 83%]
2 Not present: traveling or not available [= 56, 16%]
3 Not present: deceased [= 1, 0%]

08 A different TBA is present (WRITE THE NAME): _____

A. Observation of Traditional Birth Attendant (TBA) Administering TT-filled Uniject

WRITE THE NUMBER REPRESENTING THE ONE BEST ANSWER IN THE BRACKETS AND FILL IN BLANKS WHERE NECESSARY.

V^1 V^2 V^3 V^4 V^5 V^6

– – – [__] – [__] 10. How many health personnel are in the immediate area of the TBA? *(within 2 meters of her)*

N = 343
0 = 3% [=10]
1 = 69% [=236]
2 = 26% [=90]
3 = 2% [=6]
4 = 0% [=1]

– – – [ ] – [ ] 11. Is there any health personnel so close that s/he is actually touching the TBA?

N = 343
58% 1 – Yes [= 199]
42% 2 – No [=144]

– – – [ ] – [ ] 12. LOOK AT HOW THE HEALTH STAFF ARE WATCHING THE TBA. Health staff are primarily…

N = 343

6% 1 – Going about their own business and not looking at the TBA at all [= 22]
18% 2 – Primarily going about their own business, watching/checking the TBA from time to time [= 60]
76% 3 – Constantly watching or checking the TBA [= 260]
0% 9 – No health personnel [=1]

– – – [ ] – [ ] 13. Did the TBA look at the VVM?

N = 343

71% 1 – Yes [= 245]
12% 2 – No [= 42]
16% 3 – Not certain [= 56]

– – – [ ] – [ ] 14. Did the TBA make the correct decision regarding use of the Uniject based on the color of the VVM?

N = 343

96% 1 – Yes [= 330]
4% 2 – No [= 13]

V^1 V^2 V^3 V^4 V^5 V^6

– – – [ ] – [ ] 15. TBA opened package…

N = 343

77% 1 – Easily *(succeeded in tearing the package and removing the Uniject on the first try)* [= 265]
23% 2 – With some difficulty *(succeeded in tearing the package after 2 – 3 tries or had difficulty removing the Uniject)* [= 78]

– – – [ ] – [ ] 16. TBA pushed the needle shield and port together (“activated”) …

N = 343

79% 1 – Easily *(did so with a single movement)* [= 272]
21% 2 – With some difficulty *(did so after 2-3 movements or manipulations of the Uniject)* [=71]

– – – [ ] – [ ] 17. TBA used sterile injection technique. *(Defined as the needle touched only the inside of its protective cap or the injection site.)*

N = 343

94% 1 – Yes [= 321]
6% 2 – No [= 22]

– – – [ ] – [ ] 18. TBA injected at the correct body site. *(Defined as on the superior part of the upper arm.)*

N = 343

96% 1 – Yes [= 330]
4% 2 – No [= 13]

AT THIS POINT, IF THIS IS THE 6TH OBSERVATION, ASK THE TBA TO PUT THE UNIJECT ON THE TABLE.

– – – [ ] – [ ] 19. Did the TBA put the cap on the needle before disposing of it?

N = 343

8% 1 – Yes [= 28]
92% 2 – No [= 315]

– – – [ ] – [ ] 20. Was a safety box available for the disposal of the Uniject?

N = 343

100% 1 – Yes [= 342]
0% 2 – No [= 1]

– – – [ ] – [ ] 21. TBA disposed of the Uniject by putting …

N = 343

100% 1 – Putting it into the safety box. [= 342]
0% 2 – Putting it into a closed container designated for disposal. [= 1]
NA 3 – Putting it into an open container that is not a proper safety box. [= 0]
NA 4 – Dropping it on the ground or leaving it otherwise accessible to the public. [=0]

– – – [ ] – [ ] 22. When the TBA disposed of the Uniject in this container, were there any Unijects sticking out of the top or the sides?

N = 343

3% 1 – Yes [= 10]

97% 2 – No [= 333]

– – – [ ] – [ ] 23. Are there any used Unijects on the ground or otherwise accessible to the public?

N = 342

1% 1 – Yes [= 4]

99% 2 – No [= 338]

– – – [—] – [ ] 24. TBA completely emptied the Uniject. *(Defined as no vaccine issuing from the needle of the used device when the plastic part of the Uniject is squeezed hard.)*

N = 343

75% 1 – Yes [= 256]

25% 2 – No [= 87]

B. Client Exit Interview

WRITE THE NUMBER REPRESENTING THE ONE BEST ANSWER IN THE BRACKETS.
V^1 V^2 V^3 V^4 V^5 V^6

– – – – –[ ] 30. Did today's injection hurt? *(Do not prompt.)*

N = 342
23% 1 – Yes [= 80]
77% 2 – No [= 262]

– – – – –[ ] 31. Is this the first time you have ever received an injection? *(any type of injection)*

N = 343
4% 1 – Yes [= 15]
96% 2 – No [= 328]

– – – – –[ ] 32. Do you feel that today's injection was …

N = 342
12% 1 – More painful than other injections you've received? [= 40]
16% 2 – As painful as other injections you've received? [= 54]
67% 3 – Less painful than other injections you've received? [= 230]
5% 9 – Don't know or don't remember or doesn't apply [= 18]

– – – – –[ ] 33. Did you bleed after today's injection?

N = 343
36% 1 – Yes [= 124]
64% 2 – No [= 219]

– – – – –[ ] 34. Was the injection well done today?

N = 341
86% 1 – Yes [= 293]
14% 2 – No [= 48]

– – – – –[ ] 35. How did you feel about having the village's TBA give the injection today?

N = 343
82% 1 – Good for the TBA to immunize. [= 281]
12% 2 –.Immunization by the TBA is same as any immunization. [= 42]
6% 3 – Not good for the TBA to immunize. [= 20]

– – – – –[ ] 36. Would you receive an injection from the TBA in the future?

N = 343
86% 1 – Definitely come for the vaccination? [= 295]
11% 2 – Probably come for the vaccination? [= 38]
2% 3 – Probably not come for the vaccination? [= 8]
1% 4 – Definitely not come for the vaccination? [= 2]

– – – – –[ ] 37. Would you receive an injection again in the future with this Uniject? (SHOWUNIJECT.)

N = 343
89% 1 – Definitely come for the vaccination? [= 304]
11% 2 – Probably come for the vaccination? [= 37]
1% 3 – Probably not come for the vaccination? [= 2]
NA 4 – Definitely not come for the vaccination? [= 0]

– – – – –[ ] 38. If we continue with this same method of vaccination, that is, a TBA giving the injection with a Uniject device (SHOW DEVICE), and assuming you needed the vaccination, you would …

N = 343
91% 1 – Definitely come for the vaccination. [= 311]
9% 2 – Probably come for the vaccination. [= 29]
1% 3 – Probably not come for the vaccination. [= 2]
0% 4 – Definitely not come for the vaccination. [= 1]

C. Interview with the TBA

WRITE THE NUMBER REPRESENTING THE ONE BEST ANSWER IN THE BRACKETS.

V^1 V^2 V^3 V^4 V^5 V^6

– – – – –[ ] 40. In how many rounds of the tetanus vaccination campaign have you participated as a vaccinator? *(Answer must be between 1 and 3.)*

N = 343
15% 1 round [= 51]
14% 2 rounds [= 49]
71% 3 rounds [= 243]

– – – – –[ ] 41. In which rounds did you participate as a vaccinator?

N = 343
72% 1 – All – First *(June, 2002)*, second *(July, 2002)*, and thrid *(February, 2003)* [= 248]
8% 2 – First and third only *(June, 2002 and February, 2003 only)* [= 26]
8% 3 – Second and third only *(July, 2002 and February, 2003 only)* [= 26]
13% 4 – Third only *(February, 2003 only)* [= 43]

– – – – –[ ] 42. Were any of the Unijects defective in this round?

N = 342
6% 1 – Yes [= 19]
94% 2 – No [= 323]

– – – – –[ ] 43. Have you received special instructions on how to use the Uniject?

N = 343
97% 1 – Yes [= 333]
3% 2 – No - GO TO QUESTION #36 [= 10]

– – – – –[ ] 44. IF YES, when were you trained?

N = 337

64% 1 – Trained twice, once in June 2002 and again just the other day *(original training plus refresher)* [=216]
7% 2 – Trained twice, once in July 2002 and again just the other day *(after the first vaccination round but before the second round plus the refresher)* [=24]
6% 3 – Trained once in June 2002 *(before the first vaccination round*) [=21]
2% 4 – Trained once in July 2002 *(after the first vaccination round but before the second vaccination round*) [= 7]
10% 5 – Trained once just the other day in February 2003 *(the refresher held just before the third round)* [= 33]
10% 6 – Trained three times, once in June 2002, again in July 2002, and just the other day [added for data entry] [=35]
0% 9 – Other time period *(specify)*: _____ [=1]

– – – – –[ ] 45. Have you ever had experience giving injections before using the UNIJECT?

N = 343
12% 1 – Yes [= 41]
88% 2 – No [= 302]

– – – – –[ ] 46. Since using the UNIJECT, have you given any other type of injection?

N = 342
6% 1 – Yes [= 22]
94% 2 – No [= 320]

– – – – –[ ] 47. Have you ever accidentally stuck yourself with the Uniject?

N = 343
5% 1 – Yes [= 16]
95% 2 – No [= 327]

V^1 V^2 V^3 V^4 V^5 V^6

– – – – – [ ] 48. What will you do with the safety box at the end of today's session?

N = 343
92% 1 – Give it to the vaccination team supervisor or other health personnel [= 314]
1% 2 – Leave them where you work / do nothing with them [= 2]
4% 3 – Don't know [= 14]
4% 9 – Other (specify): _____ [= 13]

– – – – – [ ] 49. How long have you lived in this village?

N = 343
16% 1 – All my life/was born in this village [= 53]
9% 2 – Was born in a village near by [= 31]
3% 3 – Since was a young girl [= 9]
70% 4 – Since married [= 239]
1% 5 – Only a few years [= 3]
2% 9 – Other (specify): _____ [= 8]

– – – – – [ ] 50. About how old are you? (GIVE AGE IN YEARS OR USE BELOW. STATE WHICH YOU ARE USING.)

N = 342
4% 1 – Under 30 years of age [= 15]
39% 2 – Between 30 and 45 [= 132]
57% 3 – Over 45 years of age [= 195]

– – – – – [ ] 51. How many years of school did you complete? (ENTER "0" IF NEVER ATTENDED SCHOOL.)

N = 343
0 = 78% [= 268]
1 = 2% [= 6]
2 = 1% [= 4]
3 = 3% [= 10]
4 = 3% [= 11]
5 = 4% [= 15]
6 = 4% [= 13]
7 = 2% [= 5]
8 = 2% [= 6]
9 = 2% [= 5]

– – – – – [ ] 52. Have you taken literacy courses?

N = 335
49% 1 – Yes [= 163]
51% 2 – No [= 172]

– – – – – [ ] 53. For how many years have you been a traditional birth attendant?

N = 343

0 = 6% [= 19]
1 = 23% [=79]
2 = 11% [= 39]
3 = 10% [= 33]
4 = 7% [=23]
5 = 9% [= 30]
6 = 7% [= 25]
7 = 3% [= 9]
8 = 3% [= 9]
9 = 1% [= 2]
10 = 8% [=28]
11 = 1% [= 3]
12 = 1% [= 2]
13 = 1% [= 3]
14 = 0% [= 1]
15 = 4% [= 12]
16 = 2% [= 6]
17 = 2% [= 5]
18 = 0% [= 1]
20 = 2% [= 8]
25 = 1% [= 4]
26 = 0% [= 1]
30 = 0% [= 1]

– – – – – [ ] 54. Since El Eid, how many pregnant women have come to you for prenatal advice? (ENTER “0” IF NONE.)

N = 343

0 = 46% [= 158]
1 = 6% [= 21]
2 = 5% [= 17]
3 = 7% [= 23]
4 = 3% [= 11]
5 = 6% [= 21]
6 = 4% [= 14]
7 = 3% [= 11]
8 = 2% [= 7]
9 = 1% [= 3]
10 = 5% [= 18]
11 = 1% [= 3]
12 = 1% [= 3]
13 = 1% [= 4]
14 = 0% [= 1]
15 = 2% [= 8]
17 = 1% [= 2]
20 = 0% [= 1]
21 = 0% [= 1]
25 = 0% [= 1]
26 = 0% [= 1]
30 = 1% [= 3]
35 = 0% [= 1]
38 = 0% [= 1]
40 = 0% [= 1]
45 = 0% [= 1]
47 = 0% [= 1]
50 = 0% [= 1]
52 = 0% [= 1]
57 = 0% [= 1]
60 = 0% [= 1]
142 = 0% [= 1]
204 = 0% [= 1]

– – – – – [ ] 55. Since El Eid, how many babies have you delivered? (ENTER “0” IF NONE.)

N = 342

0 = 30% [= 104]
1 = 8% [= 27]
2 = 8% [= 26]
3 = 6% [= 19]
4 = 5% [= 18]
5 = 6% [= 22]
6 = 7% [= 25]
7 = 2% [= 7]
8 = 4% [= 13]
9 = 2% [= 7]
10 = 6% [= 21]
11 = 2% [= 5]
12 = 2% [= 6]
13 = 1% [= 3]
14 = 1% [= 2]
15 = 3% [= 9]
16 = 1% [= 3]
17 = 1% [= 3]
18 = 0% [= 1]
19 = 1% [= 2]
20 = 2% [= 5]
21 = 2% [= 5]
25 = 0% [= 1]
26 = 0% [= 1]
30 = 0% [= 1]
32 = 0% [= 1]
37 = 0% [= 1]
40 = 1% [= 2]
45 = 0% [= 1]
162 = 0% [= 1]

– – – – – [ ] 56. We just finished the festival of Tebaski now. Since Tebaski one year ago (2002), how many babies you have delivered?

N = 341

0	= 24%	[= 80]
1	= 5%	[= 17]
2	= 3%	[= 10]
3	= 3%	[= 11]
4	= 3%	[= 11]
5	= 4%	[= 13]
6	= 2%	[= 7]
7	= 2%	[= 6]
8	= 1%	[= 5]
9	= 2%	[= 6]
10	= 8%	[= 26]
11	= 2%	[= 5]
12	= 3%	[= 9]
13	= 2%	[= 5]
14	= 1%	[= 2]
15	= 4%	[= 15]
16	= 0%	[= 1]
17	= 2%	[= 5]
18	= 2%	[= 5]
19	= 1%	[= 3]
20	= 3%	[= 11]
21	= 1%	[= 4]
22	= 1%	[= 2]
23	= 2%	[= 5]
24	= 0%	[= 1]
25	= 1%	[= 2]
26	= 1%	[= 2]
27	= 0%	[= 1]
28	= 1%	[= 2]
29	= 1%	[= 2]
30	= 2%	[= 6]
31	= 1%	[= 3]
32	= 1%	[= 3]
33	= 0%	[= 1]
34	= 1%	[= 2]
35	= 2%	[= 5]
36	= 1%	[= 2]
38	= 0%	[= 1]
39	= 0%	[= 1]
40	= 1%	[= 2]
41	= 1%	[= 4]
43	= 1%	[= 4]
45	= 0%	[= 1]
46	= 1%	[= 2]
47	= 0%	[= 1]
48	= 1%	[= 2]
50	= 2%	[= 5]
51	= 0%	[= 1]
53	= 0%	[= 1]
56	= 0%	[= 1]
60	= 1%	[= 2]
64	= 0%	[= 1]
65	= 0%	[= 1]
67	= 1%	[= 2]
70	= 0%	[= 1]
71	= 0%	[= 1]

77 = 0% [= 1]
85 = 0% [= 1]
88 = 0% [= 1]
90 = 0% [= 1]
100 = 0% [= 1]
115 = 0% [= 1]
138 = 0% [= 1]
150 = 0% [= 1]
167 = 0% [= 1]
250 = 1% [= 2]

D. Last Village – End of Day/End of Vaccination

MAKE THE FOLLOWING OBSERVATIONS AND THEN WRITE THE ANSWER IN THE BRACKETS.
ASK TO SEE ALL OF THE CONTAINERS CONTAINING UNIJECT WASTE.

[ ] 60. IS THE STANDARD SAFETY BOX USED FOR UNIJECT WASTE?

N = 181

99% 1 – Yes [= 180]

1% 2 – No [= 1]

[ ] 61. ARE ANY OTHER CONTAINERS USED FOR UNIJECT WASTE?

N = 181

10% 1 – Yes – IF YES, DESCRIBE: _____ [= 18]

90% 2 – No [= 163]

61b. FOR ANSWER OF YES: (Responses not available)

N =

1 – Putting it into a closed container (cardboard box or other).

2 – Putting it into an open container (e.g., carton or basket that is open).

9 – Other.

[ ] 62. WHAT DID THE TBA DO WITH HER CONTAINER(S) OF UNIJECTS AT THE END OF THE DAY'S SESSION?

N = 181

98% 1 – Took them to the supervisor or other health personnel [= 177]

2% 2 – Left them where she worked / did nothing with them [= 3]

1% 9 – Other (SPECIFY): _____ [= 1]

[ ] 63. HOW WERE THE UNIJECTS DISPOSED OF?

N = 181

98% 1 – They were taken away by health personnel. [= 178]

NA 2 – They were taken away by village people. [= 0]

1% 3 – They were burned and then buried. [= 1]

1% 4 – They were completely burned. [= 1]

NA 5 – They were completely buried in the ground. [= 0]

NA 6 – They were partially burned. [= 0]

NA 7 – They were partially buried in the ground. [= 0]

NA 8 – Nothing was done, they were left in an area accessible to the public. [= 0]

1% 9 – Other (SPECIFY): _____ [= 1]

B. Focus Group Results

(2 parts)

1 – With Area Health Officers

Bougouni N = 20 of 22
Bla N = 22 of 23

91. Did you recruit a TBA from each (100%) of the villages that appear on your Health Area's list? (NOTE HOW MANY YES AND HOW MANY NO. PROBE.)
    IF NO, why not? Yes = 17 (85%) 22 (100%) No 3 (15%)
    Reasons: 1) TBA not able to do the work, 2) disagreements between neighborhoods, 3) TBA didn't receive the information on time
    Bla: old TBAs = 3 (14%), new TBAs = 6 (27%), old and new TBAs = 13 (58%)
92. How did you go about recruiting the TBAs?
    (PROBE: Who was contacted in the village? Was more than one person contacted? How do you understand that the TBA was selected?)
    Bla: selected in general assembly meeting, good choice = 22 (100%)
    By: town chief – 1
    Village health committee plus town chief = 5 (26%)
    Village ? = 8 (42%)
    Town chief and consuler = 1
    Village consular plus women's group = 2
    Village consular and village health committee = 2
93. Was the TBA selected by the village satisfactory to you? (NOTE HOW MANY YES AND HOW MANY NO.)
    IF NO, why not?
    Bla: Yes = 22 (100%)
    100% satisfied = 5
    90% satisfied = 12
    80% satisfied = 3
    not satisfied = 0

94. Upon completion of the first training, did you agree for the TBA selected to participate in the campaign? (NOTE HOW MANY YES AND HOW MANY NO.)
    IF NO, why not?
    Bla: Yes = 15 (68%), no = 7 (32%)
    Yes = 20 (100%)

95. After the first training, were there any other TBAs trained in your Health Area? (NOTE HOW MANY YES AND HOW MANY NO.)
    If yes, why?

Bla: Yes = 6 (27%), No = 16 (73%)

Reasons for yes: 1) TBAs who missed the first training, 2) to replace those who were not available

Yes = 15 (75%) No = 5 (25%)

Why yes: 10 , 2) replacement of TBA by ?, 3) unavailability of first TBA = 3

96. From what you know, what is the feeling of the townspeople in having a TBA administer the vaccine?

Bla: townspeople agree = 16 (33%) , No = 6 (67%)
It's good = 19 (95%)
Some villages were hesitant at the beginning = 1

97. What would you keep about the recruitment process?

Bla : selection by general assembly

Nonconsensual choice
Consensual choice
Don't take old TBAs
?
Lack of rigor in applying the tools of choosing the TBA

98. What would you change about the recruitment process?

Bla: make use of recruitment criteria of TBA
Involve the old TBAs = 3
Revise the list of choice = 1
Involve the ICPM in the choice = 2
Involve the women's group in the choice = 2
Involve the village health committee in the choice = 1

99. What would you keep about the training process?

Bla: training by health area
Insufficient time = 1
Time is sufficient = 1
Manipulation of UNIJECT ? = 3
Good assimilation of technique = 3
Effective participation = 2
Delay in information = 2

100. What would you change about the training process?

Bla: 1) 5 days training, 2) content (include proper birthing and case referral), 3) make sure that the training is properly run: perdiem for trainers and participants; transport for participants; food/break nourishment
Don't change anything = 6
Translate the module into the national language = 1
Translate the module into Bambara = 2
Introduce the image box to the TBA ??? = 1
Use a manequin = 1

101. This experience used TBAs to assist during a campaign. How was that helpful, if at all?

Bla: helpful = 22 (100%)
Reasons: 1) sensitizing the population, 2) knowledge of who is missing in order to get them later, 3) reduces the ICPM's work load
Reduces the tasks of health personnel = 5
Helps mobilize in rural areas = 2
Helps ? the targeted population
Facilitates active research ?? = 1
Reduces neonatal tetanus mortality = 2

102. Overall, what were the best aspects about this experience of having a TBA give the Uniject tetanus vaccination?

Bla: 1) increase of vaccination coverage, 2) reduce the rate of morbidity and mortality due to maternal and newborn tetanus, 3) the population has confidence in the TBA
Improved tetanus vaccination coverage
Important factor in social mobilization
Facilitated active research
Motivatation of TBAs
Created a cooperative relationship between the TBA and the health personnel and the population
Revitalized the TBAs
Relief to the health personnel

103. Overall, what were the most important aspects to change about this experience of having a TBA give the Uniject tetanus vaccination?

Bla: in addition to requiring that the person be a TBA, the person must be literate

Make the opening in the aluminum packets more visible
Reduce the resistance for activiation of the Uniject
Make available boxes or wastebaskets for the aluminum packets
Make boxes of 50 units of Uniject instead of 125

104. Do you think the TBAs trained in using Uniject could give tetanus vaccination through routine delivery? (PROBE. LIST ALL REASONS AND LIST ANY LIMITATIONS OR CONSTRAINTS.)

Bla: Yes = 22 (100%)
Reasons: 1) they know how to use the Uniject, 2) they know the constraints,
Constraints: 1) difficulty in resupplying, 2) unavailability? (charge du travail élévé)
Reasons:
?Manipulation ?
the need for cold chain to conserve Uniject …?
Administration ?
Keep less ?? compared to VAT??
Transport ??
Reduce the ? of vaccin
Limits or constraints:
Definition of temperature maintenance for keeping Uniject by TBA
Risk of using Uniject for something else
Lack of ability to replace…?

105. How do you think the TBAs giving UNIJECT tetanus vaccination could be incorporated into routine immunization? Do you think the TBAs can do this without receiving per diem or other type of payment?

Bla: 1) The TBAs will work with the community health workers (*relais*), 2) supervision provided by the ICPM, 3) in the stratégie avancé, TBAs can do the work without perdiem or other payment
Under the surveillance of the vaccination agent in the *Stratégie Avancé*
Under the sruveillance of the town chief and village health committee
Stock of Uniject by TBA supported by *relais* and show use and ? the following month and supervision of 1 TBA by 1 ICPM…??
The TBAs can do the work without per diem
The TBAs coud be compensated or motivated after each delivery
The TBA works as a volunteer

106. Do you think that the participation of TBAs in vaccination has had an effect on misinformation and rumors?

Bla: Yes = 0, No = 22 (100%) because the TBAs believe the same rumors

There were no rumors in the Uniject villages.

1 – With TBAs

Bla: N = 17

Bougouni (Bg): 18

70. How many are TBAs?

Bla: number learning TBA = 7, number practicing TBA s = 7, number who aren't TBA = 6

Bougouni (N = 18): TBAs = 16 (89%), assistant to TBA = 2 (11%)

71. How many TBAs were selected from your village to participate in this vaccination campaign? ___.

Bla: 1 each in 10 villages, 2 each in 7 villages

Bougouni: one in each village (18 TBAs)

72. Did you receive special instructions on how to use the UNIJECT syringe? (SHOW SYRINGE.)

HOW MANY Yes? _____ Bla: 17 (100%) Bougouni: Yes = 17 (94%)

HOW MANY No? _____ No = 1 (6%)

73. IF YES, How long ago?

HOW MANY Less than one week ago? _____ Bla: 3 (18%) Bougouni: 0

HOW MANY Last July *(after the first vaccination round but before the second round?)* Bla: 0 Bg: 2/18 (11%)

HOW MANY Last June *(before the first vaccination round)?* _____ Bla: 14 (82%) Bg: 15/18 (83%)

HOW MANY Other time period? (SPECIFY NUMBER AND TIME PERIOD): Bla: 0 Bg: 0

74. How many times did it take before you felt comfortable reading the UNIJECT VVM indicator?

Bla: within only one training = 17 (100%)

Bougouni: it didn't take long = 17 of 17 who received training

75. How many times did it take before you felt comfortable using the UNIJECT syringe?

Bla: within one training = 16 (94%), after several trainings = 1 (6%)

Bougouni (N=17): after the 1st injection = 5+3 = 8 (47%), after the 2nd injection = 1+0 = 1 (6%), after the 3rd injection = 4+ 3 = 7 (41%), after the 4th injection = 1+0 = 1 (6%)

76. What difficulty did you have using the syringe?

Bla: no difficulty = 17 (100%)

Bougouni (N=17): no difficulty = 7+2 = 9 (53%), difficulty in opening package = 1 (6%), difficulty in activating = 1+3 = 4 (24%), difficulty in finding the opening (on the package) = 0+1 = 1 (6%), difficulty due to fear of injecting someone = 3 (18%)

77. What were the best aspects of the training? (PROBE. LIST ALL. THEN HAVE THE GROUP ORGANIZE THE LIST STARTING WITH THE MOST IMPORTANT BEST POINTS AND ENDING WITH THE IMPORTANT BEST POINTS.)

Bla: 1) gave new knowledge, 2) reviewed reasons for vaccination, 3) Uniject allows a more rapid and secure vaccination

Bougouni (N=17): learning to give injection = 1, adhering to rules of hygiene = 1, to protect children from tetanus = 2, allowing vaccination to occur where the people live; awareness of the target population,

Practicing injections among themselves = both groups,

Learning the technique of vaccinating with Uniject and correctly disposing the syringe, avoiding accidental injection,

78. What aspects of training would you change? (PROBE. LIST ALL. THEN HAVE THE GROUP ORGANIZE THE LIST STARTING WITH THE MOST IMPORTANT BEST POINTS AND ENDING WITH THE IMPORTANT BEST POINTS.)

    Bla: None

    Bougouni (6+): nothing to change = 8, organize regular retrainings to improve knowledge/don't limit training to Uniject = 4, training was too short = 3, improve our knowledge of follow-up and assistance at birthings = 2

79. Do you think you could give the Uniject tetanus vaccination on a routine basis? (EXPLAIN THAT ROUTINE VACCINATION MEANS HELPING DURING SCHEDULED VACCINATION SESSIONS AT THE HEALTH CENTER OR DURING PRENATAL CONSULTATION GIVEN BY THE TBA OUTSIDE OF THE HEALTH CENTER.)

    Bla: Yes = 17 (100%)

    Bougouni (17): Yes = 17/17 : can do it with the support of the ICPM or vaccinator or health agent = 2 (12%), can do it with or without the support of the health agent = 1 (6%)

80. Do you think that your participation in vaccination has had an effect on misinformation and rumors?

    Bla: Yes = 17 (100%)

    Bougouni: no family planning rumors in our village = 7, got all or many of the women to participate = 3, we learned of the existence of rumors by radio = 1, some women who resisted finally were vaccinated = 1