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CHILD HEALTH LEADERSHIP AND NETWORKS IN UGANDA FROM 2000 TO THE PRESENT: COUNTRY PERSPECTIVES

CASE STUDY REPORT ANNEXES

MARCH 2020

USAID/TASH MCCARROLL

Contract Number:
AID-OAA-M-16-00006

This report was made possible by the support of the American People through the United States Agency for International Development (USAID) under the terms of the Coordinating Implementation Research to Communicate Learning and Evidence (CIRCLE) contract AID-OAA-M-16-00006. CIRCLE is implemented by Social Solutions International, Inc. Views expressed are not necessarily of USAID or other affiliated institutions.

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ANNEX A: DESK REVIEW REPORT

Enhancing Outcomes for Child Health: Country Perspectives on Leadership, Networks, Governance and Other Drivers of Change

UGANDA CASE STUDY

JUNE 26, 2018

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ACRONYMS LIST, DESK REVIEW REPORT

ADS	Accredited drug shops
ANC	Antenatal care
ARISE-SI	Africa Routine Immunization Systems Essentials-Systems Innovation
ART	Anti-retroviral therapy
BCC	Behavior change communication
BDR	Birth and death registration
bEmONC	Basic emergency obstetric and newborn care
BIMI	Bugoye Integrated Community Case Management Initiative
CDD	Control of diarrheal diseases
CDD/ARI	Control of diarrheal disease and acute respiratory infection
cEmOC	Comprehensive emergency obstetric and newborn care
CHW	Community health worker
CPR	Contraceptive prevalence rate
DALY	Disability-adjusted life years
DHIS	District Health Information System
DHS	Demographic and Health Survey
ECD	Early childhood development
EPI	Expanded Programme on Immunization
FP	Family planning
Gavi	Global Alliance for Vaccines Initiative
GDP	Gross domestic product
GFF	Global Financing Facility
GIVS	Global Immunization Vision and Strategy
HC	Health clinic
HIV	Human immunodeficiency virus
HSDP	Health Sector Development Plan
HSSIP	Health Sector Strategic and Investment Plan
iCCM	Integrated community case management
IDA	International Development Association
IEC	Information, education and communication
IMCI	Integrated management of childhood illnesses
IMNCI	Integrated management of neonatal and childhood illness
IMF	International Monetary Fund
IMR	Infant mortality rate
IPT	Intermittent preventive treatment for malaria
ITNs	Insecticide-treated net
KMC	Kangaroo mother care
LIC	Low income country
LLIN	Long-lasting insecticide-treated net
MAD	Minimum acceptable diet
MCEE	Maternal and Child Epidemiology Estimation
MCH	Maternal Child Health
MCPA	Malaria Control Policy Assessment
MDD	Minimum dietary diversity
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MMEIG	Maternal Mortality Estimation Inter-agency Group

MMF	Minimum meal frequency
MMR	Maternal mortality ratio
MOH	Ministry of Health
MPDSR	Maternal and Perinatal Death Surveillance and Response
MSH	Management Sciences for Health
NA&C	Nutrition advocacy and communication
NDP	National Development Plan
NGO	Non-governmental organization
NHP	National Health Policy
NMR	Neonatal mortality rate
NRM	National Resistance Movement
NSC	National Newborn Steering Committee
ODA	Official development assistance
OOP	Out-of-pocket
ORS	Oral rehydration salts
PAC	Post-acute care
PFP	Private-for-profit
PMTCT	Prevention of mother-to-child transmission
PNC	Post-natal care
PNFP	Private-not-for-profit
PPP	Public-private partnerships
QIF	Quality Improvement Framework
RBF	Results-based financing
RED	Reaching Every District
RMNCAH	Reproductive, maternal, neonatal, child, and adolescent health
SDG	Sustainable Development Goals
SGBV	Sexual and gender-based violence
SSA	Sub-Saharan Africa
SUN	Scaling Up Nutrition
TFR	Total fertility rate
THE	Total health expenditure
U5MR	Under-5 mortality rate
UFNP	Uganda Food and Nutrition Policy
UHC	Universal Health Coverage
UNAP	Uganda Nutrition Action Plan
UNEPI	Uganda National Expanded Programme on Immunization
UNICEF	United Nations International Children's Emergency Fund
VHTs	Village health teams
VHW	Village health worker
WB	World Bank
WHO	World Health Organization

INTRODUCTION

Uganda is a low-income country with a population in 2015 of a little over 40 million (Table 1). The country has seen substantial improvement in maternal and child health (MCH) outcomes, and as a result came very close to meeting MDG4. However, with declining mortality and extremely high total fertility rates (TFRs), the population is doubling every 16 years [2].

Table 1. Key Demographic Indicators, Uganda, 2015

Total population	40,145,000
Total Under-5 population	7,512,000
Population growth rate[1]	3.37%
Crude Birth Rate	43.9%
Total Fertility Rate	5.91
Age-specific Fertility Rate (15-19 years)	126.6 (SSA average: 110.4; LIC: 106.3)

Source: United Nations, Department of Economic and Social Affairs, Population Division, 2017

EPIDEMIOLOGICAL AND DEMOGRAPHIC PROFILE OF THE COUNTRY

Uganda has one of the youngest populations with half of its population under 15 years [3]. Due to improvements in health outcomes, life expectancy improved from 52.1 and 46.3 in 1990 to 64.7 and 59.8 in 2016 for females and males respectively [4]. An estimated 72% of the population live in rural areas. In 2016, HIV/AIDS, TB, malaria and lower respiratory infections remained the top four causes of death, followed by diarrheal diseases, neonatal encephalopathy, ischemic heart disease, cerebrovascular disease, neonatal preterm birth, and meningitis [4]. Between 2005 and 2016, malnutrition, unsafe sex, air pollution, alcohol and drug use, and high blood pressure remain the top six risk factors contributing to Disability Adjusted Life Years (DALYs) thus driving the most death and disability combined [4].

Uganda, like many countries in the region, was hard hit by HIV/AIDS in the 1990s, but became a success story when, in record time, it reduced the HIV prevalence and its impact. HIV prevalence declined steadily from a peak range of 15–30% in 1992 to 5–12% in 2002 [5]. This success has been largely attributed to the government's political commitment and a focus on prevention interventions and initiatives. In addition, the international community, looking to set an example that tackling HIV in sub-Saharan Africa was possible, provided intense development aid and resources [6].

ECONOMIC AND DEVELOPMENT CONTEXT

Uganda is a low-income country that has undergone three phases of development transition in the past 30 years: post-war reconstruction (1987–1997); poverty eradication (1997–2009); and social economic transformation (2010–2020) [7]. Economic growth has averaged 5.5% in the period 2010–2015 after

[1] Average annual rate of population change (%)

implementation of the first National Development Plan (NDP I). The country expects revenue from the oil industry in the medium term to contribute to economic growth by 2021.

The economy is largely based on subsistence farming, and three-quarters of the working-age population are largely employed in farming. Approximately 19.7% of Ugandans live below the national poverty line ($1.25/day). Those affected by poverty typically live in rural areas, have large families, and generate income predominantly from farming [3]. Most poor households concentrated in the north and east of the country [3].

Official Development Assistance (ODA) as a proportion of the total government budget has been decreasing; however, it is increasing as a proportion of the total health expenditure going from 14% in 2010 to 42% in 2015 [8]. This increase is largely attributed to the Global Fund for HIV/AIDS, TB and Malaria and the Global Alliance for Vaccines Initiative (Gavi).

POLITICAL CONTEXT

Since the end of armed conflict in 1986, the ruling National Resistance Movement (NRM) led by President Museveni has been in power. While civil war continued in northern Uganda for decades, most of the country has had a period of stability and sustained economic growth [3]. President Museveni was re-elected in 2016 to another five-year term.

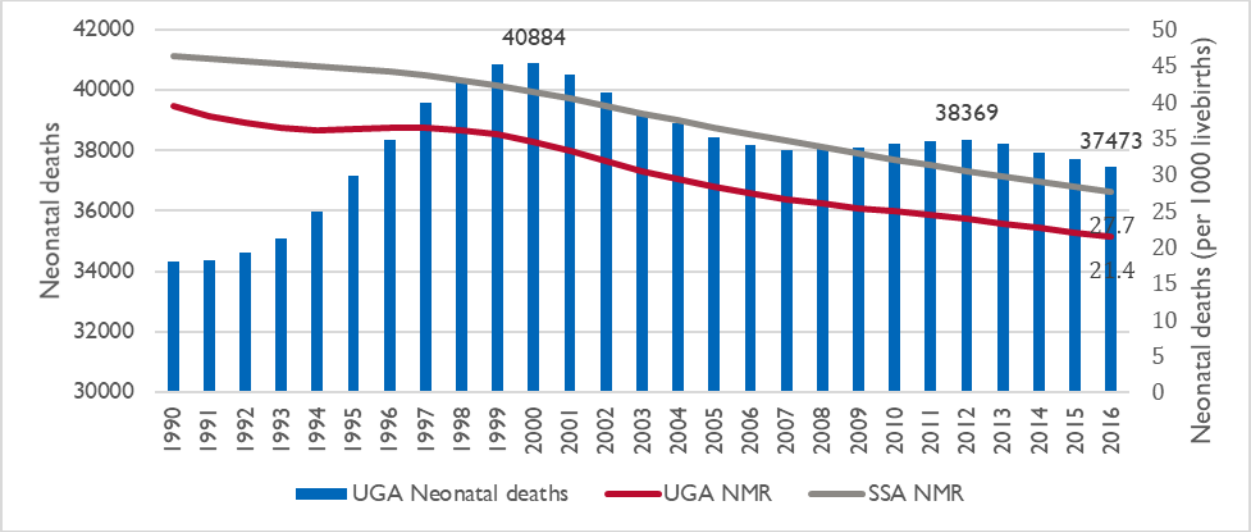
As in many other countries, Uganda underwent a series of governance reforms including decentralization. The decentralization process has moved at a much faster pace than in other countries, with the whole government decentralized with a range of powers and resources transferred to the district level [9]. The number of districts went from 56 in 2002 to 114 by 2011 [10].

CHILD HEALTH OUTCOMES

NEONATAL MORTALITY

In 2016, the neonatal mortality rate (NMR) per 1000 live births was 21.4 (Figure 1). Despite the steady decline, the number of deaths per year is high (37,473 in 2016 compared to 40,884 in 2000). The national target is to reduce NMR to 15 by 2020 and to meet the SDG target of 12 or fewer by 2030 [11], a pace slower than the decline rate in infant mortality and maternal mortality.

Figure 1. Trends in NMR and Neonatal deaths, Uganda, 1990 – 2016

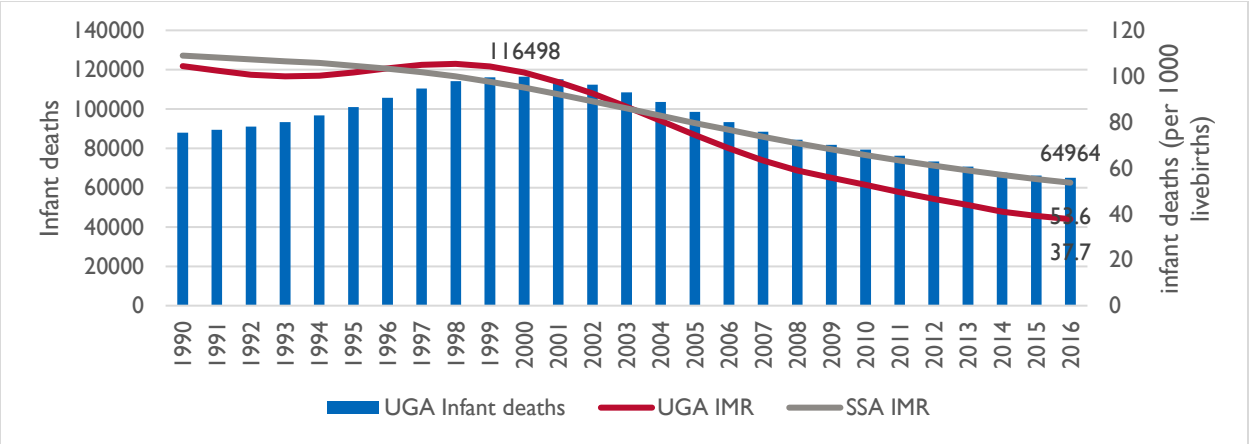


Source: UN Inter-agency Group for Child Mortality Estimation, 2017 (http://data.unicef.org)

INFANT MORTALITY

The infant mortality rate (IMR) per 1000 live births was 37.7 in 2016 and, after increases in the period between 1995 and 2000, has declined at a steady pace (Figure 2). The number of deaths per year has also declined steadily since 2000, from 116,498 to 64,964 in 2016.

Figure 2. Trends in IMR and Infant deaths, Uganda, 1990 – 2016

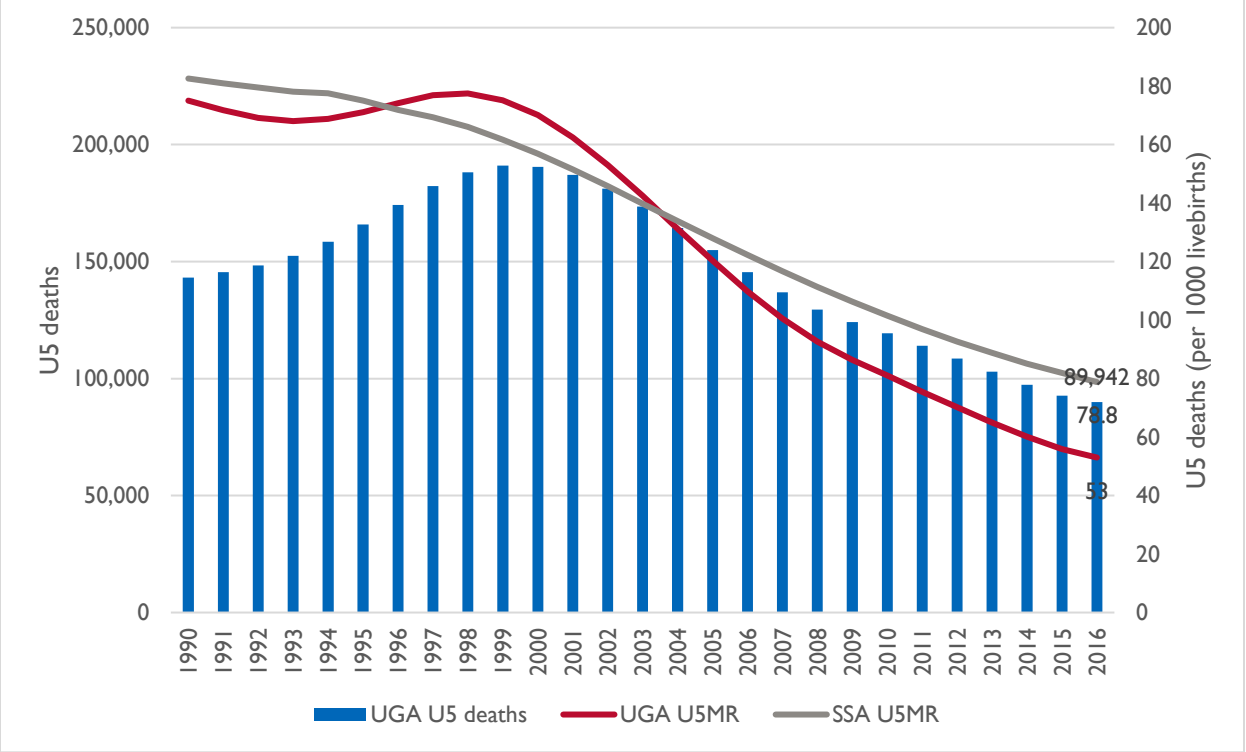


Source: UN Inter-agency Group for Child Mortality Estimation, 2017 (http://data.unicef.org)

UNDER-5 MORTALITY

Under-5 mortality rate (U5MR) per 1000 live births was 58 in 2016[2] with a total of 89,942 deaths for that year (Figure 3). The national target is to reach 47 per 1000 live births by 2020 and 25 or fewer by 2030 to meet the SDG target.

Figure 3. Trends in U5MR and U5 deaths, Uganda, 1990 – 2016



Source: UN Inter-agency Group for Child Mortality Estimation, 2017 (http://data.unicef.org)

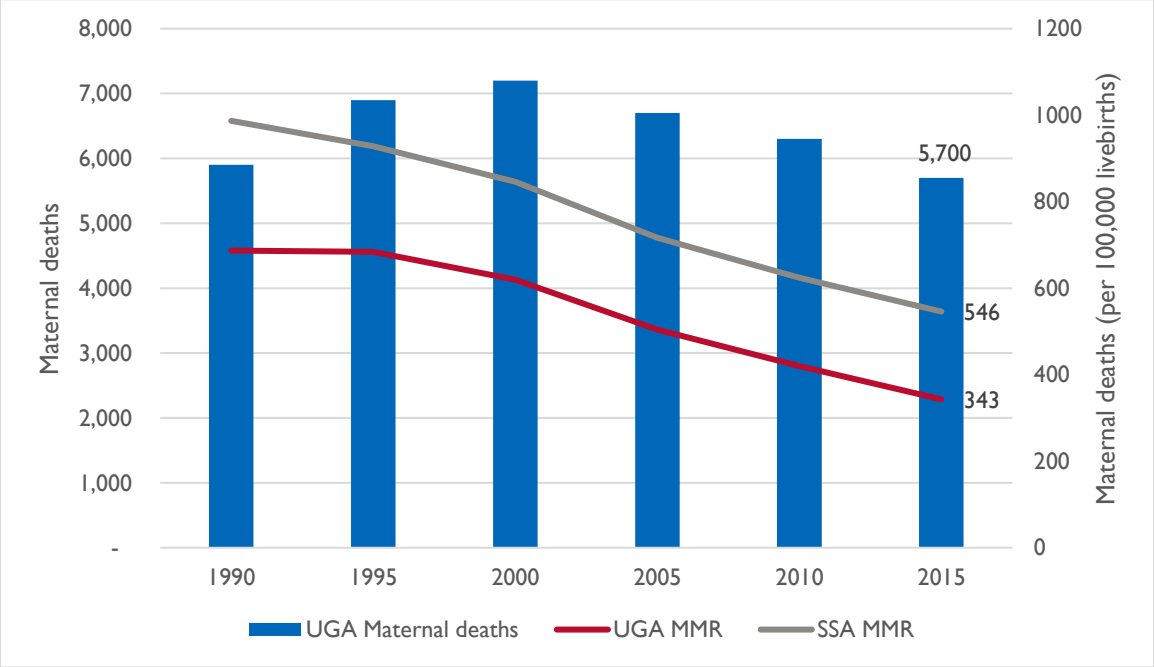
[2] U5MR reported in Sharpened Plan is higher: 64 per 1000 livebirths

MATERNAL MORTALITY

The maternal mortality ratio (MMR) per 100,000 live births was 343 in 2016 (5700 maternal deaths for that year) (Figure 4). The national target is to reduce MMR to 219 by 2020 (the SDG target is less than 70 per 100,000 live births by 2030). The Sharpened Plan, the latest RMNCAH policy (described more fully later in this document), states that given the large number of deaths annually, the rate of decline is "too slow to enable the country to meet the SDG targets," with the lifetime risk of maternal mortality approximately 1 in 45 in 2015, compared to a global estimate of lifetime risk of 1 in 180 [11].

The Sharpened Plan states that the aim will be to first tackle immediate causes, specifically hemorrhage (causing 43% of maternal deaths), obstructed or prolonged labor (22% of maternal deaths), and complications from unsafe abortions (11% of deaths) [11].

Figure 4. Trends in Maternal Mortality Ratio and Deaths, Uganda, 1990 – 2015



Source: WHO, UNICEF, UNFPA, World Bank Group and UNDP (MMEIG), November 2015

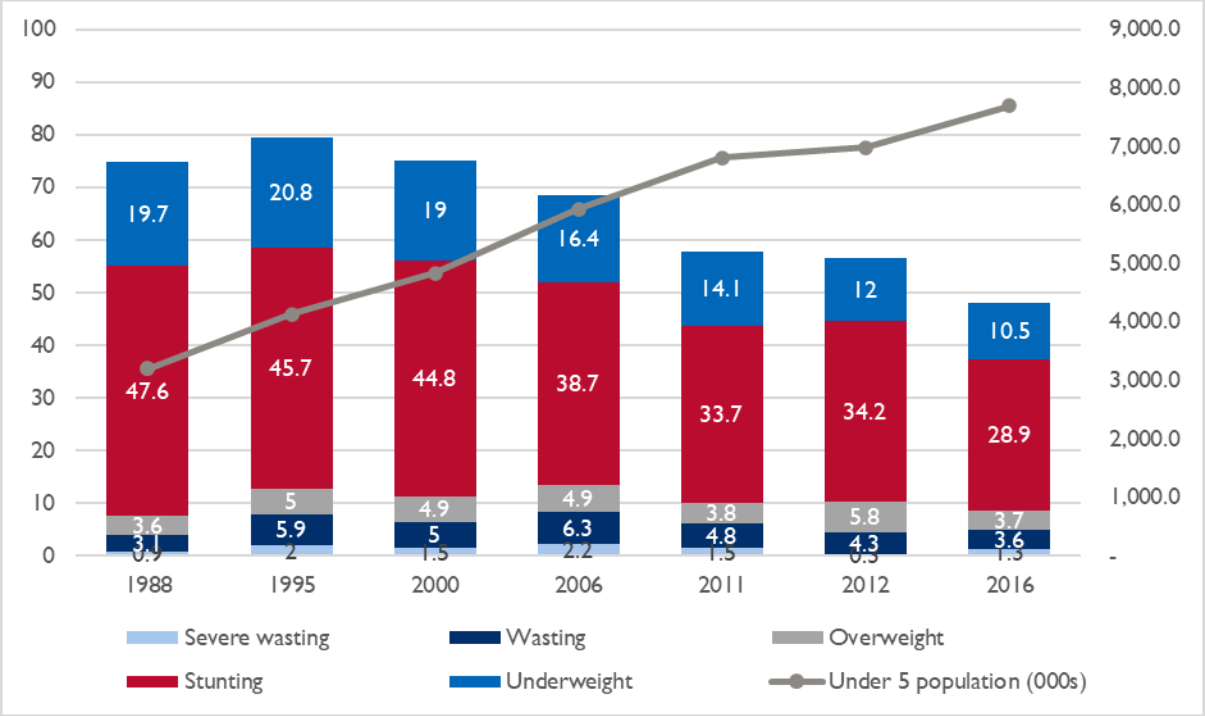
MALNUTRITION

Malnutrition prevalence [3] has declined since 2000, with around 75% of children with some form of malnutrition in 2000 to a little under 50% in 2016 (Figure 5). Prevalence of childhood underweight has declined from 19% in 2000 to 10.5% in 2016 (although the number of children has steadily been increasing). Stunting levels have been decreasing steadily since 1998 with the largest reduction experienced between 2000 and 2006 (44.8% to 38.7%). The most recent 2016 estimate places stunting at 28.9%. Minimal variation in wasting and severe wasting occurred over time due to the lower

[3] Uses WHO definition of malnutrition, which includes both "undernutrition" (includes stunting, wasting, and micronutrient deficiencies) and "overweight, obesity, and diet-related noncommunicable diseases." (http://www.who.int/features/qa/malnutrition/en/)

prevalence and a smaller sample size that affects this measure. The 2016 wasting measure was 3.6%; severe wasting was1.3%.

Figure 5. Child Malnutrition Estimates, Uganda

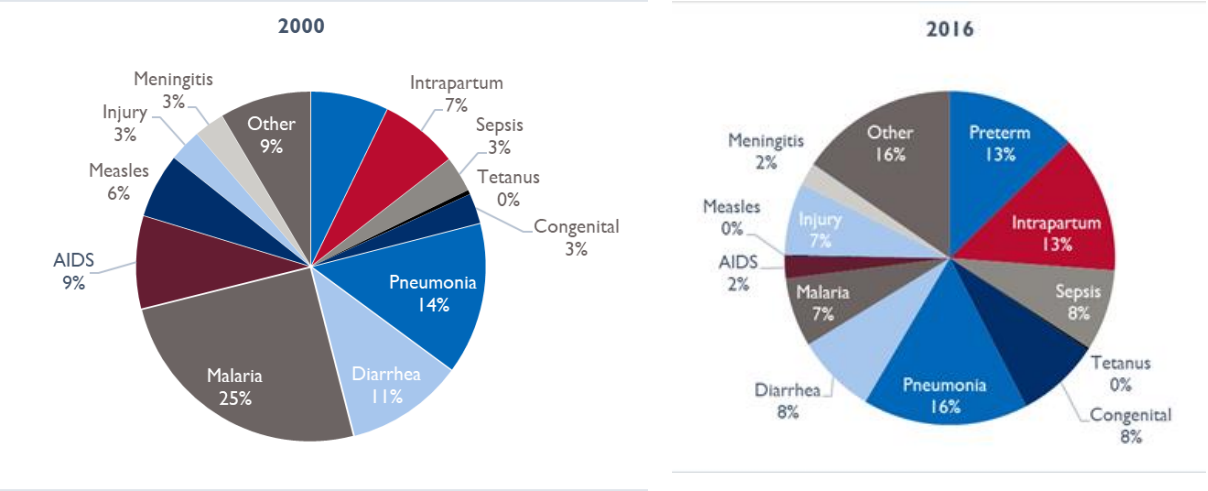


Source: http://data.unicef.org

CAUSES OF DEATH

The most prevalent causes of deaths for children under 5 have shifted from predominantly infectious diseases in 2000 to largely neonatal causes in 2016 (Figure 6). In 2000, malaria, pneumonia, and diarrhea together accounted for 50% of the cause of under-5 deaths; in 2016, that rate decreased to 31% of deaths. AIDS caused only 2% of deaths in under-5 children in 2016 (down from 9% in 2000). Of note, is the persistence of pneumonia, which continues to account for 16% of under-5 deaths in 2016.

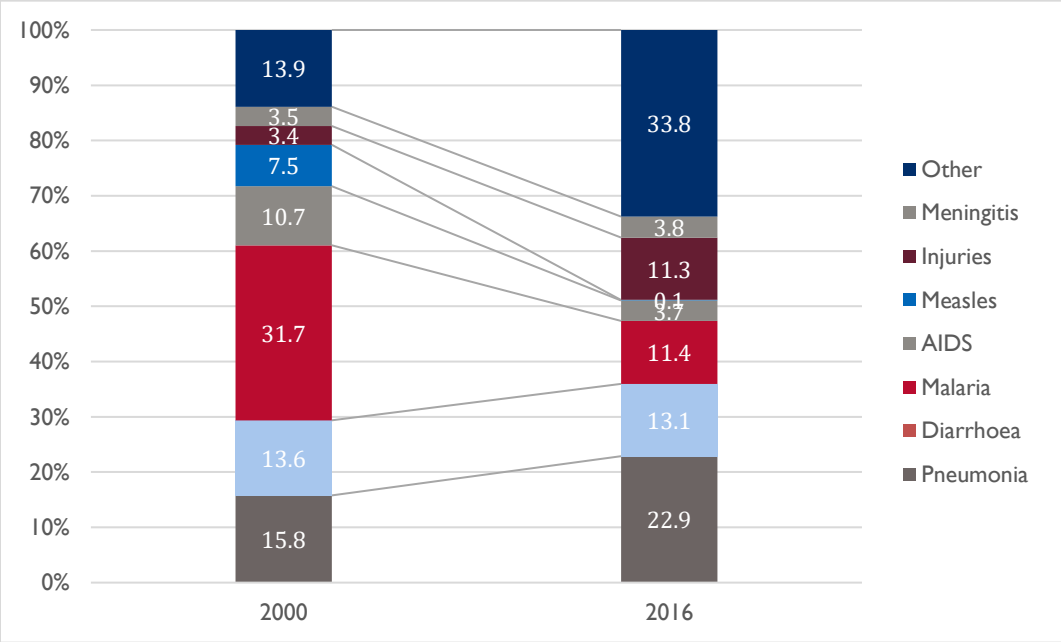
Figure 6. Cause of death in Children Under-5, Uganda 2000 & 2016



Source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE), 2017 (http://data.unicef.org)

When considering only children between 1–59 months, a noticeable factor is the increasing role of "other" causes which represent the largest proportion of deaths (33.8%) in 2016 compared to 13.9% in 2000. This increase is most likely related to the rise of non-communicable diseases reflecting a parallel reduction in some major infectious diseases such as malaria, AIDS and measles (Figure 7). Injuries as the primary cause of death more than tripled from 3.4% in 2000 to 11.3% in 2016. The persistence of diarrhea and pneumonia continues with pneumonia deaths increasing from 15.8% in 2000 to 22.9% in 2016.

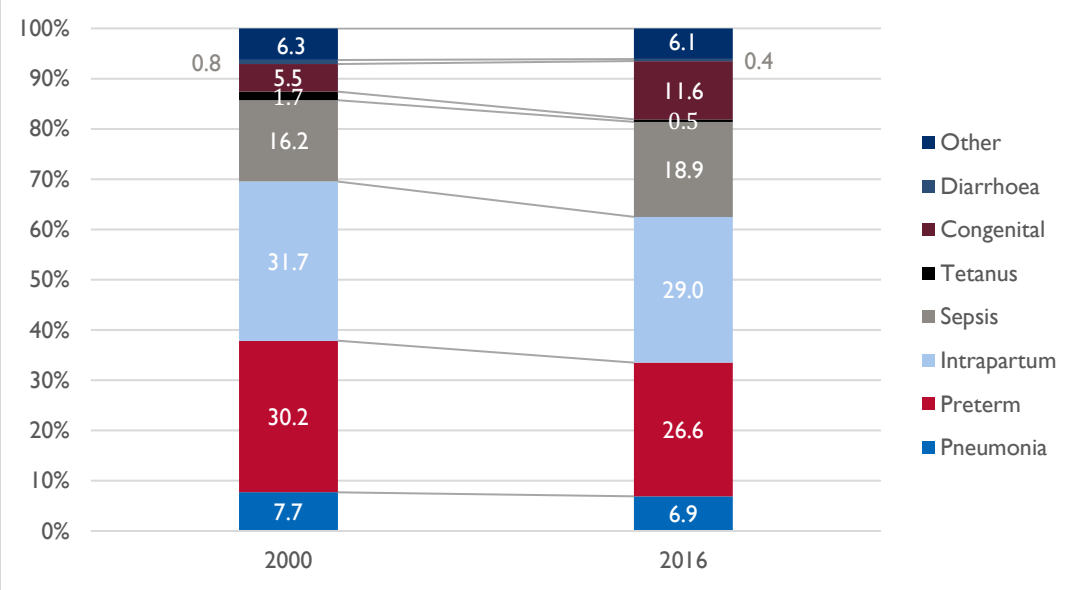
Figure 7. Cause of Death in Children 1-59 Months, Uganda 2000 & 2016



Source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE), 2017 (http://data.unicef.org)

The causes of neonatal mortality between 2000 and 2016 (Figure 7a) tenaciously remain preterm, intrapartum, sepsis, and congenital abnormalities. Variations were slight except for a doubling of congenital causes of death from 5.5% to 11.6% during this 16-year time period.

Figure 7a. Cause of Death in Newborns (first month of life), Uganda 2000 & 2016



Source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE), 2017 (http://data.unicef.org)

COVERAGE OF KEY INTERVENTIONS

This section reviews coverage and trends in some key interventions along the RMNCAH continuum of care. We start first with the key coverage interventions on reproductive and maternal health, delivery, newborn care, immunization, and Vitamin A supplementation. This is followed by care-seeking indicators for infections including pneumonia, diarrhea, and malaria. Finally, we discuss nutrition coverage including indicators on complementary feeding (minimum acceptable diet, minimum dietary diversity, and minimum diet frequency).

Appendix A provides RMNCAH outcome and coverage targets as outlined in the Health Sector Development Plan 2016–2020.

INTERVENTIONS ALONG THE CONTINUUM OF CARE

Figure 8 shows coverage of key interventions along the continuum of care between 1995 and 2016.

REPRODUCTIVE AND MATERNAL HEALTH

Demand for family planning satisfied by modern contraceptive methods was 47.8% in 2016 increasing from previous periods. Knowledge of contraceptive methods was nearly universal, with both men and women having heard of at least one method of contraception [47]. The knowledge of modern contractive methods was 98.9%, and 64% for lactational amenorrhea method (LAM), while knowledge of traditional methods was 81.5% according to the 2016 Demographic and Health Survey (DHS) [47].

DELIVERY

Gains in coverage of antenatal care took place. By 2016, 97% of pregnant women attending at least one antenatal care visit, and 60% a49

ttending the recommended four or more visits - an increase from 48% in 2011. The gap between the almost universal access to at least one ANC visit and the recommended four ANC visits suggests constraints in access to care and reflect a missed opportunity for care continuity.

The proportion of pregnant women that gave birth in a health facility increased to 73% in 2016, and the proportion of pregnant women who received skilled attendance at birth was 74%, which represents substantial progress since 2011. Postnatal care coverage increased to 54% in 2016 from 33% in 2011.

NEWBORN CARE

Early initiation of breastfeeding was 52.5% in 2011 (with no data available for 2016), while exclusive breastfeeding increased minimally from 62.3% in 2011 to 65.5% in 2016.

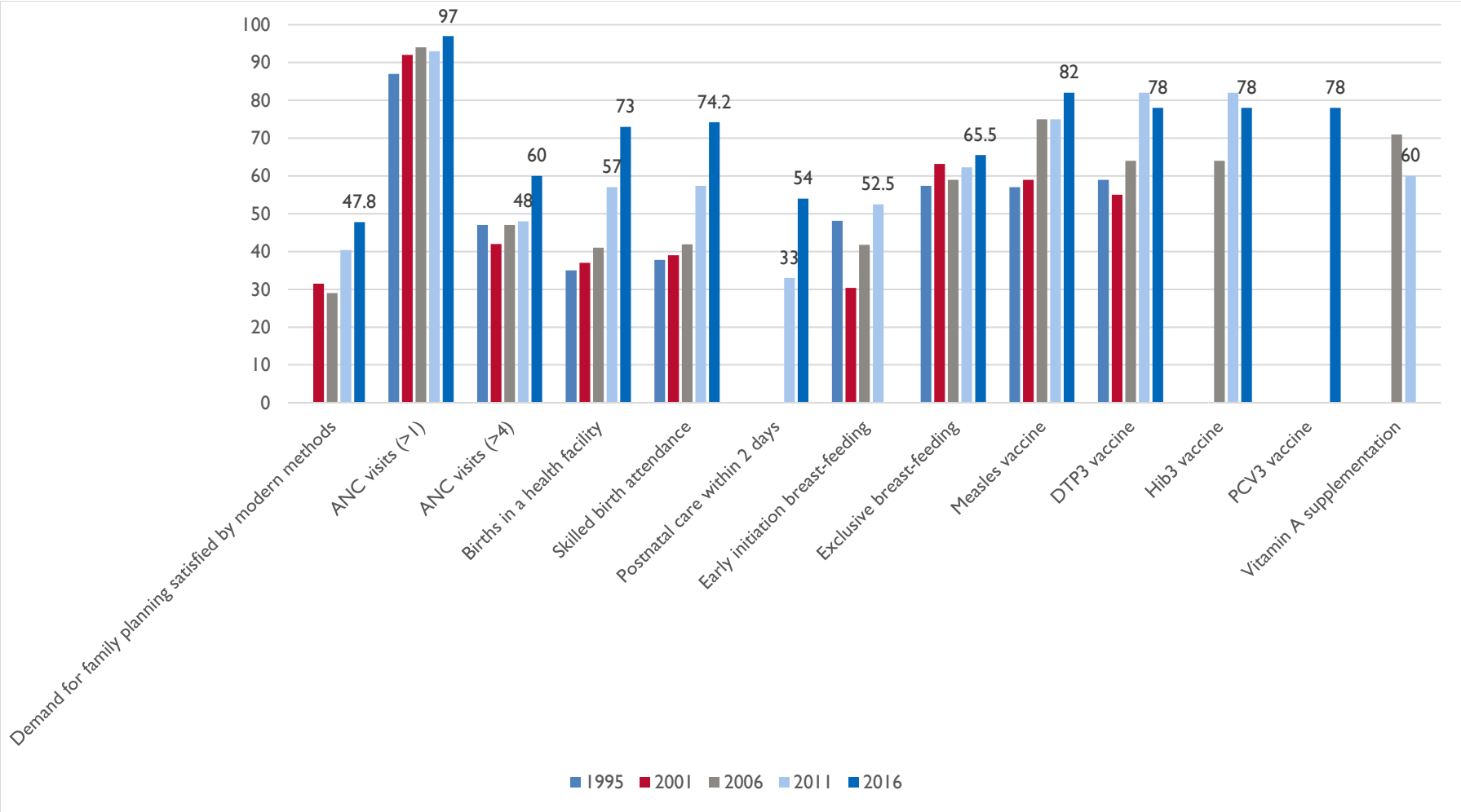
IMMUNIZATION

Routine immunization coverage by antigen (measured as those received at the time of the survey year) was 82% for measles and 78% for DTp-Hib-HpB3 (which includes PCV3 when added). It is not clear if the Rotavirus vaccine has been added in Uganda.

VITAMIN A SUPPLEMENTATION

Vitamin A supplementation coverage decreased to 60% from 2011 levels that were a little over 70%.

Figure 8. Coverage and Time Trends for Selected Reproductive, Maternal, Newborn and Child Health Indicators along the Continuum of Care

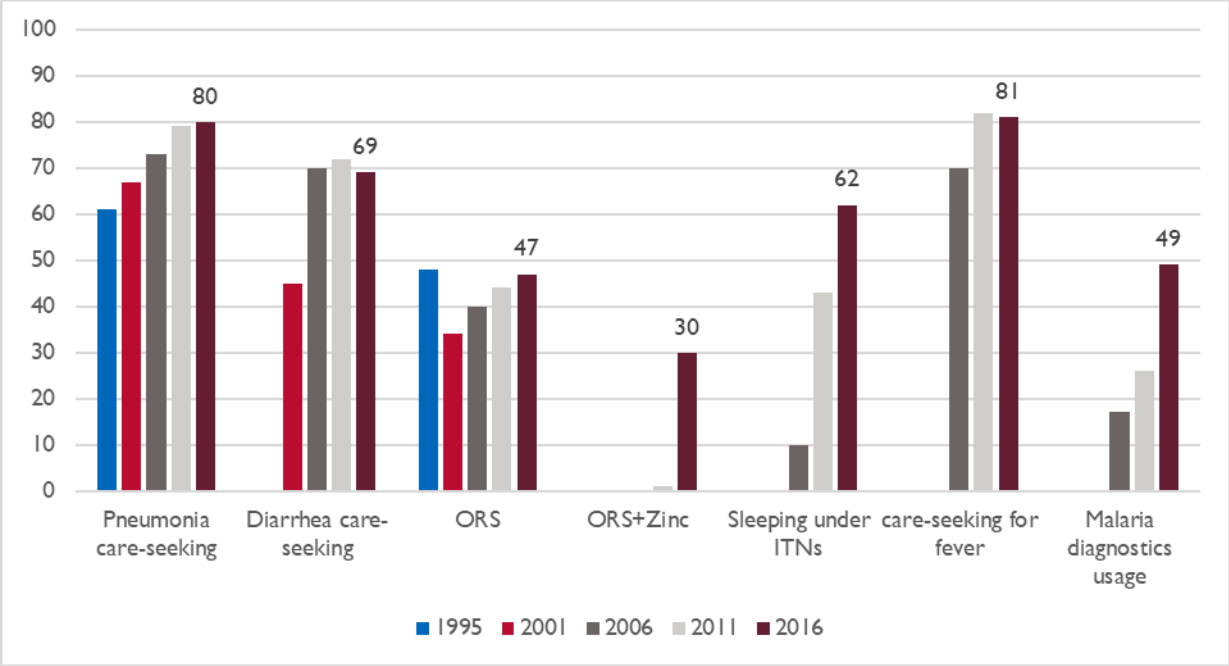


Source: (http://data.unicef.org)

CARE-SEEKING FOR PNEUMONIA, DIARRHEA AND MALARIA

Pneumonia care-seeking has increased steadily reaching 80% in 2016. Diarrhea care-seeking declined slightly to 69% in 2016, but still reflects a substantial increase over the 1995 rates. ORS coverage was 47% and ORS+zinc coverage was 30% in 2016. Impressive gains occurred in coverage for malaria interventions, with 62% of children under-5 sleeping under ITNs, 81% of children with fever in the last two weeks for whom care was sought (although this represents a slight decrease from 2011), and a doubling of children clinically diagnosed for malaria (using finger or heel stick), up to 49% in 2016.

Figure 9. Coverage and Trends for Care-Seeking for Pneumonia, Diarrhea and Malaria

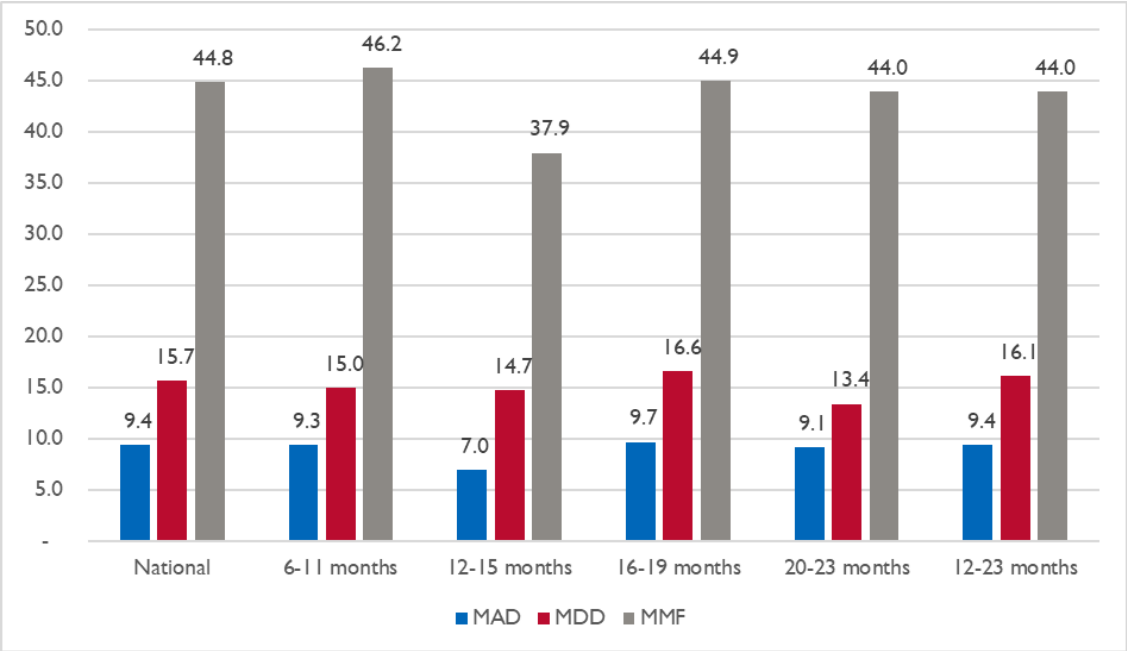


Source: DHS (http://data.unicef.org)

NUTRITION

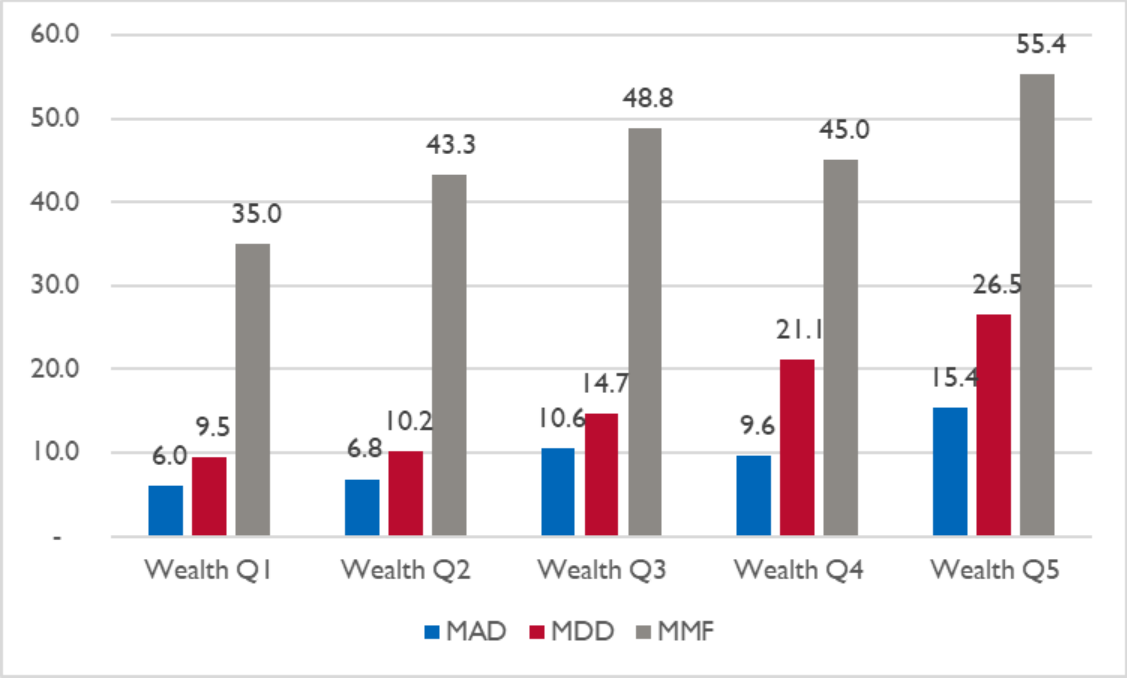
The latest available data from 2011 shows that for children 6–23 months of age, the prevalence of minimum acceptable diet (MAD) was 9.4%, minimum dietary diversity (MDD) was 15.7%, and minimum meal frequency (MMF) was 44.8% (Figure 10).

Figure 10. Coverage of Complementary Feeding by Age, Uganda 2011



Source: DHS (http://data.unicef.org)

Figure 10a. Coverage of Complementary Feeding by Income Level, Uganda 2011



Source: (http://data.unicef.org)

DISPARITIES

Several studies consider sub-national progress of child outcomes and coverage indicators. A report of the results of the Malaria Control Policy Assessment (MCPA) project in Uganda provides trends from 1990–2011 related to key child health outcomes, coverage, and socio-demographic indicators [12]. Roberts et al. covers benchmark health systems performance for key MCH interventions for the same period 1990–2011 [13]. Both analyses find that national estimates often veiled large differences in coverage levels and trends across Uganda's regions. For under-5 mortality, there was a large gap between Kampala and the rest of the country. There were key interventions that were successfully scaled across regions including households with ITNs, and pentavalent immunization. However, most regions in that period experienced minimal increases, sometimes declines, in the coverage of indicators such as antenatal care visits and three doses of oral polio vaccine [12]. Table 2 presents the disparities across regions in 2011 as reported by MCPA.

Table 2. Disparities in selected RMNCAH by Region from DHS 2011

	TFR	FP Unmet need	CPR	PNM	NMR	U5MR	Teenage pregnancy
Kampala	3.3	17%	48%	33	27	65	22%
Central 1	5.6	27%	37%	47	44	109	19%
Central 2	6.3	35%	34%	44	31	87	23%
East Central	6.9	42%	32%	28	23	106	31%
Eastern	7.5	38%	26%	32	24	87	30%
Karamoja	6.4	21%	8%	48	29	153	30%
North	6.3	43%	24%	22	31	105	26%
West Nile	6.8	43%	15%	39	38	125	26%
Western	6.4	30%	33%	54	30	116	23%
Southwestern	6.2	37%	30%	48	33	128	15%

Source: Republic of Uganda, Committing to Maternal and Child Survival, 2016

POLICIES, PROGRAMS AND STRATEGIES

MACRO-LEVEL ECONOMIC AND DEVELOPMENT POLICIES

The Constitution of the Government of Uganda underpins national development policies and sector-wide strategic plans. The Government of Uganda has an obligation under the constitution to provide basic health services, education, and access to clean and safe water. Uganda's Vision 2040 launched in 2013 outlines Uganda's long-term development strategy and acknowledges that good health is essential to ensuring development transformation and attaining the country's long-term vision [14].

Table 3. Uganda Vision 2040 Health and Development Targets

No	Development Indicator	Baseline value (2010)	Target (2040)
1	Per capita income (US$)	506	9,500
2	% of the population below the poverty line	24.5	5
3	Income distribution (Gini coefficient)	0.43	0.37
4	% share of national labour force employed	70.9	94
5	% population with access to safe piped water	15	100
6	% standard paved roads to total road network	4	80
7	% level of urbanization	13	60
8	Life expectancy at birth (years)	51.5	85
9	Infant mortality rate per 1,000 live births	54	4
10	Maternal Mortality Rate per 100,000 live births	438	15
11	Under 5 mortality rate per 1,000	90	8
12	Child stunting as % of under 5s	33	0
13	Literacy rate (%)	73	95
14	Gender related Development Index	0.51	0.90

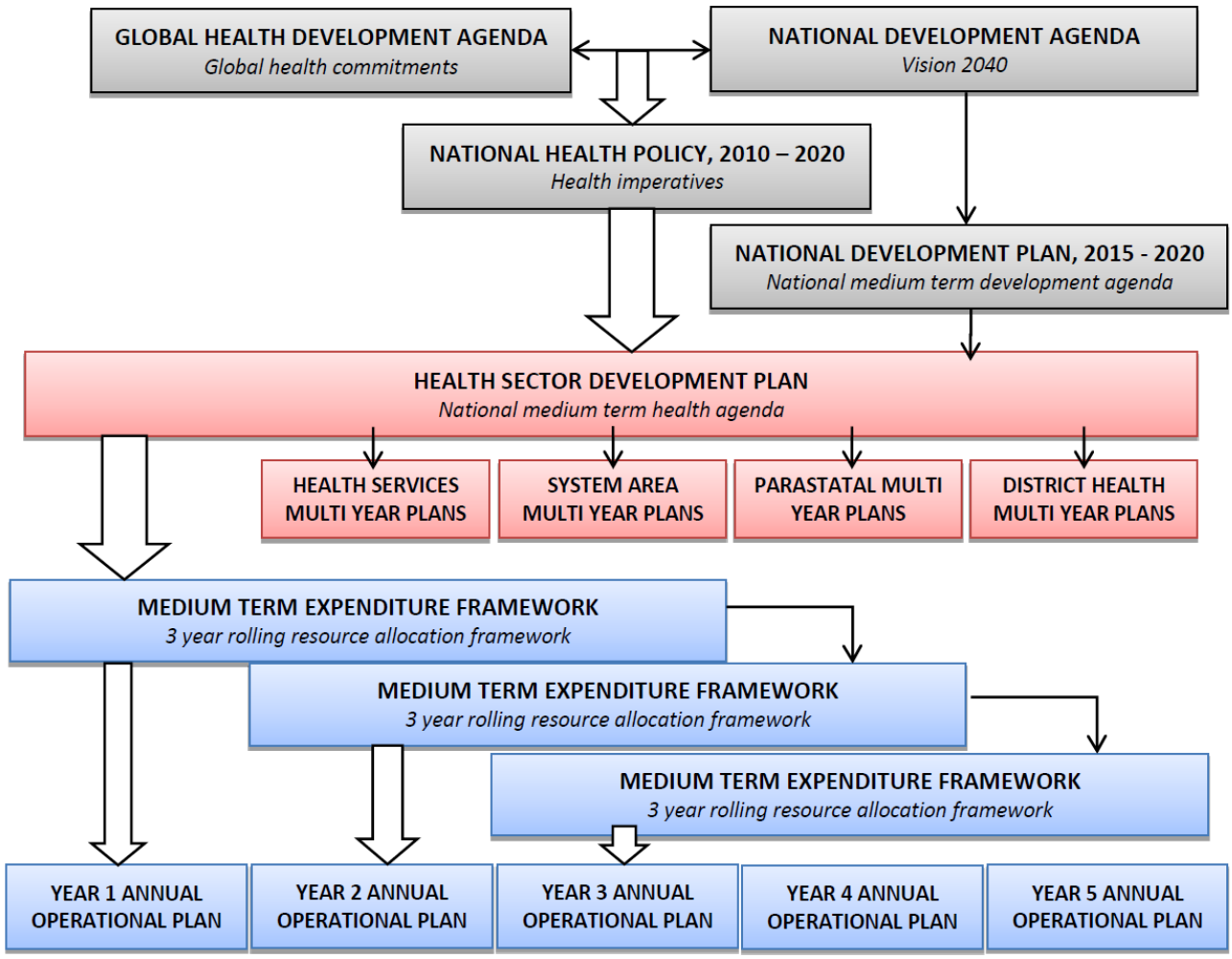
Source: Health Sector Development Plan, 2013

Uganda's second and current National Development Plan (NDP II) 2015/16–2019/20 has an overall goal to transition Uganda into a middle-income country by 2020 [7, 15].

HEALTH SECTOR POLICIES AND STRATEGIES

In line with national development plans, the National Health Policies (NHP) guide the health sector with the NHP I covering the period 1-99–2009, and NHP II for 2010/11–2019/20.

Figure 11. Uganda Development and Health Sector Policy and Strategy Framework



Source: Health Sector Development Plan, 2015

The Health Sector Development Plan (HSDP) 2015/16–2019/20 is the second in a series of six 5-year plans aimed at achieving NHP and Vision 2040 [1]. The main goal of this current plan is to "accelerate movement towards Universal Health Coverage (UHC) with essential health and related services needed for the promotion of a healthy and productive life." The Plan builds on Health Sector Strategic and Investment Plan (HSSIP) 2010/11–2014/15 and makes changes based on the lessons learned during HSSIP's implementation [1]. The Plan sets out specific targets for the period through 2020 that mostly focus on MCH outcomes:

- Reducing the IMR per 1000 livebirths from 54 to 44
- Reducing MMR per 100,000 livebirths from 438 to 320
- Reducing fertility to 5.1 children per woman
- Reducing child stunting as a percent of under-5 from 33% to 29%
- Increasing measles vaccination coverage under one year from 87% to 95%
- Increasing TB case detection rate from 80% to 95%
- Increasing anti-retroviral therapy (ART) coverage from 42% to 80%

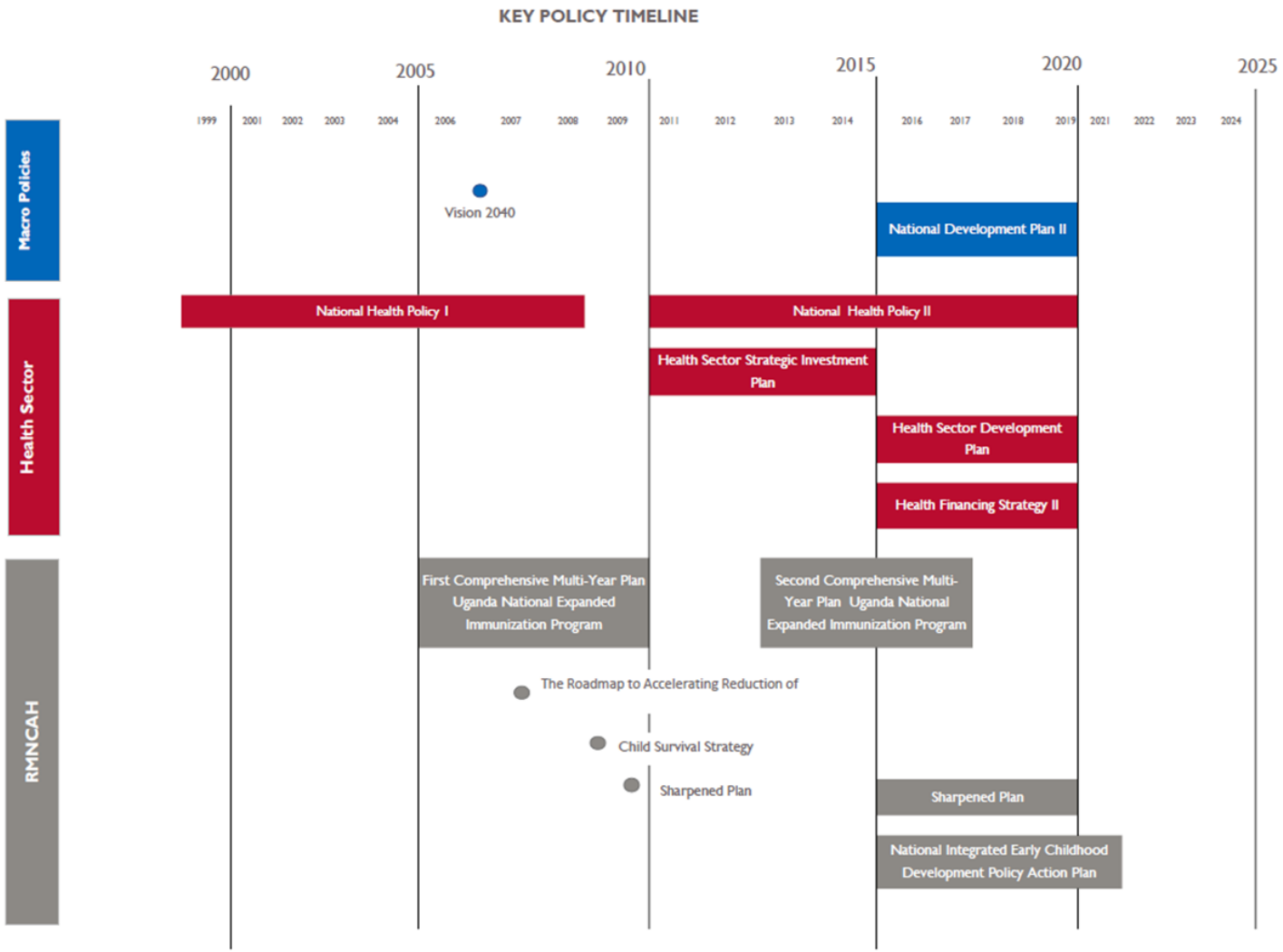
- Increasing deliveries in health facilities from 44% to 64%
- Increasing HC IVs offering comprehensive emergency obstetric and newborn care (CEmOC) services from 37% to 50%

However, the most recent 2016 DHS (standardized and reported by United Nations International Children's Emergency Fund (UNICEF) revealed that IMR, child stunting and deliveries in health facilities have been achieved ahead of schedule. MMR and TFR data from 2015 indicate that these targets are close to being achieved. To attain greater progress, the Plan states that investment will focus on health systems strengthening. The health governance and partnership priority area will focus on "strengthening the governance and partnership structures; management and stewardship; public private partnerships and coordination; health legislation and regulation; knowledge translation and improving sector competitiveness" [1]. A set of "core projects" are earmarked for implementation including the RMNCAH Project – IDA Loan + Global Financing Facility for RMNCAH [4] [1].

To ensure provision of high quality services, the Ministry of Health (MOH) also revised the Health Sector Quality Improvement Framework (QIF) and Strategic Plan (SP) 2010/11–2014/15, informed by lessons learned and evaluation results from the Health Sector QIF & SP 2010/11–-2014/15 [16]. The plan was aimed at ensuring services in both private and public sectors were improved; emphasizing the responsibilities of line management at all levels of health care; and reducing waste from ineffectual care, inefficient organization, and inappropriate deployment of resources.

[4] Other projects listed in the Plan include: Establishment of Uganda National Ambulance and Emergency Service; Capacity Development Plan for Uganda National Malaria Control Program–DFID; and Community Health Extension Worker Program. Also included are renovation of 25 general hospitals; Mulago National Referral Hospital; construction of a super-specialized hospital in Lubowa; Uganda Cancer Institute Development; and development of Uganda Heart Institute. In addition, listed are construction of staff houses under the Karaloja Development Project; and establishment of pilot community hospitals. Further included are the District Health Infrastructure Support Program including functionalization of HC IIIs in all sub counties; equipping health facilities, e-health innovations, Health Facility Quality of Care Assessment Program and QI, Improvement of Health Service through Health Infrastructure Management – JICA, and the District Health Services Improvement Project.

Figure 11. Key Policy Timeline



CHILD HEALTH POLICIES AND PROGRAMS

Child survival goals historically have been covered in the Health Sector Strategic Plans by ensuring they are integrated into the Uganda Minimum Package of Health Services. Despite the resources provided to the health sector, Uganda's pace of decline in child health outcomes (as compared to HIV) was slow in the 1990s and through the first half of the 2000s. In the period of 1995–2007, Uganda's political situation negatively affected its child health service delivery [10]. The policy responses in that time period were developed to address Uganda's child health deficits: lack of malaria control; weak health service delivery system; and challenges with the pharmaceutical supply chain [10].

For the second half of 2000-2010-decade, global aid for malaria increased dramatically and resources were directed to achieve outcomes despite governance challenges in Uganda. While decentralization appeared to assist Tanzania in improving health sector delivery, in Uganda decentralizing the process moved at a rapid pace and the health service delivery system could not keep up. Following 2010, Uganda was the recipient of multiple quality assurance and improvement efforts, establishing a model for use in other countries.

Anchored in the Health Sector Development Plans, Uganda developed and launched the Reproductive Maternal, Newborn, Child and Adolescent (RMNCAH) Sharpened Plan in 2013 to accelerate attainment of the MDGs [11]. This Sharpened Plan was updated in 2016 to provide five strategic shifts that aspire to Universal Health Coverage: emphasizing evidence-based high impact solutions; increasing access for high-burden populations; geographical focus/sequencing; addressing broader multi-sectoral context; and ensuring mutual accountability for RMNCAH outcomes [11]. Implementation of the plan is largely through the Uganda Reproductive, Maternal, Neonatal and Child Health Improvement Project (RMNCAH Project) financed by the World Bank (WB) and the Global Financing Facility (GFF) [17].

In 2016, the government through the Ministry of Gender, Labor and Social Development established a National Integrated Early Childhood Development Policy of Uganda [18]. The policy has three objectives: to harmonize existing early child development strategies and initiatives within and across all sectors; to set, improve and align standards to ensure access to coordinated, quality and equitable early childhood development (ECD) services across sectors; and to build and strengthen capacity systems and structures to deliver integrated programs [18]. It outlines a variety of policy actions targeted at children 0–8 years and their families that include: early childhood care and education; food security and nutrition; child protection; primary health care, sanitation and environment; family strengthening and support; communication, advocacy and resource mobilization; and multi sectoral partnerships and coordination [19].

ESSENTIAL NEWBORN CARE

Attention to newborn survival was minimal prior to 2000 but increased rapidly from 2005 onward [20]. This shift appears to be linked to newborn specific advocacy and action. In 2006 a multi-disciplinary National Newborn Steering Committee (NSC) was established as an advisory body of the MCH cluster of the MOH. The NSC supported integration of newborn health issues in the national Roadmap to Accelerating the Reduction of the Maternal and Neonatal Mortality in 2007 and the 2009 Child Survival Strategy [20]. In 2009, the Roadmap for Accelerating the Reduction of Maternal and Neonatal Mortality was launched to help the country achieve the MDGs, and focused on three objectives: to increase the

availability, accessibility and utilization of quality skilled care during pregnancy, childbirth and the postnatal period; to promote health seeking behaviors among pregnant women and communities; and to strengthen family planning information and service provision [21]. The Child Survival Strategy evaluated the progress of Uganda against global evidence outlined in the 2003 Lancet Child Survival series and set out a detailed approach to prioritize key interventions and actions to reduce child mortality and morbidity [22]. To operationalize and integrate newborn care components, a framework was developed (Newborn Component of the Child Survival Strategy in Uganda: Implementation Framework) [23]. The visibility of kangaroo mother care (KMC) in policy documents has also increased since 2010: it was included in the Standards of Newborn Health Care Services, which form a part of the Newborn Health Implementation Framework [24].

Table 4. Significant or Very Major Health Systems Bottlenecks for KMC (with Uganda falling in the Countries with NMR>30 deaths per 1000 livebirths)

	All 12 countries	Countries with NMR < 30 deaths per 1000 livebirths*	Countries with NMR ≥30 deaths per 1000 livebirths**	Countries in Asia	Countries in Africa
Leadership and governance	9 out of 12	6 out of 7	3 out of 5	5 out of 6	4 out of 6
Health financing	10 out of 12	6 out of 7	4 out of 5	6 out of 6	4 out of 6
Health workforce	9 out of 12	6 out of 7	3 out of 5	6 out of 6	3 out of 6
Essential medical products and technologies	7 out of 12	4 out of 7	3 out of 5	6 out of 6	1 out of 6
Health service delivery	10 out of 12	5 out of 7	4 out of 5	6 out of 6	4 out of 6
Health information system	8 out of 11	5 out of 6	3 out of 5	5 out of 5	3 out of 6
Community ownership and partnership	10 out of 12	6 out of 7	4 out of 5	6 out of 6	4 out of 6

% of countries citing significant or major bottlenecks	
	≥75%
	25–74%
	<25%

Source: Vesel et al, 2015 [25]

IMCI/ICCM

In 1995, integrated management of childhood illnesses (IMCI) was selected as the child strategy for Uganda, and a national IMCI working group was established. The new IMCI initiative was incorporated into the well-established Control of Diarrheal Disease and Acute Respiratory Infection (CDD/ARI) program within the MOH [26]. In 1999, IMCI was adopted as one of 12 components of the country's Essential Package of Health Services. Despite evaluations suggesting the rapid expansion of IMCI was taxing MOH resources, an expansion program was developed for 1998–2005 that would be based on the needs and capabilities of the districts to implement the program [26]. This expansion coincided with the restructuring of the MOH, decentralization, and the development of the National Health Policy and Health Sector Strategic Plans. By 2003, all 56 districts were implementing IMCI components one (health worker training) and two (health systems support). An evaluation in 2003 of the programs in 10 districts found that presence of IMCI-trained health workers in health centers was "patchy", and health workers used their IMCI skills at only about half the visits observed [26]. An assessment using Service Provision Assessment Surveys found that 33% of workers in Uganda assessed all three IMCI danger signs (i.e. inability to eat/drink, vomiting everything, and febrile convulsions), and the rate of assessing all three of

the IMCI main symptoms (cough/difficult breathing, diarrhea, and fever) was 57% [27]. Physical examination rates varied widely: for fever (90%), pneumonia (20%), and diarrhea (39%).

The MOH adopted iCCM by in 1998, although it took close to 2.5 years for its development. By 2002, most districts had implemented some elements of iCCM in one or more parts of the district [26]. An evaluation of iCCM program in Bugoye sub-county (Bugoye Integrated Community Case Management Initiative, BIMI) found a mismatch between VHW reports of patient referrals and referral visits recorded by clinical staff (268 patients referred compared to 52 referral forms found) possibly demonstrating the challenges of effectively monitoring iCCM referral completion [28].

IMMUNIZATION

The Uganda National Expanded Programme on Immunization (UNEPI) is located within the Department of National Communicable Disease Control within the Directorate of Clinical and Community Services [29]. While the UNEPI program was in existence for 10 years prior, the first multi-year plan covered the period of 2006–2010. However, challenges experienced in 2007 threatened progress and led to declines in immunization coverage. The continued circulation of wild polio in South Sudan and population immunity gaps among under-5s led to the emergence of polio in early 2009. The multi-year plan for 2012—2016 therefore aimed to address some of these challenges and to also conform to the global vision for immunization (GIVS) [29].

Uganda has implemented a few programs to enhance immunization efforts including participating in the Reaching Every District (RED) Strategy and working with WHO and other partners to improve district-level strategies and evaluation of programs [30]. The Africa Routine Immunization Systems Essentials-Systems Innovation (ARISE-SI), was an intervention conducted in 2011–2012 to assess the Microsystems Quality Improvement Approach for generating local solutions to strengthen routine immunization systems [30]. It resulted in a robust framework and sustained improvements in local immunization systems in districts where it was implemented and provided an effective framework for enhancing the RED strategy for other countries [31].

NUTRITION

In 2003 the government created the Food and Nutrition Policy (UFNP); however, concrete action was only taken after 2010 when Uganda became signatory to the Scaling-Up Nutrition (SUN) Declaration. This commitment led to the development of the Uganda Nutrition Action Plan (UNAP) 2011—2016 [32]. The Office of the Prime Minister's Department of Monitoring and Evaluation has created a UNAP Secretariat, which in turn, along with several partners, developed the Nutrition Advocacy and Communication (NA&C) Strategy to contribute to the implementation of the Uganda Nutrition Action Plan (UNAP) 2015–2019 [33].

GOVERNANCE AND PARTNERSHIPS

Uganda has a large bilateral and multilateral donor community in addition to hundreds of international and local non-governmental, private-voluntary, and faith-based organizations. USAID/Uganda is the largest bilateral development partner, and other major donors include UK's Department of International Development (DFID), the European Union and the United Nations agencies [2]. The World Bank is the largest single development partner overall in terms of resources provided for all development sectors [3].

GOVERNMENT OF UGANDA AND THE MINISTRY OF HEALTH

Health policies and strategies have been anchored in the country's national development plans namely the Vision 2040 and NDP II through the Health Sector Development Plan and the Sharpened Plan to address RMNCAH. The government has expressed commitment to the implementation of health strategies particularly RMNCAH to ensure attainment of SDG targets and goals. The government's report on Uganda's Readiness for Implementation of the 2030 Agenda notes the commitment to strengthen the mechanisms for management of partnerships through the Uganda Partnership Policy (2013), which is complemented by the National NGO sector and Government [34]. In moving the SDG Agenda forward, the government articulated medium-term development goals including enhancing multi-sectoral implementation by developing a clear road map for the "localization of the Agenda at both national and local government levels", multisectoral action planning and modelling, and revitalization of the Sector Wide Approach [34]. Appendix B provides the key interventions proposed under the Health Sector Development Plan to respond to governance and partnerships bottlenecks.

USAID

USAID is the largest single donor providing health aid to Uganda. While USAID has in previous years focused on concrete health, education, or market needs, the Country Development Cooperation Strategy 2016–2021 shifted focus to "[u]nderstand and work within local systems, even those that pose risks" [2]. This period has three integrated development objectives aimed at "increased resilience, addressing demographic drivers and strengthening systems". USAID/Uganda has an active program to address HIV/AIDS, malaria prevention, maternal and child health, family planning and reproductive health, and health systems strengthening (https://www.usaid.gov/uganda/global-health).

OTHER BILATERAL DONORS

The European Union and its member countries represent other key donors in Uganda; including the UK, Sweden, the Netherlands, Germany, and Austria.

UN AGENCIES

UNICEF works with partners on malaria, child survival, nutrition, and orphans and vulnerable children among many areas, while UNFPA plays a lead role in family planning and emergencies.

PRIVATE SECTOR AND PUBLIC-PRIVATE PARTNERSHIPS

While there is a significant private sector in Uganda, governance and regulation of the private sector present a challenge [35]. There are multiple agencies responsible for private sector quality that have similar and overlapping functions, and different government agencies have different standards for measuring quality making compliance cumbersome.

There are also important public-private partnerships (PPP) that have played a key role in health service delivery [9]. In 2009, Uganda launched the Accredited Drug Shops (ADS) in the Kibaale district [36]. This PPP was modeled on Tanzania's accredited drug dispensing outlet (ADDO) program with funding from the Bill and Melinda Gates Foundation and implemented by Management Sciences for Health (MSH) in collaboration with the government and the Pharmaceutical Society of Uganda.

The Challenge TB initiative is a USAID-funded partnership, led by KNCV TB Foundation, and implemented in Uganda through its East Africa Regional Program [46]. There are nine implementing partners including: American Thoracic Society (ATS); FHI 360; Interactive Research & Development (IRD); International Union Against Tuberculosis and Lung Disease (The Union); Japan Anti-Tuberculosis Association (JATA); Management Sciences for Health (MSH); PATH; and World Health Organization (WHO). The project is designed to cover activities that are beyond individual countries. In addition to other priority technical focus areas, the partnership aims to build capacity on Childhood TB by "establishing a network for sharing and learning and its incorporation into continuing education on TB and Maternal and Child Health". There are other examples of PPP models such as the International Union Against TB and Lung Disease (known as The Union), an organization that "draws on the best scientific evidence and expertise to advance solutions to public health challenges affecting people living in poverty" [46]. The Union partners with governments, international agencies, civil society and the private sector and has an office in Uganda. The Union implements the DETECT Child TB project that aims to strengthen district and community health care delivery in two districts, Wakiso and Kabrole, to improve Childhood TB treatment and prevention.

CIVIL SOCIETY

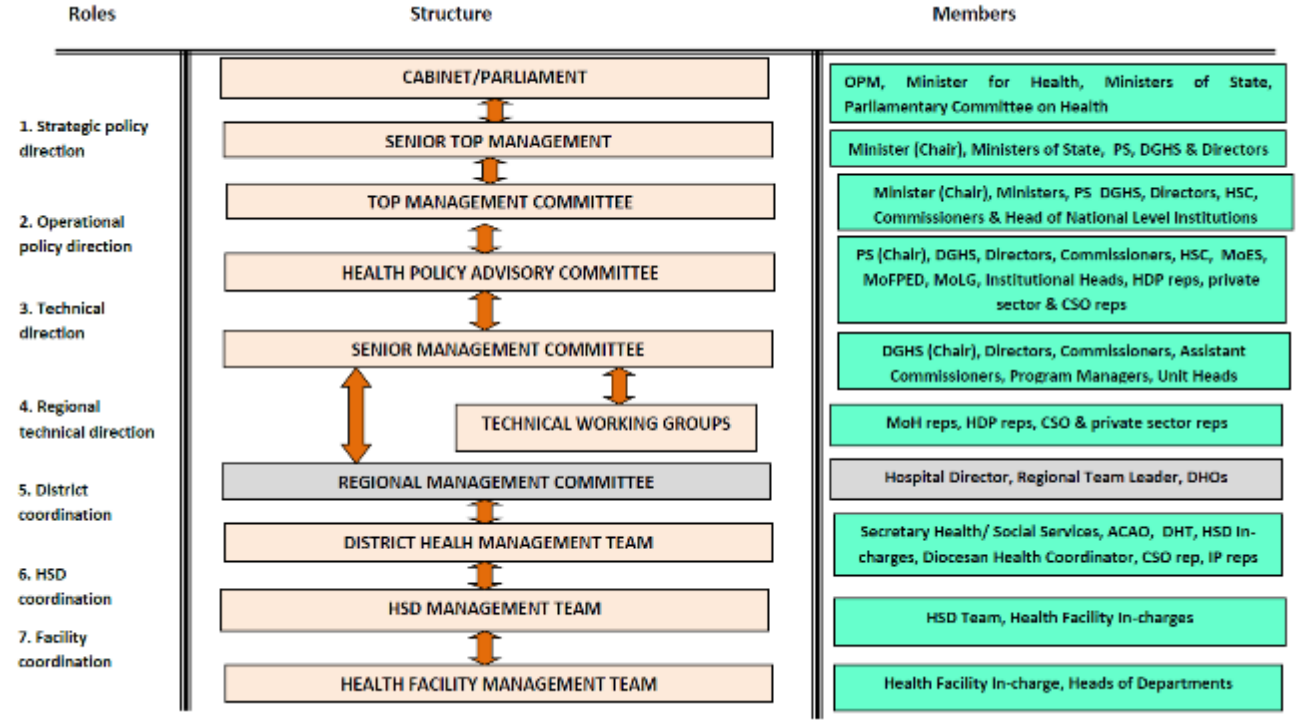
A vibrant civil society environment in Uganda represents various agendas including human rights organizations, anti-corruption coalitions; gender-based groups; child-focused groups; faith-based organizations; health education and research institutions; and several national networks [37]. Academic institutions such as Makerere University have played key roles in research, training and partnering with local and international organizations in the design of research and programs and in capacity building of civil society and community engagement [38].

HEALTH SYSTEMS

ORGANIZATION OF THE HEALTH SYSTEM

The health system in Uganda is decentralized to ensure districts are able to direct resources in line with local priorities [8]. The MOH is responsible for policy and guideline formulation, quality assurance, and resource mobilization. Districts and local governments are responsible for managing all health care providers within their districts and are further divided into sub-districts (HSDs). Management includes leadership and management, supervision and quality assurance, procurement and supply of drugs, provision of technical logistics, and capacity building support at the district level.

Figure 12. Governance and Partnership Structure in the Health Sector



Source: Health Sector Development Plan, 2015

The health system is made of public, private-not-for-profit (PNFP), private-for-profit providers (PFP), and traditional practitioners. Fifty-five percent of hospitals and health centers are government-managed (Tables 5&6). For public facilities, national and regional referral hospitals report to the central government, while general hospitals and health centers report to local governments. Recent proliferation of the number of districts has challenged the decentralized delivery of services [8]. There are also challenges with inadequate funding and lack of human resources (managers) at district and sub-district levels.

The primary health care system includes health clinics and general hospitals [39]. The HC II is the first level of health facility and the interface between the health care system and the community (HC I in Uganda system is defined as the community-based level that includes village health teams ((VHTs)) [39]. In addition to basic preventive and curative services provided in HC II; HC III provides 24-hour

maternity, accident. and emergency services. HC IV is a primary health care referral facility that can assess, diagnose, stabilize, treat, and then refer back to lower-level or on to higher-level facilities.

Table 5. Organization of the Health System by Level and Ownership, 2017

	Government	PNFP/NGO	PFP	Total	Level Proportion (%)
NR Hospital	4	0	0	4	0.07%
RR Hospital	14	0	0	14	0.26%
General Hospital	53	63	35	151	2.79%
Clinic	17	64	321	402	7.44%
HC IV	175	18	7	200	3.70%
HC III	979	309	125	1,413	26.15%
HC II	1,716	544	959	3,219	59.58%
Total	2,958	998	1,447	5,403	
Ownership proportion (%)	54.75%	18.47%	26.78 %		

Source: Uganda DHIS2 (As of November 2017)

Table 6. Health Facilities by Ownership and Region

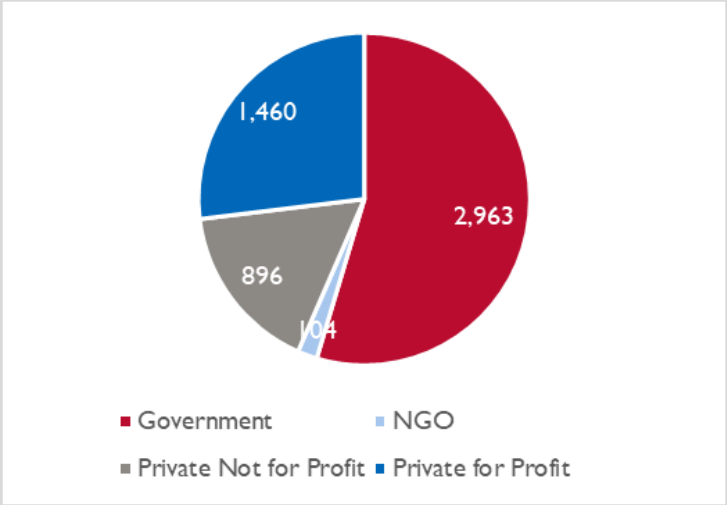
Region	Government	PNFP/NGO	PFP	Total	Region Proportion (%)
Central	653	322	922	1,897	34.98%
Eastern	741	245	127	1,113	20.52%
Northern	681	144	108	933	17.20%
Western	888	289	303	1,480	27.29%
Total	2,963	1000	1,460	5,423	
Ownership Proportion (%)	54.64%	18.44%	26.92%		

Source: Uganda District Health Information System (As of November 2017)

PRIVATE SECTOR

The private sector is comprised of PNFP and PFP providers. PNFP are predominately faith-based and coordinated nationally by their respective bureaus and locally by the diocesan boards. PFP receive subsidies from the government using an input-based payment approach with no incentives for efficiency and equity [8]. Source: Republic of Uganda, Health Financing Strategy 2015/16-2024/25. 2016.

Figure 13: Ownership of Health Facilities by Type

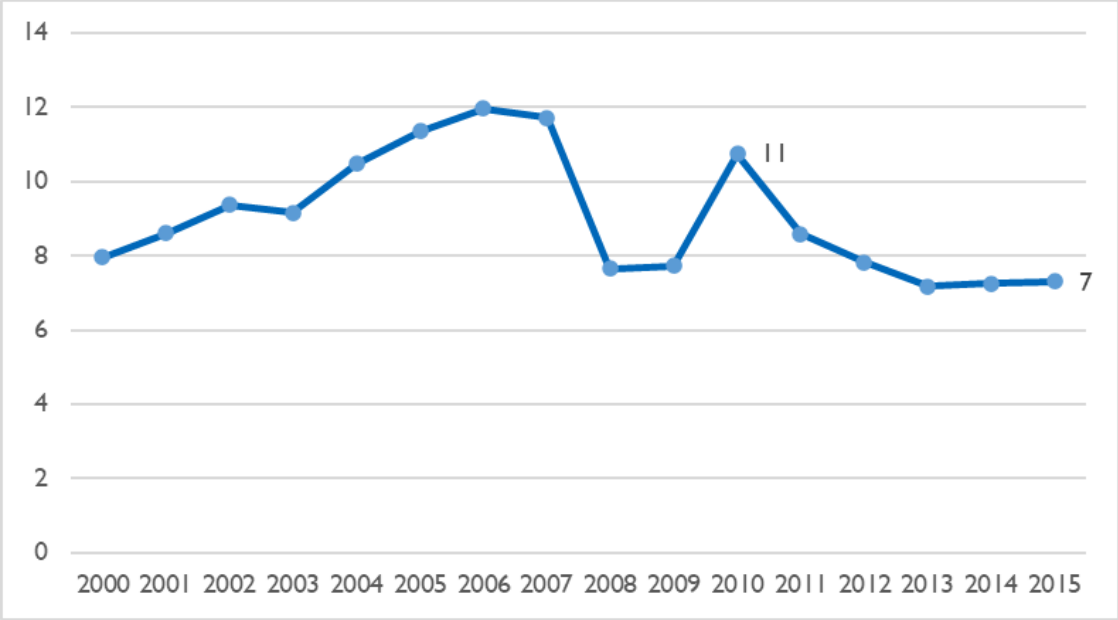


Source: Health Financing Strategy, 2016

FINANCING

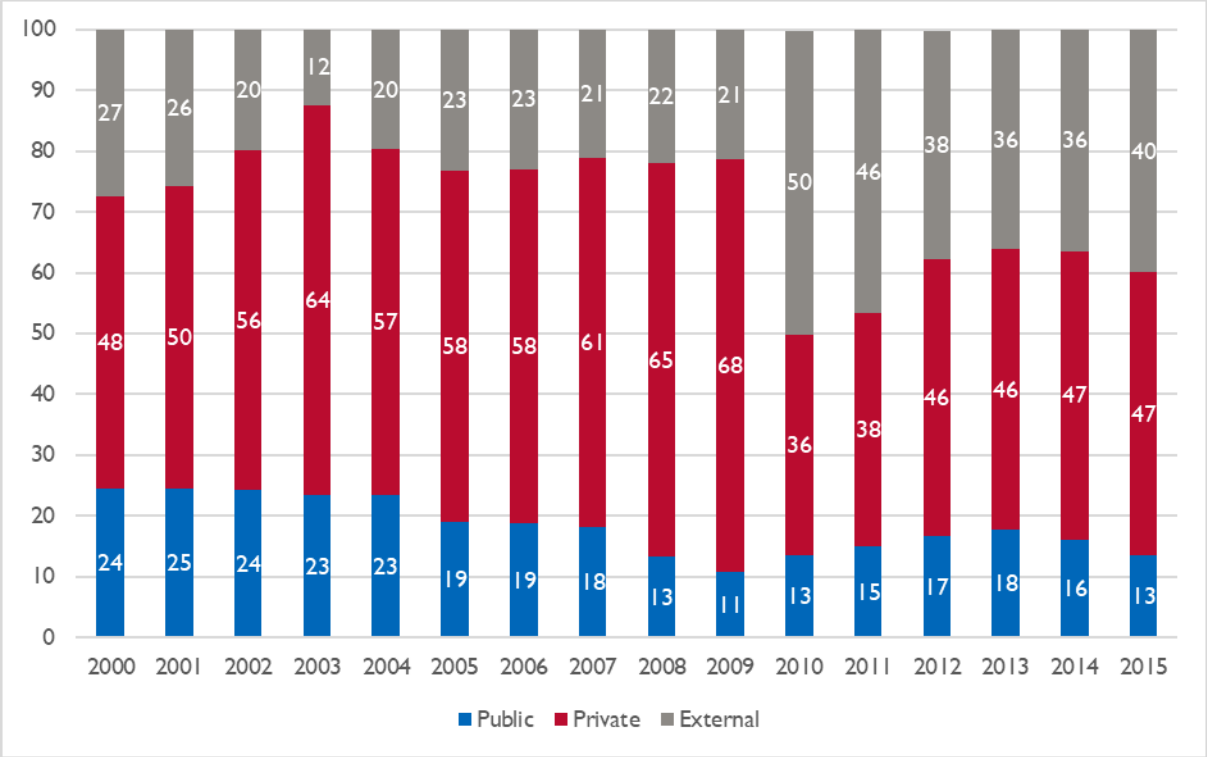
Uganda is under considerable pressure to increase its spending for health [8]. The total health expenditure (THE) as a percent of GDP, has declined since 2010 and stagnated at close to 7% in the years leading up to 2015. Public funds contributed only 13% to THE, while private funds contributed 47% and development partner funds account for 40%. This shows a heavy reliance on private (mostly out-of-pocket contributions) and external sources. Out-of-pocket (OOP) spending has continued to increase with a large proportion spent on drugs [8]. The insurance sector in the country is an insignificant source of health financing, and likely to change in the short term [8].

Figure 14. Total Health Expenditure (% GDP), 2000 – 2015



Source: Global Health Expenditure Database (http://apps.who.int/nha/database/ViewData/Indicators/en)

Figure 15. Percentage of Total Health Expenditure by Source, 2000–2015



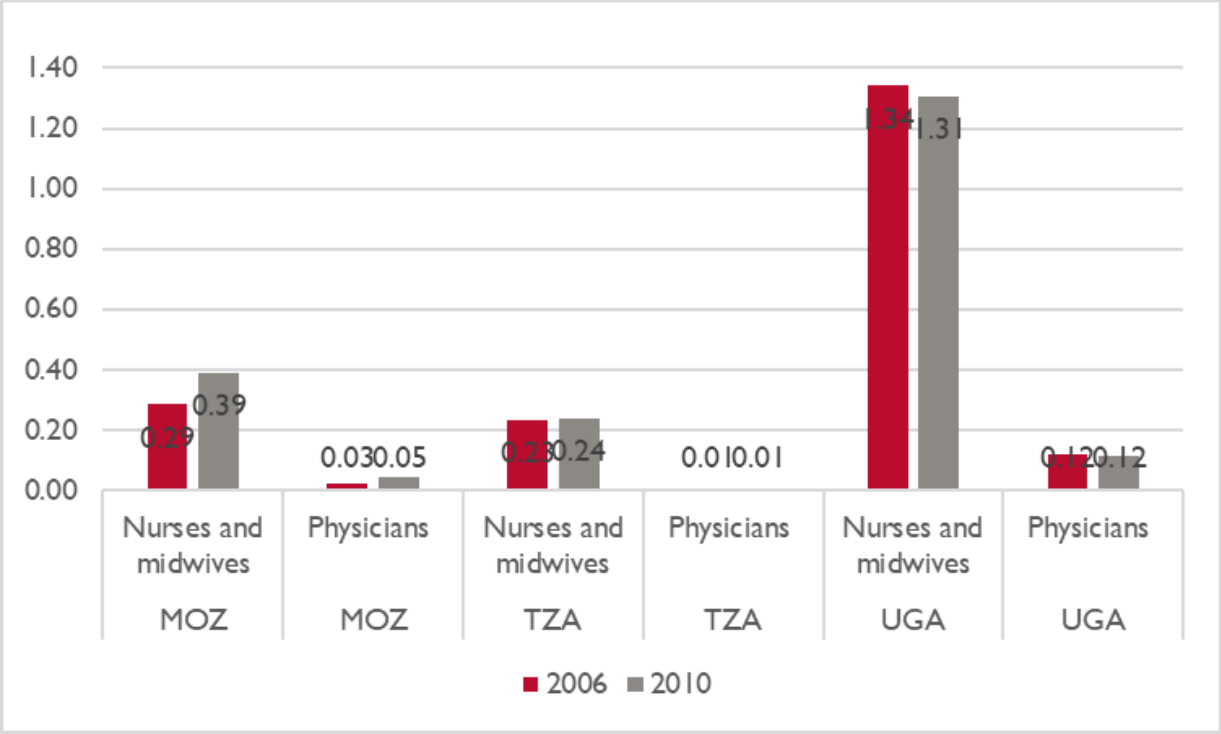
Source: Global Health Expenditure Database (http://apps.who.int/nha/database/ViewData/Indicators/en)

In the public sector, purchasing of health services is mainly on the traditional input-based approach, while the private sector is through a fee-for-services basis. Uganda is looking to move towards a results-based financing (RBF) framework. An assessment of the approach showed that while RBF has improved the delivery of quality services, a need remains to strengthen the capacity for scale up [8].

HUMAN RESOURCES FOR HEALTH

The density of health workers was 1.31 nurses and midwives and 0.12 physicians per 1000 people (Figure 16). While comparatively better than density in other countries (the Figure compares Uganda to Mozambique and Tanzania), there remains an inadequate level of human resources to meet needs within the health sector [15]. In 2008, only 51% of approved positions at the national level were filled. Reasons for vacancies include insufficient training capacity, low pay, and high emigration rates [15].

Figure 16. Health Worker Density per 1000 Population, 2006 and 2010



Source: World Development Indicators. Data Catalog (https://datacatalog.worldbank.org/dataset/world-development-indicators)

DELIVERY PLATFORMS

COMMUNITY LEVEL: COMMUNITY HEALTH WORKERS AND TASK-SHIFTING

The community health workers' (CHW) program (known as Village Health Teams in Uganda) was initiated in 2001 and the MOH produced the VHT Strategy and Operational Guidelines in 2004 [40]. Within the system, VHTs are considered the first level, Health Center I, and are responsible for mobilizing communities and strengthening the delivery of services at household level [41]. Over 170,000

individual VHTs have been trained and operate in all of Uganda's 112 districts. Distinct from some CHW programs, Uganda's VHTs are unpaid volunteers who often maintain other daily occupations (e.g. farming or shop-keeping) [41]. Despite a volunteer workforce, the program faces challenges in resources areas such as training, supplies, and stipends for transportation. An MOH assessment in 2015 concluded that government funding has gradually declined and implementing partners have funded most VHT activities [41].

PRIMARY HEALTH CARE SYSTEMS

The primary health care system has undergone several changes since the country's independence in 1962. In the 1980s, services were provided through vertical programs with the Control of Diarrheal Diseases (CDD) program introduced in 1983; Expanded Programme on immunization in 1986; and by 2000, there were 57 programs in the health sector [42]. Health Sector Reforms promoted by the World Bank/IMPF in 1987 continued through the 1990s. As part of a decentralization policy, the Local Government Act in 1997 devolved powers to district local authorities with the local government acting as key intermediary between local authorities and central government. The care delivery system, designed to align with this decentralized system [42], included facilities from HC I-IV and general hospitals within districts. In 2001, user fees were abolished, which meant more demand for care and constraints on an already strained health system [43]. Health sector strategic plans sought to reform the service delivery systems. The Strategy for Improving Health Service Delivery (2016-2021) outlined key strategic areas to address in the health sector such as theft of medicines and stock-outs; neglect of duty and absenteeism; corruption; poor service delivery; infrastructure development; health promotion, education and communication; support supervision, poor governance; diversion of funds to private clinics; human resources; motivation of health workers using non-monetary incentives; and effective planning and budgeting [44].

TERTIARY CARE

Uganda faces major challenges and bottlenecks in the referral systems and quality of care in higher level health centers and hospitals. The interventions being proposed in the Sharpened Plan are shown in Table 7 by level of care and care continuum (and in more detail in Appendix C).

Table 7. Priority RMNCAH Intervention Packages by Level as Outlined in the Sharpened Plan

Category	Interventions
Core package: provided at community and HC II levels	**Direct provision:** short-term family planning, Integrated Community Case Management (iCCM); immunization, Misoprostol, KMC; antibiotics for newborn sepsis, pregnancy testing, counselling and birth preparedness, focused ANC (HIV testing, IPT, FP, LLN distribution, Iron/Folate) and PNC **Service support**: Referral for delivery/PAC/FP/Adolescent care, follow-up HIV exposed babies, linkages for adolescent/SGBV/HIV to BCC, sexuality and life skills education; socio-support, BDR; home visits for interpersonal communication on improving household and community RMNCAH practices (including household sanitation and hygiene); compliance support and tracking

	defaulters, counselling and birth preparedness, demand creation for family planning; adolescent responsive services at facility, school and community level
Expanded package at HC III	*All the above plus:* **Direct provision**: Long term family planning methods, Integrated Management of Neonatal and Childhood Illness (IMNCI), PAC, Basic Emergency Obstetric and Newborn Care (bEmONC), PMTCT, portable ultrasound, Anti-Retroviral Therapy (ART), adolescent friendly package of health services to include BCC and IEC material distribution. **Service support**: implement health extension and micro-planned integrated outreaches
Comprehensive package at HC IV and general hospitals	*All the above plus:* **Direct provision**: cEmONC; inpatient management of severe newborn and child illnesses, permanent contraception **Service support:** Ambulance services; Maternal and Perinatal Death Surveillance and Response (MPDSR)

Source: Republic of Uganda, 2016

CONCLUSIONS

- Uganda has seen substantial progress toward achievement of MDG targets and goals and was one of the few countries in sub-Saharan Africa that almost met MDG4. However, there are challenges with reducing maternal and neonatal mortality, and concerns that national targets for maternal mortality will not lead to attainment of SDG targets by 2030.

- Uganda is one of the fastest growing countries in the world, with half of its population under the age of 15 years, and its population estimated to double every 16 years. Therefore, despite the progress that has been made in addressing mortality rates and scaling up interventions, the sheer volume of growth will exceed the capacity of the current system (with projected improvements) to adequately respond.

- While impressive gains have been made in coverage of RMNCAH intervention indicators, quality of care remains a critical concern. The Sharpened Plan states that while coverage of ANC 1+ is close to universal, only 21% of women made their antenatal care (ANC) visit before the fourth month of pregnancy, and only 1% of pregnant women in the last five years received and took the ideal minimum of iron-folic acid tablets. Innovative approaches need to be implemented to improve and monitor quality if effective coverage is to be attained.

- The policy framework for health and RMNCAH is comprehensive, accompanied by costing and action plans, and includes specific frameworks for responding to newborn health. However, government allocations and expenditures on health are low and not projected to increase,

which makes it challenging to implement the ambitious RMNCAH plans required to meet national and global targets.

- The shift to "other" causes of death for children under 5 years of age signals a growing concern with non-communicable diseases (NCDs) that requires a rethinking of child health policies, strategies, and action plans to build more capacity in the health system. Treating these disorders will require more complex training of health personnel and upgradation of primary care facilities as well as referrals to quality higher levels of care. Improving death registries and national health surveys to convey an accurate distribution of specific causes of death will be needed to develop prevention as well as targeted treatment programs.

- Decentralization reform within the health sector has been challenging, with constraints in effective governance and management structures at district and sub-district levels. This could largely be due to the mushrooming number of districts occurring within a short period of time for political/administrative reasons.

APPENDICES TO DESK REVIEW REPORT

APPENDIX A. NATIONAL HEALTH 2020 TARGETS INCLUDING RMNCAH

Specific Objective	Key Result Area	Indicator	Baseline		Target 2019/20
To contribute to the production of a healthy human capital for wealth creation through provision of equitable, safe and sustainable health services.	**HEALTH IMPACT**				
	Health impact trends	Maternal Mortality Ratio (per 100,000)	438 (UDHS 2011)	360 (WHS 2014)	320
		Neonatal Mortality Rate (per 1,000)	26 (UDHS 2011)	23 (WHS 2014)	16
		Infant Mortality rate (per 1,000)	54 (UDHS 2011)	45 (WHS 2014)	44
		Under five mortality rate (per 1,000)	90 (UDHS 2011)	69 (WHS 2014)	51
		Total Fertility Rate	6.2 (UDHS 2011)		5.1
		Adolescent Pregnancy Rate	24% (UDHS 2011)		14%
	HEALTH & RELATED SERVICES OUTCOME TARGETS				
	Communicable disease prevention & control	ART Coverage	42% (HMIS 2013/14)		80%
		HIV+ women receiving ARVs for PMTCT during pregnancy & delivery	72% (HMIS 2013/14)		95%
		TB Case Detection Rate (all forms)	80% (HMIS 2013/14)		95%
		Intermittent Presumptive Treatment (IPT) 3 or more doses coverage for pregnant women	50% (HMIS 2013/14)		93%
		In patient malaria deaths per 100,000 persons per year	30 (HMIS 2013/14)		5
		Malaria cases per 1,000 persons per year	460 (HMIS 2013/14)		198
		Under-five Vitamin A second dose coverage	26.6% (HMIS 2013/14)		66%
		DPT3Hib3Heb3 coverage	93% (HMIS 2013/14)		97%
		Measles coverage under 1 year	87% (HMIS 2013/14)		95%
	Essential clinical and rehabilitative care	Bed occupancy rate (Hospitals & HC IVs)	59% (HMIS 2013/14)		90
			50% (HMIS 2013/14)		75
		Average length of stay (Hospitals & HC IVs)	Hospital 4 (HMIS 2013/14)		3
			HC IV 3 (HMIS 2013/14)		3
		Contraceptive Prevalence Rate	30% (UDHS 2011)		50%
		Couple years of protection	4,074,673 (HMIS 2013/14)		4.7 M
		ANC 4+ coverage	32.4% (HMIS 2013/14)		45%
		Health Facility deliveries	44.4% (HMIS 2013/14)		64%
		HC IVs offering CEmOC Services	37%		50%

Specific Objective	Key Result Area	Indicator	Baseline	Target 2019/20
			(HMIS 2013/14)	
	HEALTH SYSTEMS OUTPUT TARGETS			
	Health Infrastructure	New OPD utilization rate	1.0 (HMIS 2013/14)	1.5
		Hospital (inpatient) admissions per 100 population	6 (HMIS 2013/14)	10
		Population living within 5km of a health facility	75% (MoH Inventory)	85%
	Medicines and health supplies	Availability of a basket of commodities in the previous quarter (% of facilities that had over 95%)	To be determined	100%
	Improving quality of care	Facility based fresh still births (per 1,000 deliveries)	16 (HMIS 2013/14)	11
		Maternal deaths among 100,000 health facility deliveries	132 (HMIS 2013/14)	115
		Maternal death reviews conducted	33.3% (HMIS 2012/13)	65%
		Under five deaths among 1,000 under 5 admissions	17 (HMIS 2013/14)	16.1
		ART Retention rate	79.7% (HMIS 2013/14)	84%
		TB Treatment Success Rate	80% (2013 Cohort)	90%
	Responsiveness	Client satisfaction index	69% (USSP Survey 2014)	79%
	Human Resources	Approved posts in public facilities filled with qualified personnel	69% (AHSPR 2013/14)	80%
		Number of health workers (doctors, midwives, nurses) per 1,000 population	Doctors 1:24,725 (HSSIP MTR 2013)	1:23,500
			Midwives 1:11,000 (HSSIP MTR 2013)	1:9,500
			Nurses 1:18,000 (HSSIP MTR 2013)	1:17,000
To increase financial risk protection of households against impoverishment due to health expenditures.	Health Financing	Out of pocket health expenditure as a % of Total Health Expenditure	37% (NHA 2011/12)	30%
		General Government allocation for health as % of total government budget	8.7% (AHSPR 2013/14)	15%
To address the key determinants of health through strengthening intersectoral collaboration and partnerships.	Social and economic determinants of health	Children below 5 years who are stunted	33% (UDHS 2011)	29%
		Children below 5 years who are under weight	14% (UDHS 2011)	10%
	Health promotion & environmental health	Latrine coverage	73% (AHSPR 2013/14)	82%
		Villages/ wards with a functional VHT, by district	72% (AHSPR 2013/14)	85%

Source: Health Sector Development Plan, 2016–2020

APPENDIX B. GOVERNANCE AND PARTNERSHIP TARGETS

Governance and Partnership Targets as Outlined in the Health Sector Development Plan 2016–2020

Program / Service area	Key Interventions	Measures of success			
		Milestone	Baseline	Midterm target	End term target
Governance and partnership structures	Review and strengthen functionality of health governance and management structures (Top Management, HPAC, SMC, TWGs, Boards).	Functional governance and management structures	Guidelines in place	50%	75%
	Revival of the Health Partnership Fund (PF) mechanism to support the SWAp processes including monitoring, joint reviews, TA, technical studies, capacity building	PF mechanism established	-	PF mechanism in place	PF mechanism in place
	Improve governance through streamlining / harmonising systems, PFM, accountability, procurement, assuring compliance and enforcement.	Improved and harmonized PFM	-	Mechanism established	Reputable PFM in place
	Develop a National Global Health Strategy.	National Global Health strategy	0	1	1
	Technical and other resource support is strategically planned and provided in a well-coordinated manner.	TA and other resources is well coordinated	NA	100%	100%
	Review, develop and disseminate client charters.	Client Charters (Key message) updated	MoH and 14 RRHs	MoH and 14 RRHs	MoH and 14 RRHs
			56 districts	85 districts	112 districts
	Promote and facilitate joint (involvement of DPs, CSOs and private sector) planning at all levels	Comprehensive annual sector plans developed	1	1	1
	Implement the NDP, NHP II, HSDP in line with the SWAps, the Compact and IHP+ framework and guidelines	Compact developed and signed and implementation monitored	Annual report on implementation of the compact	Annual report on implementation of the compact	Annual report on implementation of the compact
		GoU and DPs participation in the IHP+ assessments	2014 assessment	2016 assessment	2018 assessment
	Taking Joint Actions on Regional Health Priorities in line with the EAC strategic plan 2015-2020 especially on cross border health challenges.	Resolutions with actions taken	NA	100%	100%

Program / Service area	Key Interventions	Measures of success			
		Milestone	Baseline	Midterm target	End term target
Management & Stewardship	Capacity building of DHMTs, DHTs, HUMCs	Functionality of DHMTs, DHTs, HUMCs	50%	80%	85%
		Mid-level managers trained in leadership and management	90	180	300
		Guidelines for district management structures developed & disseminated	0	Guidelines developed	Disseminate d to all districts
	Establishment of Uganda National Hospital Authority (UNHA)	UNHSA established	-	-	Bill developed
	Improve accountability at community level through Constituency (HSD) Health Assemblies	Constituency (HSD) Health Assemblies held at least twice a year	-	All HSDs	All HSDs
Public Private Partnerships	Introduction of the Medical Credit Fund in Uganda	Allocated funds disbursed	NA	100%	100%
	Operationalize the PPPH Policy to all districts	PPPH functional	Policy developed	Guidelines disseminate d in all districts	PPPH policy operationaliz zed in at all levels
	Develop PPP advocacy strategy both internal and external to MoH	PPP advocacy strategy developed	0	1	1
Health legislation & regulation	Develop a national accreditation system	Accreditation system developed	-	Institutional accreditation system developed	Accreditation of hospitals
	Regulatory bodies and legal frameworks strengthened & functional	Regulatory bodies strengthened / functional	-	National Drug and Food Authority Established	-
			-	-	HPA established
Knowledge translation and use for decision making	Develop a comprehensive knowledge management framework for Uganda.	Knowledge management framework developed	0	1	Health research publications shared with decision makers
	Support the solidarity, partnership, knowledge exchange and identification of leadership and opportunities of cities through the strengthening of Healthy Municipalities / Cities Networks in the East African Region.	Regional meetings held / attended	NA	2	4

Source: Health Sector Development Plan 2016–2020

APPENDIX C. RMNCAH TARGETS BY DELIVERY PLATFORM

Programs / service areas	Key interventions	Lowest Level of Provision[2]
Reproductive, Maternal and New-born Health	Provide comprehensive ANC services that include malaria prevention, HCT, eMTCT and nutrition supplementation.	2
	Provide standardized quality Basic Obstetric and New-born Care (BeMONC).	3
	Provide standardized quality Comprehensive Obstetric and New-born Care (CeMONC).	4
	Improve knowledge and skills of health workers in post abortion care.	3
	Provide required post natal care for mothers and new-borns .	3
	Implement the costed plan for family planning services at all levels of care.	2
	Empower male partners with knowledge about reproductive, maternal and newborn care services.	1
Child Health (29 days – 5 years of life)	Sustain universal coverage of available routine immunization services, with a focus on identifying high risk populations and hard to reach (exposed, or uncovered areas).	2
	Scale up and sustain effective coverage of a priority package of cost-effective preventive child survival interventions (breast feeding, cord care, Vitamin A supplementation, ORS-Zinc for diarrhoea, oral amoxicillin for pneumonia, de-worming, LLINs, HBB Plus, etc).	2
	Promote ECD, Early stimulation and play at household and community levels.	1
	Promote Infant and Young child feeding practices.	1
	Strengthen Integrated Management of Childhood Illnesses (IMCI) interventions	2
	Ensure adequate capacity for provision of timely interventions required for child survival.	2
	Design and implement the Prevent, Protect and Treat (PPT) strategy for diarrhea and pneumonia as recommended by the Global Action Plan for Diarrhea and pneumonia.	MoH
	Scaling up Integrated Community Case Management (iCCM) to expansion districts including designing and implementing iCCM referral and using computer based training in iCCM.	3
School age and adolescent health (6 – 24 years of life)	Establish / functionalize adolescent friendly corners at all levels of care.	2
	Promote good nutrition, sexual and reproductive health education in schools and communities.	1
	Ensure all girls aged 9 to 13 years are vaccinated against Human Papilloma Virus.	2
Adult health (25 – 59 years of life)	Ensure universal access to all preventive, promotive, curative and rehabilitative services while ensuring quality.	3
Elderly health (over 60 years / post retirement)	Build capacity of health workers in elderly care / geriatric medicine.	4
Community ownership and demand creation	Social marketing to increase demand for life saving commodities especially in the private sector.	1
	Strengthen VHTs for community based reporting (feedback) of MPDR (including verbal autopsies.	1
	Collective action and mutual accountability for ending preventable maternal, newborn and child deaths.	1

Source: Republic of Uganda, 2016

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ANNEX B: INSTRUMENTS

Child Health Country Perspectives Study
In-depth Interview Guide Draft
Note: Adjust time period to reflect start year chosen for this country

Date:

Code Number of Respondent:

Main areas of expertise:

Interviewer:

BACKGROUND AND CONSENT

Thank you very much for setting aside time to talk with me today.

The USAID-funded CIRCLE Project is exploring progress on child health in this country by exploring the effects of leadership, governance, and networks on programs and outcomes over the past 10-15 years. You are being interviewed because you and your organization are important stakeholders in the child health community. This is a confidential interview that will take about an hour. First, I would like to review the consent form with you.

[Allow time for the respondent to read the informed consent form. Review the contents from all sections of the informed consent form with the respondent. Ask if he/she understands and agrees to continue. Ask him/her to sign the form, put it in the secure bag and provide one copy to the respondent.]

To make sure I capture all your feedback, is it all right with you if I record this interview?

Before I begin, do you have any questions?

INTRODUCTION

We would like to understand your perspective of the major strategies and events that helped or constrained achieving improved child health in [country]. For the purposes of this study, we would like to focus on approximately the past 15 years (since ~2000) and on all children under five years, including newborns.

1. **In the past 15 years, how have you engaged in child health?** *(Probe: any areas of specialization?)*

    a. **Which organizations have you worked for during this time?**

2. **What do you think were the most important successes for child health here?**

    a. **What were the biggest disappointments?** *(Probe: What were missed opportunities, if any?)*

3. **Were there any contextual changes that contributed to the success or failure of child health outcomes here? If so, what were they?** *(Probe: economic, political, development policy changes?)*

EVENTS AND STRATEGIES

Instruction to interviewer: Ask questions 3 and 4 for child health generally, then tailoring the topics to this respondent, ask 3 and 4 for specific examples (IMCI-iCCM, immunization, newborn health or nutrition-complementary feeding). Ensure that present day is included.

4. **Reflecting over the time period from 2000 to now, what were the major strategies and events that advanced the child health agenda and helped achieve results?**

5. **What were the major barriers or bottlenecks that critically challenged progress?**

6. **Were there external global or regional initiatives or situations that enabled progress in child health? If so, what were they?** *(Probe: EWEC, IMCI, PEI, PMI, HIV/Pepfar, SSA regional or AU initiatives.)*

7. **Were there external situations that created barriers or bottlenecks that challenged progress in child health? If so, what were they?**

If the Call to Action, APR, and/or EPCMD were active in this country, ask the following question.

8. **What did the Call to Action, APR, and/or EPCMD do in this country?**

    a. **How did [each] influence progress?** *(Probe: enabling and inhibiting)*

    b. **How would progress have been different if [each] had not been implemented here?**

LEADERS AND STAKEHOLDERS

9. **Who were important leaders (people in this country) that advanced the child health agenda?** *(Probe: nationals and where they sat)*

    a. **What did [leader] do that was important?**

10. **Were there any leaders outside the country that had an important effect here? If so, who were they and what did they do? (***Probe SSA and neighboring countries)*

11. **Who were leading organizations in earlier years in child health?**

    a. **What did they do? How were they influential?** *(Probe: what did they do to support the tracer interventions – IMCI-iCCM, child immunization, complementary feeding, newborn health?)*

12. **How did the key stakeholders for child health work together?** *(Probe: technical working groups, strategy development/review groups, ICCs, Newborn health, nutrition groups, CCMs, NGO coordinating groups)*

    a. **How effective was this coordination?** *(Probe for changes over time periods)*

13. How have stakeholders and their influence changed from [for each country identify time clusters around background, policy and program turning points and ask about each cluster]?

FACTORS

Instructions to interviewer for #14: Use the key strategies or events reported by the respondent in question 4. For strategy 'x'…

14. How did the *[strategy/event]* affect political commitment for child health? *(Probe for what affected priorities, policies/programs, resources)*

15. How would you describe country political commitment to child health now and in the context of Sustainable Development Goals? *(Probe: How is it prioritized relative to other health issues)*

a. Why is it at this level?

b. What needs to be done to raise political commitment to child health now?

THE FUTURE

16. What is your vision of success for child health 10 years from now?

17. What are the three most important things that should be done to more rapidly achieve that vision?

18. How would you strengthen the collaboration of organizations, groups, and partnerships to get these things done?

19. Is there anything else you would like to add? To ask us?

Thank you for your time.

Child Health Country Perspectives Study
Organizational Network Analysis Survey

BACKGROUND

1) **Name of your primary organization:** (*Insert dropdown menu)*
_____

2) **What is your position/job title?**
_____
   a. Head of Office
   b. Technical Director/Advisor
   c. Program manager/implementer
   d. Monitoring and Evaluation
   e. Researcher
   f. Any other_____(specify)

3) **How many years have you been in your position?**
   a. Less than 1 year
   b. 1-2 years
   c. 3-5 years
   d. 6-9 years
   e. 10+ years

4) **How many years have you worked with your organization?**
   a. Less than 1 year
   b. 1-2 years
   c. 3-5 years
   d. 6-9 years
   e. 10+ years

5) **Do you work full time or part time (less than 25 hrs. a week)?**
   a. Full time (25 hours or more per week)
   b. Part-time (less than 25 hours per week)

6) **How would you categorize your organization?**
   a. International NGO/PVO (has activities in more than one country)
   b. Local/national NGO or CSO (does not have activities outside the country)
   c. UN Agency
   d. Multilateral agency (World Bank, ADB, etc.)
   e. Bilateral agency (e.g. DfID, CIDA, NORAD, USAID, etc.)
   f. Academic/research institution
   g. Intergovernmental agency
   h. Professional association
   i. Network
   j. Project
   k. Media, newspaper, communications
   l. Consulting firm
   m. Other_____ (specify)

7) **What is the approximate number of full-time equivalent employees in your organization working in your country?**

8) **Overall, how important is improving the child health to the overall mission of your organization? (Please use a scale ranging from 1=very little importance to 5=great importance)**

9) **Please estimate the percent of your organization's work activities that are related to child health:**
   a. No activities related to child health directly
   b. 1-24%
   c. 25-49%
   d. 50-74%
   e. 75-100%

10) **[Excluding those who responded (a) to Q10]: What areas of child health does your organization work on? *Check all that apply***
   a. Breastfeeding
   b. Immunizations
   c. Complementary feeding
   d. Essential Newborn Care
   e. Prevention and treatment of childhood illnesses
   f. Prevention and control of micronutrient deficiencies
   g. Treatment of moderate or severe acute malnutrition
   h. Growth monitoring and promotion
   i. Prenatal care
   j. Post-natal care
   k. Routine child health information systems and reporting
   l. Child health surveys, assessments and surveillance
   m. Food security
   n. Water, sanitation and hygiene
   o. Early childhood development
   p. Other [please list]

11) **Does your organization engage in the following activities? *Please answer Yes or No***
   a. Policy dialogue and advocacy
   b. Program strategies/design
   c. Planning and budgeting
   d. Coordination
   e. Social and behavior change
   f. Service delivery/program implementation
   g. Scaling-up implementation
   h. Providing technical advice and expertise
   i. Capacity development/training
   j. Quality assurance
   k. Accountability and governance mechanisms
   l. Evidence generation, including evaluations, studies and research
   m. Knowledge management
   n. Support to your organization's field offices

o. Other activity (child health related) please specify

12) **Are there other organizations that you also currently work for or represent?**
   a. Yes
   b. No

13a. If yes, what are they? (List up to 2 responses)
1) _____
2) _____

ORGANIZATIONAL NETWORK ANALYSIS

In this section, we would like to know about the relationships you have had in the recent past with organizations. The organizations are presented along with a series of questions about different aspects of your how you are connected.

First, we would like to know whether your organization has a **relationship with another named organization or agency in *Column 2*. *If there is no relationship or if it's your own organization, then you can skip to the next row and do not answer any further questions in columns 3-9 for that organization.*** At the end, please enter up to five additional organizations with whom you interact and the types of linkages you have with them, if it's applicable.

Columns 3 relates to frequency of contact for any reason **since 2015, the end of the MDG era** with the named organization.

Columns 4-7 relate to the types of activities that you may have worked on with each organization **since 2015, the end of the MDG period.**

Column 8 refers to the highest level of intensity of interaction with an organization.
The options are: 1=**Communication** (interaction as necessary to inform others or to check on specific issues), 2=**Coordination** (moderate-intensity interaction to share new ideas, ensure that duplication/overlap is minimized, etc.), 3=C**ollaboration** (a close, on-going, reciprocal, working relationship); Only one option can be selected that reflects the highest level of connectivity.

Column 9 asks you to identify the overall quality of the relationship with a particular organization. (The choices are: 1= Poor; 2=Fair; 3= Good; 4=Very Good or Excellent)

Recent Relationship with Organizations

Column 1: Organization	**Column 2: Existence of relationship**	**Column 3: Frequency of contact**	**Column 4: Type of working relationship - a**	**Column 5: Type of working relationship - b**	**Column 6: Type of working relationship -c**	**Column 7: Type of working relationship – d**	**Column 8: Intensity of working relationship**	**Column 9: Quality of relationship**
(1) Name of Organization	(2) Does your organization have a **relationship** with _____? **0=No 1=Yes 2=My own organization**	(3) About how often has your organization met with _____ (in person or phone/skype, etc.) for any reason **since 2015**? **0=Have not met 1=At least monthly 2= Quarterly (every 3 months) 3=Twice a year 4=Once a year 5=Only Once**	(4) Has your organization worked with ____ on child health related **strategies, policies, plans, or legislation since 2015**? **0=No 1= Yes**	(5) Has your organization worked with ____ on child health related **capacity development since 2015**? **0=No 1= Yes**	(6) Has your organization worked with____ to support **implementation of child health programs and interventions since 2015**? **0=No 1= Yes**	(7) Has your organization worked with____ to **develop, monitor, or implement accountability mechanisms** for child health **since 2015**? **0=No 1= Yes**	(8) What best describes your **organization's working relationship** with _____ **since 2015**? **1=Communication 2=Coordination 3=Collaboration**	(9) What is the **overall quality** of your organization's relationship with_____? **1= Poor 2=Fair 3= Good 4=Very Good or Excellent**
1)	**0 1 2**	**0 1 2 3 4 5**	**0 1**	**0 1**	**0 1**	**0 1**	**1 2 3**	**1 2 3 4**
2)								
3)								
4)								
5)								
ADD all orgs								

13) **Please list up to five organizations that you believe have been most influential for contributing to improvements in child health (in order of influence with 1 being the most influential). That is, whose views, ideas, and/or research have been most listened to and have had the greatest impact. Influence might occur in any area (i.e., technical, functional, administrative, etc.).** ***Refer to the list from the ONA above if it helps.***

Most influential:

1. _____
2. _____
3. _____
4. _____
5. _____

14) **What organization do you look to for providing or having the latest evidence on child health for developing child health policies, programs, guidelines, training materials or capacity building of health workforce in child health.** ***Again, please list up to five such organizations in order of importance starting with the number 1, as the first organization you turn to. Refer to the list from above if it helps.***

Provide latest evidence in child health:

1. _____
2. _____
3. _____
4. _____
5. _____

15) **Who would you say have been or still are the best coordinators child health, that is, who have the respect and credibility from other organizations to working effectively with multiple stakeholders?** ***Again, please list up to five such organizations in order of importance starting with the number 1, as the first organization you nominate for this coordinating role.***

Best child health coordinators:

1. _____
2. _____
3. _____
4. _____
5. _____

ANNEX C: LIST OF ORGANIZATIONS INTERVIEWED AND RESPONSE RATES

KEY: Y- Yes; N-No

Organization	Acronym	ONA	IDI
African Center for Global Health and Social Transformation	ACHEST	**Y**	**Y**
African Medical and Research Foundation	AMREF	**Y**	**Y**
Baylor Uganda	Baylor - UG	**Y**	**Y**
Clinton Health Access Initiative	CHAI	**N**	**N**
IntraHealth	Intrahealth	**Y**	**Y**
Makerere University - School of Medicine, Department of Pediatrics	MAKU SMed-PCH	**Y**	**Y**
Makerere University - School of Public Health, Dept of Health Policy Planning and Management	MAKU SPH-HPPM	**Y**	**Y**
Malaria Consortium	Malaria_Cons	**Y**	**Y**
Maternal and Child Survival Program - Johns Snow International	MCSP - JSI	**Y**	**Y**
Ministry of Health - Child Health	MOH - CH	**Y**	**Y**
Ministry of Health - Nutrition	MOH - Nut	**Y**	**Y**
Makerere University - Johns Hopkins University Research Collaboration	MUJHU	**Y**	**Y**
Population Services International - Programme for Accessible Health Communication and Education	PSI-PACE	**Y**	**Y**
Uganda Healthcare Federation	UHF	**Y**	**Y**
Uganda National Expanded Program on Immunization	UNEPI	**Y**	**Y**

Organization	Acronym	ONA	IDI
Uganda National Health Research Organization	UNHRO	**N**	**N**
Uganda Pediatric Association	UPA	**Y**	**Y**
United Nations Fund for Population Activities	UNFPA	**Y**	**Y**
United Nations Children's Fund - Maternal and Child Health	UNICEF - MCH	**Y**	**Y**
United Nations Children's Fund - Water, Sanitation and Hygiene Program	UNICEF - WASH	**Y**	**N**
United Nations Children's Fund - Nutrition Program	UNICEF - Nut	**Y**	**N**
United States Agency for International Development - Child Survival Program	USAID-CSP	**Y**	**Y**
World Bank	WB	**Y**	**Y**
World Health Organization	WHO	**Y**	**Y**
World Vision International	WVI	**Y**	**Y**
Makerere University - School of Public Health, Department of Community Medicine	Additional IDI ONLY*	**N/A**	**Y – Additional**
TOTAL		**23**	**21**
Response Rate		**23/25 = 92%**	**21/25 = 84%**

* Additional respondent and not part of response rate calculation

** Another organization, MACIS, that was included no longer operates and was excluded from the denominator

ANNEX D: DEFINITIONS OF ONA MEASURES

Measure	Definition
Degree centrality	Calculated by counting the number of adjacent links to or from an organization or a person. It was conceptualized by Freeman (1979) as a measure of activity and it reflects the potential power of having direct relationships. These direct links reduce the reliance on intermediaries to access information or resources. The assumption is that more connections are better than fewer connections.
Betweenness centrality	Measures the extent to which organizations or individuals fall between pairs of other organizations or individuals on the shortest paths (geodesics) connecting them. It represents potential mediation or flow of information or resources between organizations in the network. It is used to assess power, as an organization may control the flow of information and potential resources, thereby increasing dependence of others who are not directly connected in the network.
Multiplexity	Describes multiple relationships among the same set of organizations. In this study four types of binary relationships are specified: 1) developing key strategies, policies, and legislation; 2) building capacity; 3) developing and implementing accountability mechanisms; and 4) implementing child health programs.
Intensity	Describes the level of interaction between different organizations or nodes. Two measures of level of intensity are used: frequency of interaction and type of interaction (communication, coordination or collaboration).
Relationship Quality	Reflects how well a relationship fulfills expectations and needs of the involved parties and is a significant measure of relationship strength. Although no consensus has been reached on its dimensionality, studies consistently suggest trust and commitment as the key indicators of relationship quality. For this study, relationship quality is measured using a 4-point Likert scale: poor, fair, good, very good or excellent.
Centralization	Is an expression of how tightly the network structure is organized around its most central point? The general procedure involved in any measure of graph centralization is to look at the differences between the centrality scores of the most central point and those of all other points. Centralization, then, is the ratio of the actual sum of differences to the maximum possible sum of differences.

Measure	Definition
Density	Is defined as the sum of the ties divided by the number of possible ties (i.e. the ratio of all tie strength that is actually present to the number of possible ties). The density of a network may give us insights into the speed at which information diffuses among the nodes and the extent to which organizations have high levels of social capital or constraint.

ANNEX E: ONA – COMPLETE RESULTS

Table 1. All degree centrality and betweenness centrality scores for overall relationships

Organization	Normalized Degree Centrality	Organization	Normalized Betweenness Centrality
MOH-CH	20	MOH-CH	31.66
UNICEF-MCH	20	WHO	30.33
WHO	20	UNICEF-MCH	28.84
UNICEF-NUT	18	UNICEF-NUT	18.10
MAKU SPH-HPPM	16	MAKU SPH-HPPM	15.97
MALARIA_CONS	15	WVI	10.18
UNICEF-WASH	14	MALARIA_CONS	9.00
WVI	14	AMREF	8.97
MCSP-JSI	13	UNEPI	7.82
INTRAHEALTH	12	INTRAHEALTH	7.08
MAKU SMED-PCH	12	WB	6.64
MOH-NUT	12	PSI-PACE	5.53
WB	12	MCSP-JSI	5.21
AMREF	11	UNICEF-WASH	5.18
PSI-PACE	11	MOH-NUT	5.00
UNEPI	11	MAKU SMED-PCH	4.92
USAID-CSP	11	UHF	3.98
MUJHU	10	MUJHU	3.44

Organization	Normalized Degree Centrality
UNFPA	9
UPA	9
ACHEST	7
UHF	7
BAYLOR-UG	6

Organization	Normalized Betweenness Centrality
USAID-CSP	3.09
UPA	1.94
ACHEST	1.72
UNFPA	1.21
BAYLOR-UG	0.20

Table 2. All degree centrality scores by type of child health related activity

Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality
Strategies		Capacity		Accountability		Implementation	
MOH-CH	16	**MOH-CH**	16	**MOH-CH**	15	**UNICEF-MCH**	19
WHO	16	**UNICEF-MCH**	15	**UNICEF-MCH**	11	**MOH-CH**	16
UNICEF-MCH	15	**UNICEF-NUT**	13	**WB**	10	**UNICEF-NUT**	14
UNICEF-NUT	12	**WHO**	13	**UNICEF-NUT**	9	**WHO**	13
MAKU SPH-HPPM	11	**MAKU SMED-PCH**	12	**USAID-CSP**	8	**MAKU SPH-HPPM**	12
MOH-NUT	11	**UNEPI**	10	**WHO**	8	**UNICEF-WASH**	12
MAKU SMED-PCH	10	**USAID-CSP**	10	**MAKU SPH-HPPM**	7	**MAKU SMED-PCH**	11

Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality
MALARIA_CONS	10	WB	10	MCSP-JSI	6	USAID-CSP	10
UNEPI	10	MAKU SPH-HPPM	9	WVI	6	WB	10
WB	10	MOH-NUT	9	MAKU SMED-PCH	5	MCSP-JSI	9
UNICEF-WASH	9	MALARIA_CONS	8	PSI-PACE	5	MOH-NUT	9
INTRA-HEALTH	8	MCSP-JSI	7	UNICEF-WASH	5	UNEPI	9
MCSP-JSI	7	UNICEF-WASH	7	MOH-NUT	4	WVI	9
AMREF	6	UPA	7	UNEPI	4	MALARIA_CONS	8
WVI	6	WVI	6	BAYLOR-UG	3	PSI-PACE	8
ACHEST	5	BAYLOR-UG	5	MALARIA_CONS	3	BAYLOR-UG	6
PSI-PACE	5	PSI-PACE	5	UHF	3	MUJHU	6
USAID-CSP	4	AMREF	4	ACHEST	2	UPA	6
BAYLOR-UG	3	MUJHU	4	INTRA-HEALTH	2	INTRA-HEALTH	5

Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality	Organization	Normalized Degree Centrality
UHF	3	ACHEST	2	UNFPA	2	UNFPA	4
UPA	3	INTRA-HEALTH	2	AMREF	1	AMREF	3
MUJHU	2	UHF	2	UPA	1	UHF	2
UNFPA	2	UNFPA	2	MUJHU	0	ACHEST	1

Table 3. All betweenness centrality scores by type of child health related activity

Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality
Strategies		Capacity		Accountability		Implementation	
MOH-CH	83.56	MOH-CH	58.08	MOH-CH	122.94	UNICEF-MCH	71.51
UNICEF-MCH	65.46	WHO	52.22	MALARIA_CONS	76.67	WVI	44.22
WHO	44.60	WB	45.76	WVI	65.67	MOH-CH	37.60
WB	28.06	UNICEF-MCH	38.62	PSI-PACE	48.57	UNICEF-NUT	27.42
UNEPI	27.96	MAKU SPH-HPPM	29.45	WHO	48.53	WB	26.56
MOH-NUT	17.82	MOH-NUT	29.09	MAKU SMED-PCH	41.25	USAID-CSP	20.93
MAKU SPH-HPPM	16.08	MALARIA_CONS	24.58	INTRA-HEALTH	40.00	WHO	19.10

Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality	Organization	Normalized Betweeness Centrality
MAKU SMED-PCH	13.93	MAKU SMED-PCH	22.46	UNICEF-MCH	35.45	PSI-PACE	18.69
UNICEF-NUT	13.89	UNICE F-NUT	20.40	WB	30.18	MAKU SPH-HPPM	18.49
MALARI A_CONS	11.10	WVI	17.80	MAKU SPH-HPPM	18.26	UNICEF-WASH	15.26
MCSP-JSI	8.76	USAID-CSP	15.47	USAID-CSP	17.75	UNEPI	14.33
PSI-PACE	6.46	UNEPI	14.32	MCSP-JSI	12.22	MCSP-JSI	14.10
INTRAH EALTH	6.08	PSI-PACE	14.00	UNICEF-NUT	9.62	MAKU SMED-PCH	13.21
WVI	5.34	UPA	3.91	UHF	2.10	MOH-NUT	8.70
AMREF	4.54	MCSP-JSI	3.24	UNEPI	0.79	MALARI A_CONS	7.98
ACHEST	2.07	UNICE F-WASH	2.60	ACHEST	0	UPA	1.24
UNICEF-WASH	2.33	UHF	0.67	AMREF	0	BAYLOR-UG	1.15
UHF	1.62	ACHES T	0.5	BAYLOR-UG	0	MUJHU	0.83
USAID-CSP	0.33	BAYLO R-UG	0.5	MOH-NUT	0	INTRAH EALTH	0.69

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Organiza-tion	Normalized Betweeness Centrality	Organiza-tion	Normalized Betweeness Centrality	Organiza-tion	Normalized Betweeness Centrality	Organiza-tion	Normalized Betweeness Centrality
BAYLOR-UG	0	INTRA-HEALTH	0.33	MUJHU	0	ACHEST	0
MUJHU	0	AMREF	0	UNFPA	0	AMREF	0
UNFPA	0	MUJHU	0	UNICEF-WASH	0	UHF	0
UPA	0	UNFPA	0	UPA	0	UNFPA	0

Table 4. Density and centralization measures for overall networks

Type	Confirmed (%)	
	Density	Centralization
Overall relationship	57.31	35.12
Strategies	36.36	38.02
Capacity Building	35.18	39.26
Accountability	23.71	46.49
Implementation	39.92	48.55

ANNEX F: COMPLETE BACKGROUND INFORMATION OF SURVEY RESPONDENTS

Table A. Background characteristics

Characteristics	N (%)
Years working in current position	**n (%)**
3-5 years	10 (43.5)
10+ years	4 (17.4)
6-9 years	4 (17.4)
Less than 1 year	3 (13.0)
1-2 years	2 (8.7)
Years working with the organization	**n (%)**
10+ years	8 (34.8)
3-5 years	8 (34.8)
6-9 years	5 (21.7)
1-2 years	2 (8.7)
Percent of work activities related to child health	**n (%)**
75-100%	10 (43.5)
25-49%	7 (30.4)
50-74%	4 (17.4)
1-24%	2 (8.7)
Number of full-time equivalent employees	
N	23
Median (IQR)	111.0 (191.0)
Min, Max	0, 1000
Mode	123
Importance grading of improving child health	
N	23
Median (IQR)	5.0 (1.0)
Min, Max	3, 5
Mode	5
Other organizations that you also currently work for or represent	
No	17 (73.9)
Yes	6 (26.1)

Table B. What areas of child health does your organization work on?

What areas of child health does your organization work on?	n (%)*
Essential Newborn Care	20 (87.0)
Immunizations	20 (87.0)
Food security	19 (82.6)
Post-natal care	19 (82.6)
Prevention and treatment of childhood illnesses	19 (82.6)
Routine child health information systems and reporting	19 (82.6)
Breastfeeding	18 (78.3)

Child health surveys, assessments and surveillance	17 (73.9)
Complementary feeding	17 (73.9)
Growth monitoring and promotion	17 (73.9)
Prenatal care	17 (73.9)
Early childhood development	16 (69.6)
Other, specify	16 (69.6)
Adolescent health	1 (4.3)
Care and support for Orphans and Vulnerable Children and adolescent and pediatri	1 (4.3)
Member organisations do these activities in their various capacities because UHF	1 (4.3)
Non-communicable diseases and school health	1 (4.3)
PMTCT	1 (4.3)
System strengthening activities which are cross cutting- HRH	1 (4.3)
Treatment of HIV in children and prevention	1 (4.3)
Treatment of moderate or severe acute malnutrition	15 (65.2)
Prevention and control of micronutrient deficiencies	14 (60.9)
Water, sanitation and hygiene	6 (26.1)

*Categories are not mutually exclusive; denominator is the number of subjects interviewed (N = 23)

Table C. Does your organization engage in the following activities?

Does your organization engage in the following activities?	n (%)
Capacity development/training	23 (100.0)
Policy dialogue and advocacy	23 (100.0)
Evidence generation, including evaluations, studies and research	22 (95.7)
Program strategies/design	22 (95.7)
Providing technical advice and expertise	22 (95.7)
Service delivery/program implementation	22 (95.7)
Planning and budgeting	21 (91.3)
Coordination	20 (87.0)
Scaling-up implementation	20 (87.0)
Social and behavior change	20 (87.0)
Support to your organization's country and field offices	20 (87.0)
Knowledge management	19 (82.6)
Quality assurance	19 (82.6)
Accountability and governance mechanisms	15 (65.2)
Other, specify	4 (17.4)
Adolescent health care and treatment	1 (4.3)
Health system strengthening	1 (4.3)
Provision of buffer supplies, infrastructure development, renovations of health facilities	1 (4.3)
Surveillance of all diseases	1 (4.3)

* Categories are not mutually exclusive; denominator is the number of subjects interviewed (N = 23)

Table D. Most influential organizations for contributing to improvements in child health

Ranked as Top 1	n (%)*
UNICEF	9 (39.1)
Ministry of Health	8 (34.8)
WHO	6 (26.1)
JSI – MCSP	1 (4.3)
Ranked in the Top 5	**n (%)***
UNICEF	22 (95.7)
WHO	17 (73.9)
Ministry of Health	15 (65.2)
USAID (includes 1 USAID + CDC)	8 (34.8)
Save the Children	7 (30.4)
World Bank	4 (17.4)
World Vision	3 (13.0)
Malaria Consortium	2 (8.7)
Baylor Uganda	2 (8.7)
USAID Supported Programs (incl. JSI-MCSP)	2 (8.7)
Makerere University School of Public Health	2 (8.7)
Uganda Pediatric Association	2 (8.7)
AFINET/CDC	1 (4.3)
AMREF	1 (4.3)
CHAI	1 (4.3)
GAVI	1 (4.3)
Intrahealth	1 (4.3)
LOCAL GOV'TS	1 (4.3)
MACIS	1 (4.3)
Makerere University	1 (4.3)
PACE	1 (4.3)
PATH	1 (4.3)
UNFPA	1 (4.3)
UNHCR	1 (4.3)

* Categories are not mutually exclusive; denominator is the number of subjects interviewed (N = 23)

Table E. Organizations having the latest evidence on child health

Ranked as Top 1	n (%)*
WHO	13 (56.5)
Ministry of Health	5 (21.7)
UNICEF	4 (17.4)
MOH-CH	1 (4.3)
USAID	1 (4.3)
Ranked in the Top 5	**n (%)***
WHO	20 (87.0)
UNICEF	16 (69.6)
Ministry of Health	9 (39.1)
USAID	5 (21.7)
World Bank	5 (21.7)

Makerere School of Public Health (includes CHS, HPPM)	5 (21.7)
DFID	3 (13.0)
Malaria Consortium	3 (13.0)
MUK	3 (13.0)
CHAI	2 (8.7)
Save the Children	2 (8.6)
CDC	2 (8.7)
AAP	1 (4.3)
Baylor Uganda	1 (4.3)
MU-JHU	1 (4.3)
Makerere University - School of Medicine, Dept of Pediatrics	1 (4.3)
PACE	1 (4.3)
Uganda Pediatric Association	1 (4.3)

* Categories are not mutually exclusive; denominator is the number of subjects interviewed (N = 23)

Table F. Best child health coordinators

Ranked as Top 1	**n (%)***
Ministry of Health	14 (60.7)
UNICEF	5 (21.7)
WHO	2 (8.7)
World Vision	1 (4.3)
Ranked in the Top 5	n (%)*
Ministry of Health	20 (87.0)
UNICEF	18 (78.3)
WHO	11 (47.8)
USAID (includes USAID + CDC)	7 (30.4)
Save the Children	6 (26.1)
World Vision	4 (17.4)
CHAI	3 (13.0)
DFID	3 (13.0)
MAKU SPH HPPM (CHS)	2 (8.7)
World Bank	2 (8.7)
Uganda Pediatric Association	2 (8.7)
Baylor Uganda	1 (4.3)
MACIS	1 (4.3)
Makerere University	1 (4.3)
UNFPA	1 (4.3)

* Categories are not mutually exclusive; denominator is the number of subjects interviewed (N = 23)

FOR MORE INFORMATION

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This report was made possible by the support of the American People through the United States Agency for International Development (USAID) under the terms of the Coordinating Implementation Research to Communicate Learning and Evidence (CIRCLE) contract AID-OAA-M-16-00006. CIRCLE is implemented by Social Solutions International, Inc. Views expressed are not necessarily of USAID or other affiliated institutions.