Routine Immunization Overview

Section 1: Routine Immunization Coverage Trends in Senegal

Senegal's immunization program appears to have been very successful in recent years. Data available through WHO/UNICEF suggest that routine immunization coverage, as measured by a third dose of diphtheria-tetanus-pertussis containing vaccine (DTP3 or Penta 3) has remained above 80% for the past seven years (Figure 1 and Table 1). However, it is difficult to interpret the data because health workers have withheld immunization data frequently, with the most recent data retention strike occurring from mid-2010 until early 2013. Even after the strike ended, data reporting was incomplete. This data retention strike coupled with the poorly trained health workers raise concerns about the reliability and quality of the data. The 2010/11 Demographic and Health Survey (DHS) estimated that 80% of Senegalese infants received DTP3.

Despite Senegal's success, the frequent worker strikes suggest that the health system may require additional monitoring and strengthening.

Key immunization related data
(WHO/UNICEF, 2012, See notes 1 and 2)

Total population	13,726,000
Infant mortality	47/1,000
Surviving Infants	498,000
DTP1 coverage in infants	97%
DTP3 coverage in infants	92%
Measles coverage in infants	84%
Unimmunized with DTP3	39,840

Figure 1: Infant DTP3/Penta 3 Coverage 1986-2012
(WHO/UNICEF estimates)

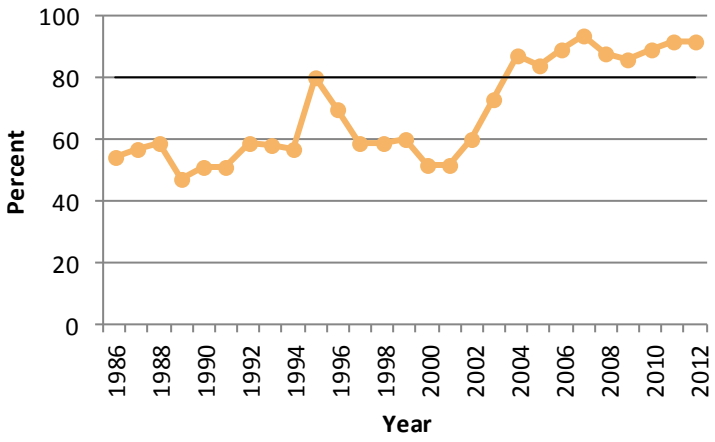
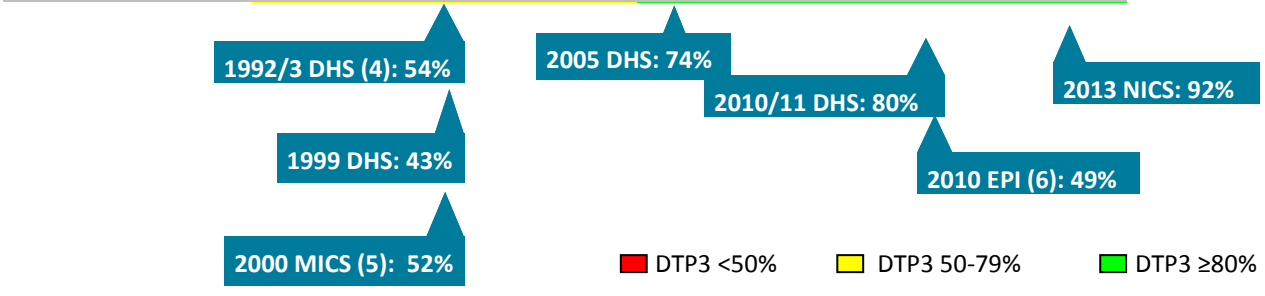


Table 1: Infant DTP3/Penta 3 Coverage, 1986-2012
(Official Country, WHO/UNICEF and Survey Estimates)

Source	1986	1990	2000	2002	2004	2006	2008	2010	2012
Official Country (3)	—	66%	52%	60%	87%	89%	88%	70%	83%
WHO/UNICEF (1)	**54%**	**51%**	**52%**	**60%**	**87%**	**89%**	**88%**	**89%**	**92%**



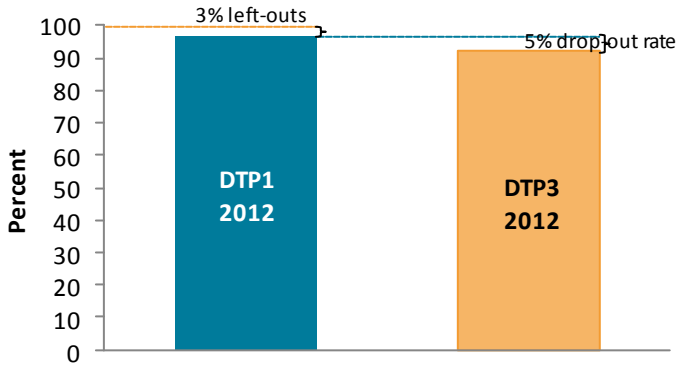
Section 2: Other Dimensions of Routine Immunization Performance in Senegal

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

As shown in Figure 2, DTP1 coverage was estimated at 97% meaning that 3% (14,940 infants) were "left outs" who did not receive even a first dose of DTP-containing vaccine. This indicates that the majority of children has access to and begins the vaccination schedule. Similarly, the DTP1 to DTP3 drop-out rate was 5% in 2012, indicating a high level of completion of the vaccination schedule. While left-out and drop-out rates are low, Senegal's history of fluctuations in coverage signal that the immunization system requires continued attention.

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



Left-outs = 3% of surviving infants who did not receive DTP 1

Drop-out rate = 5% of surviving infants who received DTP1 but did not receive DTP3

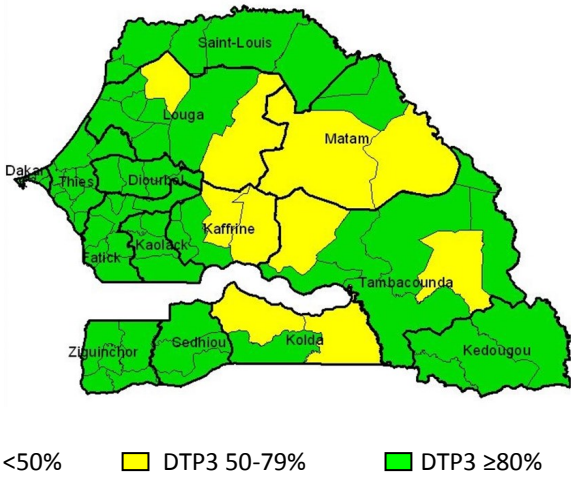
Source: WHO/UNICEF estimates, 2012

♦ Geographic variation in coverage

National coverage estimates often mask sub-national differences in performance. Disaggregation of national immunization coverage data can reveal areas with low access to and utilization of immunization services.

Figure 3 shows Senegal's DTP3 coverage in 2012. Most of the districts reported coverage above 80%. However, the data suggest that there are still areas with uneven access to and use of immunization services.

Figure 3: DTP3/Penta 3 Coverage by District, 2012 (Source: National Immunization Coverage Survey, March 2013)



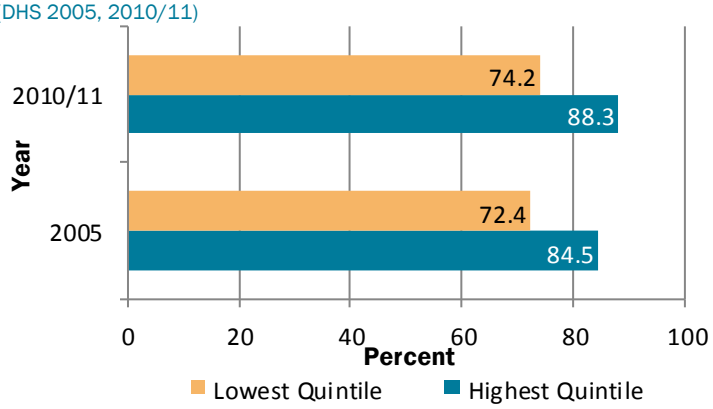
♦ Analysis of Equity

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 Senegal's immunization coverage data disaggregated by lowest and highest wealth quintiles in 2005 and from the 2010/11 DHS. The 2005 DHS indicated that immunization coverage for children in the highest wealth quintile was 12.1 percentage points higher than that for children in the lowest wealth quintile. The 2010/11 DHS showed a growing equity gap. DTP3 coverage among children in the lower wealth quintile increased by 1.8 percentage points. However, the gap between the lowest and highest wealth quintiles grew to 14.1 percentage points. Senegal faces the challenge of improving coverage levels, particularly among the most vulnerable, impoverished populations.

Figure 4: DTP3/Penta 3 Coverage by Wealth Quintile

(DHS 2005, 2010/11)



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

Current comprehensive Multi-year Plan (cMYP): 2012–2016; Current Health Sector Plan dates: 2009-2018

As of September 2013, GAVI's cumulative, total approved support for Senegal was almost $63 million. Table 2 shows GAVI's disbursements to Senegal through December 2012, which may differ from approved funds. GAVI has supported Senegal's introduction of monovalent hepatitis B, pentavalent, and meningitis A vaccines in 2004, 2005, and 2012, respectively. The measles-rubella and pneumococcal vaccines were both introduced in 2013. Currently, GAVI is providing Senegal with immunization services support (HSS) funding

Table 2: GAVI Alliance Support to Senegal through 2012

Type	Funds in US$ disbursed through 31 December 2012 (7)	Dates
Penta New Vaccine Support (NVS)	37,202,339	2005-2015 (in progress)
Measles-Rubella (NVS)	4,751,997	2013 (in progress)
Pneumo (NVS)	3,323,555	2013-2016 (in progress)
Immunization Services Support (ISS) (8)	2,605,740	2002-2004, 2006-2007, 2013 (in progress)
Vaccine Introduction Grant	914,000	2004, 2012-2013 (in progress)
HepB mono (NVS)	588,743	2004 (completed)
Meningitis A - campaign (NVS)	2,670,736	2012 (completed)
Health System Strengthening (HSS) (9)	3,585,500	2008, 2010, 2012 (completed)
Injection Safety Support (INS)	619,474	2002-2004 (completed)
Other Support (10)	6,725,607	2012, 2013 (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 Senegal since 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=SEN . Accessed on December 20, 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 December 20, 2013.

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

Unimmunized infants (for DTP3): Calculated as the number of surviving infants X (1.00 – DTP3 coverage). Calculations are 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=SEN. Accessed on December 20, 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 most often based on administrative reports from health facilities.
Source: http://apps.who.int/immunization_monitoring/globalsummary/coverages?c=SEN . Accessed on December 20, 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=36 . Accessed on December 20, 2013.

(5) The Multiple Indicator Cluster Survey (MICS): The data used in the table are for DTP3 coverage by 12 months of age, as documented by card and applied to coverage by recall. Thus, like the DHS coverage figures, these data describe the coverage situation at least one year before the survey was conducted.
Source: http://www.childinfo.org/mics_available.html. Accessed on December 20, 2013.

(6) Expanded Program on Immunization (EPI). All collected data on children 12-23 months of age by card and history. The EPI estimates in this table are for DTP3 coverage by 12 months of age, as documented by card and applied to coverage by recall. EPI 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.

(7) Funds disbursed may be less than or greater than the GAVI Alliance commitment. More details available at http://www.gavialliance.org/country/senegal/. Accessed on December 20, 2013.

(8) 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 additional child immunized.

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

(10) Other support includes operational costs for meningitis A (2012) and measles-rubella (2013).