

**HEALTH SERVICE DELIVERY IN THE ERA OF GAVI  
SUPPORT:**

**THE CASE OF UGANDA**

**Thesis submitted by**

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## ABSTRACT

This study starts out with recent global immunisation history; the success in achieving high immunisation coverage, and later the failure to sustain the same. With this in mind, the study is looking into effects of support from the Global Alliance for Vaccines and Immunization on district health care services in Uganda.

The Global Alliance for Vaccines and Immunization (GAVI) is supplying Uganda with the new DPT/HepB/hib vaccine as well as safety equipment, as commodities in kind. In addition, GAVI provides extra financial support through the Immunisation Services Support System (ISS).

This is a study applying three methods: A literature review, supplemented by statistical information from Uganda Ministry of Health, as well as substantial qualitative information in the form of interviews gathered under a visit to Uganda in November/December 2004. The period under study is mainly from 2002 - 2004.

Outpatient attendance (OPD attendance) and Diphtheria, Pertussis, Tetanus, Hepatitis B, *Haemophilus influenzae* (Hib) vaccine (DPT3/hepB/hib) coverage are used as main indicators. OPD attendance is used as proxy indicator for health service delivery, and DPT3/hep/hib coverage as proxy for immunisation services.

Both main indicators improved significantly between the years 2002 - 2003. They were also significantly correlated – i.e. in districts with high OPD attendance; the DPT3/HepB/hib coverage was also high. Any causal relationship was not found. However, there was no correlation between the *increases* in the two indicators between 2002 and 2003, indicating that these increases were happening independently of one another.

Thus in the period under review, separate and external inputs were put in place:

For the district health services, a new system of drug supply and financing was made operational, making the supplies of the most required drugs more readily available when needed. The user fee on health services which were introduced in the '90'ies, were recently abolished (March 2001), having made district health services more accessible and available also to the rural population. No data were available for the study period that could determine any changes in outcome indicators like infant and under-5 mortality rates.

The increase in immunisation coverage is seen in distinct relation to the use of the newly "appointed" immunisation mobilisers who assist in their parishes, encouraging and reminding parents to immunise their children at the proper timing. These mobilisers are remunerated in Uganda through some of the ISS funds.

These two observations were reiterated and confirmed in interviews with health staffs in the four districts visited.

It is beyond doubt that GAVI support to Uganda GAVI has *contributed* to a significant increase in DPT3/HepB/hib coverage in Uganda over the last few years. It could not be shown that GAVI support to Uganda has played a role in the increase in OPD attendance.

Recent data on infant and under-5 mortality and morbidity rates in Uganda are not available. Further research is recommended to investigate the influence of high immunisation coverage on these vital statistics.

How to keep up the high immunisation rate and the running of the intensified programme, when the era of GAVI support is over is an open question. The continued under-funding of the health sector as such remains a large challenge to Uganda.

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## ACRONYMS

AHSPR	Annual Health Sector Performance Report
AIDS	Acquired Immune-Deficiency Syndrome
ARI	Acute Respiratory Infections
BCG	Bacille Calmette Guérin (living, weakened bacteria)
CDD	Control of Diarrhoeal Diseases
CPSSD	Community Problem Solving and Strategy Development
DDHS	District Director of Health Services
DHT	District Health Team
DPT	Diphtheria, Pertussis, Tetanus Vaccine
DPT++	Diphtheria, Pertussis, Tetanus, Hepatitis B, <i>Haemophilus influenzae</i> (Hib) Vaccine
DPT3++	Diphtheria, Pertussis, Tetanus, Hepatitis B, <i>Haemophilus influenzae</i> (Hib) Vaccine, 3 <sup>rd</sup> dose
EPI	Expanded Programme on Immunisation
FP	Family Planning
FY	Fiscal Year (In Uganda: from 1 <sup>st</sup> July – 30 <sup>th</sup> June the forthcoming year)
GAVI	Global Alliance for Vaccines and Immunization
GFATM	Global Fund for AIDS, Tuberculosis and Malaria
GoU	Government of Uganda
HIV	Human Immune-Deficiency Virus
HR	Human Resources
HSD	Health Sub-Division
HSSP	Health Sector Strategic Plan
ICC	Inter-Agency Coordination Committee
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant Mortality Rate (per 1000 live born)
ISS	Immunisation Services Support
MCH	Mother-and-Child Health Care
MoH	Ministry of Health
MoFPED	Ministry of Finance, Planning and Economic Development
MSL	Measles
NA	Nursing Assistant
NGO	Non-Governmental Organisation
Norad	Norwegian Agency for Development Cooperation
OPD	Out Patient Departure
OPV	Oral Polio Vaccine
OPV3	Oral Polio Vaccine 3 <sup>rd</sup> dose
PEAP	Poverty Eradication Action Plan
PNFP	Private-Not-For-Profit
STD	Sexually Transmitted Diseases
SWAp	Sector-Wide Approach
TFR	Total Fertility Rate
U5MR	Under five Mortality rate (per 1000 live born)
UCI	Universal Childhood Immunisation



UN	United Nations
UNEPI	Uganda National Expanded Programme on Immunisation
UNICEF	United Nations Children's Fund
UNMHCP	Uganda National Minimum Health Care Package
USD	United States Dollars (US\$)
VF	Vaccine Fund
WHO	World Health Organization
www	World Wide Web

## **KEYWORDS**

Uganda, Out Patient Department Attendance, Expanded Programme on Immunisation (EPI), Immunisation Coverage, DPT3, Pentavalent vaccine, Global Alliance for Vaccines and Immunizations (GAVI), Health Sector Support, Integrated Management of Childhood Illnesses, Sustainability

## DEFINITION OF CONCEPTS

It is important to clarify two central concepts before proceeding: **Vertical programmes** and **horizontal/integrated programmes**. These are two rather different approaches to solving a current problem at hand. In this thesis, I have chosen the following definitions:

Vertical programmes can be seen as “*disease-specific, technologically dependent strategies aimed at achieving dramatic, albeit narrow, success in a relatively short time*” (1). The programmes are to a large extent detached from other services on the ground, with a centralised line of command and reporting (2;3).

A horizontal or integrated approach can be seen as more “*people-centred, community-based strategy, typified by the primary health care, universal and integrated services also encompassing sanitation and environment; emphasising programmatic areas instead of specific diseases*” (1). Integration thus implies multi-purpose staff and clinics, planning of programmes in cooperation with other sectors with a budgeting that reflect this. An integrated approach is closely linked to the development of the district health service as such and is delivered through the regular primary health services (2;3).

## 1. RATIONALE (CONTEXT AND JUSTIFICATION)

The Global Alliance for Vaccines and Immunization (GAVI), the Public-Private Partnership that was launched in 2000, is committed to support eligible countries in strengthening their childhood immunisation services as well as childhood immunisation coverage (4). This is done through the support from the Vaccine Fund, GAVI's financing arm\*.

GAVI funds in the order of United States Dollars (USD) 1 billion have been released to 71 countries over the last five years (5).

GAVI support and equipment to eligible countries are directed through existing national immunisation structures (6), namely the national Expanded Programmes on Immunisation (EPI)<sup>†</sup>. Such EPI programmes have also previously received broad international recognition and have often proven to be highly cost effective (7-9).

The fact that GAVI is addressing "*the needs for vaccines and to strengthen health and immunization systems in the world's poorest countries*" (10), brings to mind the earlier global immunisation efforts prior to 1990. The most prominent initiative was the Universal Childhood Immunisation (UCI) programme, which had as its goal to immunise 80% of the world's eligible children with the EPI vaccines by 1990 (7). UCI, in which the United Nations Children's Fund (UNICEF) took the lead in most poor countries, was effective in both immunising and mobilising support, but was also criticised for organising and strengthening immunisation services only, and not the primary health care as such (7).

Thus, in the 80's, EPI programmes in many countries were vertical and more or less parallel to primary health services with its own special and fragile logistical support systems and specially trained vaccinators, operating on the side of the health care system (7-9;11-14). However, when UCI support was withdrawn as "universal" immunisation coverage was reached, national EPI

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\* The term GAVI will be used synonymously for GAVI and the Vaccine Fund in this document

<sup>†</sup> Expanded Programme on Immunisation; conventionally immunization against measles, polio, diphtheria, pertussis, tuberculosis and tetanus

programmes were, more often than not, not able to sustain the high immunisation coverage achieved (7).

The concept of Integrated Management of Childhood Illnesses (IMCI) was later promoted as a horizontal and holistic approach, focussing on the well-being of the whole child, as opposed to focussing on single common conditions in children. Thus in IMCI immunisations is a part and not the whole (9;15).

Having worked with and within development cooperation for more than 20 years, this author has thus witnessed how development assistance policies have changed over the years from being vertically organised and disease-specific, to more integrated sector support. There is a legitimate concern therefore, that the many recent global initiatives of which GAVI is one, may, although not intentionally, drain resources from poorly funded integrated health services in poor countries in order to meet specific disease targets (16).

There is limited research on in-country experience with GAVI support on health systems. This study focuses on how or if GAVI support on country level may or may not influence the delivery of regular ongoing health services as experienced from districts. This is done through a literature review, by analysing collated statistical information, which is then supplemented by qualitative interviews of district health personnel. Uganda is used as case as this country was among the first to receive support from GAVI (17;18).

## **2. BACKGROUND**

### **2.1. *Immunisation History***

#### **2.1.1. Expanded Programme on Immunisation**

In 1974 less than 5% of eligible children in the world were vaccinated (8;19). Prior to the measles vaccine becoming available and accessible, 16 million children died annually from measles related illnesses (20).

EPI started as an initiative from The World Health Organisation (WHO), UNICEF and others in 1974 in order to provide all children immunisation against six childhood diseases (measles, polio, diphtheria, pertussis, tuberculosis and tetanus), building on lessons from the smallpox eradication campaign (21;22). The programme was called “expanded”, as new vaccines were introduced in the programme (polio and measles) (23). Smallpox was declared eradicated by the 33<sup>rd</sup> World Health Assembly in 1980 (12;20).

The smallpox eradication campaign had proved that a single intervention could reach whole populations in all settings (rich or poor, urban, rural or isolated) and thus saving lives, - without major investment in health infrastructure or personnel. In some countries the eradication campaign was in fact organised outside the health services (8;20). Thus these vertical programmes did not strengthen the existing health infrastructure, or the primary health services, but rather the contrary (20).

The smallpox eradication programme was successful in the way that all people were reached with the targeted approach. However, the eradication programme also illuminated the fact that there was a need for primary health care development in the poorer countries. This would seem incompatible with the continuation of single disease eradication initiatives (20).

### **2.1.2. Alma-Ata and Primary Health Care**

In 1978 the declaration of Alma-Ata (24) underscored the importance of intersectoral planning and action in the health sector and re-launched the concept of Primary Health Care (PHC). However, in order for health care personnel at the primary level to be able to deal with the sorts of conditions as intended in the PHC model, the concept of PHC is dependent on a sound and functioning chain of referral. Further, the health care personnel need to be adequately trained and dedicated to fulfil the obligations of the PHC (25). These two conditions were, and are, often not adequately in place. Lack of funding to and prioritisation of, the health sector seem to be the most common constraints. Hence, the intentions from Alma-Ata of integration and mutual referral systems did not manifest in most developing countries, where it in fact was needed the most.

### **2.1.3. Verticalisation of Health Care**

Thus in spite of the declaration from Alma-Ata, as well as the smallpox experience mentioned above, health services in the 70'ies to the early 90'es continued to be organised as vertical programmes; combating specific diseases with separate inputs. Activities could be organised around one disease, and *“implemented as a separate entity with people, logistic support, supervision and training being linked to that programme only”* (26). Examples are programmes on Acute Respiratory Infections (ARI), Control of Diarrhoeal Diseases (CDD), Family Planning Services (FP), Mother and Child Health services (MCH) as well as EPI.

Such programmes were often organised by various UN organisations in collaboration with national governments, frequently with donor funding. In reality, many such programmes were better financed than the national horizontal health programmes (16).

Vertical programmes that bypassed the under-resourced health systems, were frequently more interesting to donors as results from such programmes were often more visible (averted deaths) and the efforts could to stop diseases without borders (20).

### **2.1.3.1. Universal Childhood Immunisation by Year 1990**

Global EPI coverage continued to be low in the early 1980's. A concerted effort to address childhood immunisation singularly was picked up by several UN organisations and other partners ‡ in 1984. A “new” EPI concept was organised globally, and named Universal Childhood Immunisation (UCI). Where most EPI programmes had modest ambition of providing available vaccines to children; UCI's goal was to obtain 80% “universal” (i.e. global) immunisation coverage within 1990 (7).

Vaccination programmes are in a special category of vertical programmes, they have received broad international recognition and have proven to be highly cost effective (8;9). UCI was no exception. Funds from UCI to countries made it easier to up-keep the special and fragile logistical support system required for the cold-chain. External funding also made it possible to train a special cadre of vaccinators. These inputs contributed to that immunisation programmes in many countries were more or less parallel to primary health services in the 1980's (11-14;23) . This resulted in relatively high immunisation coverage in the 1980'ies due to visible campaigns and national commitment (27).

However, when UCI had fulfilled its goals and immunisation services was left with the national EPI programmes after 1990, coverage again dropped (7).

During the structural adjustment programmes in the early 1990's - which entailed large cuts in health sector finances in most poor countries, the EPI programmes suffered also. This aggravated the situation of the declining vaccinations rate (8).

### **2.1.4. Horizontal and Holistic Health Care: Integrated Management of Childhood Illnesses**

In its annual report in 1993, the World Bank promoted and launched the concept of “Integrated Management of the Sick Child”, which was said to be an intervention likely to have the greatest

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‡ These partners were: WHO, UNICEF, United Nations Development Programme, The World Bank, bilateral donors and Rockefeller Foundation

impact on reducing the global burden of disease (15;28). According to the World Bank, it is also one of the most cost-effective methods for approaching sick children under the age of 5 years (28). It draws on the experiences from the “disease-specific control programmes” in the 1980’s and the importance of coordinate and integrate care where appropriate (9). This was also a reaction to the many costly and often competing vertical programmes.

Thus in 1995 UNICEF and WHO developed jointly an approach to integrated management of childhood illnesses/the sick child (IMCI) (9). This is a symptom-based approach and a case management process where general danger signs are assessed according to a specific procedure. As prevention of disease is as much a part of this approach as is treatment, immunisation and assessing immunisation status is an integral part of the approach (9;15). An important feature of the IMCI strategy is that it promotes integration and coordination of several activities and types of treatment at the level of outpatient care, and accelerates the speed of referral of severely sick children (9;15). The strategy is designed to be operational from lower levels of care. This is indeed a holistic and integrated management of the whole child at the lowest health centre level<sup>§</sup>. Thus, IMCI has been included in many nations “minimum/essential health care packages” in many poor countries. Immunisation services are an important *part* of this package.

In spite of IMCI, there is still an ongoing debate over whether present resources should be invested in horizontal or vertical programmes to reach out to everybody to be the most cost effective as well as being sustainable (3;7;9;20).

## 2.2. *Global Alliance for Vaccination and Immunization (GAVI)*

### 2.2.1. **Rationale**

The global coverage of EPI<sup>\*\*</sup> vaccines is today approximately 75-80%, but in many low-income countries it is far below 50% (8;21;32). This is a steep decline from a higher coverage in the 1980’s under the UCI regime (22;33).

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<sup>§</sup> IMCI is however, only cost-effective when the other elements of the package also are present: personnel trained in IMCI method, available drugs and available and accessible transportation for an adequate functional referral (29-31). The burden of referral is divided between the parents/caregiver (costs and accessibility), and the health system (costs and availability).

<sup>\*\*</sup> The “GAVI” vaccines HepB and *hib* are not specified in these statistics



Annually as many as 27 million eligible children do not receive basic vaccination and 1.4 million of these children die each year due to vaccine-preventable infectious diseases (34). Measles alone accounted for 530 000 deaths in 2003 (35). If all eligible children in the world were immunised with all the EPI vaccines in childhood, this could reduce the overall under-5 mortality by 20-30 % (33;36). This would then be a substantial contribution towards Millennium Development Goal number 4 concerning reducing the mortality in children under five years by two thirds (37).

It was with the above inequality in mind, that the Global Alliance for Vaccines and Immunization (GAVI) was launched in Davos in 2000, putting the EPI schemes back on the global agenda (22). The alliance was launched to “*radically improve the access to both established and underused vaccines in low-income countries*” (5) and to “*address the fact that more than two million people in developing countries die needlessly each year because they do not receive immunizations that are taken for granted in the industrialized world*” (38).

### **2.2.2. Global Public-Private Partnership**

GAVI is one of the new Global Public-Private Partnerships in Health targeting specific diseases (39). The partnership include recipient governments, donors (government and private), the vaccine industry, WHO, UNICEF and the World Bank, public health institutions and nongovernmental organisations (NGOs) (6). GAVI is organised in three layers of management; board, secretariat and working groups (33). The secretariat has its offices in Geneva. GAVI has managed to raise funds to the extent that the alliance can commit resources with a five-year horizon, which is opposed to most bilateral donors that only are in a position to pledge one-year commitments at the time. This combined with the fact that GAVI is not a United Nations (UN) headed or based initiative, has made the Alliance independent of the UN bureaucracies. The latter is probably the reason why the alliance has been able to act and respond as swiftly as it has (7).

The Vaccine Fund (VF) was created by the Alliance as GAVI’s financing arm “*to help fill critical gaps in the overall global effort and to maintain a significant source of additional*

*financial support from both public and private donors” (40). The responsibilities of the VF are raise resources from immunisation and to provide GAVI recipient countries with multi-year grants (34).*

In this document, GAVI will be used synonymously for both this financing arm (i.e. the Vaccine Fund) and GAVI.

### **2.2.3. Country Criteria for Support and Application Procedure**

GAVI support is available, after application, to countries with a Gross National Product less than USD 1000 per person (41). In addition, there are four general assessment criteria:

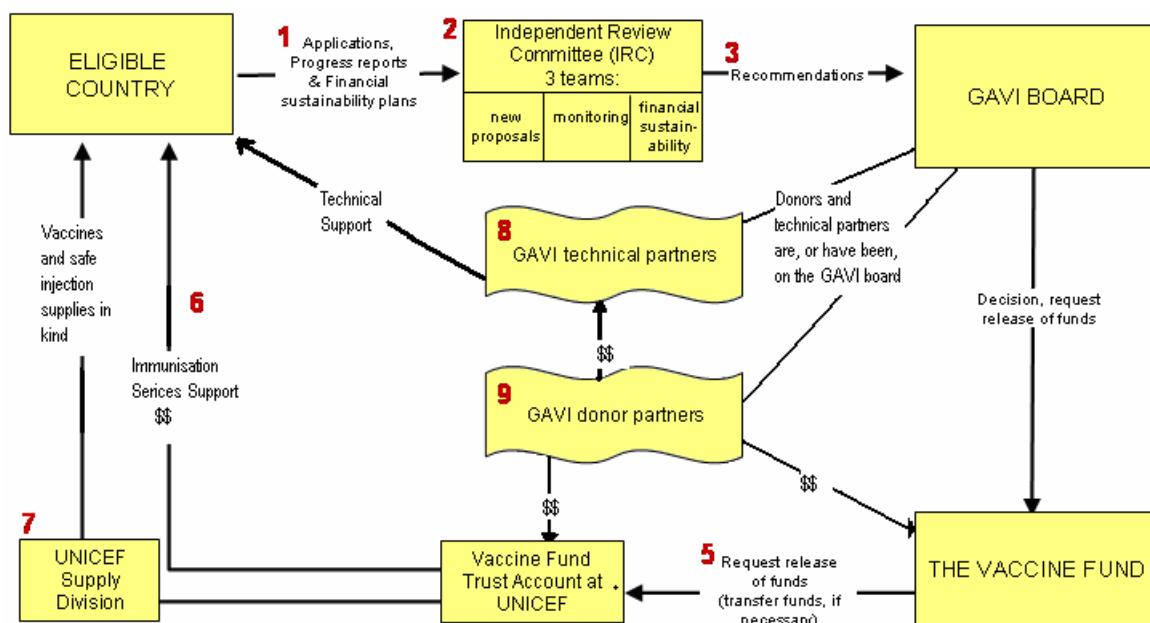
1. *“Functioning Inter-agency Co-ordination Committee (ICC) or equivalent*
2. *Immunization assessment(s) within last three years*
3. *Multi-year plan for immunization*
4. *Injection safety strategy (ideally part of the multi-year plan)” (42).*

Countries prepare their proposals as well as progress reports in collaboration with their national partners. At country level, GAVI members on the Interagency Coordinating Committee (ICC) are required to sign the proposals and progress reports, thus indicating their endorsement and agreement with the information provided (43).

Figure 1. on the following page depicts the application process as drawn by GAVI (43).

The application process starts at **1**, and follows the numbering up to **6** and **7**.

Figure 1: GAVI application process (modified) (43)



On the GAVI website, the steps **8** and **9** are described as follows:

*“GAVI partners that provide technical support to countries include WHO, UNICEF, bilaterals such as USAID, and other technical agencies and NGOs including the U.S. Centers for Disease Control (CDC) and the Children’s Vaccine Programme at PATH. These partners either currently sit on the GAVI Board, or have in the past. Technical support is provided for, among other things, immunization programme assessments and development of long-term plans, preparation of GAVI proposals and progress reports, and ongoing implementation of programmes.*

*GAVI donor partners may contribute directly to the Vaccine Fund U.S. 501(c) (3) or to the Vaccine Fund Trust Account at UNICEF. In addition, donors provide financial support directly to GAVI technical partners (43)”.*

The steps **8** and **9** are thus ongoing steps that do not relate to the numbering in the application and allocation of funds.

The type of GAVI support and equipment eligible countries may apply for is dependent on the national coverage rate of the third dose of the diphtheria, tetanus and pertussis vaccine (DPT3) to infants within 12 months of age. Uganda falls in the category of “*Countries that immunize between 50 percent and 80 percent of children are eligible to receive the above (i.e. assistance in the form of DPT/Hep B/Hib pentavalent vaccine) as well as financial support to strengthen and expand immunization services (41)*”.

#### **2.2.4. Vaccines and Equipment Supplied by GAVI**

The new vaccines in question are Hepatitis B (Hep B), *Haemophilus influenzae* type B (Hib) and yellow fever, and the equipment refers to safe injection materials (5). The new vaccines can be provided as DPT/HepB (quadravalent vaccine) or DPT/HepB/Hib (pentavalent)<sup>††</sup> (44). The type(s) of new vaccines to be included in country support varies with the disease-burden in each country from these diseases. GAVI’s ambition is thus the provision of the new vaccines using DPT only as a vehicle for these other vaccines.

#### **2.2.5. “Immunization Services Support”**

The eventual granted support is directed through existing national immunisation structure (44). After having received GAVI support, countries will be remunerated additionally according to their immunisation performance (33;44-46). The remuneration/reward amounts to USD 20 for each additional child immunised with DPT3++ as compared to the baseline national coverage rate at the beginning of support. Hence, GAVI success is measured by the increase in coverage of the DPT3++ vaccine up from the national country baseline figures (5).

These funds, called “Immunization Services Support (ISS), are meant to:

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<sup>††</sup> The DPT+Hep B+Hib (pentavalent) vaccine will in this document be referred to as DPT++

*“.....help strengthen health systems in low-income countries in an effort to increase immunization coverage. The time-limited funding is available to all Vaccine Fund-eligible countries (i.e., with Gross National Income below US\$1000 per capita) and DTP3 coverage below 80% (emphasis by author).*

*What is unusual about the funding scheme is that GAVI allows countries themselves to decide how the money should be spent (e.g., for training, outreach or the purchase of new vehicles or cold chain equipment) on the basis of country-identified priorities (47)”.*

However, if the year-on-year immunisation coverage does not continue to increase after three years, the ISS funding will cease.

*“In order to receive the rewards, countries are required to pass an independent data quality audit (DQA) – ensuring that at least 80% of the country-reported data on immunization coverage correspond with the audited data” (47).*

## **2.2.6. GAVI and the Millennium Goals**

As already noted, by supplying new vaccines and equipment to 71 countries since 2000 (48), GAVI has estimated that their support has assisted in preventing as many as 670 000 deaths from some of the vaccine-preventable diseases (48). This figure includes deaths from hepatitis B that would have incurred in adulthood (37). Thus according to GAVI, *“GAVI efforts are critical to achieving the Millennium Development Goal on child health, which calls for reducing childhood mortality by two-thirds by 2015” (38)*. GAVI estimates that the continued support from its partners will save an additional 1.5 million children over the coming 10 years (37).

Measles is the biggest single killer among the immunisable childhood diseases, and an increase in measles immunisation coverage is especially mentioned as a target under the Millennium Development Goal number 4 (49). GAVI does not include the measles vaccines in her support to eligible countries.

### **2.2.7. GAVI Milestones**

GAVI has, as UCI had, set some immunisation targets. These targets are referred to as “milestones”, and are as follows:

- *“By 2010 or sooner all countries will have routine immunization coverage at 90% nationally with at least 80% coverage in every district.*
- *By 2007, all countries with adequate delivery systems will have introduced hepatitis B vaccine.*
- *By 2005, 50% of the poorest countries with high disease burdens and adequate delivery systems will have introduced Hib vaccine.*
- *By 2008, the world will be certified polio-free.*
- *By 2005, the vaccine efficacy and burden of disease will be known for all regions for rotavirus and pneumococcal vaccine, and mechanisms identified to make the vaccines available to the poorest countries. As this milestone is difficult to measure, it is currently under review by the GAVI Board” (50).*

Worth noting is that GAVI here does not refer to an increase in DPT3++ coverage alone as a milestone; as this indicator is used when remunerating national vaccination coverage improvements. It is further interesting to note that GAVI has specific targets for polio coverage, as well as for routine immunisations, when GAVI is only providing a limited number of the routine vaccines<sup>††</sup>.

### **2.2.8. Health Care Systems in Eligible Countries and GAVI**

It is known that many of the recipient GAVI countries have both weak health care delivery systems and poorly functioning immunisation schemes (21;32;33). GAVI is not providing

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<sup>††</sup> Routine immunisation include both the measles and OPV vaccine that are not part of GAVI support

*sufficient* health system support to meet the challenges of poor health services, including EPI (44;45) (*highlighted by author*). A concern has thus been raised regarding the possible overload of sub-optimal functioning immunisation services (44;45).

Health reforms, health sector support and poverty reduction schemes are frameworks within which immunisation programmes operate, and where the GAVI initiative may interfere in terms of planning and intervention (44).

### **2.2.9. GAVI and Research**

Lack of accurate baseline data and the impossibility of using control groups have made it difficult to undertake quantitative studies on the effects of immunisation and health service delivery. Confounding elements are concurring health sector reforms which will inadvertently affect services during and shortly after the reform process itself (8). Little systematic research has been undertaken to assess the interaction between EPI and health systems. A thorough review comparing vertical and horizontal health priority inputs could not conclude on a preferred *modus operandi* due to limitations of the studies in the published material under review (3).

Immunisation schemes are, integrated or not in primary health services, likely to be affected by health sector reforms including decentralisation of the health sector during the process of change (26;51).

Hardly any research has been published concerning the influence of GAVI on health service delivery in countries. One study, focussing on in-country experiences with GAVI support on health systems in Tanzania, Ghana and Mozambique, report that the greatest concern is the “*poorly functioning of the existing EPI delivery programmes in these countries*” (*emphasis by author*) (44;45).

Systematic research on how GAVI support influences health systems and services, after having been operational for more than a year, has not yet been published. This study will thus focus on the interaction of GAVI support with health services in Uganda applying a qualitative method supplemented by collated statistical information.

## 2.3. *Uganda*

Uganda is known as the “Pearl of Africa”. It is a land-locked country, situated on the equator and has borders with Sudan, Kenya, Tanzania, Rwanda and the Democratic Republic of Congo. The country has rich fertile land, it receives abundant rainfall and agriculture is the main mode of production (52). 18% of the country surface is water, i.e. Lake Victoria and other lakes and rivers. Coffee and other agricultural products are main export commodities.

Figure 2: Map of Uganda (53)



### 2.3.1. **Recent History**

Uganda was a protectorate under Great Britain and gained her independence as a republic in 1962. The country had one of the best functioning health care systems in Africa in the 1960s, which was all changed with the upheaval and internal conflicts in the 1970s and beginning the 1980s (54-56). The present government came to power in 1986, and since then a range of reforms have been introduced, in particular the five-tier local government system. The elective



Local Councils have been given extensive power in the areas of health, education, public works and agriculture (57). The head of the district health department is the District Director of Health Services (DDHS). As his/her elected counterpart is the Secretary for Health and Social Services for the district.

In spite of a relative stable political situation over the last 20 years, a civil strife has been going on in Northern Uganda for as long as this Government has been in power. This has resulted in large numbers of internally displaced persons in many of the northern districts. There is also instability and internal fighting in the nomadic areas in the North East, and unrest in South West of the country due to conflicts in the neighbouring countries Democratic Republic of Congo and Rwanda (58;59).

### **2.3.2. Administration**

Uganda is divided into 56 districts each forming an administrative unit. The districts are further divided into 167 counties, 930 sub counties, 4,517 parishes and 39,692 villages. The village forms the smallest political administrative unit (52). Health Care is provided through national, regional, district, health sub-district, health centres and community level structures (58;60).

The numbers of districts have gradually been increasing from 17 prior to independence and 56 at present. The latest reshufflings of areas was as late as December 2001 (58;59). New districts have been "carved out" of existing ones, especially in districts where there were underserved or marginalised areas (58;59). This means that the present districts of today only have been in operation as of 1<sup>st</sup> January 2002.

The government has adopted a decentralisation policy in which the districts are responsible for development and implementation of district health plans and service delivery, according to national health policies. The central government is responsible for provision of policies and standards and has also maintained the responsibility for the centralised, vertical programmes (see 2.3.5.1.) (58).

### **2.3.3. Population and Health**

The population of Uganda was approximately 25 million (51% ♀, 49% ♂) according to the 2002 census (61). The Total Fertility Rate (TFR) was 6.9 (2000) (61), making the annual national population growth 3.3% between 1991 and 2002 (61). The TFR as well as the annual population growth are among the highest in the world. The high TFR is ascribed largely to a short median birth interval in addition to the desire to have many children (62). Infant mortality rate (IMR) was 88/1000 and under-5 mortality rate (U5MR) 152/1000 in 2001 (62;63). More than 40% of IMR deaths occur in the perinatal and neonatal period (63).

40% of children in Uganda are chronically undernourished (63), making them more susceptible to infections and disease with negative outcomes (64).

A concern that has been raised in several reports as well as in otherwise published material, is the fact that IMR, U5MR and maternal mortality rates stagnated or slightly increased between 1995 and 2001 (62;65-67). More recent data on these outcome indicators are not yet available, the data from the latest national survey (2002) are still being analysed (68). Infant mortality in Uganda remains nevertheless one of the highest in the world (69).

### **2.3.4. Economy and Poverty**

Uganda as a country has experienced an unusual high economic growth of 6.9 per cent per year in the 1990's, with the effect that the proportion of people living in poverty (less than one USD)/day) fell from 56% in 1992 to 35% in 2000 (65). However, income poverty increased again from 34% to 38% from 2000 to 2003 (70).

The country is, in spite of this recent high economic growth (which has later levelled out (71)), also one of the poorest countries in the world with a Gross National Product per capita of only USD 250 (est.) in 2004 (72). Ill health, a high burden of disease and poverty is a vicious circle in Uganda. Households with health problems had a lower consumption growth in the period 1992 – 1999 than those households without such problems (72).

The Government of Uganda has put the fight against poverty high on the political agenda. The Poverty Eradication Action Plan (PEAP) is Uganda's own "Poverty Reduction Strategy Plan" (56;73;74). The PEAP forms an overall basis for planning both sector-wide approaches for development as well as the overall framework in which development will take place. The PEAP was formulated first in 1997, it was revised in 2000, and a third revision (2004/05 - 2007/08) is now operative (70). The PEAP is the main tool for monitoring progress and achieving development goals, in cooperation with development partners (70).

Uganda's fiscal year (FY) is from 1<sup>st</sup> July – 30<sup>th</sup> June in the following year.

### **2.3.5. Health Sector Framework**

#### **2.3.5.1. Health Sector Reform**

Health sector reform in Uganda is interlinked with the public sector reforms starting with the five-tier local government system after the civil war in 1985. The reforms included *inter alia* reorganisation and restructuring of civil service. The major thrust of decentralisation and sector reform in the health sector began in 1997 (56;75). User fees on health services were abolished on all levels (except for private wings in hospitals) in Uganda in March 2001.

The central level has the responsibility for policy formulation (75), while financial responsibility has been delegated to the district administration. However, according to the Ministry of Health (MoH):

*“Centralized, vertical programming continues for categories such as vaccines for immunization, TB/leprosy medicines, contraceptives, condoms, HIV tests and other diagnostics, blood products, infection control supplies, and a few individual items (e.g. Homapak, rabies vaccine) for new or specialized disease control programmes, and epidemics and emergency preparedness. These have separate budgets that are held and allocated centrally (58)”.*

These programmes thus have separate and centrally formulated sets of commands, as exemplified by Uganda National Expanded Programme on Immunisation (UNEPI). Worth noting when it comes to UNEPI, is that on district level and below, it is the same health staffs that perform immunisations as well as other health services (58).

### **2.3.5.2. Guiding Policies and Documents**

The National Health Policy (76) was endorsed in 1999 and the first National Health Sector Strategic Plan (HSSP) in 2001 (60). Both these were “*developed as collaborative undertakings between MoH and related ministries, as well as other stakeholders, including development partners*” (60).

The HSSP is an integral as well as an important part of the PEAP, and forms the basis for the sector-wide health sector support. The overall intention of the HSSP is to “*make services accessible to those who need them most*” (60) and thus “*reduce morbidity and mortality from major causes of ill health and the disparities therein*” (*emphasis by author*) (77) and increase access to health services nationwide. Uganda is on the verge to embark on the second HSSP, as of fiscal year 2005/2006.

### **2.3.5.3. Organisational Set-up**

The main organisational reform for health service delivery in the HSSP is the formation of the Health Sub-District (HSD). The HSD is the principal level for health service provision. The end ambition for this level is to be a near self-contained health service zone that bring basic health care, including essential referral services closer to the community. The HSD should be headed by a referral facility known as a health centre IV or upgraded hospital. These facilities are then supporting a network of health centres at 2 levels: 873 Health Centre IIIs that serves approximately 25,000 persons and 1593 Health Centre IIs for approximately 5,000 persons. These figures include private-not-for profit (PNFP) facilities, as well as those owned by the Government of Uganda (58). There is no Health Centre I, but the level I in the chain refers to “*a network of functional Village Health Teams*”, in which each village should have a team of 9 – 10

people (63). However, in practice this system is virtually non-existent in a systematic and coordinated manner (63).

72% of the population live within a radius of 5 kilometres of an existing health facility, either Government or PNFP, which is up from 57% which was the baseline for the first Health Sector Strategy (HSSP I). Staffing levels remain low with only 68% of the approved posts filled by qualified staff, which affects the quality of services rendered. When including the unqualified cadre Nursing Assistants (NAs)<sup>§§</sup>, the coverage increased to 88% (52;58). It is worth noting however, that 65 of the Government HC IIs are without any staff and as many as 255 HC IIs are manned by NAs only (58).

#### **2.3.5.4. *Uganda National Minimum Health Care Package and Integrated Management of Childhood Illnesses***

In the HSSP, the Uganda National Minimum Health Care Package (UNMHCP) (56;60) is the most prominent component. The UNMHCP was formulated on the basis of, among others, a study of disease burden in Uganda (1995) (60) and seeks to provide cost-effective interventions to the most common causes of illnesses in the country. The UNMHCP thus includes interventions that have shown to have an impact on disease and fatality burden. Within UNMHCP lies the IMCI as a substantial part of the package (60). IMCI diseases especially in focus include malaria, childhood illnesses as pneumonia and diarrhoea.

Uganda was one of first the countries that adopted the IMCI strategy in 1996 (in 3 districts) and by 2000 the strategy was operative in 55 of the 56 districts in Uganda (78). Immunisations are part and parcel of IMCI. In Uganda however, regular immunisation activities are carried out as separate outreach undertakings in addition to the stationary immunisation services (79).

Due to the high cost of provision of all the components in the package, the package has been adjusted to focus more on the *most* needed interventions. In the Health Policy Statement (2004/05), the “*priorities within the UNMHCP were (thus) Immunisation, Control of*

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<sup>§§</sup> Nursing Assistants have only three months of training and are not considered qualified health staff (58).

*Communicable Diseases (Malaria/STD/HIV/Tuberculosis) and IMCI*" (77). Although immunisation is indeed a part of IMCI, MoH treats immunisation as a separate programme. As mentioned previously, this applies to planning and management on central level whereas on district level and below services are integrated.

### **2.3.5.5. The Uganda National Expanded Programme of Immunisation**

The Uganda National Expanded Programme of Immunisation (UNEPI), was set up under the Ministry of Health already in 1983, with support from UNICEF, Save the Children Fund, and WHO (80). UNEPI acts as provider and organiser of both routine vaccinations as well as of National and Sub-National Immunisation Days. UNEPI is organised under the Department of National Disease Control in MoH. UNEPI has its own offices in Entebbe; the Ministry proper has recently moved to Kampala.

*"The mission of UNEPI is to contribute to the overall objective of the HSSP in reducing morbidity, mortality and disability due to childhood immunisable diseases"* (52;80). There is a high political commitment to immunisation services in Uganda. Great political emphasis is placed on fulfilling the vaccination schedule for children under 1 year. Hence President Yoweri Museveni himself was present at the launch of the National Mass Measles Campaign in October 2003 (58;81).

The diseases which are targeted with the UNEPI vaccines, are tuberculosis, measles, polio, diphtheria, pertussis, tetanus, neonatal tetanus, hepatitis B (hep B) and *Haemophilus influenzae* type B (Hib) (80). With the recent GAVI support, the DPT is given as a pentavalent vaccine, in which the vaccines for hep B and Hib are included (DPT/Hep B/Hib, shortened in this document to DPT++) (80).

When the new vaccine was introduced, the importance of maintaining vaccine availability at service delivery points and a functioning efficient cold chain system on all levels, was emphasised as top priority within Ministry of Health as well as in UNEPI (60;81;82).

### **2.3.6. Uganda and GAVI**

Uganda qualifies for GAVI support, both in terms of Gross National Product (less than USD 1000 annually per capita), that the DPT3 baseline was below 80%, and that the country has had an independent Data Quality Audit which was later approved (83).

Uganda sent her first application to GAVI in October 2000, and received the initial batch of DPT++ vaccines in January 2002 (81). The country has subsequently received a second instalment of safety material for routine vaccinations (84;85). Thus the bulk of the support from GAVI is given in kind; i.e. as vaccines (DPT++) and as equipment. The commodities are channelled through the existing UNEPI structure for handling vaccines and material. UNEPI centrally and the district health teams are responsible for the distribution of the vaccines to the health facility (6;80). Immunisation services are organised within each district and each health facility.

By 2004, GAVI had disbursed approximately USD 2 million in ISS funds to Uganda. Through these ISS funds provided by GAVI and allocated to the districts by ICC, the districts are now in a position to remunerate local volunteers to assist in mobilising for immunisation. The mobilisation relates to all vaccines, not only the DPT++ vaccines.

Uganda's latest available progress report to GAVI (2003) show that the funding gap to maintain the level of immunisation coverage with DPT3++ when GAVI withdraws from Uganda is approximately 75% (85).

### **3. OVERALL GOAL OF THE STUDY AND HYPOTHESIS**

The purpose of this study was to examine and explore any possible relationship between delivery of primary health services in Uganda and support to Uganda from the Global Alliance of Vaccines and Immunizations (GAVI).

The hypothesis for this study was:

The Support to Uganda from the Global Alliance for Vaccines and Immunizations has no impact on the implementation of the Uganda Health Sector Strategic Plan 2000/01 – 2004/05.

This hypothesis is very broad and almost all encompassing. Hence, the specific objective was condensed to:

The support to Uganda from the Global Alliance for Vaccines and Immunizations has no influence on Out-Patient Department Attendance on district level and below in Uganda.

Thus the main indicators in this study are Out Patient Departure (OPD) attendance and DPT3++ coverage.

OPD attendance is a measure of the quality and quantity of services rendered as well as of the health seeking behaviour of the population. Hence in this study, OPD attendance is used as a proxy for health service delivery.

DPT3++ coverage is the indicator GAVI uses to monitor their support to the immunisation programme, hence it is used here as a proxy for GAVI support.



## 4. INDICATORS AND VARIABLES

From the research question, it follows that any changes in OPD attendance over time has happened irrespective of any variations in DPT3++ coverage over the same time span. These two indicators are thus the main quantitative indicators in the study. Qualitative information from interviews concerning these two indicators in four districts was also collated from the district interviews.

### 4.1. *Out Patient Department Attendance*

Total OPD utilisation is one of several *output* indicators used by Ministry of Health in Uganda to monitor HSSP nationally as well as on district level (60). It is also an indicator used when monitoring the PEAP (60;75;86).

The target for OPD attendance per capita was set to 0.7 per capita by FY 2003/04 in the HSSP, up from the baseline value of 0.4 in 1999/2000 (58). However, by June 2004, national OPD attendance had already surpassed 0.79 (and even higher) in many parts of the country (58). This is attributed partly to the abolition of user fees in March 2001, a better drug-supply system as well as the expansion of lower rural health facilities (58;75;87). Studies have shown that the main increase in OPD was in the age group 5 and above (87;88)

OPD attendance is both an indicator for quantity and quality of services; i.e. the availability of appropriate drugs and treatment rendered by available and appropriate health personnel (74). OPD attendance is also a measure of the demand side of services, i.e. health seeking behaviour of the population (58). Variations and trends in OPD attendance thus give an indication and reflection of client satisfaction.

Out-Patient Department Attendance (OPD attendance) is thus used as a *proxy* for both the quantity and quality of health services delivered on district level and below.

It is worth noting that OPD attendance does not relate to outcome, of, for instance, recovery from disease.

#### **4.2. *Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus influenzae (Hib)***

DPT3++ coverage is also an *output* indicator used by HSSP to monitor the immunisation programme. It is also an indicator used when monitoring the PEAP. Net increase in DPT3 coverage is also the indicator GAVI uses to monitor performance in recipient countries. The figure is used both to reward the increase in number of children immunised, as well as to monitor progress.

DPT3++ coverage does not relate to general health outcome, of for instance, other diseases.

The national target for DPT3++ in Uganda was set to 85% by FY 2004/05 (58). National immunisation coverage increased from the baseline figure of 41% in 1999/2000 to 83% in 2003/2004 (58). Some of this increase has been attributed to the abolishment of user fees in March 2001, in spite of the fact that immunisation services always have been provided free of charge in Uganda (87). The revitalisation of UNEPI through GAVI ISS support could also explain some of the increase (52;65;75). If this increase continues, the HSSP target of 85% for 2004/2005 is likely to be met.

It is not possible to attribute an increase in DPT3++ coverage to GAVI support only. It is likely that trends in variations in DPT3++ coverage will be influenced by several factors, of which GAVI support may be but one.

#### **4.3. *Other Variables***

In addition to OPD attendance and DPT3++ coverage, the coverage of the other childhood vaccines are used here as secondary variables. These are BCG (Bacille Calmette Guérin), Oral Polio Vaccine 3 (OPV3) and measles coverage. The reasons for this are the following:

- In general, when BCG is given at birth or at first contact thereafter (as in Uganda), it is often used as a measure for the percentage of deliveries performed at a health facility. However, there is no such link in Uganda, as the rate of institutional deliveries is approximately 25% and BCG coverage is close to 100% (58;89). Thus in Uganda BCG coverage is rather an indication of how well the post-natal health care functions, as the mother invests time and trust in the health system by bringing the newborn for care.

BCG coverage can also be used as a measure against the DPT3++ to indicate the dropout rate from the immunisation scheme. This was however, not done in this study, as it is the *increase* in DPT3++ in itself that was of interest to the research question.

- OPV has a schedule similar to BCG and DPT combined, i.e. at first contact (OPV0 – similar to BCG), thereafter at 6, 10 and 14 weeks (similar to DPT++ 1, 2, and 3). One would assume that trends in OPV3 coverage would follow a similar pattern as trends in DPT3++ coverage. If the coverage of OPV3 and DPT3++ converge or correlate, one can assume that the immunisation system is performing broad-based (up to 4 months) and not only narrowly on DPT3++.
- Measles is given for the first time at 9 months, which is 6 months after the other vaccines in the immunisation programme. The difference in coverage between DPT3++ and measles coverage may shed light on how the immunisation programme as a whole functions. However, and as will be shown later in this thesis, a national mass measles immunisation campaign was undertaken in October 2003, which reached all eligible children under 15 years of age (90). It would be rather meaningless to draw conclusions from a comparison of the coverage in DPT3++ and measles in 2003 due to the mass measles campaign the same year. However, a comparison of the 2002 coverages for DPT3++ and measles was nevertheless performed.

#### 4.4. *Properties of Indicators and Variables*

The indicators and variables as mentioned above, by district, were obtained electronically from the MoH databank (89) and by manually computing information given in the Annual Health Sector Performance Report 2003/2004 (AHSPR) (58).

In addition, the AHSPR 2003/2004 (58) supplied information on the rate of deployment of health personnel as per Ministry norms per district, which is used in the analyses, as well as the rank order given in the same report. These values were computed manually.

From the values given for these individual indicators, the difference between the two years 2002 and 2003 for the five first variables was computed by SPSS and used as separate variables.

**Table 1. Variables used and for which year available**

<b>Variable</b>	<b>Calendar year 2002 (89)</b>	<b>Calendar year 2003 (89)</b>	<b>Difference in annual coverage (2003 – 2002) (computed by SPSS)</b>	<b>Fiscal year 2003/04 (58)</b>
DPT3++ coverage	X	X	X	X
OPD attendance per person per year	X	X	X	X
BCG coverage	X	X	X	
OPV 3 coverage	X	X	X	
Measles coverage	X	X	X	
Human Resource coverage <sup>***</sup>				X

<sup>\*\*\*</sup> Human Resources Coverage is used in this text as in the AHSPR: The proportion of approved posts that are filled by trained health personnel. The statistics thus include the cadre Nurse Assistants, that have three months of training, but are not considered to be *qualified* health personnel (58)

Information from all 56 districts was available for the given points in time. Analysis was also performed on “new” vs. “old” districts, and “secure” vs. “insecure” districts. A list of the districts showing their category is attached as annex 11.5.

Using official statistics ensures the figures to be the same available to all and collection bias is excluded. However, as with all pre-coded data, it was not possible to confirm the soundness and completeness of the records. In a previous study done in Uganda it was shown that data from districts found at central level, sometimes may differ from the data available on the ground in the same district (83).

## 5. STUDY DESIGN AND METHOD

This study is predominantly qualitative supplemented by a literature review and secondary analysis of statistical material. The original research in the study consists of the qualitative interviews.

### 5.1. *Type of Study and Material*

It is a retrospective study combining qualitative and quantitative methods, and has been carried out using various approaches:

- General literature review concerning immunisations, health service delivery and GAVI;
- Review of the current health policy documents in Uganda, made available either through the consortium of health development partners to Uganda (donors, UN organisations, World Bank and others) or from publicly available websites;
- Review of GAVI documents in general and specifically related to Uganda;
- A field visit to Uganda in November/December 2004, visiting four districts. Interviews with district health officials and staff at health facilities. The interviews were guided by an open-ended list of questions. The interview guides are enclosed;
- Discussions with health officials in Kampala, including some donors and NGOs;
- Collation of district data on OPD attendance and DPT3++ coverage (and other immunisation data) for 2002 and 2003 from the databank in Ministry of Health (statistical information) as well as selected statistical information given in the AHSPR 2003/04 (58) and application of simple SPSS analysis.

Hence the main thrust of the original research is qualitative, with support from secondary quantitative collated data. The “whys” and “hows” were central in the qualitative part of the study.

## 5.2. *Ethical Clearance*

No ethical clearance was sought in either Norway or Uganda. This was due to the fact that neither the study nor the fieldwork involved subjects or patients.

## 5.3. *Period under Study*

The general and specific *literature review* is from 2000 – 2004. This coincides with the first four years of the HSSP.

The original intention was to study the *statistics* from two years before GAVI support, and then for two years after, i.e. from January 2000 – January 2004. This turned out not to be possible, as the creation of new districts have been an ongoing process and the latest change was in December 2001. The “old” districts, out of which the “new” one was carved, most often kept their names – but came out with a different population structure and size as well as administrative responsibilities when the geography was changed. The “new” districts likewise, although the areas had always been there, there had not been separate statistics on these areas prior to the administrative creation of these. Thus comparable statistical information on district level has only been available from 2002, a fact that was also reflected in the electronically information which was sent from the MoH databank. MoH databank provided information for the period 2002 – 2003. The statistics taken from the AHSPR gives figures for FY 2003/04.

Hence, the main statistical study period is from 2002 – 2003/04. As Uganda received the first batch of DPT++ vaccines from GAVI in January 2002, the statistical period solely focuses on immunisation coverage *after* inception of GAVI support.

The *interviews* on the other hand, reflect the time of the interview (November/December 2004).

## **5.4.           *Selection of Districts***

The selection of districts that were included in the study was purposeful: four districts with different profile in terms of OPD attendance and DPT3++ coverage; and convenient: the four districts should be somewhat easily accessible. After having consulted with UNEPI in advance, the districts of Mbale, Mpigi (good vaccination performance) and Mukono and Jinja (good OPD performers) were chosen for review. During the time of the fieldwork, it turned out that Jinja district was busy organising a rally with the First Lady. Kamuli district was chosen instead, due to the proximity of Mbale and the districts general good performance (rank 19 of 56 districts) although the OPD performance was not as high as for Jinja district (58).

## **5.5.           *Interviews***

### **5.5.1.        Selection of Interview Subjects**

The Norwegian Embassy in Kampala made contact with MoH prior to the visit of the investigator (see annex 11. “Letter of Introduction”). MoH thus assigned a focal person, with whom the study objectives were discussed upon arrival of the investigator. He gave advice accordingly, in relation to designated responsibilities, whom to contact in both UNEPI and in the Ministry. In turn, these people assisted the investigator further in that interviews or discussions were held. UNEPI was instrumental in contacting the districts prior to departure from Kampala.

### **5.5.2.        People Interviewed**

All interviews were performed by the principle investigator in English. Interviews were made with all four District Directors of Medical Services (DDHS), one Secretary for Health and Social Services, staffs at one HCIV, three HCIIIs and three HCIIIs. In Kampala/Entebbe, interviews were held with MoH, UNEPI and Uganda Bureau of Statistics (UBOS). These interviews were done based on the advice given as described in 5.5.1.



In addition, the author made herself contact with independent capacities, the World Health Organisation, United Nations Children's Fund (UNICEF), The Swedish Embassy, and Uganda Red Cross.

### **5.5.3. Interview Tool**

The interviews in the districts were conducted using a very open interview guide (attached) and taped. The DDHS had been briefed by MoH of my coming, and the health facilities in were turn informed by the respective DDHS of my visit.

The discussions, which were held in Kampala with Ministry officials and others, were open ended and taped. Consent was given to the use of tape recorder prior to each interview. No notes were taken as not to disturb the interview situation further. The interview guides are attached as annexes 11.2 – 11.4.

### **5.5.4. Collation of Information from Interviews**

The entry point for the interviews in the districts was a discussion around the burden of disease; which then subsequently led to a discussion on OPD attendance as well as on immunisations and UNEPI. The interviews were held in a very open and reciprocal atmosphere, which often turned into very interesting conversations. These talks lasted on average for two hours or more. The visits at the health centres also included a round of the facilities, making the total time spent often more than four hours.

The interviews were transcribed partly while in Kampala, and partly after returning to Norway. The total time spent in Uganda did not make allowances for all interviews to be transcribed while being there.

Unfortunately, some of the recorded tapes were damaged on the way home to Norway. Nearly all of the ruined tapes contained discussions held in Kampala. This was only discovered in January 2005, when the details of the interviews in question had been forgotten. This could leave me with an unintentional selection bias concerning what was contained and what was not. When

approaching most of these people in question by e-mail, I did not get a reply. As notes were not taken under the discussions, there was no “hard-cover backup” information at hand.

Having analysed the district interviews however, the investigator concluded that this information would suffice, as the responses from officials in Kampala reflected to a large degree the views also found in documents made available.

### **5.7. *Practical Arrangements***

The investigator herself provided transport with driver in order to reach the districts. Thus we were not dependent on available Government vehicles or fuel to get around, nor did we pose an even greater burden or load on the district staff than necessary.

### **5.8. *Statistics***

The statistics information was analysed using simple SPSS (12.0) procedures. These tests were used:

- tests of normality (“Kolmogorov-Smirnov/Lilliefors Significance Correction”),
- descriptive statistics,
- comparing differences over time (paired sample t-test and 2-related samples test),
- correlations between variables (Spearman's rho),
- comparing differences between groups (Mann-Whitney U Test and independent samples test).

### **5.9. *Limitations and Biases (of Method)***

The most important limitation was the duration of the time at hand in Uganda. This meant that the information on tape could not be personally verified after transcription. Second, the selection of districts was done both by purpose and by convenience, which may give a distorted impression. The selection of districts thus also includes a bias.

The interviews that were successfully transcribed were sent by e-mail to those respondents for comments or clarification. Only three of the respondents replied and gave feedback on the transcriptions. This fact, together with the damaged tapes, can be seen as an unintentional response bias.

I have been working with health development issues in The Norwegian Agency for Development Cooperation (Norad) for almost two decades. To what extent my Norad status influenced the people I interviewed in such a way that they responded to the Norad adviser rather than the investigator, I do not know. Thus, one may ask, were the responses given the way they were *because* I was seen as a representative from Norad – or *in spite of*? My role could have been perceived as a double-edged sword by the respondents, - making it difficult to differentiate the real “because” and the real “whys” in the situation I experienced.

Finally it must be borne in mind, that strictly speaking these results are applicable only to the visited districts in Uganda. However, the statistical information together with the information gathered from the literature, leaves the author confident that the findings are valid for Uganda as such.

## **6. FINDINGS**

### **6.1. Document Review**

This section builds on written material either found on the World Wide Web (www) or made available to the researcher through contacts in Uganda. It is important to stress, that no confidential or restricted information has been used; all documentation is available in print or on the www. Draft documents that have been cited were either found on the www or shared with me, and are referred to as such.

This section is meant to shed light on the *vehicles* for the two main indicators, namely the Uganda Minimum Health Care Package (UNMHCP) for OPD attendance and Uganda National Expanded Programme on Immunisation (UNEPI), for the DPT3++ coverage. Now even if immunisation services are part of UNMHCP, in reality (which was shown in 2.3.5.1.) UNEPI is *de facto* organised vertically from central down to district level.

First follows a brief insight to the burden of disease in the country, depicting the scene that the health sector is facing at district level and below.

#### **6.1.1. Burden of Disease**

The single most common disease in Uganda is malaria, which occurs regularly in 95% of the country. The remaining 5% are endemic-prone (77). It has been reported that malaria accounts for 25 – 50 % of all OPD visits (91). Children under five years and pregnant women are the main victims of the disease, with as many as 44% of OPD cases in under-fives coming for malaria (77;91). The Ministry of Health estimates that 20-23% of all child deaths in the country are attributable to malaria or malaria related illnesses, i.e. 70 000 – 100 000 children die every year from this disease (63).

Measles on the other hand, which used to be one of the larger childhood killer diseases in Uganda even as late as in 2002, has not been a problem since the mass measles vaccination campaign in October 2003. See section 6.1.3.6. specifically on measles.

Other main causes of childhood mortality in Uganda are maternal and neonatal conditions, (more than 40% of IMR deaths occur in the perinatal and neonatal period (63)), HIV/AIDS, acute respiratory infections, tuberculosis and diarrhoea. Malnutrition remains the main underlying cause (more than 50%) of infant and childhood mortality. 54% of all childhood deaths globally are related to under-nutrition (63) . More than 40% of children in Uganda are chronically undernourished (63).

Vital statistics, like IMR and U5MR show that both these indicators stagnated between 1995 and 2001 (58;67;68):

<b>Indicator</b>	<b>1995</b>	<b>2001</b>
IMR	81/1000	88/1000
U5MR	147/1000	152/1000

This has largely been attributed to an increase in infant mortality from malaria and diarrhoea (62). No recent data for these indicators are presently available. Thus any influence GAVI support may have had on these cannot be inferred (68).

It is worth noting that the present level of HIV/AIDS prevalence in Uganda did not correlate to the increase in child mortality between 1995 and 2001 (68;92).

### **6.1.2. Uganda National Minimum Health Care Package**

The Uganda National Minimum Health Care Package (UNMHCP) is one of the pillars of the HSSP. The complete package is very comprehensive and almost all-encompassing in terms of providing primary health care services on district level and below (79). The package has been designed to cost-effectively address the leading causes of morbidity and premature deaths in the country (60).

### **6.1.2.1. Finance and Administration**

The health sector in Uganda is heavily dependent on donor funding. Most external funding to the sector comes through the Sector-Wide Approach (SWAp), where Uganda also is part. The Government of Uganda manages the SWAp funds as if they were from domestic revenue. For FY 2004/05 Government, SWAp and donor project funds amounts to 35% of the total health sector budget, i.e. USD 9 per capita. The deficit of 65% of the planned budget remains as a funding gap (93;94).

The financial constraints in the health sector have resulted in an adjustment in the focus of UNMHCP (see 2.3.5.4.). The following areas however, are given priority:

- a) Control of Communicable Diseases (malaria, STD/HIV/AIDS, tuberculosis)
- b) Integrated Management of Childhood Illness (IMCI)
- c) Immunisation Services

a) and b) are directly related to OPD attendance. c), immunisation services are rendered by UNEPI and will be dealt with in section 6.1.4.

Even when re-focussing UNMHCP, the under-funding has resulted in shortcomings when it comes to implementing the UNMHCP. Most visible are the shortages in appropriately trained staff and adequate infrastructure. The central recruitment ban in the health sector (58;77;95) has made new recruitments difficult. There was hardly any recruitment of qualified staff in FY 2003/2004 (58), which had the most serious consequence in the “new” districts as these were underserved from the outset (58).

It is important to note, that up until 1<sup>st</sup> March 2001, there were fees on the use of health services in Uganda. Exceptions were for immunisations, ante-natal care and for family planning (87). When the user fees were abolished (except for in private wings in hospitals), both total OPD attendance as well as the consumption of the previously free services increased (87;88). This abolition occurred 11 months prior to Uganda receiving her first batch of DPT++ vaccines from GAVI (see 2.3.6.).

### **6.1.3. Out Patient Department Attendance**

OPD attendance is monitored as an output indicator for both the PEAP and the HSSP (77). Outpatients come for treatment of disease or illness (clients coming for immunisation only are not registered as OPDs).

There has been a remarkable increase in OPD attendance after the abolition of user fees as of 1<sup>st</sup> March 2001 (87;88). This is in spite of the financial constraints the health sector is facing. OPD attendance per capita increased from 0.4 in FY 1999/00 to 0.79 in FY 2003/04 (58). Although the abolition of user fees has left many of the health facilities with less petty cash (the fees were often used at facility level to buy supplementary drugs or for allowances (87)), the Government of Uganda has increased her direct support to districts through the Primary Health Care Conditional Grant, as well as earmarking 50% of the this grant for essential drugs at district level (88). The new system is demand based; a so-called “pull-system” as opposed to a “push-system” whereby a fixed set of drugs is dispatched every third month (58).

By far the major increase in OPD attendance has been in the above-five year group, and among the poorer segments of the population (87;88).

The increase in OPD attendance has in more cases than not, increased staff work load as the increase in qualified personnel has hardly increased at all (58).

### **6.1.4. Uganda National Expanded Programme on Immunisation**

First it is important to reiterate, that UNEPI is not only providing the vaccines given by GAVI. UNEPI and the staff at the health facilities are just as much involved in the provision and monitoring of the other vaccines included in the EPI programme in Uganda including mass vaccination campaigns.

UNEPI has as its policy to increase and sustain immunisation coverage of all vaccines through improved accessibility to “*high quality immunisation services by all eligible target groups*” (80).

The diseases targeted by UNEPI are polio, tuberculosis, diphtheria, pertussis, neonatal tetanus, hepatitis B, *Haemophilus influenzae* type B and measles (80). UNEPI falls administratively under the Department of National Communicable Disease Control within the Directorate of Clinical and Community Services in MoH (52).

All routine immunisation vaccines in Uganda (except DPT++) is provided by the Government; through the SWAp funding mechanism (58). DPT++ and vaccine safety material/equipment is provided in kind by GAVI (17;77). The fact that GAVI is providing the new vaccines which includes DPT, has resulted in a decrease in SWAp health funds allocated to UNEPI over the last few years (96).

#### **6.1.4.1. Organisational Set-Up – from Central Level to Districts and Health Facilities**

UNEPI has its own guidelines and set of commands to protect and provide the vaccines out to the delivery points. UNEPI is said to have “a very strong vertical *modus operandi* through which it has “*controlled all activities*” (57), including responsibility for a functional cold-chain system; which is exclusively reserved for the EPI vaccines (80). Any other vaccines or other injectable requiring refrigeration are not allowed into the cold-chain system of UNEPI (80). Such medication may be insulin, rabies vaccine, meningococcal vaccine to name a few.

The Ministry of Health also reiterates the vertical nature of UNEPI, having separate supply systems as well as “*separate budgets that are held and allocated centrally*” (58).

At the same time, the immunisation programme is supposedly part and parcel of the minimum health care package offered at health facilities and thus falls under the district health authorities (57). It is the same staff providing immunisation and other health care services at the lower facility levels. The delivery of immunisation services is thus integrated on facility level, whereas the organisation of the services is vertical from central to district level.

According to UNEPI policy, each immunisation session, whether it is outreach or static, shall be performed by an appropriate qualified health worker (80).



The immunisation schedule begins at birth (BCG and polio (OPV0)) and goes up to nine months with the measles vaccine. A fully immunised child should have received all nine doses of vaccines (97).

#### **6.1.4.2. *Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus influenzae (Hib)***

DPT3++ coverage is monitored as an output indicator when reviewing both the HSSP and the PEAP (60;63;65;75). DPT3++ is also used as a proxy for the immunisation system as such in Uganda (75). The DPT3++ coverage has increased from 41% (FY 1999/2000)<sup>†††</sup> to 83% (FY 2003/2004) (58). The present ongoing increase in immunisation coverage started already in FY 1999/2000 (52).

According to MoH, the recent increase in DPT3++ coverage is linked both to the revitalisation of Uganda National EPI (UNEPI) through the implementation of the Health Sector Support Programme (HSSP) and GAVI support funding (60;65;75). Also the increase in the number of static and outreach service points under the implementation of HSSP have, according to MoH, been contributing factors to the increase immunisation (58;60;74;75;87).

#### **6.1.4.3. *Use of Immunization Services Support***

By 2005 Uganda will be eligible for a total, accrued and accumulated amount of USD 11.9 million in the form of Immunization Services Support funds (48). This is based on a remuneration system of USD 20 per extra child fully immunised with DPT3++, as compared with the baseline figures from FY 1999/2000 (47). In 2003 only USD 1,256,516 had been disbursed as the bulk of the USD 11, 9 mill were accrued in 2004 (48;85). The use of the remaining funds is due to be reported on in the 2004 annual progress report. As of 18<sup>th</sup> August 2005, this report was not yet available on the GAVI web site.

The ISS money is transferred directly from the UNICEF Trust Account to an ICC-approved bank account in the country (41). UNEPI requests the Permanent Secretary of the Ministry of Health

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<sup>†††</sup> For FY 1999/2000 and up to the full effect of GAVI support, the vaccine that was given was DPT, and not DPT++.

for the release of these funds after ICC approval (85). This means that the ISS funds are bypassed the Ministry of Finance.

GAVI ISS funds have been made available at the health facility level to ensure adequate immunisation supplies, transport and lunch allowances for mobilisers during outreach services after the introduction of the new vaccine in 2001 (82). In 2003, the ISS funds were also for training of immunisation mobilisers, and training and workshops for the District Health Teams (DHT). In the year 2003 the bulk of the expended funds were workshops/training for DHT members (85). Immunisation mobilisers are parish volunteers and are not on Government payroll.

The Ministry itself describes how some of the ISS funds were used in 2003:

*“Funds received for immunisation services strengthening have been used primarily for grass-roots social mobilisation (training and support for community mobilisers), support supervision and distribution of vaccines at district level, and cold chain maintenance. Although it is early to assess the impact of these interventions on immunisation services generally, these funds combined with contributions from the Ministry of Health (MOH) and other partners are having a synergistic effect on improving immunisation services. The programme is exceeding national coverage targets for all EPI antigens for infants” (81).*

Hence according to the Ministry, ISS support has contributed to the increase in immunisation coverage.

#### **6.1.4.4. Cost Implications and Financing**

With the introduction of the new vaccine (DPT++) and the increase in immunisation coverage of late, the cost of the programme has increased significantly. The major increases in cost for the programme are costs involved in the new vaccine DPT++ (96). There is a substantial funding gap (i.e. a deficit of approx 75%) for this vaccine when GAVI funding ends, as of FY 2007/2008 (85).

GAVI recipients are required to submit a “Financial Sustainability Report (FSP)” outlining how their national immunisations programmes will be financed when GAVI support ends after five years. According to the Uganda FSP, there will be a substantial financial funding gap when GAVI support is withdrawn (52).

Uganda plans to meet this gap through mobilising, *inter alia*, more funds from donors “*that have shown willingness to support immunisation activities in the past*” (52) and to “*improve the efficiency of the programme to free up some resources*” (*ibid*). A dialogue with all stakeholders in terms of continued support to UNEPI after the GAVI era is ongoing (98). If continued funding for the programme entails saving some of the accrued ISS funds to be used later, it is not mentioned in the FSP of November 2003 (52).

Although it is only a relatively small proportion of the ISS fund which is used to remunerate the two mobilisers designated for each of the 4,517 parishes, the Government realise that this expense is not sustainable when GAVI support runs out (85).

It should be remembered that even if the mobilisers are not, and will most probably not, become a part of the government payroll, their costs remain high when considering the numbers involved.

The main challenge (in fact the only listed by Government) in 2003 concerning the ISS funds were “*Sustainability of activities supported by the ISS funds after the funds run out*” (85)

#### **6.1.4.5. UNEPI and Polio Eradication**

Uganda has committed herself to the World Health Assembly resolution to the eradication of polio by 2005. Thus in addition to providing OPV at static and mobile units, supplementary doses of OPV to all children under five are offered during National and Sub-National Immunisation Days. Whenever wild poliovirus occurs, there are sub-national campaigns. The latter was the case in February 2005 when wild poliovirus was found in Southern Sudan and a

campaign was launched in the northern districts of Uganda to immunise 1.4 million children (99).

#### **6.1.4.6. UNEPI and Measles Control**

Measles used to be one of the top 10 killing childhood diseases in Uganda as late as at the beginning of FY 2003/2004 (58). Measles morbidity was also high, with approximately 2000 – 5000 reported cases per week and the fatality rate was 2-3% (58;77).

The Uganda Measles Control Strategy was launched by the Ministry of Health and partners<sup>†††</sup> (100) as a response to the massive toll measles was taking in terms of mortality and disability (58). Hence the first *under-15* national mass measles immunisation campaign was undertaken 15<sup>th</sup> – 19<sup>th</sup> October 2003, reaching all eligible children between 9 months and 15 years of age (90).<sup>§§§</sup> Also, 95% of the 56 districts achieved 90% coverage (58). This campaign was a milestone in the Uganda Measles Control Strategy, as it combined vaccinating against measles with giving A-vitamin supplements to, and de-worming of, the children (77). The next campaign will target children aged 1 to 3 years in a nationwide follow-up campaign in 2006 (100). The Measles Control Strategy was funded over and above the regular UNEPI budget (100). The drawback of the campaign as noted by MoH, was that it removed attention and resources from the *regular immunisation* programme during the planning and executing phase of the exercise (*emphasis by author*) (85).

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<sup>†††</sup> UNEPI and District health teams, and supported by Ministry of Education and Sports, WHO, UNICEF, US AID, Rotary International, Uganda Red Cross Society, other non-government partners and private sector

<sup>§§§</sup> UNEPI has also implemented mass measles campaign earlier, i.e. between 1999 and 2003. However these were targeting the “under-5” population, while in October 2003 was the first targeting the population under 15 years of age.

## 6.2. Statistics

### 6.2.1. Test for Normality

Prior to performing any statistical tests on the material, a “Kolmogorov-Smirnov/Lilliefors Significance Correction”, was performed on the variables. This test gives the distribution of each of the samples, i.e. whether this is normal or not. The results are given in the table 2. below.

**Table 2. Test for normality of indicators  
Kolmogorov-Smirnov/ Lilliefors Significance Correction**

Variable	Statistic	df	p	Distribution
Total OPD 2002	0,137	56	0,010	
Total OPD 2003	0,143	56	0,006	
OPD difference 0302	0,079	56	0,200(*)	Normal
Total OPD 2003/04	0,105	56	0,186	
DPT3 2002	0,115	56	0,063	
DPT3 2003	0,070	56	0,200(*)	Normal
DPT3 difference 0302	0,150	56	0,003	
DPT3 2003/04	0,109	56	0,098	
BCG 2002	0,100	56	0,200(*)	Normal
BCG 2003	0,090	56	0,200(*)	Normal
BCG difference 0302	0,223	56	< 0,001	
OPV3 2002	0,075	56	0,200(*)	Normal
OPV3 2003	0,077	56	0,200(*)	Normal
OPV3difference 0302	0,115	56	0,063	
Measles2002	0,153	56	0,002	
Measles 2003	0,151	56	0,003	
msl difference 0302	0,122	56	0,038	
Human resources coverage 2003/04	0,193	56	< 0,001	

\* This is a lower bound of the true significance.

The distribution of the various indicators as found in Table 2. determines the statistical method employed later in the text. When comparing or analysing the relationship between two or more indicators, non-parametric methods are used when not all indicators involved are normally distributed.

## 6.2.2. Descriptive Statistics

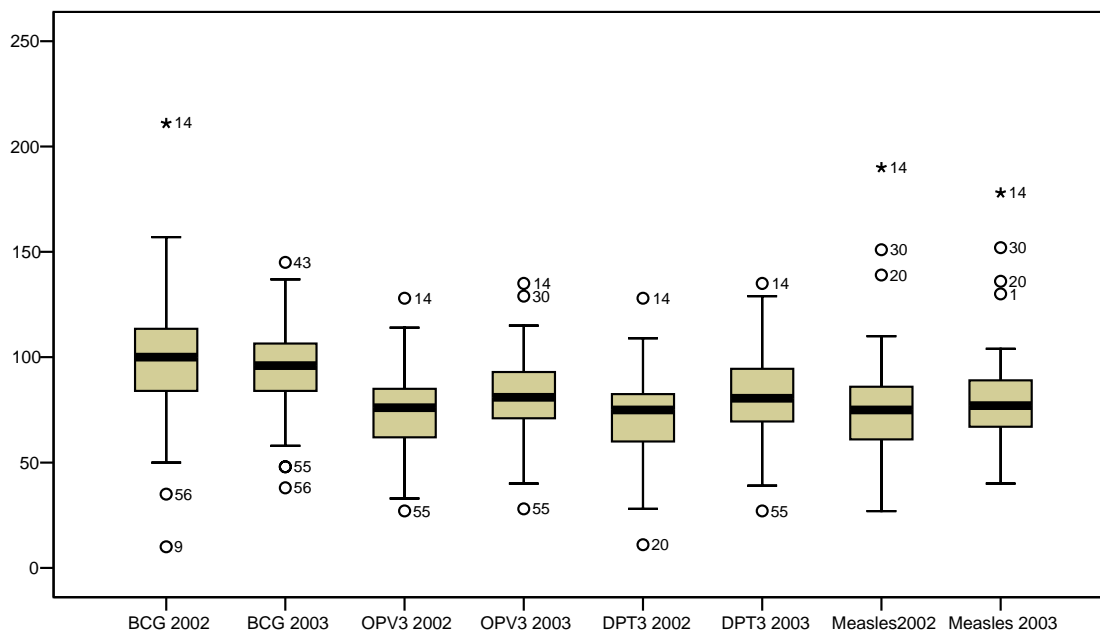
Table 3. on the next page shows that there is an increase in all variables between 2002 and 2003, *except* for BCG, which shows a small decline. It also shows the spread of the variables.

**Table 3. Descriptive Statistics: Showing variations in mean and median coverage**

	N	Minimum	Maximum	Mean	Median	Std. Deviation
Total OPD 2002	56	0,18	1,51	0,6663	0,62	0,27649
Total OPD 2003	56	0,41	1,55	0,7870	0,71	0,27137
Total OPD 2003/04	56	0,46	1,43	0,8282	0,79	0,23597
OPD difference 0302	56	-0,29	0,39	0,1207	0,13	0,13027
DPT3 2002	56	11	128	72,71	75	20,902
DPT3 2003	56	27	135	81,02	81	20,107
DPT3 2003/04	56	44	139	82,05	80	18,440
DPT3 difference 0302	56	-44	102	8,30	7	19,287
BCG 2002	56	10	211	99,91	100	30,866
BCG 2003	56	38	145	94,98	96	23,028
BCG difference 0302	56	-74	108	-4,93	-5	23,897
OPV3 2002	56	27	128	74,93	76	19,842
OPV3 2003	56	28	135	81,20	81	20,294
OPV3difference 0302	56	-38	53	6,27	6	13,378
Measles2002	56	27	190	76,80	75	26,489
Measles 2003	56	40	178	81,18	77	24,570
msl difference 0302	56	-35	71	4,38	3	16,118
Human resources coverage 2003/04	56	40	265	88,29	86	32,959
Valid N (list wise)	56					

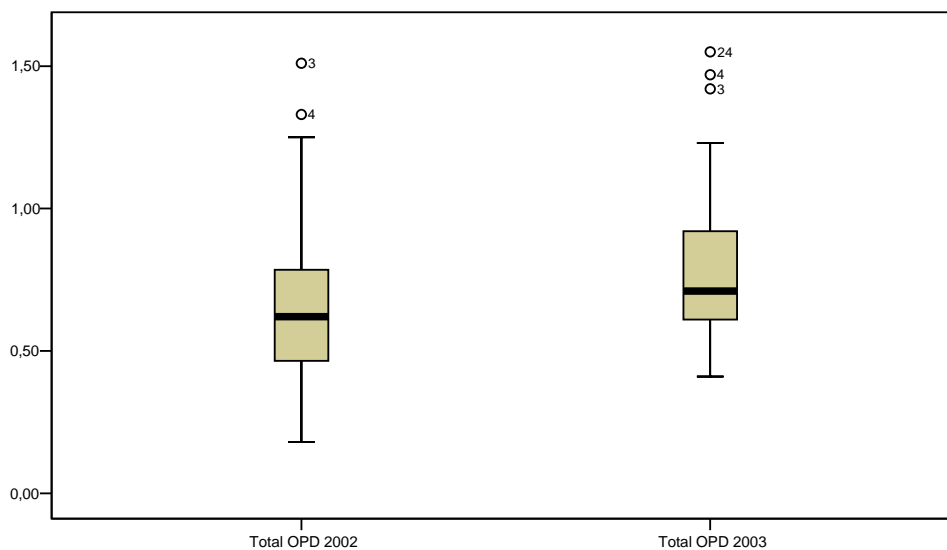
Although the differences in minimum and maximum values are large for some of the variables, this large spread is due to outliers and not a general spread. See Figure 2. and Figure 3. on next page:

Figure 3: Box plot of all variables except OPD attendance



Note: District 55 = Pader, District 14 = Mbale

Figure 4: Box plot of OPD attendance



### 6.2.3. Differences in Indicator and Variable Coverage

The indicators in Table 4. below are not normally distributed, hence the use of Wilcoxon Signed Ranks Test. The results show that there is a difference for all three indicators between 2002 and

2003. This difference is statistically significant for DPT3++ and OPD. Combined with the results shown in Table 3., this implies that the coverage in 2003 was significantly higher for these two indicators in 2003 as compared to 2002. It is important to underscore that this result cannot be understood as if the increase was parallel in the same districts.

**Table 4. : Test Statistics (Wilcoxon Signed Ranks Test). 2 related samples, non-parametric. Differences in DPT3++, OPD attendance and Measles between 2003 and 2002**

	DPT3++ 2003 - DPT3++ 2002	Total OPD 2003 - Total OPD 2002	Measles 2003 - Measles2002
Z	-3,772(a)	-5,309(a)	-1,951(a)
p	p < 0,001	p < 0,001	p = 0,051

a Based on negative ranks.

For measles the increase in coverage is just not significant ( $p > 0,05$ ).

The distributions of BCG and OPV3 for both 2002 and 2003 are normally distributed, hence the use of a paired sample t-test below in Table 5. The test show that there is no significant difference in BCG coverage on district level between these two years ( $p = 0,128$ ).

**Table 5. Paired Samples Test (parametric): The difference in BCG and OPV3 coverage between 2003 and 2003**

		Paired Differences					t	df	p
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	BCG 2002 - BCG 2003	4,929	23,897	3,193	-1,471	11,328	1,543	55	0,128
Pair 2	OPV3 2002 - OPV3 2003	-6,268	13,378	1,788	-9,850	-2,685	-3,506	55	p < 0,001

For OPV3 there is such a difference in coverage ( $p < 0,001$ ), implying that OPV3 coverage in 2003 was significantly higher than in 2002.

#### 6.2.4. Correlations

The “*Spearman’s Rank Order Correlation is used to calculate the strength of the relationship between two continuous variables*” (101). It is the non-parametric alternative to the Pearson



product-moment correlation. Thus, when there is significant correlation between two variables, the relationship between these two is strong, i.e. if there is an increase in one, there will be a predictable increase or decrease in the other. The test does not give a causal relationship or explain why a correlation occurs or not.

Table 6. below correlates variables one by one (except measles) and it clearly shows which indicators that significantly correlate ( $p < 0.01$ ). Thus, DPT3++ and OPV3 correlate with all the other variables. This implies that in districts where there is a high DPT3++ (or OPV3) coverage; there is also a high proportion of OPD attendance and coverage of the other vaccines.

Measles 2003 coverage was not included in Table 7. due to the mass campaign in October that year.

Worth noting in Table 6. is the positive correlation between all vaccines on a one-by-one basis. Thus in districts where there is a high DPT3++ coverage, the coverage of the other vaccines are also high. Again, the degree of coverage for each vaccine cannot be stated.

**Table 6. Correlations: Spearman's rho (non-parametric) between all indicators/variables (2003)**

			Total OPD 2003	BCG 2003	OPV3 2003	DPT3 2003
Spearman's rho	Total OPD 2003	Correlation Coefficient	1,000	0,127	0,391(**)	0,352(**)
		p	.	0,352	0,003	0,008
		N	56	56	56	56
	BCG 2003	Correlation Coefficient	0,127	1,000	0,735(**)	0,722(**)
		p	0,352	.	< 0,001	< 0,001
		N	56	56	56	56
	OPV3 2003	Correlation Coefficient	0,391(**)	0,735(**)	1,000	0,947(**)
		p	0,003	< 0,001	.	< 0,001
		N	56	56	56	56
	DPT3 2003	Correlation Coefficient	0,352(**)	0,722(**)	0,947(**)	1,000
		p	0,008	< 0,001	< 0,001	.
		N	56	56	56	56

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 7. below shows that there was a positive correlation between measles and DPT3++ coverage in 2002, i.e. prior to the mass measles campaign.

**Table 7. Correlations: Spearman's rho (non-parametric) between measles and DPT3++ coverage (2002)**

			Measles 2002	DPT3 2002
Spearman's rho	Measles 2002	Correlation Coefficient	1,000	0,794(**)
		p	.	< 0,001
		N	56	56
	DPT3 2002	Correlation Coefficient	0,794(**)	1,000
		p	< 0,001	.
		N	56	56

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 8. below shows the correlation for the three variables available for FY 2003/04: OPD attendance 2003/04, DPT3++ coverage 2003/04 and Human Resources coverage 2003/04.

**Table 8. Correlations: Spearman's rho (non-parametric) between the 2003/04 indicators DPT3++, OPD attendance and Human Resource Coverage**

			Human resources coverage 2003/04	Total OPD 2003/04	DPT3 2003/04
Spearman's rho	Human resources coverage 2003/04	Correlation Coefficient	1,000	-0,036	-0,012
		p	.	0,792	0,929
		N	56	56	56
	Total OPD 2003/04	Correlation Coefficient	-0,036	1,000	0,355(**)
		p	0,792	.	0,007
		N	56	56	56
	DPT3 2003/04	Correlation Coefficient	-0,012	0,355(**)	1,000
		p	0,929	0,007	.
		N	56	56	56

\*\* Correlation is significant at the 0.01 level (2-tailed).

From the results in Table 8., it is clear that it is only OPD attendance and DPT3++ that are correlated for the FY 2003/04.

Human Resources (HR) coverage (2003/04) is not correlated to neither of the two other indicators that are available for the same period, i.e. DPT3++ and OPD attendance.

Table 9. below uses the SPSS computed values of differences in the vaccine coverage between 2003 and 2002. Only the vaccines that had an increase in coverage are computed, i.e. BCG is left out, but OPD attendance is included.

This table show the correlation between the increases in coverage of the variables. A significant correlation result implies that the increases in the variables involved happened in the same districts.

Although there is a significant correlation between OPD attendance and DPT3++ coverage (Table 8.) for the fiscal year 2003/2004, Table 9. below shows that there is no correlation between the *increase* in DPT3++ and *increase* in OPD attendance (2002 – 2003) by district.

**Table 9. Correlations (Spearman's rho) between differences/increases in vaccine coverage and OPD attendance between 2002 and 2003**

			OPD difference 0302	DPT3 difference 0302	OPV3difference 0302	msl difference 0302
Spearman's rho	OPD difference 0302	Correlation Coefficient	1,000	0,194	0,388(**)	0,256
		p	.	0,151	0,003	0,056
		N	56	56	56	56
	DPT3 difference 0302	Correlation Coefficient	0,194	1,000	0,736(**)	0,578(**)
		p	0,151	.	< 0,001	< 0,001
		N	56	56	56	56
	OPV3differ ence 0302	Correlation Coefficient	0,388(**)	0,736(**)	1,000	0,648(**)
		p	0,003	< 0,001	.	< 0,001
		N	56	56	56	56
	msl difference 0302	Correlation Coefficient	0,256	0,578(**)	0,648(**)	1,000
		p	0,056	< 0,001	< 0,001	.
		N	56	56	56	56

\*\* Correlation is significant at the 0.01 level (2-tailed).

The difference in OPV3 coverage is correlated to all the other variables as shown in the table below.

### 6.2.5. Comparing Groups According to Status (New/Old, Secure/Insecure Districts)

As mentioned under chapter 2.3.2., Uganda is presently divided into 56 districts. Some of these districts are relatively new (December 2001), and have been formed by partition of other districts. The new districts were constructed in marginalised and underserved areas, with little or no health infrastructure and administration.

The Government is also operating with secure and non-secure districts, with a number of internally displaced persons and instability (see 2.3.1.). The new and old districts, as well as secure and insecure districts used in the analyses below, are the same as applied by the Government of Uganda (GoU) (58;59) (see annex 11.5. for details).

The Mann-Whitney U Test compares differences between one continuous and one categorical variable. When using this test to compare old and new districts, there is no significant difference for the indicators OPD 2003/04, DPT3 2003/04 and HR 2003/04, as shown in Table 10. below:

**Table 10.: Mann-Whitney U Test: Comparing new and old districts regarding DPT3++, OPD attendance and Human Resource Coverage 2003/2004**

	Total OPD 2003/04	DPT3 2003/04	Human resources coverage 2003/04
Mann-Whitney U	144,500	157,500	149,500
Wilcoxon W	199,500	212,500	204,500
Z	-1,830	-1,552	-1,723
p	0,067	0,121	0,085

a Grouping Variable: New and old districts

There is a difference between old and new districts in terms of HR coverage as well as in OPD attendance, i.e. old districts have a higher degree of HR coverage and OPD attendance (however the difference is not significant,  $p=0.085$  vs.  $p=0.067$ ). The cadre Nurse Assistant is also included in the HR statistics, and this is not a qualified health person. However, according to the AHSPR, the “five least performers” in terms of HR coverage are all but one, new districts.

The same is found when testing secure and insecure districts; there is no significant difference in the same indicators – see Table 11. below.

**Table 11. Test Statistics(a) : Mann-Whitney U Test: Comparing secure and insecure districts**

	Total OPD 2003/04	DPT3 2003/04	Human resources coverage 2003/04
Mann-Whitney U	187,000	113,500	156,500
Wilcoxon W	1363,000	149,500	192,500
Z	-0,117	-1,839	-0,832
p	0,907	0,066	0,406

a Grouping Variable: Secure and Insecure districts

Further, the normally distributed indicators BCG, OPV3 (2003), are also not significantly different when comparing old vs. new districts ( $p=0,36$ ,  $p=0,37$ ) or secure vs. insecure districts ( $p=0,25$ ,  $p=0,15$ ) (independent sample t-test).

## 6.2.6. Comparing Groups According to Rank

The AHSPR has ranked the districts on a scale from 1-56, calculated on a basis of the scores given to several indicators. When grouping these ranks into 6 groups, it is possible to analyse if there is any difference across these 6 levels using the Kruskal-Wallis Test. This test *"allows you to compare the scores on some continuous variable for three or more groups"* (101).

Having noted that some districts had HR coverage of more than 100%, these districts (in all 11) were taken out of the original sample and a new analysis was made.

**Table 12. Kruskal Wallis Test (a,b): Comparing ranking order and HR, HR (adjusted), DPT3++ and OPD for 2003/04**

	Human resources 0304 < 100 (adjusted)	Human resources coverage 2003/04	DPT3 2003/04	Total OPD 2003/04
Chi-Square	4,444	6,546	20,278	28,270
df	5	5	5	5
p	0,487	0,257	0,001	< 0,001

a Kruskal Wallis Test b Grouping Variable: Rank groups

The results show (Table 12) that only the indicators DPT3 (03/04) and OPD (03/04) show a significant ( $p<0.001$ ) difference between the groups; implying that the ranking system is appropriate when it comes to these two indicators.

There is no such difference in the HR coverage, both when including all districts as well as when only looking at districts with less than 100% coverage. The degree of appropriate HR coverage does not seem to have been captured by the ranking system.

### **6.3. Interviews**

All interviews that took place were performed like discussions. Apart from a few informants in Kampala, much of the information that was shared with me at central level was similar to written documentation and reports. In combination with the fact that much of the taped material from Kampala was damaged upon my return to Norway, the main bulk of this chapter will be from the interviews that took place in the districts. When appropriate, other statements may be referred to, with the given references.

There is no specific link to the people I talked to in the districts. Rather I have referred to their designation and level of placement. Where there is a direct citation, this is in understanding with the respondent.

#### **6.3.1. Burden of Disease**

In all four districts, it was noted and very much appreciated that both morbidity and mortality from measles had diminished after the large mass-measles immunisation campaign in October 2003. In the same vein, anecdotal evidence pointed to fewer serious cases with pneumonia in children. A decline in acute respiratory infections (upper and lower ARI), which is often also associated with either measles, diphtheria or *Haemophilus influenzae (Hib)* is further expected to decline in the statistics with the introduction of the DPT++ as a result of GAVI support (102).

Very few staff had experienced polio or acute flaccid paralysis. There was no denying by district health staffs that the immunisation services had had an effect on this positive development, and that vaccinations are vital and that many children's lives are being saved as a result. Continued immunisation is important as these diseases then are continuously curbed.

The four district health teams as well as the staff at the various facilities were unanimously in agreement that the most common diseases in children and their reasons for visiting the health centres were malaria, diarrhoeal diseases, as well as acute respiratory infections (upper and lower ARI), worms and trauma.

Malaria was mentioned repeatedly as the main killer. It was pointed out that the drugs available were sometimes not appropriate (resistance) or that they were not taken properly (amounts and duration). Impregnated bed nets which are to be distributed to pregnant women and their children under five years, were not available in the districts visited in sufficient numbers. The new drug, Coartem (artemisinin combination), which is to be available under the Global Fund for AIDS, TB and Malaria (GFATM) (63), had not yet reached these districts (November 2004). In addition, as the underlying cause of not being able to acquire bed nets on the market is often poverty, the question that came up was often,

*“We were talking of mosquito nets, that only a few can afford. So even when the scheme which is coming in with the nets is subsidised - it supposed to be the under-fives and the pregnant mothers that are the target population. But if you get that woman in the village and you give her the net, and she does not have food, she will take that net and sell it to somebody so at least they can have some food..... So it actually all comes down to poverty. And then of course malaria is still remaining a, if not the biggest problem.” (Respondent, UNEPI).*

*.....“what are we saving the children for by immunising them? We have, in this district fully immunised children that die of malaria – and, or more often, infections that are aggravated by malnutrition.” (DDHS).*

### **6.3.2. Uganda National Minimum Health Care Package at Health Facility Level**

All the four DDHSs were familiar with the “Guidelines for the provision of the Uganda National Minimum Health Care Package” (Draft, March 2001) (79). Although this document is presented as draft guidelines, it is nevertheless the prevailing document setting the level of standards to be expected at each health facility from HCII and above. Unfortunately, and as mentioned earlier,

the health sector in Uganda is severely under-funded, hence the responses from the DDHSs were that the lack of adequately trained staff as well as funds for appropriate infrastructure at facility level, made it virtually impossible to implement the UNMHCP as intended in these guidelines. In fact, it was pointed out that *“the funding for the UNMHCP is far too little to stop the social indicators (i.e. mortality statistics) from declining even more” (DDHS).*

The author visited a HCIV (equivalent to sub-district hospital) that, according to the guidelines, should be able to cater for Emergency Obstetric Care, blood transfusions, post abortion care and simple premature/low birth weight babies. In this particular facility, there was no medical doctor, no functioning theatre, no electricity (generator had broken down) (except for solar panels to service the EPI fridges only), no running water, and no fence around the premises making the staff unsafe and equipment susceptible for thefts. It was difficult to imagine how the guidelines could be adhered to. Moreover, for the HCIs of course, the level of services was even less.

*“The main challenge for the HSSP and the UNMHCP is to deliver a package that addresses the disease burden. And the way to deliver that package that really addresses the issues of integrated systems .....So that we avoid duplications, avoid non-sustainable and highly expensive vertical programmes. Look at EPI. EPI delivers its own supplies, separate vaccine trucks that move all over the country. But the drugs for malaria also come from Entebbe (port of landing and UNEPI HQ). So can the supplies be brought together in one lorry? As it is now, it is not” (DDHS).*

And then, *“How can you possibly deliver good services without staff? There are WHO recommendations as to the staffing norms at facilities, these have been sized down considerably in Uganda by the Government, but still there is a shortage of both staff, positions and funds (DDHS).*

The central recruitment ban on health personnel was visible all the way down to the HCIs as shortages in appropriate and adequate staff. In Mbale District, the DDHS needed to address a letter to health facilities reiterating the issue of recruitment stop, and demanding that any person(s) that had been employed in an “illicit” manner had to be removed.



*“Unfortunately it is the recruitment ban – especially on the lower HC levels that pose a major problem. The present staff cannot cope with the disease burden. It is true that the OPD is increasing in numbers, but staffs remain the same. In addition to being overworked, the staffs at HCIV also have to supervise staff at lower level units; and keep themselves abreast with updates in their own field” (politician).*

As many as 65 of the GoU HC IIs are without any staff and as many as 255 HC IIs are manned by Nursing Assistants only (58). A DDHS reiterated; *“How can you possibly deliver without staff? The problem this country is facing is a plan to solve the real problems at hand” (DDHS).*

In spite of staff shortages, it is important to stress that all staff that were present gave a very dedicated impression and did their best according to the available resources.

### **6.3.3. Out Patient Departure Attendance**

OPD attendance at the health facilities have increased since the abolition of user fees in March 2001 (87;88). In fact, in Mbale only, the increase in total OPD attendance was doubled in the HCIIIs and HCIIIs in the district after the abolition of user fees; indicating that more rural people came to the health facilities (95). In addition, the earmarking of 50% of district funds for drugs together with the new supply system for drugs (pull-system) has made people more assured that treatment is accessible as well as available to them. This has made people come to the facilities, but still full courses of treatment are not always available.

Presently there are no universal outreaches for OPD services in Uganda, although this has started in some areas in the country with external support (77). For the remaining districts, patients have to come to static units when seeking treatment.

The Health Centre system is set up in a manner that cases presenting to a lower unit where there is no treatment for the particular ailment, should be referred to the next level or even higher. Assessment of children coming for treatment are used by applying the IMCI method, providing oral rehydration salts, medication and advice if referral is not needed. When patients are referred, it is up to the patient (or caretaker if the patient is a child) whether or not they will go to the

referral centre. None of the HCs (II-IV) visited had functioning radio communication systems or telephones, hence it was not possible to make contact and to provide transport from the higher-level facility. Patients were thus left to sort out on his or her own how to reach the next facility. “...yes, we can only advise them. When it comes to transport we cannot give them (Clinical Officer HCIII)”. Any costs in connection with referral have to be borne by the patient (MD, member of District Health Team).

As mentioned repeatedly, OPD attendance increased in the last few years (87;88). The far greater increase in OPD attendance has been among patients over 5 yrs (87). Malaria and cold/cough was the most frequent illnesses these people came for.

The abolition of user fees was not always seen as singularly positive. ....”yes it is a lot of money (i.e. the collected fees), because down here, they could purchase supplementary drugs, they could purchase paraffin for lightning at night time, they could have paid allowances for the staff. So when user fees were abolished, that revenue was cut off...” (MD, member of district health team).

#### **6.3.4. Organising Immunisation Services**

Although immunisations are a major integrated part of the UNMHCP, the district staff reported that UNEPI has separate supply lines, reporting systems, and funding. As all staff at district level are on Government payroll, they are part and parcel of the UNMHCP, but “UNEPI is still operating as if it was outside the package (UNMHCP)” (DDHS) and ...”is more or less its own vertical programme” (DDHS). One respondent felt that in fact the IMCI should be used as a vehicle for GAVI, thus to promote a holistic child health survival programme in a resource-poor setting. In the same vein, maybe even some of the ISS funds could be used to strengthen not only the immunisation services, but also the general primary health care services targeting children (Respondent Kampala).

In the aforementioned guidelines for the UNMHCP, it is stated that all types of immunisation services should be available from HCII and upwards. However, all districts confirmed that it is only DPT++ and OPV that are given at outreach – the other vaccines (measles and BCG) are

mostly provided at static units. In addition are the mass immunisations of measles and polio that are part of the global control strategy.

Organisation of immunisations is thus de facto vertical (confirmed through most interviews) – from mobilisers to logistics and funds. It takes place as outreach or at facility level in accordance with the UNEPI standards (80). Mobilisers are concerned with motivating caregivers to bring their children forward for immunisation. Several informants claimed that the immunisation programme was donor driven and that the real problems at hand were not taken into account. “GAVI (through UNEPI) is looking at the child vertically – whereas we need to look at the child in a holistic manner (DDHS)”.

*“We are implementing donor priorities. But the real priorities, the priorities of the people, are not asked for! Women are crying for bed nets everywhere.....But it seems as if it is the donor priorities that win in this sad battle when funds are involved....” (DDHS).*

Mobilising for immunisation is not limited to the GAVI vaccines – which is shown in the statistics, i.e. that the good performing DPT3 districts also perform well for other vaccines.

(However), ... *“it is not an either/or discussion anymore, about verticalisation or integration, it has to be the best possible combination of both, at any given place and at any given time. For example, when you provide a vaccine fridge, you cannot put insulin in the vaccine fridge. For some things as we like to say, cannot be integrated. The vaccine fridge has to be protected for vaccines. Otherwise children have died, and can die from injections of wrong supplies. So it needs to be very clear what can be integrated and what cannot. When it comes to provision of services, it should be one health worker, because it is the same health worker anyway providing all the services. They should be supported..... .....to provide the best possible combination of services” (102).*

Out of the four DDHS’, this principle was put in place by one:

*“My people dislike running away from vertical programmes completely. Because, right from the centre, the programmes that come in, are vertical programmes. Maybe it is only at the district*

*level where we try to integrate these, because all services are provided by the same human resources.....”(DDHS)..*

### **6.3.5. Immunisation Services and GAVI**

All district health staffs were well aware of the fact that immunisation coverage for most vaccines have increased, and that the new DPT++ vaccine had been introduced some time back. Districts had also received the new safe injection equipment material. The fact that the new pentavalent vaccines were supplied by GAVI through UNEPI was also known to most staff.

*“It is important to bear in mind that the GAVI efforts are not going primarily into the traditional DPT, but into Hepatitis B and Hib. Further, GAVI does not only exist to promote Hepatitis B and Haemophilus influenzae (Hib) vaccines, but just as much to promote immunisation services in general, which is why there is the ISS window. Through those immunisation services funds, use to support immunisation in general, which includes measles vaccination, and also injection safety, through provision of auto-dispensable needles for 3 years” (102).*

Another aspect has emerged with GAVI; the use of remunerated outreach part time volunteers as immunisation mobilisers, reminding and encouraging parents to immunise their children. UNEPI also have funds to undertake immunisation outreaches to the villages. Although it is the same staff doing immunisations as well as providing health care, during outreach, patients coming for other ailments than vaccinations are referred to the nearest HC for treatment. Thus in reality, outreaches for the most are for immunisations only. Only one of the four DDHS claimed that integrated outreaches take place in the district.

*“That the mobilisers are part time volunteers mean that they are not MoH staff, and are only remunerated with allowances on the days they work their parishes. However some of these mobilisers are very active, and may work more than the allocated time per week” (Clinical Officer HCIII). “The mobilisers are also active when it comes to national and sub-national mass immunisations. And you will also find that they mobilise patients to come for services in general, they do not only mobilise them to come for immunisation services” (DDHS).*

*“Regarding immunisations, GAVI has really created an impact down there. It will be like an avalanche when GAVI stops, due to the lack of funds to sustain the programme” (DDHS).*

*“However, it is not that we do not appreciate the funding and support from GAVI. But we are recommending, and we are asking, that this support be a bit more flexible in terms of district needs. GAVI may still support programmes within immunisation, maybe even programmes outside immunisation. Because we at the district, we are looking at the whole child” (DDHS).*

*“One of the biggest challenges this country is facing is poverty, poverty that aggravates poor nutrition, health and well being” (DDHS).*

*“So meanwhile we sustain the level of immunisable diseases, we also have to look for other ways to tackle the other top three common causes of morbidity and mortality in this country” (DDHS).*

### **6.3.6. Immunisation Support Services**

The use of ISS funds to remunerate immunisation mobilisers has undoubtedly influenced the latest increase in DPT3++ coverage. However, none of the four DDHSs in this study knew of the mechanisms for the calculations of the funds. They were aware that the immunisation mobilisers were remunerated from GAVI – through the Ministry of Health and the District, but not the fact that the accrued amounts were based on every additional child immunised with DPT3++.

*“The ISS funds is a source of vertical funding, although it comes through the Ministry, most of it is sent to the districts, all of which is very well and good, but they do send it to the districts for allowances, parish mobilisers, and that kind of thing. In a couple of years from now that money will no longer be available” (102).*

Under the GAVI regime in Uganda, there are two appointed volunteers as immunisation mobilisers per parish. These receive remuneration and small allowances for their contributions. There was a great concern among all health staff, that when the GAVI support dries up, this work will also cease and immunisation coverage may again slip down to below 50% where it was prior to GAVI support.

*“The facilitators, the mobilisers, they are also paid out of the same source of GAVI funding. That is why we manage without our own local government fund in terms of remunerating the mobilisers at the district level.....(Politician)”*

*“There should be two mobilisers per parish, totalling the number to 9034 – provided all are in place (DDHS)”. “You will find that this money of GAVI, it is part of the money that we use to pay those that are mobilising households to come for these services. And they mobilise them to come for services in general, they do not only mobilise them to come for immunisation services, but they are mobilising them to come for all the services. And we use part of this money to pay them, because they are not Government workers (DDHS)” .*

*“.....Yes, we have the newly “appointed” mobilisers that are receiving small amounts from the GAVI funds that my health centre is receiving. And of course there are some other district activities like supervision, and other things which also cater for the use of GAVI funds at the district level (Sr. Nurse, District Health Team)”. At facility level, there is less certainty about the origin of the additional funds: “....There seems to be so many global funds at the moment that the district is receiving money from, but it is difficult to know everything...” (Clinical Officer HCIII).*

*“We know, that every district that improves their coverage of DPT3++ benefit from GAVI. However, and sadly, these funds come with conditions. And we are not very happy with those conditions – as it is we, on the ground that see the problems we have to face every day, problems that those people who give the money do not experience as a problem to the same extent” (DDHS).*

### **6.3.7. Issues of Sustainability and Work Overload**

As mentioned in earlier chapters, the Health Sector Strategic Plan (HSSP) in Uganda is seriously under-funded. *“We have to admit that we are seriously under-funded, and the issue of sustainability is now the question we should answer for the country – because in the long run we have to sustain the loans from our partners (DDHS)”. “We have to admit that we are very financially handicapped, and that some of the documentation produced (i.e. by the Government)*

*is depicting a health situation which is not proper. So even if this Government has very good policies which also are transparent, the crucial point in fact boils down to lack of funding and widespread poverty” (Politician).*

Level of staffing was raised as a concern over and over again. Due to the increases in OPD attendance, the burden of work has increased significantly. In addition are all the refresher courses and workshops staffs are obliged to attend, putting further pressure on staff.

The recruitment ban was seen as a major problem especially on the lower HC levels (II/III). *“Present staff at the lower levels cannot cope with the disease burden.....The situation captured in the AHSPR is actually a situation which is not proper. This document could in fact be seen as written for the donors – and not by us, the representatives from the districts. We still have huge challenges regarding our services” (DDHS).*

A respondent at a HCII said, *“The increase focus on immunisations, leaves less time to deal with malaria and the other main diseases. Our outreach services focuses mainly on immunisation, and we have to refer cases to come to the clinics” (Records assistant, HCII).*

*“GAVI is really too much. But however, it is good what they are doing, and we are trying in a hard, but happy way to overcome the issue of sustainability” (Politician)..*

## **7. DISCUSSION**

### **7.1. *Background***

Prior to embark on the discussion of the findings, it is pertinent to highlight the investigator's two roles. I am a researcher having long-standing experience with Norwegian bilateral health support as health adviser in Norad. The Government of Norway is one of many larger donors to the health sector in Uganda. My experience with Norad has not only given me a different perspective as well as possibilities in my research; however it could also well be that this indeed has limited my study and the responses I was given.

I started out on this thesis, wanting to focus on the new modality of aid that GAVI represents as the Norad adviser. My concerns were related to questions like: Is GAVI reversing development history by advocating a pointed effort of targeting diseases using new technology? Or does the support in fact, through the immunisation system strengthening, also strengthen and expand the health systems in which the national EPI programmes work? Or does the support from GAVI simply have no influence on delivery of curative and other preventive health services?

### **7.2. *Introduction***

Childhood vaccination programmes – especially those programmed targeted for eradication and elimination of global diseases (i.e. “diseases without borders”) are non- exclusive and can be offered to all. Such vaccination programmes thus qualify as a global good for health (16).

Immunisation programmes can also be viewed as part of the “new public health”, as childhood vaccinations both protect the individual as well as the society against certain diseases (103). A child vaccinated against childhood diseases will remain free from these diseases, sparing society for unproductivity, disabilities and early deaths. Hence, childhood immunisation programmes are, and should remain, an important part of an integrated primary health care system in any country.



*“The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being”* (104). To be relieved of unnecessary suffering from diseases, can be seen as a human right (104). Childhood immunisation protects against certain illnesses (which indeed also may be fatal), and thus, as long as there exists vaccines against possibly killing diseases, it can be seen as a human right to be protected from these through immunisations. There must be no confusion as to the importance of maintaining high childhood immunisation coverage in all countries in the world, as long as these diseases exist.

*“The enjoyment of the highest attainable standard of health”* as cited above is of course, also applicable to all suffering also from other diseases. Thus the Government of Uganda is concerned with these issues when planning for the health sector: *“It is a basic right of all Ugandans to be free from disease”* (52).

This present study intended to explore if there are any effects on the delivery of health services after GAVI support was introduced in Uganda. In other words, if increased support to the childhood immunisation programme influences health service delivery at district level and below. Or, if the efforts of providing a global good for health to the children of Uganda have distorted the right of every Ugandan to be free from disease through the provision of sound health services.

Due to the recent making of new districts in Uganda it was not possible to study district-wide development before and after GAVI support. This study has thus been looking at the developments in health service delivery (through OPD attendance) and immunisation coverage (through DPT3++ coverage) during the two first years of GAVI support to Uganda.

### **7.3. *Burden of Disease***

Burden of disease in Uganda remains high; especially among children. The most common cause of morbidity and mortality in Uganda is malaria, counting for 56% of all total morbidity (105). Both IMR and U5MR in Uganda fell between 1990 and 1995. IMR declined from 92 to 81 per 1000 and U5MR fell from 180 to 146 per 1000 in the same period (62;63). After 1995 both IMR and U5MR have been increasing slightly, to 88/1000 (IMR) and 152/1000 (U5MR). The latest

national demographic and household survey was done in September 2002; the results are not yet available (68). Thus there are no recent updates on IMR and U5MR making it possible to review any changes in these two indicators after Uganda introduced the DPT++ vaccine from GAVI. Hence, it is not possible to infer whether GAVI's ambition of contributing to a reduction in childhood mortality in Uganda has been realised or not. This will need further research.

Poverty remains a big issue. Income poverty fell from 52% in 1992 to 35% in 2000, and then increased again to 38% in 2002 (68). There is more poverty in the rural areas; 96% of the poor are rural (62). Poverty is more prevalent in the insecure areas of the country (62).

Poverty aggravates malnutrition and ill health, making poor people more susceptible to infections and diseases (64). Anecdotal findings from my study suggest that children are dying more from malaria now than before – and *“women are crying for bed nets everywhere”* and ..... *“what are we saving the children for by immunising them? We have, in this district fully immunised children that die of malaria – and, or more often, infections that are aggravated by malnutrition.”* (DDHS). *“One of the biggest challenges this country is facing is poverty, poverty that aggravates poor nutrition, health and well being”* (DDHS). Another report from Uganda reiterates this observation; that three main direct causes of IMR (malaria, diarrhoea <6 months, and diarrhoea 6 – 11 months) were increasing in the same period as poverty increased (62).

#### **7.4. Out Patient Department Attendance**

OPD attendance has increased significantly in the period under review. This has largely been attributed to the abolition of user fees and the new drug supply-and-financing system. Two independent studies (87;88) showed that the increase in the utilisation of district health services was significant, but by far highest in the above 5 years age group after the change in policy regarding user fees. The increase was as much as 53.3% overall, but only 27.3% in the under-five year-group (87). In one of the studies it was noted, but not explained, that services which had been free prior to the discontinuation of cost-sharing, such as immunisation services, antenatal care and family planning, also increased after the abolition of user fees (87). Bataringaya (88) found that the increase in utilization was proportionately lower in the poorest segment of the population in 2002 when comparing with other socio-economic groups. Both these findings

could mean that there are other factors than fees (as for example cost for transport and time (distance and access)) which permit or prohibit health facility visits for children under five (94).

A third study on the other hand, found that there was a significant improvement in the access of lower-level health facilities especially in the poorer population group. This was found through analysing health care spending on household level which was significantly reduced after the policy change (106). As the latter study looked at health care spending and not at visits to a health facility, the results from the three references are not comparable.

The fact that the availability of drugs have increased at district level and below, combined with a better supply system is probably also influencing total OPD attendance. This was confirmed by district health staff.

OPD attendance was positively correlated to DPT3++ coverage, implying that in districts where there is high coverage of DPT3++, also the OPD attendance will be high (or vice versa). However, there was no correlation between the *increase* in OPD attendance and the *increase* in DPT3++ coverage. This means that the size of the increments are not correlated, i.e. a large increase of one indicator in a specific district, does not mean that the other indicator in the same district increases with a predictable factor. This finding strengthens the explanation that the increases happened independently and according to separate inputs.

It is important to bear in mind that OPD attendance is but an output indicator. A recent study done in Uganda showed that when a caretaker brings in a sick child to a health centre and it turns out that the child needs to be referred as per IMCI, as many as 72% failed to complete the referral within 2 weeks (29). Lack of money and transport problems were the main reasons for not bringing the child further. However, the child will still be registered at the primary HC as an OPD case, and the failure to complete referral will be lost from the information system reporting.

It should also be noted, that in Uganda most people use private facilities when accessing health care (70). It has been found, that only as few as 30% of the population access the health care system in Uganda through the Government system or the non-governmental/private-not-for-profit clinics (NGOs/PNFs) (94). This gives reason to question Government statistics, which

are based on utility rates at public or PNFP facilities; is the increase in total OPD attendance real or is it merely a result of a shift in use of health provider? The ultimate goal for MoH is undoubtedly an increase in overall consumption of health services, not only in the governmental or PNFP services.

Total OPD attendance as measured may with hindsight, not have been the best proxy indicator for health service delivery and health outcomes, especially for children. The information available is only from the underused public and PNFP facilities, and shows that the main thrust of the increase was in the above five-year age group, and is ascribed to trauma and injuries in adults (87).

## 7.5. *Human Resources*

OPD attendance is not only dependent on the availability of drugs or free services. Patients will also seek care at a health facility when and where there are available staffs. It was thus a bit surprising to find, that neither OPD attendance nor DPT3++ coverage for 2003/04 was correlated with HR coverage in the same period.

It was further unexpected to find that there was no significant difference between new and old, secure and insecure districts in terms of HR coverage. There was no difference regarding this classification of districts also in OPD attendance and DPT3++ coverage, which brings to mind that other, unidentified issues or mechanism influence performance.

Likewise, it was somewhat unexpected to find that the HR coverage did not relate to the overall ranking system that was found in MoHs AHSPR of 2003/04. This could reflect the fact that Nurse Assistants (NAs) are included in the statistics; a cadre that is considered to be *trained* health personnel (with only three months of training) – but not to be *qualified* health personnel. It is also a reflection that in districts where there are too many staffs according to approved posts; these cannot be transferred to underserved districts without their consent and wish (58). It is not specified in the AHSPR what cadres are posted in which districts and against which positions. Could it be that the type of staff according to the approved types of posts will be determining the quality of the services rendered?

Lack of adequate staff at the various health centre levels is thus a problem. However, the situation has been worse; the baseline coverage for qualified staff was 33% in 1999, as opposed to 68% in FY 2003/04 (58). But as the staffing norms in 1999 were more “generous” for HCII than the later HSSP norms\*\*\*\*, they are really not comparable. The downsizing of staff requirements was also mentioned as an issue in the districts.

The crude fact of today is that 65 HCII are *not* staffed and as many as 255 HCII are staffed by NAs *only* (58). Many of these facilities are new and built under HSSP (58).

The budget ceilings placed on each Ministry by the Treasury (including the central recruitment ban) (94;107), has aggravated the situation further in that few new posts are being created and even little recruitment is allowed to already existing posts (108).

With the above in mind, it should then not be that surprising to find that the comparison of ranked districts did not relate to Human Resources coverage at all, with  $p = 0,257$ . When adjusting for HR coverage of more than 100%, still the  $p$  value was high, i.e.  $p = 0,237$ . In fact this means that the service as defined in the AHSPR is not relative to the number of staff deployed in the district. It was more unexpected to not to find any correlation between HR and OPD attendance and HR and DPT3++ coverage, as personnel is clearly a requisite to undertake both consultations as well as immunisations (79;80).

Lastly, when total OPD increases and the level of appropriate deployed staff are not increased accordingly, the workload inevitably increases and hence less time will be available for each patient. Lack of enough and qualified health personnel over time will continue to stress the existing staff, resulting in high attrition rates and fatigue in terms work burden and responsibilities (58). This may have long-term consequences that are not accounted for in the coming HSSP II.

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\*\*\*\* “1999 staff standard were more generous with 1 Clinical Officer, 1 Enrolled Nurse and 1 Enrolled Midwife at the HCII against 1 Enrolled Comprehensive Nurse” (58)

## 7.6. *Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus influenzae (Hib)*

The coverage of DPT3++, the output indicator used in this study to monitor GAVI influence, has increased significantly in the study period (Table 4.). A study found that the increase in immunisation services in fact started prior to GAVI support, when user-fees was abolished (87). Interviews confirmed that the continued increase of DPT3++ coverage as well as other vaccines was due to the extensive deployment of parish mobilisers. Thus the use of GAVI ISS funds to remunerate these has contributed to the increase in immunisation coverage in the study period.

The statistics in section 6.2.3. show that there was a significant increase in the routine immunisations for DPT3++ and OPV3. DPT3++ coverage in 2003 was found to be correlated to coverage of the other vaccines (except measles), as well as with OPD attendance (Table 6.).

When looking at the 2002 figures for DPT3++ and measles coverage separately, this shows that these two were correlated in the year prior to the mass measles campaign (Table 7.) Combined with the results from Table 6, it can be expected that when a district has high DPT3++ coverage, also the coverage for the other vaccines will be high. From this it may be inferred that in years without mass immunisation campaigns, DPT3++ coverage in Uganda can be used as proxy for immunisation services.

High immunisation coverage in a district has also often shown that the health services as such are good, as this related to planning of services. This was found when comparing districts according to rank for the OPD attendance and DPT3++ coverage. A high OPD attendance and/or a high DPT3++ coverage placed such district high on the ranking list; i.e. other criteria for being a “good performing district” were also in place (except for HR coverage as discussed in 7.5.). Good and sound micro planning is thus a prerequisite for an overall good performance.

## 7.7. *General Immunisation Activities*

There has been a significant increase in general immunisation coverage, except for BCG, in the period under review. However, as the BCG coverage was close to 100% for both years, a non-significant reduction in coverage does not imply a real difference. The high coverage of BCG in general in Uganda show that the post-natal care system in Uganda enjoys high respect of the mothers as they invest time and efforts in bringing their children to the health facilities after birth. BCG coverage was also found to be correlated to DPT3++ coverage. This could imply that the influence of the first immunisations (BCG and OPV0) encourages the mothers to return.

Both OPV3 coverage and the *increase* in OPV3 coverage was found to be correlated with DPT3++ coverage and the *increase* in DPT3++ coverage. This should come as no surprise, as OPV1-3 has the same schedule as DPT1-3 (++). It is likely that GAVI has contributed positively to this instant increase in DPT3++ and OPV3 coverage of late through the use of immunisation mobilisers and the ISS funds.

The mass measles campaign in October 2003 reached all eligible children with the measles vaccine, resulting in a marked drop in measles cases (58;90). In spite of this, the difference in coverage between 2002 and 2003 was just not significant, which appears somewhat odd in light of the said mass measles campaign. As measles incidence was dramatically reduced leaving the measles wards more or less empty in the period after the campaign, a significant difference in measles immunisation coverage was expected between the two years.

It is interesting to note though, that measles coverage in 2002 was positively correlated to all the other variables for the same year on a one-by-one basis. This type of correlation indicate again that if a district perform well in terms of one vaccine, the coverage of the other vaccines in that district will be predictable. However, as immunisation services in Uganda still are undergoing changes through the Uganda Measles Control Strategy 2002 – 2006 as well as the full GAVI support up to 2007, it is not possible to infer that DPT3++ coverage in future will also be a proxy indicator for measles coverage.

The good news of the mass measles campaign was that the measles wards are empty after the mass measles immunisation in 2003 (58). The drawback with the campaign was that it diverted the efforts of health personnel at the expense routine immunization at all levels (85).

## **7.8. *Finances and Sustainability***

The health care system in Uganda as such is severely under-funded (63;77). In spite of the fact that Government allocations have lately increased to the sector, the total amount available is far below the USD 28 per capita needed to finance the planned activities within the HSSP (93). In the “Budget Framework Paper for the Health Sector 2005/06-2007/08” it is stated that “*the current per capita Gross Domestic Product spending on health is approximately USD 9*”. This includes donor funding through SWAp, but excludes funding from GFTAM and GAVI. The amount is not only far from the recommended USD 34 per capita by the Commission on Macro Economics on Health, but also far below Uganda’s own budgets as planned in the HSSP (93). It is however, not possible to deliver a health care package estimated to cost USD 28 per capita (*excluding* the costs of DPT++ and the new antiretroviral supplied by GFATM (93)), with USD 9. It has been argued, and this may well be the case when examining the above figures, that the UNMHCP was designed prior to realising the cost implications fully (94).

Uganda is receiving vaccines and equipment in kind from GAVI, with the result that present Government contribution (SWAp funds) to UNEPI is reduced under GAVI support (52). Thus also the Financial Sustainability Plan on Immunisation (which Uganda made to fulfil GAVI obligations) (52) finds that there will be a large funding gap concerning the immunisation services when GAVI withdraws from Uganda, even when considering other possible external funding. Hence also the immunisation programme will be in dire need of funds if the high levels of immunisation coverage with DPT3++ are to be sustained after GAVI funding. A dialogue with donors on this issue is already ongoing (98).

## **7.9. *GAVI and Uganda***

Childhood immunisations are part of both IMCI and the UNMHCP, yet it is delivered in Uganda as a much verticalised programme. MoH is however quite clear on this organisational modality,



as spelled out in AHSPR and referred to in this thesis under 2.3.5.1. (58). Given the absolute need for cold-chain handling of the vaccines, it is understandable that the guidelines for the handling of vaccines in Uganda need to be as rigid as they are. Thus a semi-verticalisation of the immunisation system is reasonable. It has been pointed out in other writings that in fact in resource-poor settings (i.e. like Uganda), a “*concerted use of both vertical and horizontal approaches*” should be deployed, while the end goal remains a strengthened and functioning health system that can deliver horizontal and integrated services (3). This organisational set-up has thus a rationale and has been working well in Uganda where integration is sought at facility level.

GAVI claims that it intends to strengthen health delivery system (10) and at the same time monitor recipient country progress by a documented increase in DPT3++ coverage. However, as GAVI only provides support to countries for five years, it is of importance that good existing practices in countries are not disturbed during the GAVI era, as recipient countries will need to continue their immunisation programmes also after GAVI. Thus even if the concept of ISS funds is breaking new ground; it is at the same time unsustainable.

Uganda has accrued the entitlement of a significant amount (USD 11,9 million) of ISS support from GAVI (48). In 2003, the bulk of the released ISS funds were used for training/workshops, but also for remunerating of immunisation mobilisers (85). From the district health officials it was made very clear that such a system of remuneration is not sustainable beyond GAVI support. Other reports confirm this, by referring to previous experience (prior to GAVI support): “*While immunisation coverage in the district had increased for a few months prior to the implementation of The Community Problem Solving and Strategy Development (CPSSD), this increase was short lived, and probably resulted from the one-time release of funds from UNEPI headquarters to pay allowances for mobilisers. The central level cannot sustain such financial support (109)*”.

This latter observation was also done by district health staffs; i.e. that the remuneration of the many dedicated mobilisers cannot be sustained.

On the other hand, there should be no need for a special cadre of personnel focussing only on immunisation. Rather than remunerating immunisation mobilisers, could it be more fruitful to

(re-)vitalise the Village Health Teams as intended? Mobilising for immunisation could then be included in the tasks of the VHTs.

One may ask; is the manner in which GAVI is pouring funds into the immunisation system in Uganda a repetition of a failing strategy? Another question is; how the already overburdened primary health services will continue to manage both the demands for high OPD performance and steadily increasing immunisation coverage.

This study has not found or revealed in any way that GAVI support is doing harm to the district health care services in Uganda. Further and on the other hand, it could not be determined from the study whether GAVI has strengthened the health system in Uganda. On the other hand, it is reasonable to assume that in Uganda, GAVI support has through the ISS funding, contributed to an increase in immunisation coverage.

A well functioning health system will not only perform optimal in terms of OPD attendance and immunisation coverage, it will also perform optimal in terms of patient outcome. As there are no available recent statistics (i.e. during the era of GAVI support) on childhood mortality and morbidity, GAVI influence on these indicators remains to be shown. This issue is recommended for future research.

### **7.10. GAVI and the Future**

GAVI is providing a funding window of five years, whereas the previous immunisation programmes like UCI provided funding up to a coverage of DPT3 of 80% (aggregated coverage globally) (7). Both initiatives have clear-cut end points, and fixed immunisation targets (7).

It is important to note that the GAVI creation and design has been criticised for being “top-down” rather than “bottom-up” and setting the agenda without “*having reached a genuine consensus on the exact role that immunization should play in protecting the health of children in developing countries*” (110) as compared to other interventions. It is not to be underscored of course, that childhood immunisation is important, but earmarking external assistance may have the effect of influencing priority settings (94). The pentavalent vaccine is expensive and will

drain resources from already under-funded health sector budgets if recipient countries are to continue with the vaccine after GAVI support ends. In an under-funded setting it is important to set your priorities right; a comment worth noting in this respect is that “*GAVI was designed for the countries’ good but not by the countries*” (110).

Some of the respondents in this study also reiterated that the “needs of the people on the ground” were not always met through the earmarked donor funding. Further is the “recipient fatigue” that makes the health worker on the ground overwhelmed with the various sources of funding and the various degrees of strings attached.

In spite of measles being the biggest single killer in childhood of the immunisable diseases (19;111;112), the vaccine for this disease has not been included in GAVI support. As the ISS funds are meant to strengthen the immunisation services as such however, outreach activities encouraging childhood immunisations could, as in Uganda, include information on the importance of measles vaccination.

GAVI is repeatedly reiterating that it is a different immunisation initiative than previous ones. This is explained by the fact that GAVI is an alliance, not a new bureaucratic organization, and that it has managed through its partners to raise funds with a longer time horizon as opposed to previous activities (6). Yes, GAVI is more broad-based, as a “public-private-partnership”, and GAVI does give a five-year commitment to every country receiving support, this is very true.

Still, it cannot conceal the fact that GAVI is, as UCI was, measuring its success in increased DPT3++ coverage. Vaccine intervention is known to be very cost-effective, and donors appreciate value for money particularly when measurable (7). As childhood immunisations are a global public good for health not accessible to all, it makes sense (both rationally and emotionally) for donors to donate funds to make vaccines available to more children and thus reduce mortality from the illnesses prevented by the specific immunisation.

GAVI and UCI are also similar when it comes to setting targets; the fulfilment of a set coverage within a set time - even if the end targets somewhat differs. UCI had a “universal coverage” of 80% globally by 1990 as its end goal. When UCI’s mission was declared fulfilled at the World Summit for Children, as many as 107 countries had not reached the target, but globally the

figures were evened out. The target figure in fact concealed differences both within countries and between countries which did not become part of the end equation (7). Further, when UCI support ceased, immunisation coverage dropped accordingly in all countries that needed it the most (7).

It may seem as if GAVI has learned from this part of immunisation history, as according to GAVI:

*"By 2010 or sooner all countries will have routine immunization coverage at 90 per cent nationally with at least 80 per cent coverage in every district. (113)".*

GAVI recently extended its mandate to last up until 2010, to allow for all eligible countries to receive a full five-year support from the Alliance. Several donors have already granted funds for this extension (10;38;114). By 2010 GAVI thus expects its goals of national and district coverage to be fulfilled.

Thus it is important to underscore that the underlying intention of GAVI is similar to that of UCI; i.e. to achieve set immunisation targets within a set period of time.

The issue of sustainability and ability to keep up the high coverage when GAVI support ends, is thus an interesting topic for further investigation. It would be indeed very exciting to study the long-term effect of GAVI support on general immunisation coverage; especially bearing in mind that GAVI claims to be different from previous similar initiatives.

## 8. CONCLUSIONS

This present study intended to explore if there are any effects on the delivery of health services after GAVI support has been introduced in Uganda. In other words, if increased support to the childhood immunisation programme would influence health service delivery at district level or below. Indeed, the findings reiterate that there has been an increase in both the two main indicators chosen to measure health service delivery (OPD attendance) and immunisation coverage (DPT3++) in the period under review. This was in fact the strongest and most consistent and unanimous point made by district health personnel; i.e. that the increases in OPD attendance and immunisation coverage had increased due to the separate specific inputs. These inputs, which both can be seen as vertical, are the increase in funds earmarked for drugs and the abolition of user fees (Ministry of Health), as well as the ISS support (GAVI).

The results of the statistical analyses confirm this findings through the fact that there is no correlation between the *increases* of the two indicators OPD attendance and DPT3++ coverage. The argument is thus strengthened in that the increase in these two output indicators happened independently due to separate inputs.

The findings in this thesis should not come as a surprise to the Ministry of Health in Uganda. The Government of Uganda has in many of their own writings stressed the same issues; however, not as research but as documentation or requests to donor partners of the Government. While doing so, GoU also need to emphasise the progress, which in fact has been achieved over the last few years, in spite of all constraints and limitations:

*“It must however be noted that the sector has had to contend with the major constraints of severe under-funding; continuing inadequacies in the production, recruitment and deployment of trained personnel; frequent stock-outs of essential medicines and equipment; the slow rate of operationalising the new health centres; continuing insecurity in the North and North East; and the slow pace of implementing the community component of the National Health Policy and HSSP I” (63).*

It should be beyond doubt that GAVI has contributed to the increase in childhood immunisation in Uganda over the last few years, through the supplies of vaccines and ISS funds. Long-term sustainability remains the main concern.

The most important follow-up for this study would be to pursue the vital statistics IMR and U5MR as well as causes for childhood mortality and morbidity. This could shed more light on the increase in OPD attendance. GAVI's ambition of contributing to a reduction in childhood mortality could also be assessed; i.e. to the extent that fewer children die from immunisable diseases than prior to the GAVI support to Uganda.

A further interesting topic to pursue would be the issue of sustainability and ability to keep up the high coverage when GAVI support ends – in countries like Uganda. It would be indeed very exciting to study the long-term effect of GAVI support on general immunisation coverage; especially bearing in mind that GAVI claims to be different from previous similar initiatives.

## **9. KEY MESSAGES**

GAVI has contributed to a significant increase in DPT3++ coverage in Uganda over the last few years. However, this is a costly undertaking that is not sustainable when GAVI support ends.

OPD attendance as proxy for health services has also increased significantly due to abolition of user fees and available drugs at district health facilities. It could not be shown that GAVI support to Uganda has played a role in the increase in OPD attendance.

However, OPD attendance as used in this study may not be the best proxy for health service delivery; it is an output indicator that does not reveal the outcome of the condition that the patient is presenting.

The health sector in Uganda is severely under-funded and heavily dependent on external donor funding, which not only is unpredictable but also not sustainable in the end.

Further research is needed to assess the impact of GAVI support in relation to possible better health outcomes; as measured by infant and under-five mortality and morbidity rates.

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## 11. ANNEXES

### 11.1. Letter of Introduction

<b>URGENT</b>		
 <b>ROYAL NORWEGIAN EMBASSY KAMPALA</b>	Our Date	Our Reference
	05.11.04	
Enquiries to Olive Bwanika	Your Date	Your Reference
<hr/>		
The Director Clinical Health Services Ministry of Health Kampala		
Attn: Dr. S. Zaramba		
Dear Dr.Zaramba,		
<b>Re: Study – “Health Service Delivery in the Era of GAVI Support: The Case of Uganda”</b>		
We would like to introduce to you Ms. Anne Liv Evensen, a Health Advisor in NORAD, Oslo who is on part time study leave at the University of Oslo.		
Ms. Evensen will be visiting Uganda between the 15 <sup>th</sup> November and 15 <sup>th</sup> of December 2004 and to carry out a thesis for her MA Degree in International Community Health, entitled “Health Service Delivery in the Era of GAVI Support: The Case of Uganda”.		
Details of the interview guides are attached for your perusal. During the study, she would like to visit four districts in Uganda namely, Mbale, Jinja, Mukono and Mpigi. The Embassy is facilitating her stay in Uganda.		
The purpose of this letter is to request for an appointment for Ms. Evensen to meet you and inform you more about her exercise. We propose 16 November 2004 at 2.00 p.m. Please let us know whether this date and time are convenient for you.		
We also believe that your office will assist Ms. Evensen get access to the districts mentioned above, that she would like to visit. If there is any requirement that she may need to fulfil, we shall be grateful to you to let us know in advance so that we can prepare before her arrival. Should you require any other information, we are ready to give it.		
We thank you for the continued co-operation.		
Yours sincerely,		
		
Tore Gjøs Ambassador		
Postal Address: P. O. Box 22770 Kampala Uganda	Office Address: John Babiina 8 Kololo Kampala Uganda	Telephone: +256 41 343621 346757 346733
	Fax: +256 41 343936	E-mail: emb.kampala@mfa.no emb.kampala@norad.no

## 11.2. *Interview Guide District Head Quarter Level*

Districts: Mbale, Kamuli, Mukono and Mpigi

Interview Subjects:

- District Director of Health Services
- Secretary for Health and Social Services (when available)

My name is ..... and I am Health Adviser in Norad. Currently I am on study leave to do a Master's degree in International Community Health. I am undertaking a study in which I am interested in the interaction between Health Service delivery and GAVI support in Uganda. My focus in the study is Out-patient Department attendance and DPT3/pentavalent vaccine coverage, which are two of the parameters/indicators used in both the Poverty Eradication Action Plan and the Health Sector Strategic Plan (both I and II).

**Ask for permission to use the Tape recorder**

**Establish name and designation (incl. responsibilities) of respondent!**

### **1. Introduction by researcher**

The Government of Uganda with stakeholders are in the process of drawing up the Health sector Strategic Plan II, which will be effective from 1 July 2005. The Uganda National Minimum Health Care Package (UNMHCP) is still a central element of the plan, in which UNEPI/immunisation of children constitute a large part.

The Global Alliance for Vaccines and Immunizations (GAVI) is one of the new Global Public-Private Partnerships in Health targeting specific diseases. GAVI support and equipment to eligible countries are directed through existing national immunisation structure, and will remunerate countries additionally according to immunisation performance<sup>††††</sup>. GAVI support is mainly in kind in the form of vaccines or equipment, whereas the remuneration is in cash per extra immunised child.

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<sup>††††</sup> This amounts to USD 20 for each additional child immunised with DPT3 as compared to the baseline coverage rate

Uganda received her first instalment of GAVI support in 2002. As mentioned, immunisation is part of the Uganda National Minimum Health Care Package and is organised through UNEPI, I would like to ask the following – pertaining to your district:

1. What is the profile of burden of disease among children in this district – ?
2. What treatment is available?
3. Is the treatment available adequate for the conditions?
4. Supply of drugs – how does this function in the new pull system?
5. Do you know the priorities within the current Health Sector Strategic Plan?
6. How is planning for immunisations done? (blended with/coordinated with the health sector programme (or not))?
7. How is UNEPI organised?
8. How is UNEPI funded?
9. How is the immunisation services organised?
10. Are there separate personnel for immunisation services?
11. What are the functions of the immunisation mobilisers?
12. I have heard, that prior to GAVI support, the communities themselves had volunteer “mobilisers”. In the era of GAVI, such mobilisers are apparently paid for their work. Alas, when GAVI funds are slow in coming through, these volunteers now seem to be reluctant to continue mobilising. What is your experience in this matter?

## **2. Management and administration**

The Uganda National Minimum Health Care Package, UNMHCP, is central in the current Health Sector Strategic Plan and the new one. Immunisation of children under 5 is a strategy in the package. However, the HSSP also contains many other elements of priority in the Health sector. One main issue is the availability and deployment of appropriately trained human resources, as well as an adequate health infrastructure. Given this, I would like to ask the following questions – pertaining to your district:

1. Adequacy of Health infrastructure in your district?
2. Are these facilities staffed appropriately?
3. Is the referral chain operating appropriately?

4. Absorption capacity in terms of funds and tasks, designated responsibilities

### **3. The Global Alliance for Vaccine and Immunisations (GAVI) (only DDHS)**

Uganda received her first instalment of GAVI support in 2002. As mentioned, immunisation is part of the Uganda National Minimum Health Care Package and is organised through UNEPI, I would like to ask the following – pertaining to your district:

1. Do you know the priorities of GAVI?
2. How is GAVI support to Uganda organised? (i.e. Finances, disbursement, supplies, logistics, support etc)
3. Has GAVI influenced priorities in Health Service delivery in this district?
4. What is your experience with GAVI application procedures?
5. Are you aware of the Immunisation System Support – called the ISS mechanism? (inform the respondent)
6. Do you know the basis for ISS (Immunisation Systems Support) funds?
7. Knowledge of how these additional children are identified?
8. Awareness of what the ISS funds been used for?
9. Which is?
10. Who is managing the ISS funds?
11. Has ISS funds been channelled back to the better performing districts?
12. Are the districts aware of the ISS support mechanism?
13. Has knowledge of ISS funds at all influenced on performance of: DPT3 coverage, coverage of other vaccines, health services or other?
14. Has there been any financial impact of ISS funds/resources on other parts of the health sector?
15. Sustainability issues after GAVI support is ending (which is 2007? Or 2010?)
16. Are there any new outreach activities as result of GAVI support and the new pentavalent vaccines?

### **4. Indicators**

Both OPD attendance and DPT3 (pentavalent or other) are used as indicators to monitor progress in the Health Sector Strategic Plan as well as in the Poverty Eradication Action Plan. GAVI also require reporting on DPT3 (and particularly pertaining to decrease/increase in coverage).

According to the latest Annual Health Sector Performance Report (fin. yr. 2003/2004),

Both these indicators have been showing an upward trend since 2001 as follows:

It is in this respect I would like to draw your attention to<sup>\*\*\*\*</sup>:

<i>District</i>	<i>DPT3 coverage % children &lt;1yr</i>		<i>OPD utilisation PP/yr</i>	
<u>Year</u>	<u>2001</u>	<u>2003/04</u>	<u>2001</u>	<u>2003/04</u>
Kamuli	74	91	0.35	0.65
Mpigi	68	95	0.88	0.97
Mukono	72	92	0.33	0.69
Mbale	107	139	0.43	0.84

and ask you.....

1. What is the explanation behind these figures? (Personnel, access, availability of drugs and medicine, quality of services???)
2. What has happened to coverage of other vaccines?
3. What is actual DPT3 coverage today?
4. Supervision/training to concerning introduction of these and the administration of these?
5. Anything more you wish to add?

Are there any immediate stumbling stones? Presently and in the near future that you foresee?

***Thank You!***

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<sup>\*\*\*\*</sup> Source: District League Table, Annual Health Sector Performance Report 2003/04  
MoH Statistical Abstract 2002, Statistics from UBOS

### 11.3. *Interview Guide Facility Level*

Districts: Mbale, Kamuli, Mukono and Mpigi

Interview Subjects:

- Health Centre VI – II personnel providing immunisation and OPD services
- Outreach personnel
- Mobilisers, when available

My name is ..... and I am Health Adviser in Norad. Currently I am on study leave to do a Master's degree in International Community Health. I am undertaking a study in which I am interested in the interaction between Health Service delivery and immunisation services in Uganda. My focus in the study is Out-patient Department attendance and DPT3/pentavalent vaccine coverage, which are also two of the parameters/indicators used in both the Poverty Eradication Action Plan and the Health Sector Strategic Plan (both I and II).

**Ask for permission to use the Tape recorder**

**Establish name and designation of respondent!**

**Introduction by researcher**

The Government of Uganda with stakeholders are in the process of drawing up the Health sector Strategic Plan II, which will be effective from 1 July 2005. The Uganda National Minimum Health Care Package (UNMHCP) is still a central element of the plan, in which UNEPI/immunisation of children constitute a large part.

The Government of Uganda has recently introduced a new vaccine, the pentavalent DPT/Hep/hib vaccine. The government is receiving international support for this, through The Global Alliance for Vaccines and Immunizations (GAVI). GAVI support and equipment to eligible countries are directed through existing national immunisation structure, and will remunerate countries additionally according to immunisation performance<sup>§§§§</sup>. GAVI support is

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<sup>§§§§</sup> This amounts to USD 20 for each additional child immunised with DPT3 as compared to the baseline coverage rate

mainly in kind in the form of vaccines or equipment, whereas the remuneration is in cash per extra immunised child.

With this in mind, I would like to ask you the following questions:

1. What is the profile of burden of disease among children in this district – ?
2. What treatment is available?
3. Is the treatment available adequate for the conditions?
4. How do you refer patients?
5. Can you inform me of how the referral system works?
6. Supply of drugs – how does this function in the new pull system?
7. How is planning for immunisations done? (blended with/coordinated with the health sector programme (or not))?
8. How is the immunisation services organised?
9. Are there separate personnel for immunisation services?
10. What are the functions of the immunisation mobilisers?
11. I have heard, that prior to GAVI support, the communities themselves had volunteer “mobilisers”. In the era of GAVI, such mobilisers are apparently paid for their work. Alas, when GAVI funds are slow in coming through, these volunteers now seem to be reluctant to continue mobilising. What is your experience in this matter?

***Thank you!***

## **11.4. Points for Discussion National Level**

### **National level meetings**

#### Introduction

My name is ..... and I am Health Adviser in Norad. Currently I am on study leave to do a Master's degree in International Community Health. I am undertaking a study in which I am interested in the interaction between Health Service delivery and support from The Global Alliance for Vaccines and Immunizations (GAVI support) in Uganda. My focus in the study is Out-patient Department attendance and DPT3/pentavalent vaccine coverage, which are also two of the parameters/indicators used in both the Poverty Eradication Action Plan and the Health Sector Strategic Plan (both I and II).

#### **Ask for permission to use the tape recorder**

#### **1. HEALTH SECTOR STRATEGIC PLAN, UNEPI and GAVI**

The Government of Uganda with stakeholders are in the process of drawing up the Health sector Strategic Plan II, which will be effective from 1 July 2005. The Uganda National Minimum Health Care Package (UNMHCP) is still a central element of the plan, in which UNEPI/immunisation of children constitute a large part.

The Global Alliance for Vaccines and Immunizations (GAVI) is one of the new Global Public-Private Partnerships in Health targeting specific diseases. GAVI support and equipment to eligible countries are directed through existing national immunisation structure, and will remunerate countries additionally according to immunisation performance\*\*\*\*. GAVI support is mainly in kind in the form of vaccines or equipment, whereas the remuneration is in cash per extra immunised child.

Uganda received her first instalment of GAVI support in 2002. As mentioned, immunisation is part of the Uganda National Minimum Health Care Package and is organised through UNEPI, I would like to ask the following – pertaining to your district:

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\*\*\*\* This amounts to USD 20 for each additional child immunised with DPT3 as compared to the baseline coverage rate



1. What is considered to be the main killer diseases in Uganda (Burden of Disease pattern)?
2. What are the main priorities within the current Health Sector Strategic Plan? (example: ensuring equitable distribution of resources etc)
3. How is planning for immunisations done? (blended with/coordinated with the health sector programme (or not))?
4. How is UNEPI organised? (vertical vs. horizontal?)
5. How is UNEPI funded? (Separate line of funds?)

## **2. Management and administration**

The Uganda National Minimum Health Care Package, UNMHC, is central in the current Health Sector Strategic Plan and the new one. Immunisation of children under 5 is a strategy in the package. However, the HSSP also contains many other elements of priority in the Health sector. One main issue is the availability and deployment of appropriately trained human resources, as well as an adequate health infrastructure. Given this, I would like to ask the following questions:

1. Adequacy of Health infrastructure in Uganda?
2. Are these facilities staffed appropriately?
3. Planning, supervision, training – concerning reporting
4. Absorption capacity in terms of funds and tasks

## **3. GAVI**

Now I would like to ask you some specific questions pertaining to the Global Alliance for Vaccines and Immunisations

1. Do you know the priorities of GAVI?
2. How is GAVI support to Uganda organised? (i.e. Finances, disbursement, supplies, logistics, support etc)
3. Are you aware of the Immunisation System Support – called the ISS mechanism? (inform the respondent)
4. Do you know the basis for ISS (Immunisation Systems Support) funds?
5. Who is managing the ISS funds?
6. Has ISS funds been channelled back to the better performing districts?

7. Has knowledge of ISS funds at all influenced on performance of: DPT3 coverage, coverage of other vaccines, health services or other?
8. Has there been any financial impact of ISS funds/resources on other parts of the health sector?
9. Sustainability issues after GAVI support is ending (which is 2007? Or 2010?)

### 3. Indicators

Both OPD attendance and DPT3 (pentavalent or other) are used as indicators to monitor progress in the Health Sector Strategic Plan as well as in the Poverty Eradication Action Plan. GAVI also require reporting on DPT3 (and particularly pertaining to decrease/increase in coverage).

According to the latest Annual Health Sector Performance Report (fin. yr. 2003/2004), both these indicators have been showing an upward trend since 1999/2000 as follows:

(These are national figures)

Year	99/00	00/01	01/02	02/03	03/04	target 04/05
OPD:	0.4	0.43	0.6	0.72	0.79	0.7
DPT3/ pent.	41%	48%	63%	84%	83%	85%

What is the explanation behind these figures?(Personnel, access, availability of drugs and medicine, quality of services???)

### 4. Operations

I am interested in the daily duties at the health centres, from the Village Health Teams and up to Health Centre IV. Thus are the Terms of references/mandates for these centres(I-IV) available? i.e. describing the duties and responsibilities as well as the prescribed medical/non-medical staff and equipment. Could I please have a copy?

1. Are there designated staffs that only perform EPI/NIDs at each level?
2. And similarly, are there designated staffs that only take care of the OPDs?
3. Does the emphasis on immunisation compete with human resources on HIV/AIDS, TB and Malaria?
4. Logistics? Supplies of necessary equipment, medicines and vaccines? (Both for EPI and health services)

5. Are these received timely and in adequate amounts?
6. Which vaccines are used in the programme (UNEPI)?
7. What has happened to coverage of other vaccines? (measles, polio etc)

***Thank you!***

### ***11.5. District Categories***

Below are the districts that are categorised as new and/or insecure in the thesis. Note that two districts, Kaberamaido and Pader are both new districts as well as insecure districts.

New Districts (58;59)	Insecure Districts (58;59)
Kaberamaido	Gulu
Kamwenge	Kaberamaido
Kanungu	Katakwi
Kayunga	Kitgum
Kyenjojo	Kotido
Mayuge	Lira
Nakapiripirit	Soroti
Pader	Pader
Sironko	
Wakiso	
Yumbe	