Routine Immunization Overview

Section 1: Routine Immunization Coverage Trends in Uganda

In general, Uganda's immunization program has improved over the past decade. However, the country's immunization coverage as measured by a third dose of diphtheria-tetanus-pertussis containing vaccine (DTP or Penta 3) saw a decline in 2007 and performance challenges over the next few years—with 2009-2011 showing a leveling off of coverage before a slight decline in 2012 (Figure 1 and Table 1). The 2011 Demographic and Health Survey (DHS) provided an opportunity for WHO/UNICEF estimates to re-calibrate retroactively, leading to some higher estimates for the mid to late 2000s than prior to the survey. However, any gains seen in the data trend below should be interpreted with caution.

Key immunization related data *(WHO/UNICEF, 2012, See notes 1 and 2)*	
Total population	36,346,000
Infant mortality	58/1,000
Surviving Infants	1,499,000
DTP1 coverage in infants	89%
DTP3 coverage in infants	78%
Measles coverage in infants	82%
Unimmunized with DTP3	329,780

Uganda suffered many challenges to its routine immunization program in recent years, including yellow fever and polio outbreaks in 2010, and measles and hepatitis B outbreaks in 2013. This rash of outbreaks underscores the critical need for continued efforts to increase immunization coverage levels, but in ways that the country can sustain. Within the country, much variation exists across districts (see Figure 3), with poorer performance in northern parts of Uganda as recovery from years of conflict continues. Multiple recent assessments such as the 2010 Expanded Program on Immunization (EPI) Review, 2011 Effective Vaccine Management Assessment, and 2012 assessment of immunization and surveillance all point to persistent systems-based problems within the country's operational components of immunization and surveillance.

As Director General Health Services for Uganda MoH , Dr. Aceng Jane Ruth, notes in the 2012-2016 comprehensive Multi-Year Plan, "The focus over the coming years will lie on sustaining availability of current vaccines offered by the program; introduction of pneumococcal and rotavirus vaccines; maintaining a high immunization coverage in a rapidly growing population and reaching all un-immunized children particularly with re-emergence of wild polio virus; and maintaining a high quality and sensitive disease surveillance system at all levels in order to detect and respond timely to any outbreaks" (*page iii of Uganda's cMYP 2012-2106*).

Figure 1: Infant DTP3/Penta 3 Coverage 1982-2012

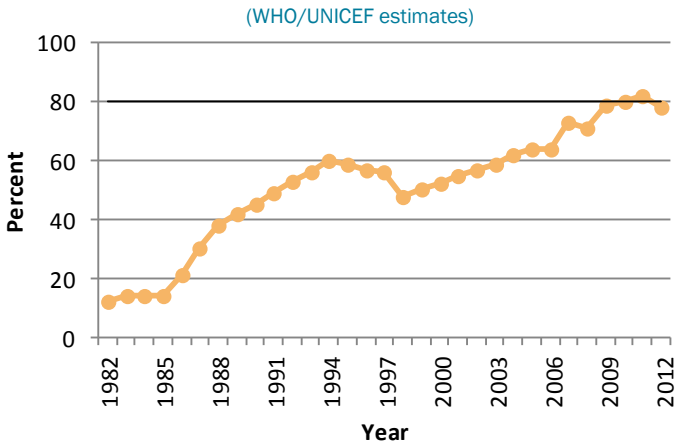


Table 1: Infant DTP3/Penta 3 Coverage, 1980-2012 (Official Country, WHO/UNICEF and Survey Estimates)

Source	1980	1990	2000	2002	2004	2006	2008	2010	2012
Official Country (3)	-	77%	58%	72%	87%	80%	79%	80%	78%
WHO/UNICEF (1)	9%	45%	52%	57%	62%	64%	71%	80%	78%

1995 DHS (4): 55%

2000/01 DHS: 42%

2006 DHS: 59%

2011 DHS: 68%

DTP3 <50% | DTP3 50-79% | DTP3 80-89% | DTP3 ≥90%

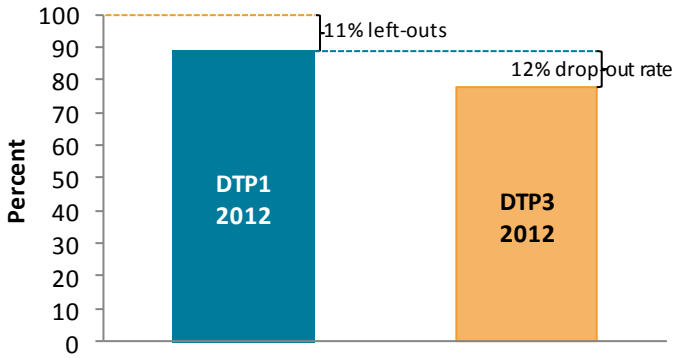
Section 2: Other Dimensions of Routine Immunization Performance in Uganda

In addition to nationwide trends in DTP3 coverage, other analyses can help provide a more complete picture of immunization program performance and highlight program achievements and challenges, as shown below.

♦ Left-outs and Drop-outs

In 2012, DTP1 coverage was estimated at 89%, meaning that 11% (164,890 infants) were "left outs" who did not receive even a first dose of DTP-containing vaccine. This indicates that a significant number of children do not have access to and do not begin the vaccination schedule. Similarly, the DTP1 to DTP3 drop-out rate was 12% in 2012, indicating a low level of completion of the vaccination schedule. During the 2013 EPI Managers' Meeting in Harare for Southern/Eastern Africa sub region, the WHO Africa Regional office noted that across sub Saharan Africa (according to administrative reports), Uganda rates the 5th worst in numbers of children unvaccinated with Penta 1 and 3rd worst in numbers of children unvaccinated with Penta 3, with Nigeria and DRC in 1st and 2nd place respectively for Penta 3.

Figure 2: 2012 DTP/Penta Left-out (accessibility) and Drop-out rates (availability/use)



Source: WHO/UNICEF estimates, 2012

Drop-out rates that are higher than 10% typically indicate problems with delivery and perceptions of poor quality immunization services by the community. Uganda's extremely high drop-out rates over the past few years—including 25% from the 2011 DHS—should signal that the immunization system requires systematic and continued strengthening for the long term.

Left-outs = 11% of surviving infants did not receive DTP1

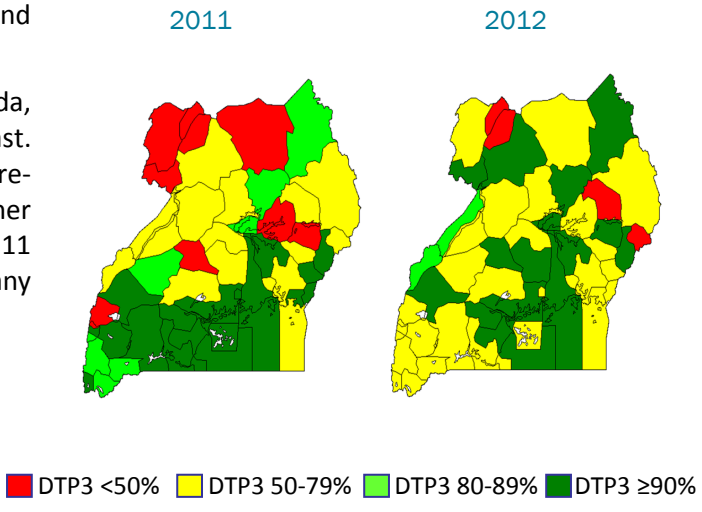
Drop-out rate = 12% of surviving infants who received DTP1 did not receive DTP3

♦ Geographic variation in coverage

National coverage estimates often mask sub-national differences in performance. Figure 3 shows a map of Uganda's DTP3 coverage for 2011 and 2012. Disaggregation of national immunization coverage data can reveal areas with low access to and utilization of immunization services.

As shown in Figure 3, clear variations are evident across Uganda, with particular poorer coverage in parts of the north and east. According to 2012 administrative data, 42% of the districts reported coverage rates above 80% DPT3/Penta 3, while the other districts had less than 80% coverage. Coverage in at least 11 districts was less than 50%. This situation indicates that many areas lack access to and do not use immunization services.

Figure 3: Two years of DTP3/Penta 3 Coverage by District (based on administrative reports); note: white indicates no data



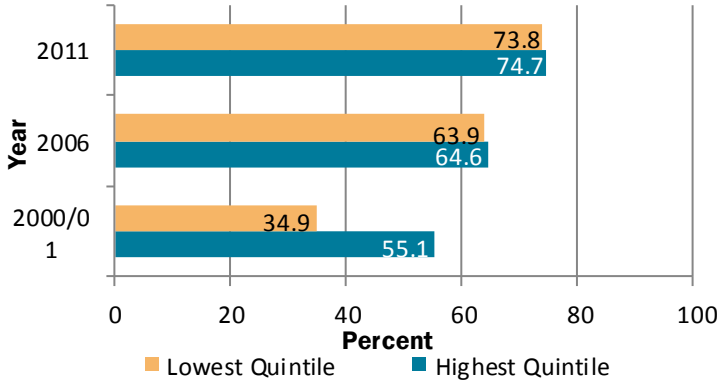
♦ Analysis of Equity

National estimates of immunization coverage often conceal socioeconomic variations in immunization performance. Analyses of equity in immunization, comparing coverage in highest and lowest wealth quintiles, rely on data from population-based surveys such as Demographic and Health Surveys (DHS) and thus cannot be updated each year.

Figure 4 shows Uganda's immunization coverage data disaggregated by lowest and highest wealth quintiles from the 2000/01, 2006, and 2011 DHS. The 2000/01 DHS indicated that immunization coverage for children in the wealthiest quintile was 20.2 percentage points higher than that for children in the lowest wealth quintile. The 2006 DHS showed considerable progress in narrowing the equity gap: DTP3 coverage among the poorest children increased by 29 percentage points. This resulted in a gap of just 0.7 percentage points between children in the lowest and highest wealth quintiles in 2006. The 2011 DHS revealed a marginal increase in the coverage gap to 0.9 percentage points. As Uganda improves its national coverage, it must ensure that all households continue to benefit from immunization services.

Figure 4: DTP3/Penta 3 Coverage by Wealth Quintile

(DHS 2000/01, 2006, 2011)



Section 3: GAVI Alliance Support to Uganda (as of September 2013)

Current comprehensive Multi-year Plan (cMYP): 2012-2016; Current Health Strategic & Investment Plan: 2010/11-2014/15

As of September 2013, GAVI's cumulative, total approved support for Uganda was almost $188 million. But from 2006 until early 2013, GAVI had suspended funds to the country due to misappropriation of $4.3 million. Table 2 shows GAVI's disbursements to Uganda through December 2012 which may differ from approved funds. This funding supported Uganda's introduction of pentavalent and pneumococcal vaccines in 2002 and 2013, respectively; GAVI will support the costs of these vaccines through 2014 and 2015. Currently, GAVI is providing Uganda with health system strengthening (HSS) funding.

Table 2: GAVI Alliance Support to Uganda through 2012

Type	Funds in US$ disbursed through 31 December 2012 (5)	Dates	
Penta New Vaccine Support (NVS)	145,194,636	2002-2015	(in progress)
Pneumo (NVS)	14,508,755	2013-2014	(in progress)
Health System Strengthening (HSS) (6)	4,426,098	2011-2013	(in progress)
Vaccine Introduction Grant	1,472,000	2002, 2013	(in progress)
Injection Safety Support (INS)	1,207,299	2002-2004	(completed)
Immunization Services Support (ISS) (7)	9,230,520	2001-2004	(completed)

With U.S. Government (USG) direct support globally to GAVI totaling $1.2 billion for the period 2001-2014, USAID is an important stakeholder in GAVI-supported activities at both global and country level. USAID Mission participation in the national interagency coordinating committee (ICC) for immunization is an important means for optimizing the USG investment in GAVI and helping ensure that GAVI funds are used strategically and in ways consistent with Mission priorities. For example, as an integral part of health system strengthening, Missions could provide technical support to improve Ministry of Health (MOH) capacity to vaccinate under-served populations routinely and effectively with better service quality, using existing and new vaccines.

Through Mission and Core funding, MCHIP has provided technical support to Uganda's routine immunization program since June 2012.

Notes and Resources

(1) WHO/UNICEF coverage estimates consider population-based survey results as well as Official Country Estimates. They are generated and published annually and used to track coverage trends.
Source: http://apps.who.int/immunization_monitoring/globalsummary/estimates?c=UGA. Accessed on November 27, 2013.
Infant mortality rate: the probability of dying between birth and exactly one year of age. The infant mortality rate is expressed as the number of infant deaths per 1,000 live births.
Source: http://www.unicef.org/infobycountry/stats_popup1.html. Accessed on November 27, 2013.

Surviving infants: the number of children who have survived beyond their first year of life. Source: WHO/UNICEF.

Unimmunized infants (DTP3): Calculated as the number of surviving infants X (1.00 – DTP3 coverage). Calculations made using surviving infants and DTP3 coverage from WHO/UNICEF estimates.
Source: http://apps.who.int/immunization_monitoring/globalsummary/countries?countrycriteria%5Bcountry%5D%5B%5D=UGA. Accessed on November 27, 2013.

(2) Coverage with the third dose of DTP (DTP3) or pentavalent vaccine (penta 3) is commonly used as an indicator of the strength of immunization programs to reach the same child with timely multiple doses within the first year of life. These vaccines are offered predominantly through routine immunization services. By contrast, polio and measles vaccines are given through both routine immunization services and during occasional supplemental immunization activities (mass campaigns). Thus, there is a risk that routine and supplemental doses will be co-mingled, resulting in an inflated estimate of routine immunization coverage for those vaccines. Completion of the three-dose DTP or pentavalent series by one year of age requires vaccination services to be offered on multiple occasions and for those services to be accessible, available, acceptable to, and sought by the target population.

(3) Official Country Estimates of immunization coverage come from the annual Joint Reporting Form (JRF) that each country submits to WHO and UNICEF. These estimates are often based on administrative reports from health facilities.
Source: http://apps.who.int/immunization_monitoring/globalsummary/coverages?c=UGA. Accessed on November 27, 2013.

(4) Demographic and Health Surveys (DHS). All collected data on children 12-23 months of age by card and history. The DHS estimates in this table are for DTP3 coverage by 12 months of age, as documented by card and applied to coverage by recall. All DHS and standard immunization coverage surveys reflect immunization activity at least one year before they were conducted, thus the positioning of the blue markers. Marker placement is either in the middle of the year prior to year of survey, or on the border of the survey year when a gap in years exists in the table.
Source: http://www.measuredhs.com/What-We-Do/survey-search.cfm?pgtype=main&SrvyTp=country&ctry_id=44. Accessed on November 27, 2013.

(5) Funds disbursed may be less than or greater than the GAVI Alliance commitment. More details available at http://www.gavialliance.org/country/uganda/. Accessed on November 27, 2013.

(6) GAVI is currently revising HSS funding guidelines. For more information, please visit http://www.gavialliance.org/support/apply/hsfp/.

(7) Immunization Services Support (ISS) payments were disbursed according to Annual Progress Reports and were contingent on countries increasing the number of children immunized each year. These payments are called reward payments because the country is being paid a reward of $20 for each child immunized.