



Somaliland

IMMUNIZATION COVERAGE SURVEY

July 2008



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Acronyms

| | |
|--------|--|
| AFRO | World Health Organisation - Regional Office for Africa |
| ANC | Antenatal Care |
| BCG | Bacillus Calmette-Guérin (vaccine) |
| CHD | Child Health Days |
| CI | Confidence Interval |
| CSZ | Central Southern Zone |
| CWC | Child Welfare Card |
| DEFF | Design Effect |
| DPT | Diphtheria Pertussis Tetanus |
| EMRO | Eastern and Mediterranean Region Office for WHO |
| EPI | Expanded Programme on Immunization |
| ESARO | East and Southern Africa Region Office for UNICEF |
| FCH | Family and Community Health |
| FSAU | Food Security Analysis Unit |
| ICC | Inter-agency Coordinating Committee |
| IEC | Information Education Communication |
| IU | International Units |
| MCH | Mother Child Health Centre |
| MDG | Millennium Development Goals |
| MOHL | Ministry of Health and Labour |
| NEZ | North Eastern Zone |
| NGO | Non- Governmental Organizations |
| NIDs | National Immunization Days |
| NWZ | North-West Zone |
| OPV | Oral Polio Vaccine |
| PHC | Primary Health Care |
| PPS | Probability Proportional to Size |
| RED | Reaching Every District |
| SIAs | Supplemental Immunization Activities |
| SRCS | Somalia Red Crescent Society |
| SWC | State of the World's Children |
| TBAs | Traditional Birth Attendants |
| TOT | Training of Trainers |
| TT | Tetanus toxoid-containing vaccine |
| UNF | United Nations Foundation |
| UNICEF | United Nations Children's Fund |
| USSC | UNICEF Somalia Support Centre |
| VAD | Vitamin A Deficiency |
| VAS | Vitamin A Supplementation |
| WHO | World Health Organization |

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1

EXECUTIVE SUMMARY

UNICEF and the World Health Organisation (WHO) commissioned a survey of immunization coverage of infants and pregnant mothers in Somaliland, thereby contributing to understanding of socio-demographic factors influencing child and maternal immunization. The survey specifically aimed at determining coverage for the Expanded Programme on Immunization (EPI) vaccines and Vitamin A supplementation among children aged 12 - 23 months; tetanus toxoid-containing vaccine (TT) immunization coverage among the mothers of 0 - 11 months-old children, for protection of their babies from neonatal tetanus; and to elicit reasons why target children and women were not being immunized.

The study was a cross-sectional survey, involving the use of simple questionnaires to query mothers and caretakers on the immunization and Vitamin A status of children aged between 12 - 23 months. Another questionnaire was used to collect information on TT vaccination for mothers of children aged <11 months. The method was adapted from WHO 30-cluster sampling, a two-stage sampling technique involving random selection of districts in each region based on probability proportional to size (PPS), and random selection of households in the selected clusters. In this Somaliland survey clusters were raised to 40, in each of which seven children and seven mothers were interviewed.

To ensure smooth implementation of the survey, two technical committees were established, with one each in Hargeisa and Nairobi respectively. The Hargeisa-based technical committee was responsible for day-to-day running of the survey, while the Nairobi-based technical committee guided and monitored the process. A comprehensive interview-training program for field personnel was held from 18th - 21st June, 2008. In total, 13 supervisors and 26 enumerators were trained over three days, while a fourth day was planned for training of supervisors on supervisory skills and key monitoring areas.

Survey information was obtained from children and mothers' cards and mother/caretaker history. Information on infant immunization was obtained on 279 children aged between 12 - 23 months. Only 53 (18.9%) of those interviewed had immunization cards. Coverage by antigen (card + history) was BCG 43.7%; DPT1/OPV1 40.9 (39.43%); DPT2/OPV2 37.3 (36.2%), DPT3/OPV3 30.5% (31.2%); and measles 29.4%. Valid coverage by antigen (card only) was BCG 40.9%; DPT1 11.1%; OPV1 10.8%; DPT3 9.0%; OPV3 9.0%; and measles 8.2%. Out of 25.8% children found to be fully immunized, only 6.8% were confirmed by card.

Access to and utilization of child immunization services was low, as evidenced by a crude DPT1 coverage of 40%. On average, 58% of child vaccinations are given at Mother Child Health centres (MCH). The main reason given by mothers for failure to immunise was unavailability of vaccines at health facilities, as reported for 37% of unimmunized children. Among other reasons, 10% were unaware of the need for immunization, 8% either found the place of vaccination to be too far away, and an equal number of mothers were too busy to take their children for immunization.

Tetanus toxoid vaccination (TT) information obtained from 282 mothers with children aged 0 - 11 months indicated that only 39%, 30%, 19%, 11% and 7% had received TT1-TT5 doses, respectively. Most deliveries (88.2%) occur at home with a small proportion (11.8%) occurring at hospitals. The survey also noted a high preference for home deliveries among both literate and illiterate mothers.

Only 31% of mothers had made at least one antenatal care (ANC) visit during their last pregnancy. Most women failed to get TT doses due to a lack of vaccines being available at health facilities as reported by approximately 37% of women, while 23% were unaware of the need for immunization, 8% reported that the place of

immunization was too far, 5% misunderstood the contra-indications to vaccination and the same percentage were too busy to seek services.

The results of Vitamin A supplementation from both card + history indicated that only 25.4% and 21.1% of children had received their first and second doses of Vitamin A supplementation, respectively.

While the survey findings do not represent a scenario prevailing over all of Somalia, they are alarming enough for all stakeholders to agree on a common consensus regarding formulation and development of alternative strategies to increase immunization coverage in Somaliland and Somalia as a whole.

An Inter-agency Coordinating Committee (ICC) exists in Somaliland, but requires reactivation in order to provide guidance on routine EPI in Somaliland. A vaccine management assessment was carried out in the recent past and its recommendations need to be implemented, especially on stock distribution and management at service delivery points. To reach more children detailed micro-planning is required, with clear mapping of nomadic seasonal movements to ensure targeted outreach services to these populations. The EPI managers from

both the Ministry of Health and Labour (MOHL) and NGOs should ensure that EPI sessions are conducted regularly, with supportive supervision provided to the outreach teams. They should also promote utilization of antenatal care, cleaner delivery practices, post-natal care and other services for both mother and child. At the same time, regular supplies of vaccine should be ensured at MCH clinics, and distribution must include the bundling policy where vaccines, diluents, syringes and needles, as well as safety (disposal) boxes, are distributed at the same time.

Organized local immunization days as part of a multi-interventional Child Health Days (CHD) strategy will help ensure that children and women of child-bearing age are reached with the necessary antigens, and to scale-up other child survival interventions. Regular, focused, and supportive supervision needs to be strengthened at all levels, with the use of integrated supervisory checklists to help improve routine programme performance and to motivate staff at the lower level. Social mobilization needs to be strengthened to create demand for immunization services. The wealth of experience gained during the 2005 measles campaign should be drawn on to find innovative ways to increase public demand for routine immunization services.

2

BACKGROUND AND JUSTIFICATION

2.1 Somaliland profile

Somaliland has a terrestrial surface area of 176,000 km² and is bordered by Ethiopia to the south and west, Djibouti to the northwest and the Gulf of Aden (with a 740 km coastline) to the north. The religion is predominantly Muslim, and is divided into six regions and 19 districts,

and has approximately 450 villages and settlements. Hargeisa is the capital of Somaliland, with an estimated population of 0.5 million (Source UNDP, 2007). Other main towns are Burao, Borama, Berbera, Erigavo and Las'anod.

Fig. 1.1 - Map showing the North-West Zone (Somaliland)



The major topographical features are low-lying coastal plains known as the *Guban*, with a very hot summer climate, extending some 70 km inland; a high east-west escarpment parallel to the coast rising to over 2,000 m above sea level (asl) at Eri Gavo; and the Ogo plateau south of the mountains, with an average altitude of 1,200 m asl extending to Ethiopia. Further inland to the south are red sandy plains stretching southwards into Ethiopia, where altitudes fall to some 500 m asl (source MOHL-Somaliland).

Fifty-five percent of the population are nomadic, while 45% live in urban centres such as regional capitals or rural towns. The average pastoral holding per household

in Somaliland is estimated at 75 goats and sheep, and the main source of income is export of livestock (mainly goats and sheep) to the Arab states.

Population estimates for Somaliland are used purely for planning, as there are no recent census figures available. Estimates available at the Ministry of Health and Labour computed with support from UNDP, projected Somaliland to have a population of 2.02 million in 2008. The table below summarizes the projected population from 2005 to 2008.

Table 1.1 - Somaliland (North-West Zone) population estimates for 2005-08

| Year | Population | Surviving infants | Pregnant women | CBAW | Measles follow-up campaign | Vit A suppl. | EPI routine (u1) |
|------|------------|-------------------|----------------|---------|----------------------------|--------------|------------------|
| 2005 | 1,828,700 | 82,657 | 91,435 | 365,740 | 310,879 | 310,879 | 91,435 |
| 2006 | 1,886,500 | 85,269 | 94,325 | 377,300 | 320,705 | 320,705 | 94,325 |
| 2007 | 1,950,700 | 88,171 | 97,535 | 390,140 | 331,619 | 331,619 | 97,535 |
| 2008 | 2,026,100 | 91,579 | 101,305 | 405,220 | 344,437 | 344,437 | 101,305 |

Source: MOHL Somaliland - Figures generated following technical discussion on available population estimates for Somaliland.

According to UNICEF (2008) reported infant mortality rate is high, at 90 per 1,000 live births; under-five mortality is 145 per 1,000 live births, and maternal mortality is 1,600 per 100,000 births.

2.2 EPI background

The Expanded Programme on Immunization (EPI) in Somaliland was established in 1978. The strategy then used was organization of mobile teams and outreach services in collaboration with WHO and UNICEF. In 1980 the EPI programme was expanded to provide services in primary care clinics. Conflict in the late 1980s had a negative impact and the programme was completely disrupted by the end of the decade. Like other health services, EPI services were significantly affected by the conflict and by the end of 1992 the international community, led by UNICEF, started providing immunization services.

A mass measles campaign was conducted in 1993 with the technical assistance of Indonesia, targeting all children aged nine months to <12 years of age. Since then UNICEF and WHO have continued to support MCH centres as permanent posts for the provision of immunization services, and have recently developed functional cold-chain store in Hargeisa. There has been a dramatic drop in reported measles cases, although it is too early to attribute this trend to the measles catch-up campaign.

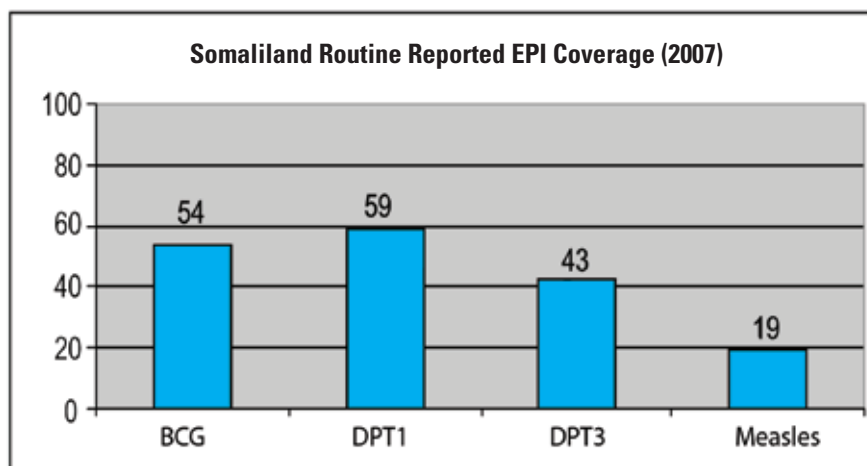
Although UNICEF and WHO have supported routine EPI activities in MCH centres run by the MOHL - Somaliland and a few NGOs, immunization coverage has remained

low, reaching a maximum performance of 30% for fully immunized children (FIC) in 2003. A strategic plan for measles mortality/morbidity reduction was finalized in 2004 by WHO and UNICEF and submitted for funding which was finally secured in 2005 through the American Red Cross contribution to the tsunami response for Somalia.

A nation-wide measles catch-up campaign including Vitamin A supplementation for children aged nine months to 15 years was implemented in 2005. The first three rounds were conducted in parts of Somaliland and Puntland, as well as one region in the South-Central Zone between November and December 2005. 2nd phase of campaign was implemented in rest of Somaliland in January and December 2006, vaccinating 524,954 children against measles.

One of the aims of the 2005 measles catch-up campaign was to strengthen routine services, specifically in the areas of the cold-chain, injection safety and sharp wastes disposal, vaccine-preventable disease surveillance, capacity building and coordination mechanisms within the ministries of health and labour. Children aged between nine and 59 months received a first dose of Vitamin A supplementation during the measles campaign, while a second dose was received during the last rounds of polio National Immunization Days (NIDs) in 2006. In line with the measles elimination strategy and as a major step towards further mortality reduction, a follow-up campaign to be implemented via the Child Health Days package is planned in the second half of 2008, aimed at vaccinating all children born since the 2005 campaign.

Figure 1.2 - Status of routine immunization in Somaliland



Source: UNICEF Routine Reports

The health system and EPI in particular, are characterised by inadequate staff to render immunization services. In terms of output the programme is characterized by low routine immunization and high drop-out rates. Some of the key challenges to be faced are inadequate planning due to lack of reliable population estimates thus making

it difficult for facilities to set targets, weak supervision, and programmes being dependent on external funding.

The current vaccination schedule includes standard EPI vaccines, including a birth dose of OPV and Vitamin A at nine months with measles vaccine as shown below.

Figure 1.3 - National infant immunization schedule

| Antigen | Birth | 6 weeks | 10 weeks | 14 weeks | 9 months |
|-----------|-------|---------|----------|----------|----------|
| BCG | | | | | |
| OPV | | | | | |
| DTP | | | | | |
| Measles | | | | | |
| Vitamin A | | | | | |

Vaccination coverage data are calculated using data on numbers of doses administered, collected and compiled by MOHL and UNICEF from NGOs providing the service. Available data reveal low immunization coverage characterised by high dropout rates. There are no recently available population estimates, leading to uncertainties about actual country, region and/or district population levels and making routine coverage data interpretation quite challenging. In 2002, UNICEF adopted a policy of using *pulse campaigns* with routine EPI vaccines in larger urban areas in an effort to raise immunization coverage. The strategy was initially implemented in major towns and then expanded to cover smaller towns (semi-urban) before reaching the rural areas. The initiative has made a remarkable contribution to overall coverage

in each of the three regions. A desk review of routinely reported data from the health facilities to MOHL shows that approximately 50% of the overall EPI coverage in Somaliland can be related to pulse campaigns.

2.3 Rationale/justification

Somaliland has high infant and under-five mortality rates. Results obtained from the multiple indicator cluster survey (UNICEF, 2006, MICS-III) indicate that the child mortality rate in Somaliland is 113/1,000 with male children experiencing higher mortality than females. Nationally, Somalia infant mortality rate is 86/1,000 live births, meaning that one in every 12 Somali children dies before reaching the age of one. While there are limited

data on the overall burden of disease, estimates from surveillance data indicate measles as an important cause of childhood death in Somaliland.

While pulse campaigns and nation-wide campaigns have managed to raise immunization coverage in Somaliland and Somalia in general, a number of useful lessons have been learnt from this success story. First, campaigns can be used as a window of opportunity to scale up child survival interventions. Numerous polio NID campaigns have included Vitamin A, with tremendous results. The high coverage achieved during the measles catch-up campaign in 2006-2007 in Somaliland was a strong indicator that the EPI programme can reach higher coverage with good community level microplanning, local and international partner coordination, sensitization of health workers, and community mobilization.

Secondly, the use of campaigns can be a valuable opportunity to involve and empower local staff and communities that can help to plan and implement activities aimed at reaching targeted children with vaccinations. The hope is that momentum created by this success will be harnessed to improve routine immunization through interventions such as CHDs and broader health sector activities, and serve as a powerful inspiration to other child survival programmes.

Following the success of the campaign and the need to extend the service to vulnerable children in all districts, the lead partner agencies of WHO and UNICEF proposed an immunization coverage survey in 2008. The initial plan was to conduct a nation-wide (i.e. Somalia) survey in three phases, starting with Phase 1 – North-West Zone (NWZ) (Somaliland); Phase 2 – North-East Zone (NEZ)

(Puntland); and Phase 3 - South-Central Zone (SCZ). Due to insecurity in NWZ and SCZ, the survey was only possible in Somaliland. As soon as security permits, Phases 2 and 3 of the planned survey will be conducted. Information obtained about immunization coverage will mainly be used in evaluating performance of the Somaliland EPI programme and to find ways to monitor and improve current immunization activities.

In summary, monitoring immunization coverage performance is essential for improving the quality of services. Administrative coverage (coverage based on registration of doses administered by health care providers) in Somaliland was often unreliable and reporting of routine immunization programme data by partners were generally weak. Data generated were not adequate to provide reliable coverage estimates that could be used for EPI programme planning. The situation was further complicated by absence of reliable population data, to determine the denominator used in estimating the coverage.

To achieve the EPI targets in Somaliland, information on the reasons for non-vaccination was equally important. Since routine data in local regions did not provide accurate information due to unreliable denominators, vaccination coverage was estimated through surveys. Community-based information about vaccination status and reasons for non-vaccination was needed in order to increase vaccination coverage rates and implement interventions for control and elimination of vaccine-preventable diseases in Somaliland. The planned EPI coverage survey aimed at providing vital information on “where we are” with the immunization of children and women of childbearing age.

2.4 Objectives of the survey

1.4.1 *General objective*

To determine immunization coverage rates, and contribute to an understanding of socio-demographic factors influencing child and maternal immunization in Somaliland.

1.4.2 *Specific objectives*

- To determine immunization and Vitamin A coverage among children aged 12 - 23 months in Somaliland.
- To determine TT immunization coverage among mothers of <11 months-old children for protection of their babies from neonatal tetanus.
- To elicit reasons why target children and women are not being immunized.

2.5 Expected results and potential benefits

1.5.1 *Immediate*

- Accurate information about immunization coverage for all routine immunization vaccines in Somaliland.
- TT immunization coverage among mothers of <11 months old children for protection of their babies from neonatal tetanus in Somaliland
- Reasons for the current levels of routine childhood and TT immunizations in Somaliland.

1.5.2 *Long-term*

- Improved immunization service quality and improved planning, implementation and evaluation of Somaliland immunization programme.

3

PLANNING, METHODOLOGY AND IMPLEMENTATION

3.1 EPI survey technical committee(s)

Survey technical committees were created in both Nairobi and Hargeisa to give greater credibility to the survey results, which was accepted by the implementing partners. The field-based Hargeisa Technical Committee was essential for day to day running of the survey and acted as a steering group to guide the survey coordinator during planning of the survey, while the Nairobi Technical Committee provided guidance and monitored the process.

The Nairobi Technical Committee was formed on the 16th May and was responsible for preparing the Terms of Reference (ToR) for the survey through discussions with senior management in the commissioning organisations, and identifying and securing funding. The ToR specified survey objectives, scope and time-frame, and post-survey activities as follows:

- Guide planning for the survey especially on key planning, i.e. determining the age group, survey design, methodology, sample selection, etc.
- Guide and monitor survey implementation including adherence to timelines.
- Conduct field visits to oversee implementation where possible.
- Verify survey results.
- Review and comment on survey report, provide feedback on completion of survey, and take action.

The Hargeisa Technical Committee was inaugurated on 28th May 2007 by the Minister for Health and Labour, H.E. Abdi Haybe, with the following ToR:

- Provide technical guidance for the Somaliland Immunization survey.
- Coordinate training for the same survey.
- Obtain necessary survey approval (ethical and administrative).
- Ensure cooperation of relevant stakeholders, key government departments and other services in the MOH as needs arise, and community participation.
- Monitor planning and implementation of the survey (cluster selection, team identification, training and fieldwork).
- Validate the survey results.
- Provide feedback on completion of the survey.
- Preparation of logistics for the survey

3.2 Study design and sample size

The study was a cross-sectional survey that involved administering a simple questionnaire (Annex 7a) to mothers and caretakers on the immunization and Vitamin A status of children aged 12 - 23 months. Another questionnaire (Annex 7c) was used to collect information on TT vaccination status of mothers of children aged <11 months. The method was adapted from WHO 30-cluster sampling, a two-stage sampling technique involving a random selection of districts in each region based on probability proportional to size (PPS), and then a random selection of households in the selected clusters.

To estimate the sample, the desired confidence interval was taken to be 95%. The desired level of precision of the estimates was $\pm 10\%$. A routine coverage of 35% was assumed for Somaliland. The total sample size (minimum) was 175 and raised by 50% = 263 and rounded to 280 to take care of situations where some clusters were inaccessible.

The following formula was used:

- Expected routine coverage, $p = 35\%$
- Desired width of the confidence interval = $\pm 10\%$
- Design Effect ($DEFF$) = 2.0
- The desired confidence interval = 95%

$$n = DE \times \frac{z_{1-\alpha/2}^2 \times p \times (1-p)}{d^2}$$

$$n = 2 \times \frac{1.96^2 \times .35 \times (1-.35)}{10^2} = 175$$

Mothers of seven children aged <11 months and seven children aged 12 - 23 months were interviewed from the selected 40 clusters (wards /villages) in each region, i.e. information was obtained from 280 children aged between 12 - 23 months and from 280 mothers of children <11 months old.

A sample of 40 clusters was proportionally allocated according to the population size of each district using district populations for each region. Using a table of cumulative population and attributed numbers, clusters were selected based on population proportional to size. The sampling interval was determined by dividing the total population by 40.

The sampling unit was a settlement. In each settlement / cluster selected, children were selected from households to reach the required sample size of 280 children, a slight modification of the WHO Cluster Survey. Mothers and caretakers of children were interviewed using the household selection method mentioned below (para 2.3).

3.3 Cluster and household selection methods

Selection of households varied between rural and urban areas. In rural areas, the first household was selected by randomly selecting directions from the central point of the settlement / village by spinning a pencil. When the pencil stopped, the direction indicated by the nib was selected. The number of households along the direction selected was counted and the first household to be interviewed was selected at random. Random sampling at this level was done by listing household numbers on small pieces of paper, folding them, and selecting one as the first household. Subsequent households were selected following the "nearest household from the last household to the right" criteria until the required sample size was obtained.

In urban areas, the first step was to establish a list of households in the cluster to be surveyed. Using a house or block number list, the first household was randomly identified as above.

Table 2.1 - Distribution of rural and urban clusters

| REGION | Rural | Urban | Total |
|-----------------|-------|-------|-------|
| Woqooyi Galbeed | 5 | 7 | 12 |
| Awdal | 6 | 2 | 8 |
| Sahil | 1 | 1 | 2 |
| Togdheer | 8 | 2 | 10 |
| Sool | 3 | 1 | 4 |
| Sanaag | 3 | 1 | 4 |
| | 26 | 14 | 40 |

3.4 Implementation of the survey

3.4.1 Personnel recruitment

The survey team was recruited during the first week of June, 2008 and consisted of community members not directly involved with the immunization programme (so as to eliminate bias), who knew the local communities well. Interviewers were also recruited from districts where they were to participate in the survey. The Hargeisa Technical Committee recruited the head of the Communicable Disease department to be the National Coordinator for the survey, with authority over all people involved in the exercise and direct access to the survey commissioning authorities. The coordinator was responsible for:

- Overseeing implementation of the immunization coverage survey.
- Ensuring cooperation of other relevant government agencies.
- Making budget estimates prior to identification of sources of funds for the survey.
- Selecting field teams.
- Executing the fieldwork.
- Reporting survey results.

Supervisors were drawn from the EPI office and senior staff from the MOHL. To ensure equal regional representation, other supervisors were recruited from regional polio officers and regional Primary Health Care (PHC) in-charges from each of the six Somaliland regions.

3.4.2 Training

A TOT exercise was conducted for members of the Technical Coordinating Committee who would act as facilitators during interviewers and supervisors training. TOT facilitators consisted of senior staff from the MOHL, UNICEF and WHO offices in Hargeisa.

A comprehensive training program on interviewing was held for field personnel from 18th - 21st June, 2008. The consultant, in liaison with UNICEF, WHO and MOH Somaliland, facilitated TOT training on survey methodology, data collection, analysis and report-writing, at the Ambassador Hotel Hargeisa. The first day of training was planned for interactive presentations where training methods employed included classroom lectures, case studies, demonstrations and data collection techniques. Materials used for training were:

- Interviewers' guideline
- Supervisors' guideline
- Cluster forms one to four
- Child Welfare Card(CWC)
- Mothers' Card

To ensure quality and comprehension of training content, enumerator and supervisor training sessions were facilitated in English and interpreted into Somali. This had an impact on the number of training days for the survey team from the usual two, to three. In total, 13 supervisors and 26 enumerators were trained for three days, while a fourth day was taken up with planned supervisors' training on supervisory skills and key monitoring areas. The combined team was trained on, *inter alia*, objectives of the survey, study population, sampling procedure, accurate ways of collecting data and interviewing procedures.

The second day of enumerator and supervisor training was dedicated to field practice, to test the skills attained. The team visited three clusters of different socio-economic status in the Hargeisa district so as to have a feel on identification of households, selection of first and subsequent households; identification of eligible children and mothers; asking questions; data collection and recording; and overall duration of interviews.

Three teams were assigned a cluster each. Two urban and one rural cluster were selected for learning purposes. These were those clusters that were not selected for the actual survey. The exercise was an eye-opener and played a major role in refining interviewing techniques before proceeding with actual data collection. On the third day, interactive discussions were held and corrective measures taken to ensure realistic data collection during the actual survey.

3.5 Fieldwork & data collection

Questionnaires were adapted from the WHO standard EPI cluster survey forms, to suit the Somaliland situation. Data was obtained from immunization cards and, where such was not available; information was recorded as being from mothers' recall. In situation where a child or mother was not vaccinated, information was collected on reasons for non-vaccination. All forms used during the survey are included in the appendices of this report.



An interviewer collecting data from a child Health Card in Sahil Region - Somaliland

Information was recorded on the following questionnaires:

- *Questionnaire 1: Somaliland Childhood Immunization and Vitamin A Survey Form* (Appendix 7a) was used to record data on child vaccination coverage. The following data were collected about each child surveyed:
- *Questionnaire 2: Reasons for immunization failure* (Appendix 7b) listed possible reasons for failure to immunise children.
- *Questionnaire 3: Tetanus toxoid immunization of women* (Appendix 7c) was used to record data on TT immunization of women with children aged <11 months. The following data were collected from each mother surveyed:
- *Questionnaire 4: Reasons for TT immunization failure* (Appendix 7d) listed possible causes of failure to immunize women with TT.

Fieldwork was conducted between 22nd - 27th June 2008 in all 40 clusters, by 13 interviewing teams and supervisors. The number of teams assigned to clusters depended upon the location of clusters and travel time required to reach each district. Each team consisted of one supervisor and two interviewers, totalling 49 field workers, and each team was allocated a driver and a vehicle. In addition, Hargeisa Technical Committee members visited some districts to monitor fieldwork.

Regarding TT immunization, mothers were to provide

records confirming doses taken. Where there were no such records, memories of individual histories were considered vital. Reasons for failure were also noted.

3.6 Data entry

Two data-entry clerks were recruited and trained for two days, initially by the consultant using dummy data collected during the field testing exercise. The process included data entry using an EpiInfo-designed questionnaire and WinCosas (Coverage Survey Analysis System). The process involved double-checking for errors and cleaning of data entries where needed at completion of the data entry process.

3.7 Data analysis and management

Since data was entered into both WinCosas and EpiInfo, both packages were used to do data analysis. WinCosas is useful when processing several surveys at the same time and for computing several key indicators and it edits standard reports that include immunization coverage, invalid doses, immunization system access, immunization system management, immunization card retention and integration of new or underutilized vaccines.

EpiInfo was used to supplement WinCosas to help in analyzing socio demographic characteristics of the study subjects.

4

CHILDHOOD VACCINATION RESULTS

A total of 279 children aged 12 - 23 months were surveyed from 40 clusters distributed in 19 districts. Regional and district distribution is shown in Annex 3. Of the children surveyed, 48% were male and 52% were female.

4.1 Crude immunization coverage

Crude coverage was defined as immunization given, evidenced by card where applicable or by history from mothers/guardians. While crude immunization rates

were calculated from doses given as indicated by card and by history from the mother or caretaker, they do not accurately measure immunization coverage in terms of children properly immunized or actually protected against disease. Information on infant immunization was obtained from 279 children aged 12 – 23 months, of whom 53 (18.9%) had immunization cards. Somaliland coverage by antigen (card + history) was BCG 43.7 % (C.I 34.6 - 52.9%); DPT1/OPV1 - 40.9%/39.4%; DPT3 30.5%; OPV3 31.2%; and measles 29.4%.

Table 3.1 - Crude immunization coverage for children, by antigen

| Antigen | Crude Coverage | | | |
|---------|----------------|----------|----------------|----------|
| | *Card | | Card + History | |
| | # | Coverage | # | Coverage |
| BCG | **114 | **40.9% | 122 | 43.7% |
| OPV1 | 30 | 10.8% | 110 | 39.4% |
| OPV2 | 29 | 10.4% | 101 | 36.2% |
| OPV3 | 25 | 9.0% | 87 | 31.2% |
| DPT1 | 31 | 11.1% | 114 | 40.9% |
| DPT2 | 29 | 10.4% | 104 | 37.3% |
| DPT3 | 25 | 9.0% | 85 | 30.5% |
| Measles | 23 | 8.2% | 82 | 29.4% |
| FIC | 9 | 3.2% | 72 | 25.8% |

* Card = Immunization card, register or any other written document

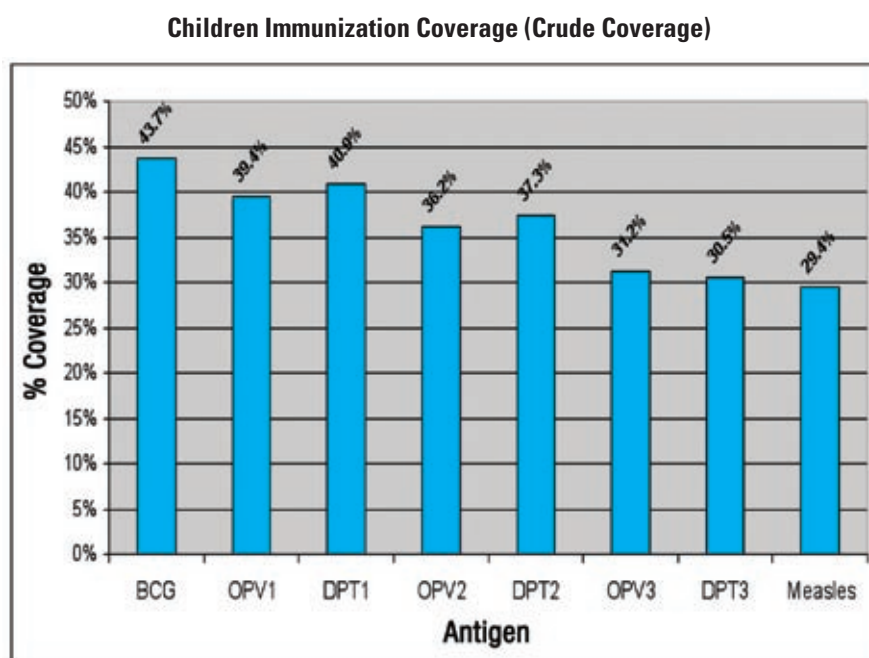
** BCG scar was regarded as similar to BCG date = dose by card

*** FIC = Fully Immunized Children

According to the immunization schedule for Somaliland, the minimum age for measles vaccination is nine months. From the survey, crude coverage for measles by both card + history was 29.4%; card only was 8.2% while

history alone was 21.2%. A high proportion of 197 out of 279 children (70.6%) were found to be not vaccinated against measles. Table 3.1 summarizes crude coverage rates for children.

Figure 3.1 - Crude immunization coverage for children by antigen



Immunization program indicators are extremely low in Somaliland. An appropriate indicator in measuring access is DPT1, where the reported crude coverage was 40.9%.

Probable explanations for low coverage are that Somaliland communities have not internalized the usefulness of immunization and the benefits of completing full doses for children. In addition, there is a probability that the few available health workers do not inform or remind mothers/caretakers to return for more doses, or of outreach dates. It is evident that immunization sessions sometimes conflict with nomadic movements of communities, especially during the dry seasons, and this reduces attendance. Static and outreach sessions are sometimes infrequent, with notable vaccine shortages and/or cold-chain breakdowns. Although there is no evidence of defaulter tracing, there is little or no involvement of local leaders, especially in following up defaulters.

4.2 Valid immunization coverage

Valid coverage was defined as immunization given as evidenced by card. Validity was based on the presence of a card with a date when the vaccine was given. Measles vaccine must be administered after the age of nine months, and the second DPT dose must be administered at least four weeks after the first dose otherwise the vaccine dose is considered as invalid.

Overall coverage by antigen (card only) was BCG 40.9%; DPT1 11.1%; OPV1 10.8%; DPT3 9.0%; OPV3 9.0%; and measles 8.2%. Out of 25.8% of children in Somaliland found to be fully immunized; only 6.8% was confirmed by card only, indicating low coverage.

4.3. Comparison between routine coverage, survey and MICS data

During 2007, routinely collected data from Somaliland indicated BCG coverage of 48.3%, DPT1 - 49.9%, DPT3

- 36.4%, and measles - 33.2%, while fully immunized children (FIC) were 30.0%. Although the survey figures reflect a previous years cohort, routine reported coverage is slightly higher than the survey coverage, as shown in Table 3.2 below.

Table 3.2 - Comparisons between routine coverage, survey and MICS data

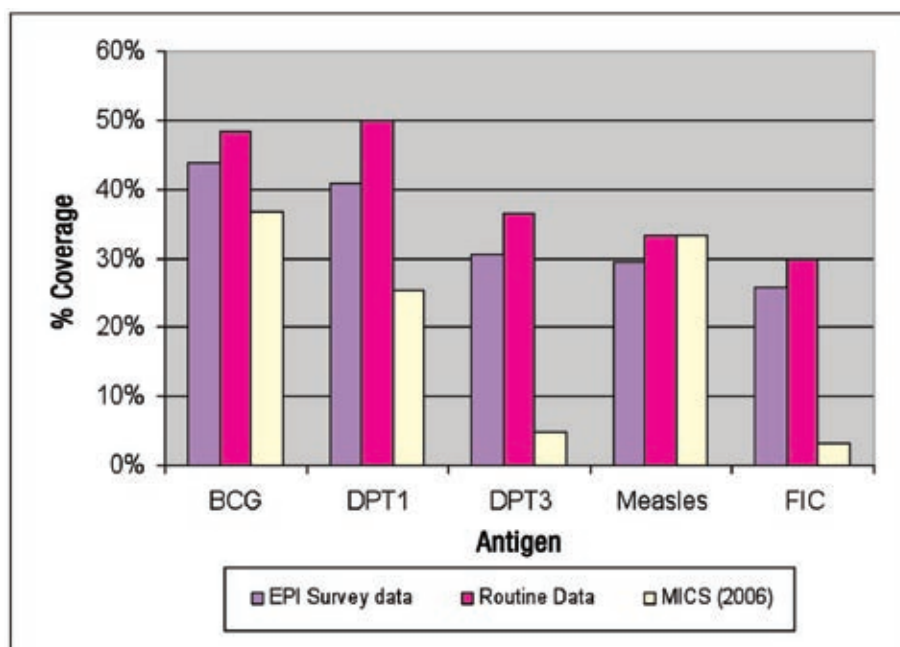
| | EPI survey (2008) | Somaliland routine coverage data (2007) | MICS (2006) |
|---------|-------------------|---|-------------|
| BCG | 43.7% | 48.3% | 36.7% |
| DPT1 | 40.9% | 49.9% | 25.3% |
| DPT3 | 30.5% | 36.4% | 4.8% |
| Measles | 29.4% | 33.2% | 33.2% |
| FIC | 25.8% | 30.0% | 3.3% |

Comparison between survey and routine data indicate that differences could be attributed to unreliable population estimates, compromising the calculation of catchment areas for immunization services.

A multiple indicator cluster survey conducted in 2006 collected data on childhood vaccination. The MICS results indicated BCG coverage of 36.7%; DPT1 was

25.3%, DPT3 at 4.8% while measles and FIC were 33.2% and 3.3% respectively. The coverage was far below reported EPI coverage data although MICS had collected information on the 2005 birth cohort. The difference could be due to a rise in coverage although there is an unexplainable difference between DPT3 and FIC from MICS and EPI coverage results.

Figure 3.2 - Comparison between routine coverage, survey and MICS data



4.4 Vaccination by background characteristics

4.4.1 Socio-demographic characteristics of children

Eighty two percent of the mothers surveyed were illiterate, while 14.3% had reached primary level, 2.2%

secondary school and only 1.1% had tertiary education. The educational level of the mothers did not have a significant impact on immunization status of their children and hence made it difficult to relate mother's education level to child vaccination status, due to the fact that most mothers in Somaliland are illiterate. Out of 230 mothers who were illiterate, 77% had not immunized their children.

Table 3.3 - Immunization status and mother/caretaker education

| Mother / caretaker Education | Immunization Status | | | | Total | % Total |
|--------------------------------|---------------------|-------------|-----------------|-----------------|-------|---------|
| | # Immunized | % Immunized | # Not Immunized | % Not Immunized | | |
| Illiterate | 53 | 23.0% | 177 | 77.0% | 230 | 82.4% |
| Primary school level and above | 17 | 34.7% | 32 | 65.3% | 49 | 17.6% |
| TOTAL | 70 | 25.1% | 209 | 74.9% | 279 | 100% |

4.4.2 Urban and rural immunization status

Children in rural areas are more likely to be missed by vaccination than those from urban areas. The survey results indicated that 58.6% of children from rural areas had been immunized, compared to 49.5% living in urban areas. Among partially immunized children there was minimal difference between those living in urban and those in rural areas. In urban areas travel distances and availability of services resulted in children being more likely to be fully immunized than their counterparts from rural areas, where 29% of children were fully immunized against 22% from rural areas.

4.4.3 Place of delivery

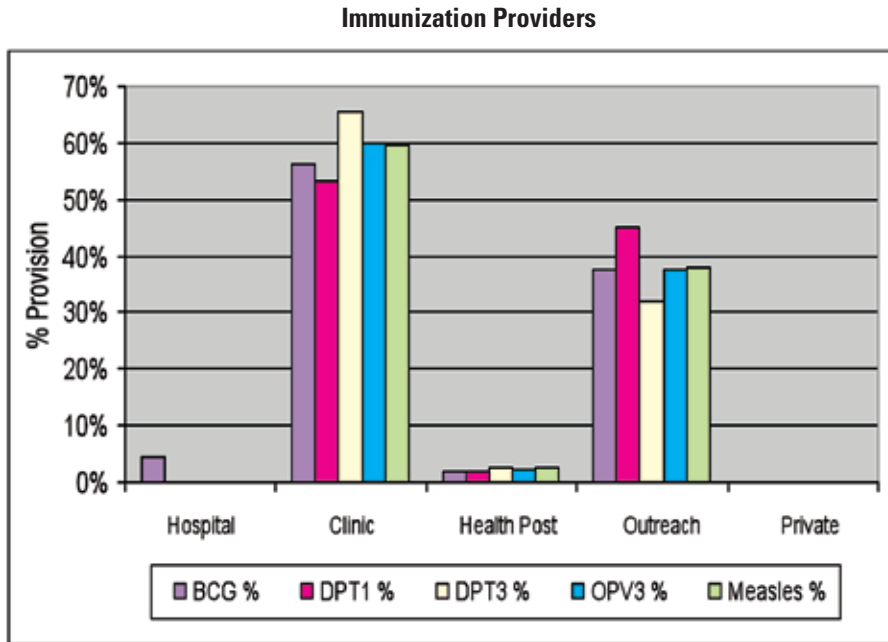
Information was collected on places of delivery of the children surveyed. Results indicated that mothers' education levels did not have a significant impact on place/s of delivery, and 88.2% of deliveries were conducted at home. The high number of illiterate mothers in Somaliland had a strong correlation to the high number of home deliveries.

4.5 Access to and utilization of health services

DPT1 crude coverage is used as an indicator to show a population's levels of access to immunization services. A rate of less than 90% implies that access is below acceptable. In Somaliland, access to immunization services is very low, as evidenced by a crude DPT1 coverage of 40%.

Immunization system access was computed where children receiving BCG (card or history) were 122 (43.7%) at 34.6%-52.9% level of confidence. Children receiving DPT1 (card or history) were 114, or 40.9% (CI: 32.0%-49.8%). A total of 152 (54.5%) of children were not vaccinated according to card or history.

Figure 3.4 - Sources (places) of child vaccinations



On average, 58% of child vaccinations are given through MCH clinics. Outreach services provided 38% while temporary health posts and hospital provided 2% and 1% respectively. BCG is usually the first antigen given at birth in hospitals, especially in areas where there are many hospital deliveries. The results indicated that only 4% of BCG was given at hospitals, probably due to the fact that most deliveries take place at home and children are later taken to MCH clinics, as indicated by 56% receiving the BCG dose.

4.6 Vaccination programme quality

4.6.1 Card retention

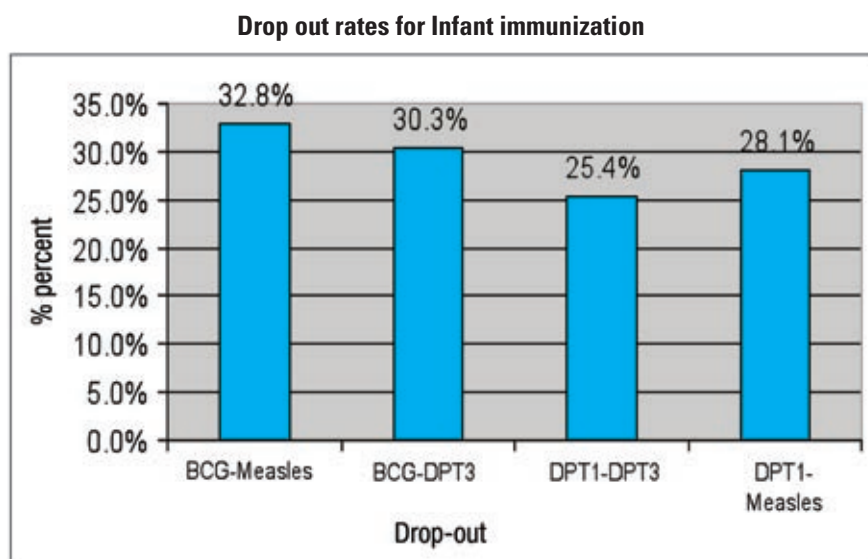
Card retention rate was defined as the proportion of children whose immunization cards were available. Interviewers asked mothers

or caretakers to show immunization cards (commonly known as the “Growth Monitoring Card”). All vaccinated children are issued with such cards, usually procured and supplied by UNICEF to MOHL in Somaliland. Only 53 out of 279 (19%) of children had immunization cards, signifying a low card retention rate in Somaliland.

4.6.2 Vaccination drop-outs

Dropout rates are used to measure program continuity. Dropout rates between the first and third doses of DPT are the best indicator of program continuity and follow-up of children in EPI. The surveys revealed high drop-out rates in the Somaliland immunization programme.

Figure 3.5 - Immunization drop-out rates for children



The drop-out rate from DPT1-DTP3 (card + history) was 25.4 %. In routine EPI programmes, drop-out rates higher than 10% usually indicate a serious quality problem with the programme and need to be addressed. One of the notable reasons (11%) for failure to immunize children; was a lack of information reported by most of the mothers and caretakers

To reduce the level of drop-outs, social mobilization will need to be intensified and possibilities explored in training community volunteers. Identification and recruitment of local groups, as well as mobilizing school children to inform their siblings/parents, will help in identifying defaulters and directing them to health facilities. Involvement of communities in planning for their health services will help in identifying and addressing community needs.

4.6.3 Invalid doses

A dose is considered invalid when it does not meet the immunization schedule criteria (dose given before a minimum age or after a too-short interval). A vaccine dose administered after an invalid dose was considered as invalid, even when the interval had been respected.

The survey findings showed that invalid doses accounted for up to 39.1% of vaccinations. The administration of invalid doses indicates that some vaccinators in both the fixed and outreach facilities do not adequately screen children before giving vaccines. This could be investigated through physical observations of EPI sessions as well as conducting an in-depth interview of the clients.

4.7 Adherence to vaccination schedules

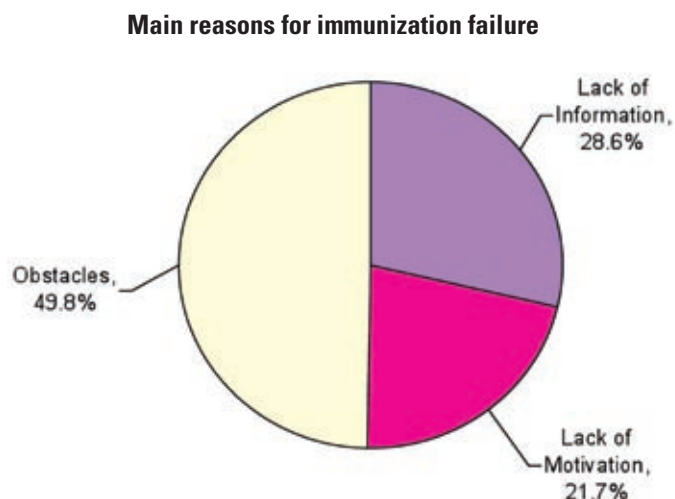
Missed immunization opportunities occur when a child or a woman comes to a health facility or outreach site and does not receive any or all of the vaccine doses for which he or she is eligible. The most important reasons for missed opportunities are failure to simultaneously administer all vaccines for which a child was eligible, false contraindications to immunization, poor health worker practices including not implementing the new multi-dose vial policy and hesitating to open a new multi-dose vial for a small number of persons so as to avoid vaccine wastage, logistical problems such as vaccine shortages, poor clinic organization and inefficient clinic scheduling.

4.8 Reasons for failure to vaccinate target children

Reasons for immunization failure were grouped as either (a) Lack of information, (b) Lack of motivation and (c)

Obstacles. The survey noted that 49.8% of reasons for failure were due to obstacles and 28.6% and 21.7% were due to lack of information and obstacles respectively. Analyses from specific reasons for failure are shown in Figure 3.6 below.

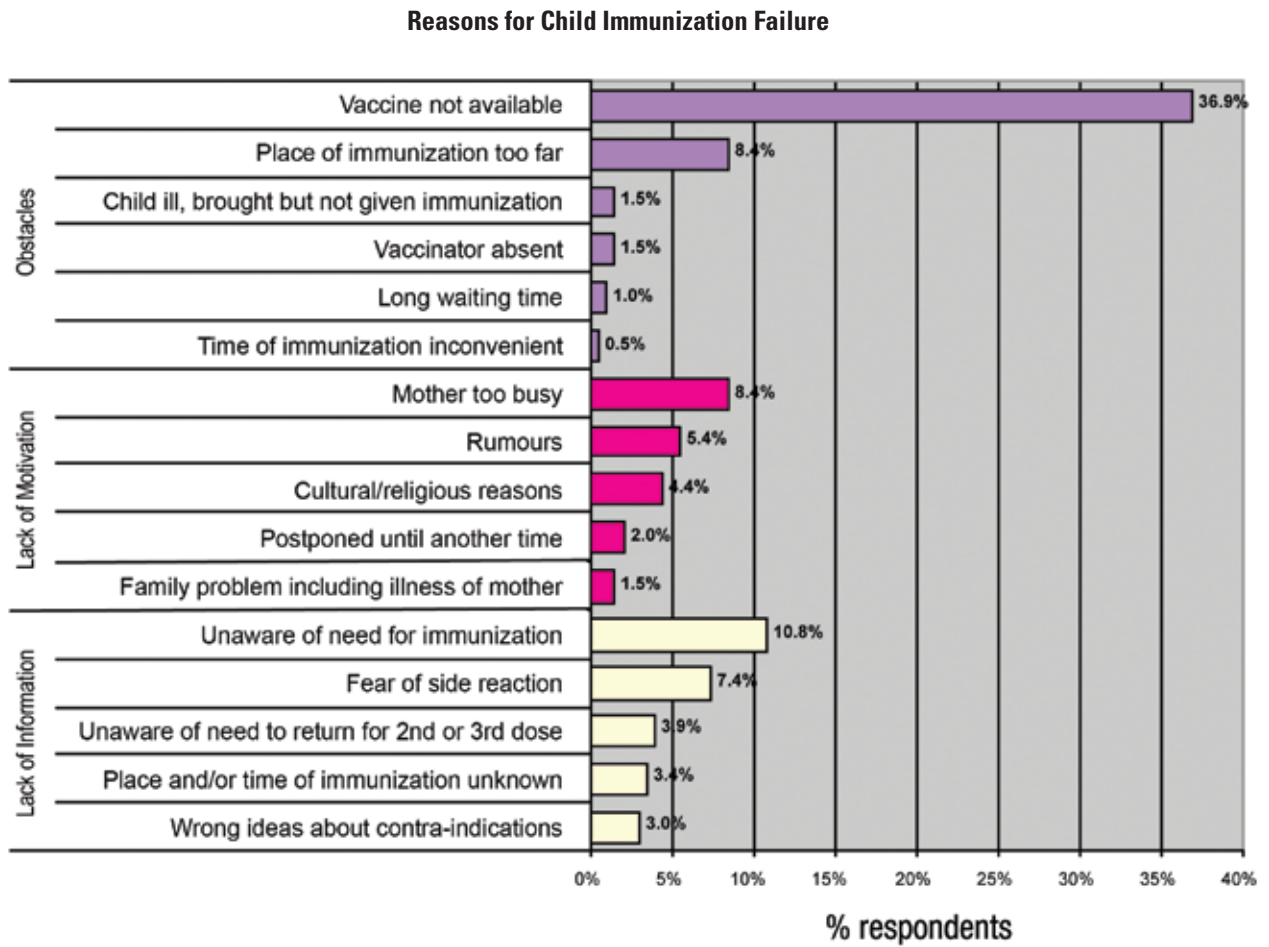
Figure 3.6 - Main reasons for failure to administer child vaccinations



The main reason noted for failure to immunize children was due to lack of vaccine as shown in Fig. 3.7 below. Thirty-seven percent were not immunized due to lack of vaccines, 11% were unaware of need for immunization, 8% either found the vaccination place too far and an equal number of mothers were too busy to take their

children for immunization. Fears of post-vaccination side effects were reported by 7% mothers and caretakers, while rumours and other cultural and religious beliefs were noted to cause 5% and 4% of children respectively to miss being vaccinated.

Figure 3.7 - Specific reasons for child immunization failures



5

TETANUS-TOXOID VACCINATION

Tetanus toxoid vaccination (TT) is routinely monitored in Somalia by the TT2+ method, in which the reported number of protective doses of TT (TT2 to TT5) given to pregnant women during the calendar year is divided by estimated live births in the same year. TT coverage is based on information obtained from both the card + history. A total of 282 mothers with children aged between 0 - 11 months were surveyed.

5.1 Socio-demographic characteristics of mothers

Most deliveries (88.2%) occur at home with only a small proportion (11.8%) occurring in hospitals. The survey noted high preference for home deliveries for both literate and illiterate mothers. Up to 90% of illiterate mothers, 80% of literate mothers and 80% of those with higher education deliver at home, with only a few delivering in the health facilities.

There was higher protection at birth (TT2+) in urban mothers (76%) than in those from rural areas (40%).

The difference could be due to better and more timely dissemination of information to urban mothers than to their rural counterparts. Approximately 70% of mothers interviewed had not visited the ANC clinic during their last pregnancy while 6.4% had made a single visit, 10.6% two visits and 13.5% made over three visits. Most of these mothers were unaware of the need for immunization and hence did not know it was necessary to attend antenatal care clinics.

5.2 Vaccination coverage among mothers of children <11 months old

Tetanus toxoid immunization with two doses of vaccine provides protection of newborns against tetanus for three years. The protection is considered as being effective two weeks after the second injection, for a period of three years. A mother protected against tetanus will pass her immunity on to her newborn child for the first two or three months, who will be considered protected as long as the delivery takes place two or more weeks after the second injection.

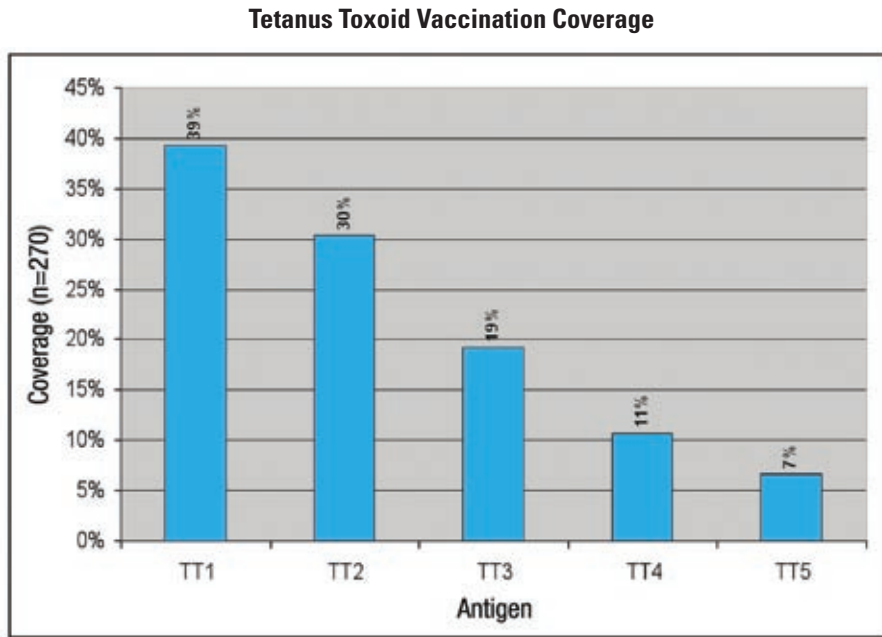
Table 4.1 - Rates of tetanus toxoid vaccination for women

| Antigen | Card | | Card + History | |
|---------|-------|------------|----------------|------------|
| | Count | Percentage | Count | Percentage |
| TT1 | 8 | 3.0% | 106 | 39.3% |
| TT2 | 6 | 2.2% | 82 | 30.4% |
| TT3 | 4 | 1.5% | 52 | 19.3% |
| TT4 | 1 | 0.4% | 29 | 10.7% |
| TT5 | 0 | 0.0% | 18 | 6.7% |

Only 25.3% of children were protected at birth according to vaccination results from the mothers. Information obtained from both card + History, showed that 39.3%

of mothers had received only a single dose of TT, while 14.4% had at least three doses.

Figure 4.1 - TT vaccination coverage results



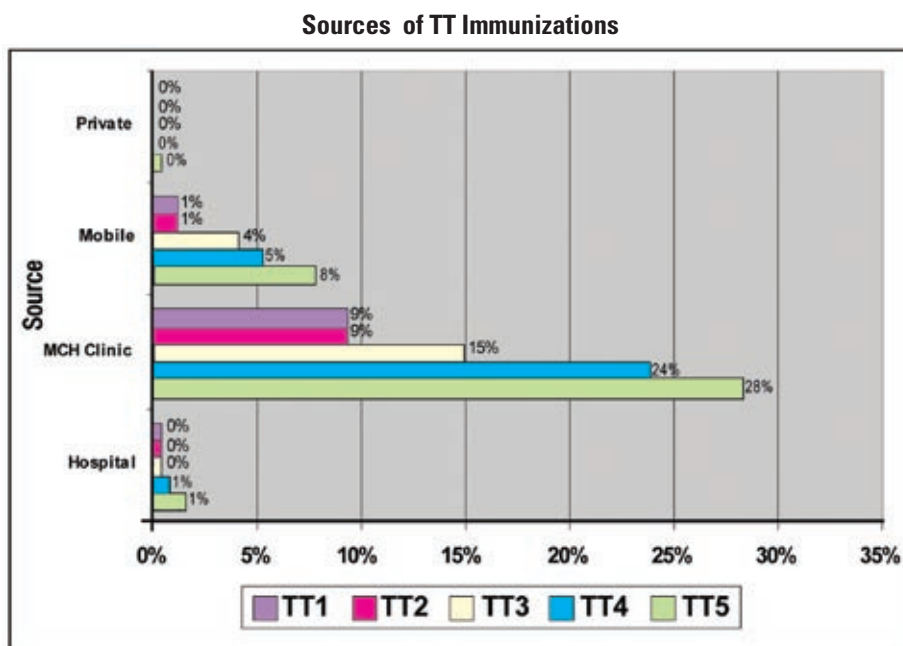
TT vaccination coverage was low, as indicated by TT1 (39%), TT2 (30%), TT3 (19%), TT4 (11%) and TT5 (7%) respectively.

a woman to be reviewed and given her due dose of TT. Out of 282 mothers interviewed, only 31.2% had made at least one ANC visit during their last pregnancy. Most services are provided by MCH clinics and mobile facilities, as shown in Fig. 4.2 (below).

5.3 Access to and utilization of TT vaccination services

Access to TT immunization was defined as having had at least one ANC visit, as this give as an opportunity for

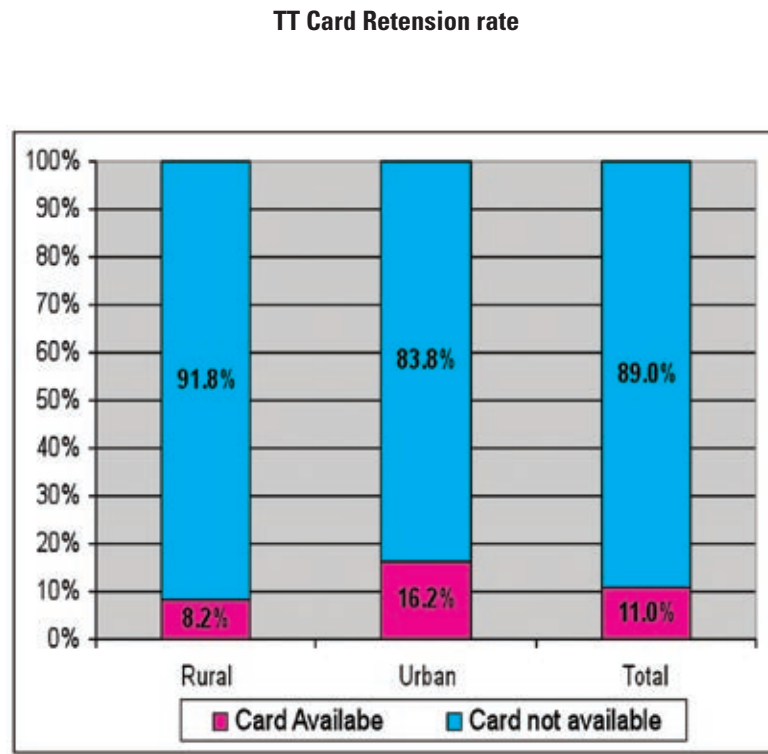
Figure 4.2 - Sources of tetanus-toxoid vaccination



5.4 TT vaccination programme quality

Card Retention - Presence of an immunization card was an indicator of card safe-keeping by mothers. The rate of card retention was low, with only 11.2% of women having cards.

Figure 4.3 - TT card retention

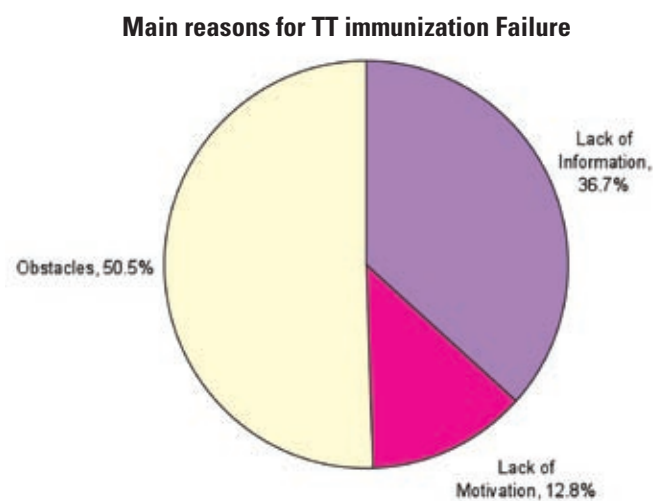


The same phenomenon was seen for both urban and rural mothers where retention rate was 8.2% in rural and 16.2% in urban areas, respectively.

5.5 Reasons for vaccination failure for target women

During the survey, mothers who were found to not be vaccinated were asked about reasons for non-vaccination.

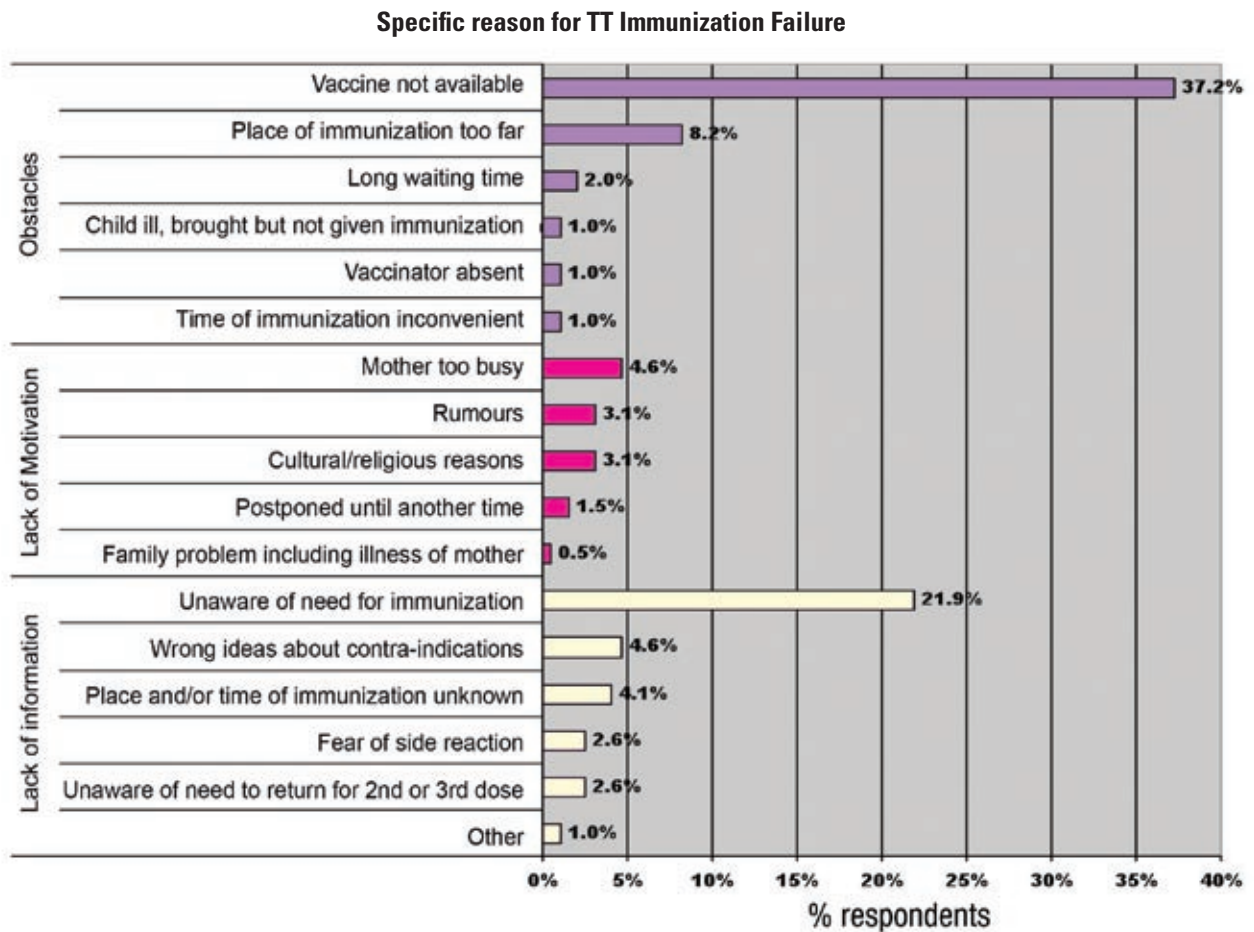
Figure 4.4 - Main reasons for TT vaccination failure



Specific reasons for vaccination failure among target women - Results indicated that most women failed to get TT doses due to lack of vaccines. During the survey, mothers reported that TT vaccine was unavailable at the

facilities, whereas 22% were unaware of the need for immunization, 8% reported that the place of immunization was too far, 5% had wrong ideas about contra-indications and the same number were too busy to seek services.

Figure 4.5 - Specific reasons for TT vaccination failure



6

VITAMIN A SUPPLEMENTATION

Vitamin A deficiency is a major contributor to child mortality in Somalia. The only major opportunity of offering Vitamin A supplementation (VAS) has been during measles or polio NIDs. However, Vitamin A is given routinely in MCH clinics to targeted children as per WHO guidelines; WHO recommends administration of Vitamin A together with measles vaccination in countries where lack of Vitamin A is a problem.

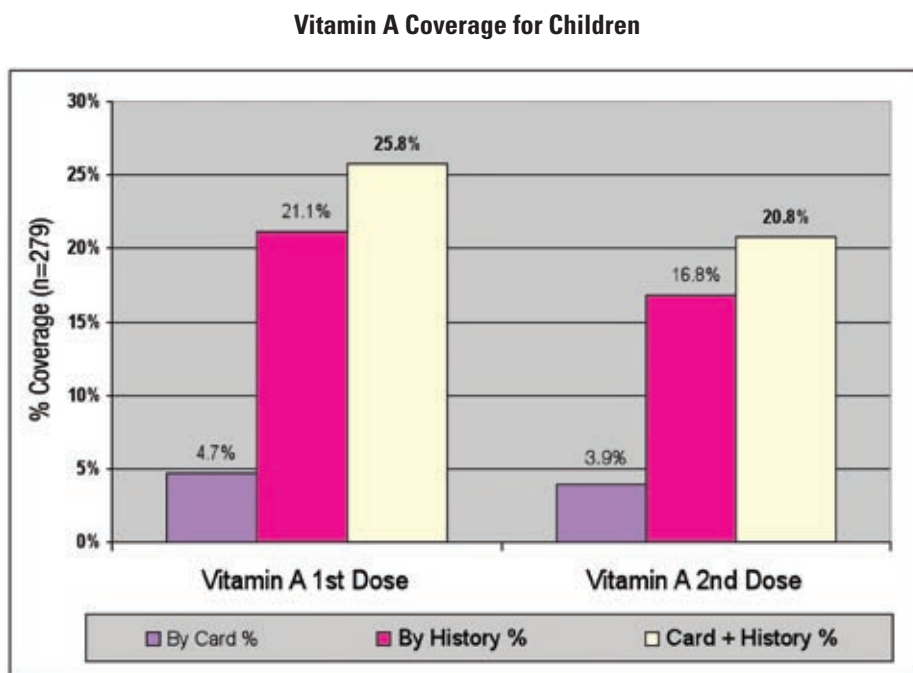
During routine administration of Vitamin A, a high dose (100,000 iu) is given to infants aged 9 - 11 months, while those aged 12 months and above receive 200,000 iu. The optimal interval between Vitamin A doses is at least

four to six months. The survey collected information on routine Vitamin A administration from child health cards where possible, and from mothers' recall.

6.1 Vitamin A supplementation coverage

According to both card + history, during this survey only 25.4% and 21.1% of children had received first and second doses of Vitamin A supplementation, respectively (see Figure 5.1 below).

Figure 5.1 - Vitamin A coverage by card + history



6.2 Sources of Vitamin A supplementation

Most children who had received Vitamin A were administered through MCH clinics. Sixty three percent of

the first dose and 66% of the second dose were offered through MCH clinics. Other child survival interventions such as measles and polio NIDs had offered 66.1% and 32.2% of first and second doses of Vitamin A respectively as shown in Table 5.1 below.

Table 5.1 - Sources of Vitamin A supplements

| Source | Vitamin A | | | |
|------------|-----------|-------|----------|-------|
| | 1st dose | % | 2nd dose | % |
| Hospital | 0 | 0.0% | 1 | 1.7% |
| MCH Clinic | 45 | 63.4% | 39 | 66.1% |
| Outreach | 26 | 36.6% | 19 | 32.2% |
| Total | 71 | | 59 | |

7

DISCUSSION

Any program needs commitment to succeed. The Somaliland EPI programme has the potential to achieve greater levels of success, considering the better security situation in comparison to other areas in Somalia. The study has identified some important factors that will be taken as positive criticisms by the program managers. With comprehensive efforts from all stakeholders, it will definitely be possible to meet the unmet needs of EPI and reach the more inaccessible areas to achieve at least minimal herd immunity in the shortest span possible, with continuing sustainability.

In most cases, one of the contributing factors for incomplete child immunization is that information on requirements for full immunization is not communicated to clients in a way that is understandable (i.e. in their local language/s and according to cultural norms). Experience in other developing countries shows that improving mothers' knowledge of immunization presents potential bridges to reduce the gap in coverage between children of both well-educated and illiterate mothers.

There is a need to conduct in-depth interviews, observation of sessions and client-provider interactions in MCH clinics to assess whether mothers and caretakers are properly and adequately motivated to bring children to MCH clinics or outreach sites. The clients should be given the knowledge (in a language understood by the mothers) that incomplete immunization is inadequate to provide optimal protection for their children against the diseases which they have travelled to the MCH for. This can be considered as a lapse in programming, as the task of the programme should not be limited only to asking people to bring their children to immunization sites, but also to follow this up to ensure clients complete all doses.

Invalid doses that did not meet immunization schedule criteria (i.e. dose given before a minimum age or after a too-short interval) were noted during the survey. The

administration of invalid doses indicates that vaccinators in both the fixed and outreach facilities do not screen children adequately before administering vaccines. Survey findings showed that invalid doses accounted for as much as 39.1% of total given. This could be investigated by physical observations of EPI sessions, as well as conducting in-depth interviews of clients and follow-up to ensure adherence to immunization schedules.

Holding irregular EPI sessions *might* be a factor contributing to the low immunization coverage in Somaliland. Community involvement may be an appropriate means to remedy this situation and ensure regular EPI sessions.

On the one hand, health professionals often assume that low demand for, or refusal of immunization, reflects public ignorance or misinformation that needs to be corrected through education. In 2006 there were cases of refusals and resistance to routine immunization in Somaliland, such as a case in Burao. Yet assumptions of ignorance and rumours overlook the effect of local knowledge and cultural perspectives on leading people to demand or shun immunization.

On the other hand, recording and reporting EPI performance are important documentary activities that are vital to performance of the EPI program. Among others, these include issuing mothers with cards, and documenting the EPI register for children of under one year in each immunizing facility. Child Health Cards can help health workers and caretakers to follow up child health issues, thereby inherently promoting child health. A system of tracking down eligible children for routine vaccination will be necessary, as missed opportunities and refusals are crucial in routine programme and future campaigns.

Finally, while the survey findings do not represent a scenario prevailing over all of Somalia, the findings are

alarming enough that all stakeholders should come to a common consensus regarding formulation and development of alternative strategies, and proper implementation to increase the immunization coverage in Somaliland and Somalia as a whole. Lapses in the Somaliland EPI program need to be well understood and

recognized by program managers, at least in the EPI and MOHL head quarters in Somaliland. This in itself would be a big advance in efforts to improve immunization coverage, for instance scheduling vaccine sessions and marrying them with the proposed Child Health Days.

8

CONCLUSIONS

The survey revealed low levels of immunization coverage for both mothers and children aged between 12 - 23 months in Somaliland. Only a quarter of eligible children were vaccinated, and only 1.5% of mothers found to have completed their immunization schedule/s at the time of survey. Lack of vaccines at vaccination facilities was the main reason given for non-vaccination. Mothers from a number of areas reported that they were unaware of the need for immunization, and to a greater extent, for the need for subsequent immunizations. This could be reduced by conducting regular, focused IEC activities on the need for immunization so as to improve community understanding on the need for vaccination.

Some reasons given by mothers like 'not aware of the need for immunization or not aware of all three doses', 'mother too busy' indicate that more focused and

intensive publicity at the local or village level is required. On the other hand, providing accurate information about the need for repeated doses needs to be given to remove doubts and superstitions among illiterate mothers, who are in the majority in Somaliland.

High immunization drop-out rates could be overcome by creating awareness of the programme and of the relevance of second and third doses of DPT and polio vaccines. Increasing community participation through intensive and extensive health education campaigns may also be required. Since most deliveries are conducted at home by traditional birth attendants, a training programme for this cadre and involvement in IEC activities should be contemplated.

9.1 Programme management and planning

- There is need to reactivate ICC to provide guidance in the Somaliland EPI programme. Membership should include major EPI Partners MOHL, UNICEF, WHO, local and international NGOs.
- Detailed micro-planning with clear mapping of seasonal nomadic movements is required to ensure targeted outreach services to these populations in extreme dry areas. The plan should include sketch maps showing actual locations and seasonal movement of these communities.
- Community participation in planning for outreach and mobile vaccination should be encouraged through their leaders. Initial planning for CHDs should ensure that community members participate in planning for their immunization services.
- The need to integrate immunization with other PHC services will be useful in realizing vaccination goals in Somaliland. Vaccinating children when necessary during visits to health facilities will contribute to these efforts.
- To expand and extend the MCH services to the rural areas to increase access and availability of the vaccines while the survey identified that 37% women in rural areas had not received any vaccines.

9.2 Vaccines, cold-chain and logistics

- There is a need to implement recommendations made following the vaccine management assessment, especially on availability of adequate quantities of vaccine

where insufficient vaccine was provided at each service level, and to forecast vaccine requirements for each service delivery point.

- An efficient, regular vaccine distribution system giving insights into wastage and with the ability to provide the right service at the right time, needs to be designed for all SDPs.
- MCH clinics should be assured of regular supplies of vaccines, and distribution must respect a bundling policy where vaccines, diluents, syringes, needles and safety (disposal) boxes are distributed at the same time.
- The distribution plan for vaccines and other immunization supplies should be included in annual planning for immunization services, detailing the required frequency of distribution to avoid shortages. Anticipated numbers of children to be immunized should guide supply allocations.

9.3 Surveillance, reporting and data management

- Health facility staff should monitor drop-out rates on a monthly basis to ensure that it remains below 10%. This could be done through identifying a workable method of tracking defaulters at the community level.
- A permanent register of children needs to be maintained at each vaccination site, to help in defaulter tracing.

9.4 Service delivery, training, supervision and monitoring

- EPI managers from both the MOHL and NGOs should ensure that EPI sessions and supervision are held regularly, with supportive supervision to the outreach teams.

- Organized local immunization days combined with a strategy of multi-interventional CHDs will help ensure children are reached with the necessary antigens and other interventions.
- Regular, focused supportive supervision needs to be strengthened at all levels, with the use of an integrated supervisory checklist to help improve routine programme performance and at the same time motivate staff at lower level facilities.
- Refresher training for managers and providers on all aspects of EPI will help them to understand the latest developments in immunization systems (e.g. the multi-dose vial policy), that will assist in reducing numbers of drop-outs and missed opportunities.
- Refresher training for local community health workers, traditional midwives and traditional birth attendants needs to be organized to enhance knowledge on the dangers of non-vaccination so as to help in mobilizing communities and promote clean delivery practices.
- The administration of invalid doses indicates that vaccinators in both the fixed and outreach facilities do not adequately screen children before administering vaccines. This could be investigated by physical observations of EPI sessions, as well as conducting in-depth client interviews.

9.5 Advocacy, social mobilization and communication

- The MOHL needs to promote utilization of antenatal care, clean delivery practices, post-natal care and other services for both mother and child.
- There is a need to strengthen social mobilization to increase routine immunization services. The wealth of experience gained during the 2005 measles campaign should be used to find innovative ways to increase public demand for routine immunization services.
- Somaliland needs to launch effective media campaigns targeting urban and rural populations, to inform and motivate women to make informed choices in seeking tetanus vaccinations.
- Provision of health education through the distribution of EPI IEC materials and other organized health education sessions in communities will help in further reduction of dropouts. Organized local immunization days combined with a multi-interventional CHD strategy will help ensure that children are reached with the necessary antigens.

10

SURVEY LIMITATIONS

The EPI coverage survey was a significant success in Somaliland, yielding useful findings for the routine EPI programme as well as lessons that could be useful for future surveys. Most of the limitations translating to useful lessons affected the planned duration for the survey. In an ideal situation, an EPI cluster survey process usually takes approximately two months from planning, through implementation, report writing and dissemination of results. This was not possible in Somaliland, taking into considering security levels and logistical challenges.

There has not been a recent population census resulting in reliance on population data from several sources which was a serious limitation during the survey. Community sample surveys such as the EPI coverage survey require accurate village population figures to guide the cluster selection process. Where such was unavailable, the alternative was to use village maps that are not readily available in Somaliland. Sketch maps are an ideal alternative, but require consultation with community members to understand settlement patterns. Adequate time to develop such sketch maps is required with community members to understand and plot settlement patterns, taking into consideration nomadic and seasonal community settlement areas.

The security situation in Somaliland required prior travel approval from designated officials in charge of UN security. Adequate time was needed to acquire the necessary security clearances, security briefings and flight bookings, both to Somalia and with in Somalia.

Training for the Somaliland survey had to take into account the time required for interpretation into Somali language, to ensure understanding of the content. Training for interviewers for the survey normally takes two days but required double the time due to the need for English to Somali interpretation. Where possible, training materials, tools and guidelines should first be translated into Somali for ease of participants' understanding.

The survey should have had one technical committee to guide and monitor the process, but such was not possible due to the administrative set-up in Somaliland. Some key technical personnel from international NGOs and agencies are based in Nairobi, while others are in the field. This calls for establishment of two technical committees, and for mechanisms to be put in place to harmonize recommendations from both committees. This would require frequent travel by the coordinator to attend meetings for both committees.

Literacy is low in Somaliland, compromising quality and quantity of personnel required for surveys and other, similar activities. This was the case during the survey, leading to extension of data collection for several days. Although quality is ensured when using a smaller number of supervisors and interviewers and reduces the error margin, the duration should be factored into the survey time plan.

CLUSTER SURVEY ANALYSIS INDICATORS

| Issue | Indicator |
|--|---|
| 1. Immunization coverage for maximum epidemiological impact | <p>% coverage of all individual EPI vaccines (measured by “card valid doses” and “Card + History <1year of age”);</p> <p>% of fully immunized children with any doses (card + history) and with valid doses (card only) of EPI vaccines;</p> <p>% of fully immunized children with valid doses by one year of age (card only);</p> <p>% of women with at least two doses of TT received during their lifetime, of which at least one dose was during the last pregnancy.</p> |
| 2. Immunization system access | <p>% of children receiving BCG (card or scar or card + history);</p> <p>% of children receiving DTP1 (card or card + History)</p> |
| 3. Immunization system utilization (dropout rate) | <p>% difference in coverage between BCG and measles: (card or card + history);</p> <p>% difference in coverage between DTP1 and measles: (card or card + history);</p> <p>% difference in coverage between DTP1 and DTP3 (card or card + history);</p> <p>% difference in coverage between TT1 and TT2+(card or card and history);</p> <p>% difference between antenatal clinic (ANC) attendance and TT1 coverage.</p> |
| 4. Immunization system gender equity | % difference between coverage of males and females (for various antigens). |
| 5. Immunization card retention | <p>% of children/women who ever had a card;</p> <p>% of children/women with a card at the time of the survey.</p> |
| 6. Invalid dose administration (adherence to schedule) | <p>% of children (card only) who received invalid DTP1 doses (too early);</p> <p>% of children receiving invalid DTP3 doses (card only) (too-short interval);</p> <p>% of children receiving invalid measles doses (card only) (too early).</p> |
| 7. Vaccination at recommended age | <p>% of children receiving a DTP3 dose before the age of 26 weeks (six months)</p> <p>% of children having received a measles vaccination before the age of 52 weeks.</p> |
| 8. Missed opportunities | <p>Proportion of uncorrected missed opportunities;</p> <p>% of children with at least one missed opportunity.</p> |
| 9. Immunization providers | Vaccination distribution by health providers. |



SOMALILAND SURVEY SUPERVISORS AND INTERVIEWERS

| | Name | Region | Title |
|---------------------|----------------------------|---------|-------------|
| SUPERVISORS | | | |
| 1 | Mohamed Abdilahi Farah | MOHL | Supervisor |
| 2 | Ahmed Yousuf Jama | MOHL | Supervisor |
| 3 | Ahmed Osman Jama | MOHL | Supervisor |
| 4 | Abdillahi Abdi Yousuf | MOHL | Supervisor |
| 5 | Ahmed Hassen Goole | MOHL | Supervisor |
| 6 | Khadar Yousuf Mohamoud | MOHL | Supervisor |
| 7 | Osman Ibrahim Hayd | Sahil | Supervisor |
| 8 | Fu'aad Yusuf Ismail | T.dheer | Supervisor |
| 9 | Halimo Hassen Ali | Sool | Supervisor |
| 10 | Abdirahmen Muumin | Galbeed | Supervisor |
| 11 | Sa'iid Bile Buraale | Awdal | Supervisor |
| 12 | Hassen Kore | Sanaag | Supervisor |
| 13 | Ahmed Jama Farah | Sanaag | Supervisor |
| INTERVIEWERS | | | |
| 1 | Ahmed Handule Abdi | Sahil | Interviewer |
| 2 | Sado Jama Adan | Sahil | Interviewer |
| 3 | Abdillahi Elmi Diria | T.dheer | Interviewer |
| 4 | Hassen Yousuf Abdi | T.dheer | Interviewer |
| 5 | Farhiya Mohamed Naleye | T.dheer | Interviewer |
| 6 | Abdilrisaq Farah Nur | T.dheer | Interviewer |
| 7 | Faysal Arab Abdi | T.dheer | Interviewer |
| 8 | Saleeban Abdilahi Mohamed | T.dheer | Interviewer |
| 9 | Sahra Mohamed | Sool | Interviewer |
| 10 | Farduur Mohamoud Mohamed | Sool | Interviewer |
| 11 | Farah Awil | Sool | Interviewer |
| 12 | Baar Dirie Ali | Sool | Interviewer |
| 13 | Sa'iid Ismail Mohamed | Galbeed | Interviewer |
| 14 | Abdirahman Mohamed Bakayle | Galbeed | Interviewer |
| 15 | Ahmed Tani | Galbeed | Interviewer |
| 16 | Ayan Muse Jama | Galbeed | Interviewer |
| 17 | Sado Osman Arale | Galbeed | Interviewer |
| 18 | Ifrah Ali Omer | Galbeed | Interviewer |
| 19 | Hodan Omer Samriye | Awdal | Interviewer |
| 20 | Amina Barkhad | Awdal | Interviewer |
| 21 | Juweriya Dahir | Awdal | Interviewer |
| 22 | Ahmed Dahir Hassen | Awdal | Interviewer |
| 23 | Salah Bare Abdi | Sanaag | Interviewer |
| 24 | Wa'ays Mohamed Ahmed | Sanaag | Interviewer |
| 25 | Mohamed Abdi Huruse | Sanaag | Interviewer |
| 26 | Jama Ali Farah | Sanaag | Interviewer |



SELECTED CLUSTERS IN SOMALILAND

| | Region | District | No. | Cluster Name (settlement) | Cluster Type |
|----|-----------------|-------------------------------------|-----|----------------------------|--------------|
| 1 | Woqooyi Galbeed | Hargeisa (26 June) | 1 | Xero Awr | Urban |
| 2 | Woqooyi Galbeed | HARGEISA (Gacan linbax) | 2 | Sheikh Yoosuf | Urban |
| 3 | Woqooyi Galbeed | HARGEISA (Guyasamo - Mohamud Haibe) | 3 | Jamia Wein | Urban |
| 4 | Woqooyi Galbeed | HARGEISA (Iftin - Ahmed Dhagah) | 4 | Farah Nuur | Urban |
| 5 | Woqooyi Galbeed | HARGEISA – Koodbuur | 5 | Lixle | Urban |
| 6 | Woqooyi Galbeed | HARGEISA – Koodbuur | 6 | Gul alah | Urban |
| 7 | Woqooyi Galbeed | Hargeysa | 7 | Caydarosh | Rural |
| 8 | Woqooyi Galbeed | Hargeysa | 8 | Caro Madaw | Rural |
| 9 | Woqooyi Galbeed | Hargeysa | 9 | Lafta-Quud | Rural |
| 10 | Woqooyi Galbeed | Gebiley | 10 | Gabiley Town (Laaq Barako) | Urban |
| 11 | Woqooyi Galbeed | Gebiley | 11 | Ijaara | Rural |
| 12 | Woqooyi Galbeed | Baligubadley | 12 | Ina-Cunaye | Rural |
| 13 | Awdal | Borama | 13 | Borama Town - Sh Jowgar | Urban |
| 14 | Awdal | Borama | 14 | Borama Town - Sh. Makahil | Urban |
| 15 | Awdal | Borama | 15 | Sog-Sogley | Rural |
| 16 | Awdal | Borama | 16 | Caro Qolab | Rural |
| 17 | Awdal | Borama | 17 | Tawtawle | Rural |
| 18 | Awdal | Baki | 18 | Gweleed Wanow | Rural |
| 19 | Awdal | Lughaye | 19 | Xajiinle | Rural |
| 20 | Awdal | Zeylac | 20 | Tokhoshi | Rural |
| 21 | Sahil | Berbera | 21 | Burco sheikh | Urban |
| 22 | Sahil | Sheikh | 22 | Beeyo Macaan | Rural |
| 23 | Togdheer | Burco | 23 | Mohammed Al | Urban |

| | | | | | |
|----|----------|--------------|----|--------------------------|-------|
| 24 | Togdheer | Burco | 24 | Lixle | Urban |
| 25 | Togdheer | Burco | 25 | Cagararan | Rural |
| 26 | Togdheer | Burco | 26 | Sibidhley | Rural |
| 27 | Togdheer | Burco | 27 | Qudhac Safar | Rural |
| 28 | Togdheer | Burco | 28 | Naqdhibiijo | Rural |
| 29 | Togdheer | Owdweyne | 29 | Odweyne (Town) | Rural |
| 30 | Togdheer | Owdweyne | 30 | Gocandhaale | Rural |
| 31 | Togdheer | Buuhoodle | 31 | Dhilaalo | Rural |
| 32 | Togdheer | Caynabo | 32 | Wadhan | Rural |
| 33 | Sool | Laas Caanood | 33 | Laas Caanood/Howl-Wadaag | Urban |
| 34 | Sool | Laas Caanood | 34 | Canjiid | Rural |
| 35 | Sool | Taleex | 35 | Sarmaanyo | Rural |
| 36 | Sool | Xudun | 36 | Darya Geesa-Wayn | Rural |
| 37 | Sanaag | Badhan | 37 | Badhan | Urban |
| 38 | Sanaag | Badhan | 38 | Mush-Caleed | Rural |
| 39 | Sanaag | Badhan | 39 | Xeradaa/Muudal | Rural |
| 40 | Sanaag | Ceel Afweyn | 40 | Xareed | Rural |

COVERAGE SURVEY TIMELINE

| Activity | May | | | | June | | | | July | | | | |
|---|----------|-----------|-----------|-----------|---------|----------|-----------|-----------|----------|----------|-----------|-----------|----------|
| | Week 1 | Week 2 | Week 3 | Week 4 | Week 1 | Week 2 | Week 3 | Week 4 | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 |
| | 5th-10th | 12th-17th | 19th-24th | 26th-31st | 2nd-7th | 9th-14th | 16th-20th | 23rd-28th | 31st-5th | 7th-12th | 14th-19th | 21st-26th | 28th-2nd |
| 1 Recruitement of TA for the Survey | █ | | | | | | | | | | | | |
| 2 Finalization of plans for the survey | █ | █ | | | | | | | | | | | |
| 3 Development of Survey Protocol | | █ | █ | | | | | | | | | | |
| 4 Development of guidelines and tools | | | █ | █ | | | | | | | | | |
| 5 Stakeholders Meeting on Survey Consensus | | | | █ | █ | | | | | | | | |
| 6 Production of tools and guidelines | | | | █ | █ | █ | | | | | | | |
| 7 Formation of Technical Committee/Teams | | | | █ | █ | █ | | | | | | | |
| 8 Finalization of Budgets | | | | | █ | █ | | | | | | | |
| 9 Cluster selection and identification | | | | | | █ | █ | | | | | | |
| 10 Administrative / Survey approval (Ethical) | | | | | | █ | █ | | | | | | |
| 11 Communication to Authorities | | | | | | | █ | | | | | | |
| 12 Invitation for Trainings | | | | | | | █ | | | | | | |
| 13 Training meeting for facilitators | | | | | | | | █ | | | | | |
| 14 Training of Supervisors / Interviewers | | | | | | | | █ | █ | | | | |
| 15 Training of Supervisors | | | | | | | | █ | █ | | | | |
| 16 Pre-visit to the Clusters | | | | | | | | █ | █ | | | | |
| 17 Recruitment of Guides | | | | | | | | █ | █ | | | | |
| 18 Coverage survey | | | | | | | | █ | █ | █ | | | |
| 19 Data compilation / summary | | | | | | | | | █ | █ | | | |
| 20 Data Entry | | | | | | | | | | █ | | | |
| 21 Data cleaning and analysis | | | | | | | | | | █ | | | |
| 22 Report writing | | | | | | | | | | █ | | | |
| 23 Dissemination of findings | | | | | | | | | | █ | | | |
| 24 Final Report dissemination | | | | | | | | | | | █ | █ | █ |

TECHNICAL COMMITTEE MEMBERS

Members of Nairobi Technical Committee

- | | | |
|----|----------------------|--|
| 1. | Dr Suraya Dalil | Head, Health and Nutrition, UNICEF SSC |
| 2. | Dr John Lebga | EPI Officer, UNICEF SSC |
| 3. | Dr Augustine Kabano | Measles Advisor, UNICEF ESARO |
| 4. | Grainne Mahoney | Nutrition Manager, FSAU |
| 5. | Dr Assegid Kabebe | EPI /Polio Officer, WHO Somalia |
| 6. | Ms Sicily Matu | M&E Specialist UNICEF SSC |
| 7. | Dr Willis A Ouma | Health Manager, UNICEF Somalia, CSZ |
| 8. | Mr. Charles Kinuthia | Consultant |

Membership of Somaliland EPI Survey Technical Committee

- | | | |
|-----|--------------------------------|---|
| 1. | Dr Mohamoud Ahmed Said (Agane) | Director of Communicable Diseases (Chairperson) |
| 2. | Dr Mohamed Abdiruhman | National EPI manager. |
| 3. | Mr Khadar Mohamiud Ahmed | Director of planning and coordination |
| 4. | Mr Faisal Ismail | Director training |
| 5. | Mr. Ali Shiekh Omer | Head of Environmental health :MOHL |
| 6. | Kaltoum Hussein | Health coordinator SRCS |
| 7. | Mr. Abdi Hassan Dualeh | WHO -EPI |
| 8. | Nura Mohammed Gure: | FSAU |
| 9. | Asha Hussein Adam | UNICEF (M&E Officer- Hargeisa) |
| 10. | Awil Haji Ali Gure | UNICEF (H&N Specialist- Hargeisa) |
| 11. | Charles Kinuthia | UNICEF (Consultant) |

SUMMARY OF MAIN INDICATORS

SOMALILAND EPI COVERAGE SURVEY

Survey date : 22/06/2008 to 28/06/2008

Method : Cluster sampling survey

Sample size : 279

Target population : Children 12-23 months

Cluster effect for DTP1 by card : 2.5

Validity criteria :

Minimum age for Measles : 39 weeks
 Minimum interval between 2 doses : 4 weeks Tolerance for age and interval criteria +/- 0 days
 Min. age for DTP 1 - Polio 1 - Hib 1 : 6 weeks

Main Indicators

| Valid Coverage by 52 weeks of age | Total | % | 95% C.I. |
|--|-------|--------|---------------|
| Fully immunized children by card only : | 7 | 2.5% | 0.5% - 4.5% |
| % of Fully immunized children by card or history (estimate) : | | 9.5% | |
| Valid Coverage | | | |
| Fully immunized children by card only : | 9 | 3.2% | 1.1% - 5.3% |
| % of Fully immunized children by card or history (estimate) : | | 12.2% | |
| Crude coverage | | | |
| Fully immunized children by card only : | 19 | 6.8% | 2.3% - 11.3% |
| Fully immunized children by card or history : | 72 | 25.8% | 18.5% - 33.1% |
| Invalid doses administered | | | |
| Children receiving invalid Measles doses (card only) : | 9.0 | 39.1% | |
| Children receiving invalid DTP1 doses (card only) : | 1.0 | 3.2% | |
| Children receiving invalid DTP3 doses (card only) : | 0.0 | 0.0% | |
| Immunization system access | | | |
| Children receiving BCG (card or history) : | 122 | 43.7% | 34.6% - 52.9% |
| Children receiving DTP1 (card or history) : | 114 | 40.9% | 32.0% - 49.8% |
| Children not vaccinated (card or history) : | 152 | 54.5% | 45.2% - 63.8% |
| Immunization system management (drop-out) | | | |
| Drop-out rates for BCG-Measles (card or history) : | | 32.8 % | |
| Drop-out rates for DTP1-Measles (card or history) : | | 28.1 % | |
| Drop-out rates for BCG-DTP3 (card or history) : | | 30.3 % | |
| Drop-out rates for DTP1-DTP3 (card or history) : | | 25.4 % | |
| Ability to target under one | | | |
| % children receiving a valid dose of measles before one year of age | | 50.0 % | |
| Immunization card retention | | | |
| Number of cards : | 53.0 | | |
| Card retention (number of cards/children receiving at least 1 vaccine) : | | 41.7% | 34.3% - 49.1% |
| Card availability (number of cards/sample size) : | | 19.0% | |
| BCG Scar | | | |
| Children with BCG scar : | 111 | 39.8 % | |

Card = Immunization card, register or any other written document

BCG scar without BCG date = Dose by card

CLUSTER FORM 1: INFANT IMMUNIZATION

Cluster Form 1: Infant Immunisation

Somaliland EPI Coverage Survey

Region: _____ District: _____ Town/Village _____

| | | | | | | | | | |
|--|---------------------|---|---|---|---|---|---|---|---|
| (1) Cluster No. _____ (2) Date. _____ (3) Range of Birth Dates: From: _____ Until: _____ | 4) Name of Child | | | | | | | | |
| Child number in cluster: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Mother/Caretaker Education* OCCUPATION** | | | | | | | | | |
| AGE*** | | | | | | | | | |
| (7) Birth date of Child | | | | | | | | | |
| (8) Sex | | | | | | | | | |
| (9) Immunization card | Yes/No | | | | | | | | |
| (10) BCG | Date/+/o | | | | | | | | |
| | Scar: Yes/No/A | | | | | | | | |
| | Source | | | | | | | | |
| (11-1)DPT1 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (11-2)DPT1 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (11-3)DPT1 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (12-1) OPV1 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (12-2) OPV2 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (12-3) OPV3 | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (13) Measles | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (14-1) Vitamin A (First dose) | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (14-2) Vitamin A (Second dose) | Date/+/o | | | | | | | | |
| | Source | | | | | | | | |
| (15) Immunization Status | Not Immunized | | | | | | | | |
| | Partially | | | | | | | | |
| | Fully | | | | | | | | |
| (17) Fully Immunized before one year of age (Supervisor) | Yes/No | | | | | | | | |

Tally of Household visited: _____ Name/Signature of Supervisor: _____

Key:

Date/ +/o - Date = Copy date of Immunization from card if available.

+ = Mother reports that Immunization was given

O = Immunization not given,

A = Child Absent

*Education: 1-Illiterate, 2-Primary School, 3- Secondary School, 4-Tertiary and above

**Occupation: 1 -Housewife, 2-Dailylabourer, 3-Farmer, 4-Self employed, 5-Government or others, 6-Unemployed

***Last Pregnancy: i.e. pregnancy that led to the child now aged 0-11 months

****Delivery of baby: 1-Home, 2-Clinic,3-other

Source = 1-Hospital, 2-Clinic, 3-Health Post, 4-Mobile, 5- Private, 0-Unknown

Ignore measles or polio shots given in campaigns

CLUSTER FORM 2: REASONS FOR IMMUNIZATION FAILURE FOR THE CHILD

Cluster Form 2: Reasons for Immunization Failure for the Child

Somaliland Immunization Coverage Survey

Region: _____ District: _____ Town/Village _____

| | | | | | | | |
|--|---|---|---|---|---|-------------|-----|
| Cluster no: _____ | | | | | | | |
| Date: _____ | | | | | | | |
| Range of birth dates: From _____ Until: _____ | | | | | | | |
| NOTE: ASK ONLY ONE QUESTION "Why was the child not fully immunized before one year?" | | | | | | | |
| *Mark (X) to box corresponding to the single most important reason given by mother or caretaker. | | | | | | | |
| Child No. in Cluster | 1 | 2 | 3 | 4 | 5 | 6 Totals | 7 8 |
| Child Fully Immunized | | | | | | | |
| 5) Lack of Information | Unaware of need for immunization | | | | | | |
| | Unaware of need to return for 2 nd or 3 rd dose | | | | | | |
| | Place or time of immunization unknown Fear of side reaction Wrong ideas about contraindications | | | | | | |
| | Other | | | | | | |
| Lack of Motivation | Postponed until another time | | | | | | |
| | Cultural/religious reasons | | | | | | |
| | Rumours Other | | | | | | |
| Obstacles | Place of Immunization too far | | | | | | |
| | Time of Immunization inconvenient | | | | | | |
| | Veccination absent | | | | | | |
| | Veccination not available | | | | | | |
| | Mother too busy | | | | | | |
| | Family problem including illness of mother | | | | | | |
| | Child ill – brought but not given immunization | | | | | | |
| Long waiting time Other | | | | | | | |

*If it is felt that categorizing possible responses may risk potentially important information from the respondents, the interviewers can simply write down (at the back of this form) verbatim, the reply given by the child's mother/caretaker. The Survey Supervisor and Coordinator will later review all responses and decide on appropriate categories for presentation of the analysis.

CLUSTER FORM 3: TETANUS TOXOID IMMUNIZATION OF WOMEN

Cluster Form 3: Tetanus Toxoid Immunization of Women

Somaliland Immunization Coverage Survey

Region: _____ District: _____ Town/Village _____

| | | | | | | | | | | |
|---|-------------------------|---------------|---|---|---|---|---|---|---|--|
| Cluster No: _____ Date: _____ Range of birth dates: From _____ June 2007 Until _____ June 2007 Women number in cluster | | Mother's Name | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Birth Date of Child | | | | | | | | | | |
| | Immunization Card (Y/N) | | | | | | | | | |
| | 7-1)*Education | | | | | | | | | |
| | 7-2)**Occupation | | | | | | | | | |
| | 7-3) Age | | | | | | | | | |
| | 8)Parity | | | | | | | | | |
| | 9) TT1 | Date/Y/N | | | | | | | | |
| | | Source | | | | | | | | |
| | TT2 | Date/Y/N | | | | | | | | |
| | | Source | | | | | | | | |
| | TT3 | Date/Y/N | | | | | | | | |
| Source | | | | | | | | | | |
| TT4 | Date/Y/N | | | | | | | | | |
| | Source | | | | | | | | | |
| TT5 | Date/Y/N | | | | | | | | | |
| | Source | | | | | | | | | |
| No. of TT doses received during last pregnancy*** | | | | | | | | | | |
| No. of antenatal care visits in the last pregnancy | | | | | | | | | | |
| Delivery of baby**** | | | | | | | | | | |
| Child in last pregnancy protected against Neonatal Tetanus (Y/N) (Supervisor) | | | | | | | | | | |

Name/Signature of Supervisor: _____

Key:

Date = Copy Date of Immunization from the card, if available

Y = Yes, mother reports Immunization was given;

N = No, Immunization was not given

*Education: 1-Illiterate, 2-Primary School, 3- Secondary School, 4-Tertiary and above

**Occupation: 1 -Housewife, 2-Dailylabourer, 3-Farmer, 4-Self employed, 5-Government or others, 6-Unemployed

***Last Pregnancy: i.e. pregnancy that led to the child now aged 0-11 months

****Delivery of baby: 1-Home, 2-Clinic, 3-other

Source = 1-Hospital, 2-Clinic, 3-Health Post, 4-Mobile, 5- Private, 0-Unknown

CLUSTER FORM 4: REASONS FOR TT IMMUNIZATION FAILURE

Cluster Form 4: Reasons for Immunization Failure for Women

Somaliland Immunization Coverage Survey

Region: _____ District: _____ Town/Village _____

| | | | | | | | | | | | | | |
|---|---------------------|---|--|--|--|---|---|---|---|---|---|---|---|
| Cluster no: _____ | | | | | | | | | | | | | |
| Date: _____ | | | | | | | | | | | | | |
| Range of birth dates: From _____ June 2007 Until: _____ June 2008 | | | | | | | | | | | | | |
| NOTE: ASK ONLY ONE QUESTION "Why did the woman not receive all the TT doses she should have?" *Mark (X) to box corresponding to the single most important reason given by the woman. | | | | | | | | | | | | | |
| Women No. in Cluster | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Child in last pregnancy protected against Neonatal Tetanus (Y/N) | | | | | | | | | | | | | |
| 5) | Lack of Information | Unaware of need for Immunization | | | | | | | | | | | |
| | | Unaware of need to return for the 2 nd or 3 rd dose | | | | | | | | | | | |
| | | Place or time of immunization unknown | | | | | | | | | | | |
| Fear of side reaction | | | | | | | | | | | | | |
| Wrong idea about contra indications | | | | | | | | | | | | | |
| | | Other | | | | | | | | | | | |
| | Lack of Motivation | Postponed until another time | | | | | | | | | | | |
| | | Cultural religious reasons | | | | | | | | | | | |
| | | Rumours | | | | | | | | | | | |
| | | Other | | | | | | | | | | | |
| | Obstacles | Place of immunization too far | | | | | | | | | | | |
| | | Time of immunization inconvenient | | | | | | | | | | | |
| | | Vaccination absent | | | | | | | | | | | |
| | | Vaccine not available | | | | | | | | | | | |
| | | Mother too busy | | | | | | | | | | | |
| | | Family problem including illness of the mother | | | | | | | | | | | |
| | | Mother ill – did not visit health facility | | | | | | | | | | | |
| | | Mother visited health facility but not given immunization | | | | | | | | | | | |
| | | Long waiting time | | | | | | | | | | | |
| | | other | | | | | | | | | | | |

*If it is felt that categorizing possible responses may risk potentially important information from the respondents, the interviewers can simply write down (at the back of this form) verbatim, the reply given by the woman. The Survey Supervisor and Coordinator will later review all responses and decide on appropriate categories for presentation of the analysis.

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| Cluster | A collection of elements (for example, households, communities, villages, etc.) grouped within defined geographical or administrative boundaries. |
| Cluster survey | A survey in which, after the population under study has been subdivided into clusters, only (some) subjects from selected clusters are interviewed or observed. |
| Confidence level | A level of confidence set in computing confidence limits. A level of 95% (or 0.95) is conventionally used, but can be set higher or lower. A level of confidence of 95% implies that 19 out of 20 times the results from a survey using these methods will capture the true population value. |
| Confidence limits | The upper and lower limits of the confidence interval in interval estimation. The interval itself is called the confidence interval or confidence range. Confidence limits are so called because they are determined in accordance with a specified level of confidence or probability that these limits will include. Thus, 95% confidence limits are values between which we are 95% confident that the population parameter being estimated will be. Confidence limits are often derived from the standard error (SE). |
| Design effect | A measure of variability due to selection of survey subjects by any method other than simple random sampling. It is defined as the ratio of the variance with other types of sampling, to the variance with simple random sampling. Usually, cluster surveys have a design effect greater than one (the variability is higher than for simple random sampling). |
| Fully immunized child (FIC) | Usually, this is a child who has received doses of the “standard six” antigens: BCG, diphtheria-tetanus-pertussis (DTP:three doses), polio (three doses), and measles vaccines (one dose). |
| Fully immunized child with valid doses | Means that the child received all the above doses before the age of one year according to the national immunization schedule, implying that the interval between doses and the age that the child received these vaccines are correct. |
| Household/members of household | Constitutes a person or group of persons, related or not, who normally live together in the same housing unit or group of housing units and who have common cooking arrangements. Members of households are considered those who have lived and eaten there for at least six months. Household members also include visitors who have eaten and stayed with the household for six months or more, as well as housemaids, guards and baby-sitters who lived and ate with the household even for less than six month. |
| Nearest household | The household reachable in the shortest time on foot from the household just visited. The nearest household need not be in a direct line of vision or on the same side of the path or the road. |
| Immunization cluster sampling technique | Household-based survey in a number of clusters of a predetermined number of children to assess immunization services. |
| Immunization coverage | Proportion of individuals in the target population to be vaccinated with specific vaccines in a given time period. |

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| Protection at birth by card | A child was considered protected at birth against tetanus by card if the mother had received documented tetanus-toxoid (TT) -containing vaccine doses recorded either in the mother card or TT registration book and/or if the child was born within a time where the up-to-date TT status of the mother confers immunity (one dose of TT confers no immunity, TT2, TT3, TT4 and TT5 confer immunity for three years, five years, ten years and lifelong respectively). |
| Protection at birth by history | A child was considered protected at birth against tetanus by maternal recall if the mother had received two doses of TT in her last pregnancy or if at least three doses of TT were received at any time in her life. |
| Random number | A number selected by chance. |
| Sampling frame | The set of sampling units from which a sample is to be selected; for example a list of names, or places, or other items to be used as a sampling unit. |
| Sampling unit | The unit of selection in the sampling process; for example, a child in a household, a household in a village or a district in a country. |
| Statistical significance | The concept by which results are judged as being due to chance or not. |
| Supplementary immunization activity (SIA) | Any immunization activity conducted in addition to the provision of routine immunization services. |
| Tetanus toxoid immunization of pregnant women | Whether mother of infants has been immunized with sufficient recent doses of TT, indicating that her children are protected against neonatal tetanus at birth. |
| TT2+ coverage | The proportion (%) of women who have received their second or higher dose of TT. |
| Valid doses/Valid dose by card | Doses administered when the child had reached the minimum age for the vaccine, with the proper spacing between doses according the national schedule and child vaccination card records, or documented doses in registration books. For women of child-bearing age it means she has received second or higher dose/s of TT, with proper spacing between doses according the national schedule and women's' vaccination card records or documented doses on ANC card or in registration book. We did not count doses of <9 months as valid. |

BIBLIOGRAPHY

Training for mid-level managers: the EPI coverage survey. Geneva: World Health Organization, 1991 (unpublished document WHO/EPI/91.10; available from Vaccines and Biologicals, World Health Organization, 1211 Geneva 27, Switzerland).

UNICEF 2007. The state of the world's children 2008. United Nations Children's Fund, 3 United Nations Plaza, New York, NY 10017, USA.

UNICEF 2006, Multiple Indicator Survey - Somalia. United Nations Children's Fund, 3 United Nations Plaza, New York, NY 10017, USA.



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