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The Immunization Data Quality Audit (DQA)

Chad 2004

English Summary Report for GAVI

by The Swiss Centre for International Health®
Swiss Tropical Institute

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English Summary Report for GAVI*

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* for detailed results and further information please consult the French version of this report

1. Background

The Global Alliance for Vaccines and Immunization (GAVI) is a partnership between the public and private sector. It aims at protecting people's health, especially the health of children, through the widespread use of vaccines with a particular emphasis on developing countries.

Data inconsistencies are frequently reported, thus the importance of evaluating and improving the quality of a countries immunization and reporting system. To do so, GAVI uses a standardized Data Quality Audit. The DQA verifies the consistency of reporting systems based on the proportion of third doses of diphtheria-tetanus-pertussis administered to children younger than 12 months reported and actually recounted in written documentation found at three levels of the health system (national, district and health unit).

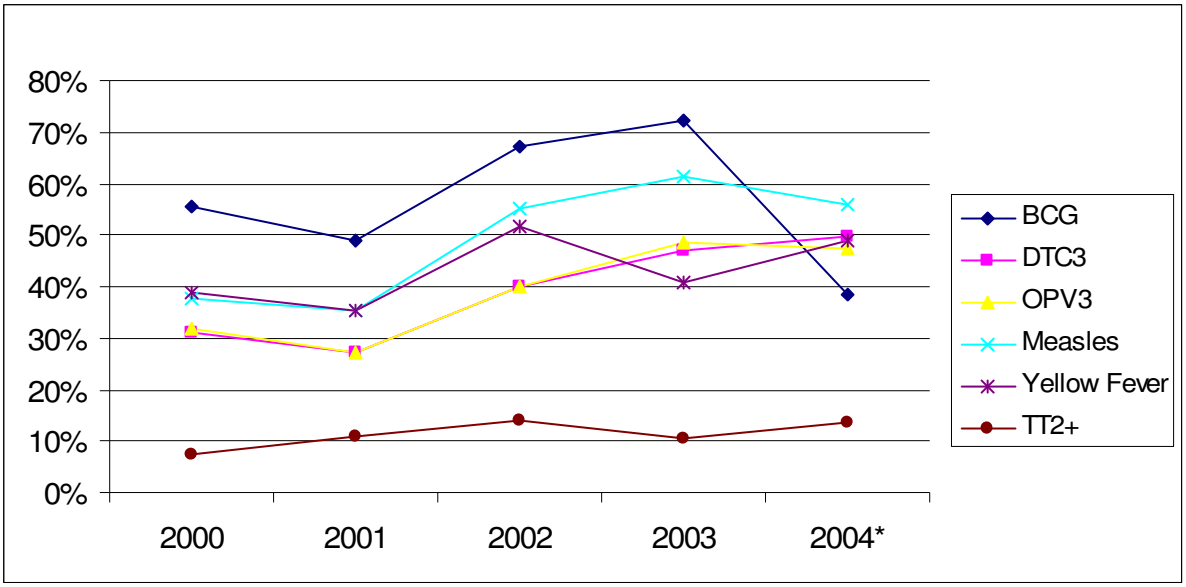
Since 2004 Chad is one of the beneficiary countries of GAVI. Parts of the financial support have been spent on the purchase of yellow fever vaccine and parts have been used to improve vaccination services and vaccine safety.

The Expanded Programme on Immunisation (EPI) of the Chadian Ministry of Health was set-up in 1985. As described in the "National Politiques of Vaccination" published in 1999, the EPI's prime target is to reduce vaccine related morbidity and mortality. The National Health Policy from 1993, revised in 1999, includes vaccination services in the basic benefit package to be provided at first contact level. In recent years, vaccination activities in Chad faced various challenges. In the context of the DQA, those of direct interest are:

- Difficulties in purchasing vaccines through the governmental budget. Indeed, in 2004 and again in 2005, not all bills were reimbursed leading to several months of stock ruptures for certain vaccines in 2004.
- Recent population and refugee movements from Sudan to the Eastern part of Chad and a need to vaccinate an additional 100'000 children. Even though vaccines were made available by humanitarian aid funds, the additional vaccinations imposed further pressures on an already severely resource constraints country.
- Out of date population denominators: The last population census was conducted in 1993. In the absence of more recent data, target populations for children and pregnant women are based on the 1993 figures. In some areas, for example major population migrations took place, e.g. towards the oil exploiting areas in the South of the county. This potentially can lead to DTP3<1 coverage rates over 100%.
- Continuous efforts to eradicate polio and periodically emerging epidemics: On-going efforts towards polio eradication lead to high workloads on primary care services (2003: 3 campaigns; 2004: 5 campaigns and 2005: 3 campaigns). These efforts required an intense mobilization of health workers limiting their availability to effectively follow up routine immunization activities.
- Health workforce shortages: Chad seriously suffers from shortages in health staff both in quality and quantity.

An overview of vaccination coverage rates are displayed in figure 1.

Figure 1. Evolution of vaccination coverage rates in Chad by antigen



2. Objectives of the data quality audit

The specific objectives of GAVI and the DQA in Chad were to:

- Assess the quality, accuracy, timeliness, and completeness of administrative immunization reporting system and to
- Verify the accuracy of reported DTP3<1 vaccinations in the calendar year 2004
- Estimate the National Verification Factor (recounted/reported) for use in the allocation of GAVI fund shares.
- Indicate to national authorities and institutions involved in vaccination activities in Chad potential ways for improving the reporting system

3. Methodological Approach

The Data Quality Audit in Chad was conducted from 21 June – 06 July 2005 and relied on tools and procedures developed by the WHO. Consequently the work focused on three levels: (1) the national, (2) the district, and (3) the health unit level

Following standard procedures of GAVI, four districts and 24 health units were randomly selected in order to assess the quality and accuracy of the immunization and reporting system by verifying the reported and recounted DTP 3<1 administered in the year 2004.

Using these standard procedures the following 4 districts and 24 Health Units (6 Health Units per District) were randomly selected.

District	*Health Unit*
Sarh	Bégou, Banda Cst, Balimba, Bémouli, Djoli, Niellim
Kelo	Pagré, Nangassou, Bologo, Bayaka, Kroumbla, Bargadjé II
Bessaou	Bessao, Andoum, Baibokoum, Pao, Mini, Bendjemoundou
N'Djamena Sud	Assiam Vantou, Chagoua 1&2, Chagoua 3, Dembé, N'Djari, Moursal 3

Standardised tools used consisted of a log book where all information gathered during daily auditing activities were recorded, such as answers to quality questions, the number of DTP3<1 vaccinations recounted vs. reported, debriefing notes etc.; a set of child health cards and a master workbook (Excel) which contained all collected data.

Two teams were formed consisting of external auditors and a national expert in charge or involved in the EPI programme. The national experts and one external auditor received a one day introductory seminar on DQA and the tools to be used. Concerning logistical issues selected districts and health units were informed prior to the audit visit.

A final presentation of the findings was given on 6 July 2005 during a meeting at national level. Representatives from the Ministry of Health including EPI, UNICEF, WHO and the European Union attended this meeting. Subsequent to the debriefing, national authorities were invited to comment on the recommendations.

4. Findings and recommendations

4.1 National Level

The DQA in Chad estimated the verification factor (vaccinations recounted/reported for DTC3<1 in 2004) at 78.7 %.

The results for reported DTP3<1 (2004) and the Quality of the System Index Score (59.6%) for the national level are displayed in figure 2 and figure 3.

Figure 2. Reported DTP3<1 for the year 2004 by source

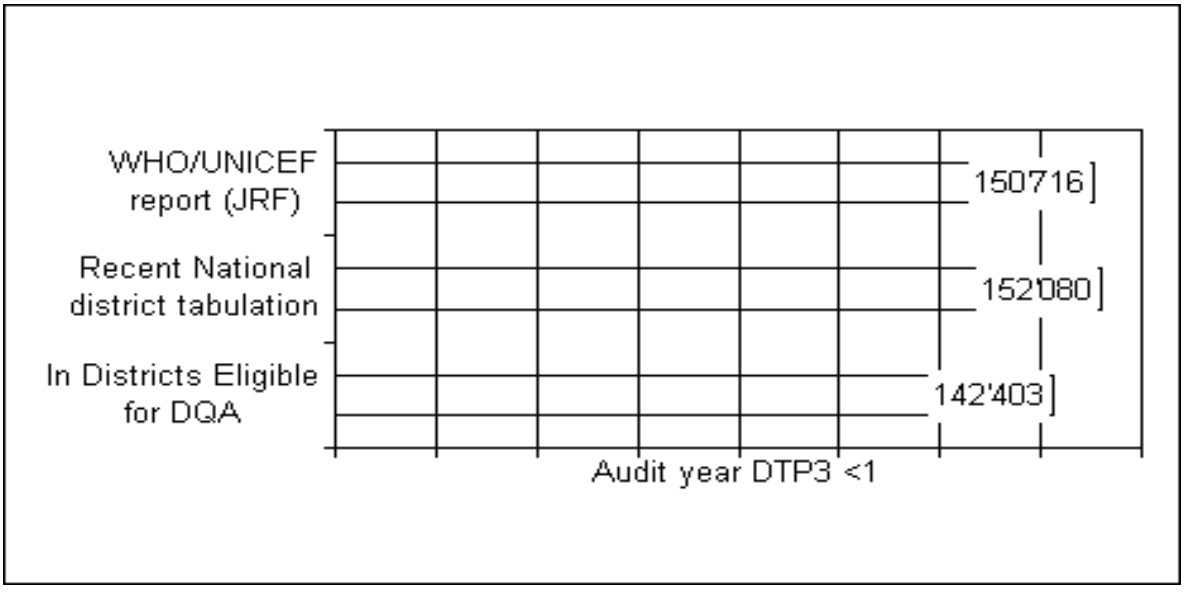
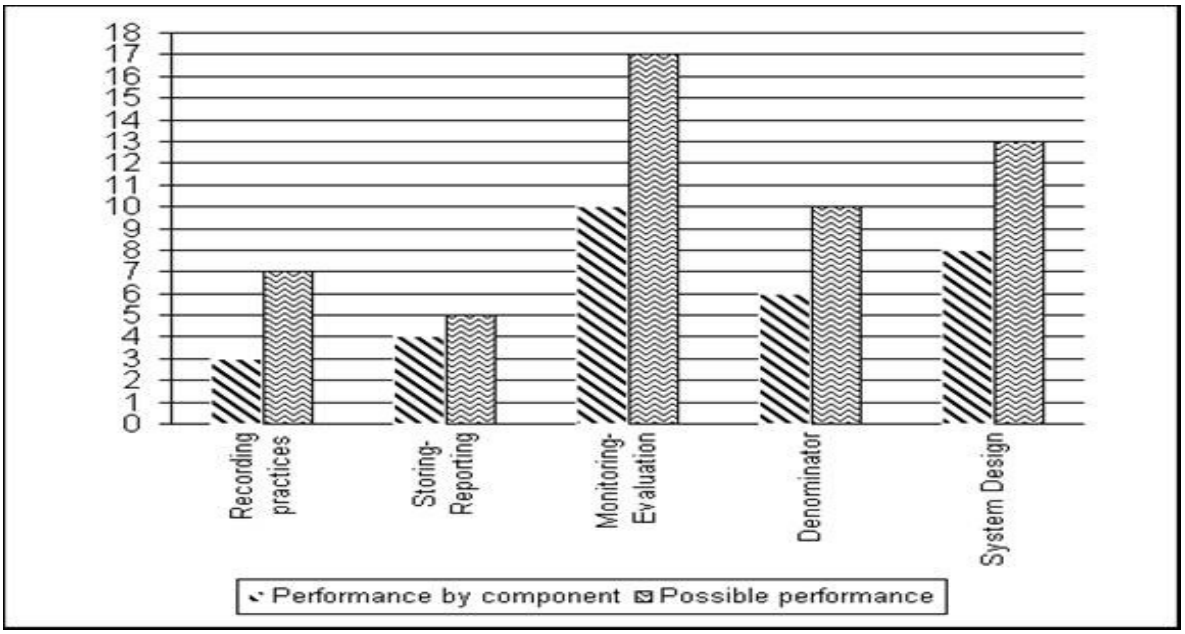


Figure 3. Quality of the System Index by Component



At national level, the audit observed and recommended:

- **System design:** Since 20 years, the Chadian Ministry of Health – in particular the "Division du Système d'information Sanitaire (DSIS)" – has been in charge of the national information system. The main document used for health data collection is a monthly report called "Rapport Mensuel d'Activités" (RMA). Every health unit submits a monthly RMA report which includes relevant information on vaccination activities to the district. At district level, the RMA reports are collected and processed into an electronic version and then, for the majority of districts sent to the regional health delegation. At regional health level they are again processed and analysed and then transferred to national level – to the DSIS Ministry of Health – which compiles an annual report. As the system does not always allow for timely reporting, the Chadian EPI regularly contacts the regional and sometimes the district level per radio to collect relevant information on vaccination activities. This procedure allows the EPI to compile and regularly up-date vaccination statistics. An official document with instructions exists for the national health information system. However, there is an absence of written official regulations which assure a standard format of data collection such as established by the Chadian EPI. Consequently the audit recommended to produce official guidelines to approve and describe the system in use.

- **Storing and reporting**: The auditors identified considerable efforts at national level to collect and manage vaccination data. Annually generated national tabulations for vaccination data for the country as a whole and for each district are made available as an excel sheet for the auditing teams. A backup system exists for vaccination data. EPI data is regularly transferred to other computers and weekly updates are made and kept even outside the office. However, no written guidelines exist on backup procedures and consequently national authorities were invited to develop and implement relevant procedures.

- **Recording practices**: Vaccines and other material are stored in a warehouse managed by the EPI. From there the vaccines and consumables such as syringes are

sent to the regions and districts. Despite efforts to maintain stock ledgers at national level, they were not used in an efficient and coherent manner. For 2004 and 2005, it was not possible to trace all entries of vaccines. Furthermore, a stock ledger for syringes was not available. Thus, the auditors pointed out the need to improve recording practices - especially the entries of vaccines and consumables.

- **Monitoring and evaluation**: To assure accurate EPI data compilation at national level, the EPI managers regularly (weekly to monthly depending on data reporting) contact the regions and certain districts per radio. The information is then processed in a computer and allows the identification of missing reports. Since 2005, the national EPI has started to publish a periodic information bulletin in which vaccination data is analysed and used to provide feedback to regional and district level. There are no monitoring charts or tables of the current year's immunisation coverage displayed. The EPI has also no system in place to monitor stock ruptures at national and district level and to calculate/monitor vaccine wastage. An absence of registration and analysis of Adverse Events Following Immunization (AEFI) was also noticed. The auditors pointed out that there is a need to improve monitoring and evaluation practices to trace stock ruptures, vaccine wastage and Adverse Events Following Immunization.

- **Denominator**: The denominators for vaccinations of children and pregnant women are based on the last population census in 1993. The denominator for children vaccinations correspond to the WHO definition and calculations of both denominators are done correctly. However, the national census data are sometimes outdated and do not any longer correspond to the reality (e.g. due to migration towards oil exploiting regions in the South). Consequently, some districts report vaccination coverage rates over 100%. The EPI Chad uses "women in childbearing age (15-45)" instead of "pregnant women" for calculating women to be covered. The EPI has suggested to national authorities to use the internationally recommended denominators. Unfortunately this proposal has not yet been approved as it conflicts with other denominators used by the national health information system.

4.2 District Level

At district level, the audit observed and recommended:

- **Quality of System Index Score for the four districts**:
  - District of Sarh: 59%5
  - District of Kelo: 59,9%
  - District of Bessao: 83,3%
  - District of N'Djamena Sud: 54,8%

- **Denominator**: As at the national level, the denominators of children and pregnant women to be vaccinated are based on census data from 1993. In most cases, they are correctly calculated. The proportion per vaccination strategy is not known in most districts. All districts elaborate an annual plan of action.

- **Monitoring and evaluation:** Most district elaborate and display monitoring charts or tables of the current year's immunisation coverage. However, some districts do not systematically register the drop-out rate. Whereas report completeness from Health Unit level is sometimes monitored, an absence of registers on timeliness of reports could be identified. In addition, there is no system in place to monitor vaccine wastage and AEFI . Consequently, the audit team suggested that timeliness and

completeness of reports, drop-out rates, AEFI cases and vaccine wastage rates should be systematically registered and analysed. Supervision missions to health centres are not conducted in some districts (N'Djamena Sud, Bessao). Thus another recommendation is to introduce regular supervisory visits and to improve the feed-back mechanisms to health units.

- **Recording practices:** Districts typically do have a cold chain and stock ledger sheets indicating the entry and exit of vaccines are generally available. However, some districts (N'Djamena Sud, Bessao) had incomplete DTP entries for the audit year and some stock ledgers were not up to date for 2005. None of the districts have a stock ledger for syringes. Whereas most health units use the standard format of tally sheets and RMA reports, some Health Unit use old vaccination registers. Reported DTP3<1 in RMA reports found at district levels do often not correspond to other district tabulations and DTP3<1 data used at national level.

- **Storing and reporting**: Most districts manage information on computer and official tables can be produce by a standard file. Typically tables do not indicate the printing and creation date. The auditors recommended to improve these practices. There is also an absence of written procedures to save data appropriately. In some districts, the filing of reports is not well organised. However in most cases, the filing of reports is done by month and by year.

4.3 Healt Unit Level

At health unit level, the audit observed and recommended:

- **Monitoring and evaluation**: Most health units set targets for the number of children and pregnant women to be vaccinated during the year. Health units are generally not aware of new births in their target area, despite of a kind of reporting system used by traditional birth assistants and so called village health agents. Vaccines wastage, AEFI, and drop-out rates are not monitored and consequently the auditors pointed out that these practices should be improved. On the contrary, in most health units visited, coverage rates by antigen are openly displayed.

- **Recording practices**: Some health units do not maintain a stock ledger for vaccines and none of them had a stock ledger for consumables. If a stock ledger existed, they were often not up do date and the expiry date and batch number were not always indicated The auditors recommended that such tools need to be systematically used by every health unit.

- **Storing and reporting**: In most health units tally sheets are readily accessible, both for the vaccination of children and pregnant women. In some health units storing practices are deficient, documents can not easily be retrieved, are not classified in chronological order or could not be found. Consequently the auditors pointed out that storing and reporting practices have to be improved. For most health units different vaccination figures were detected when comparing tally sheets with RMA reports and RMA reports found at health unit with those stored at district level.