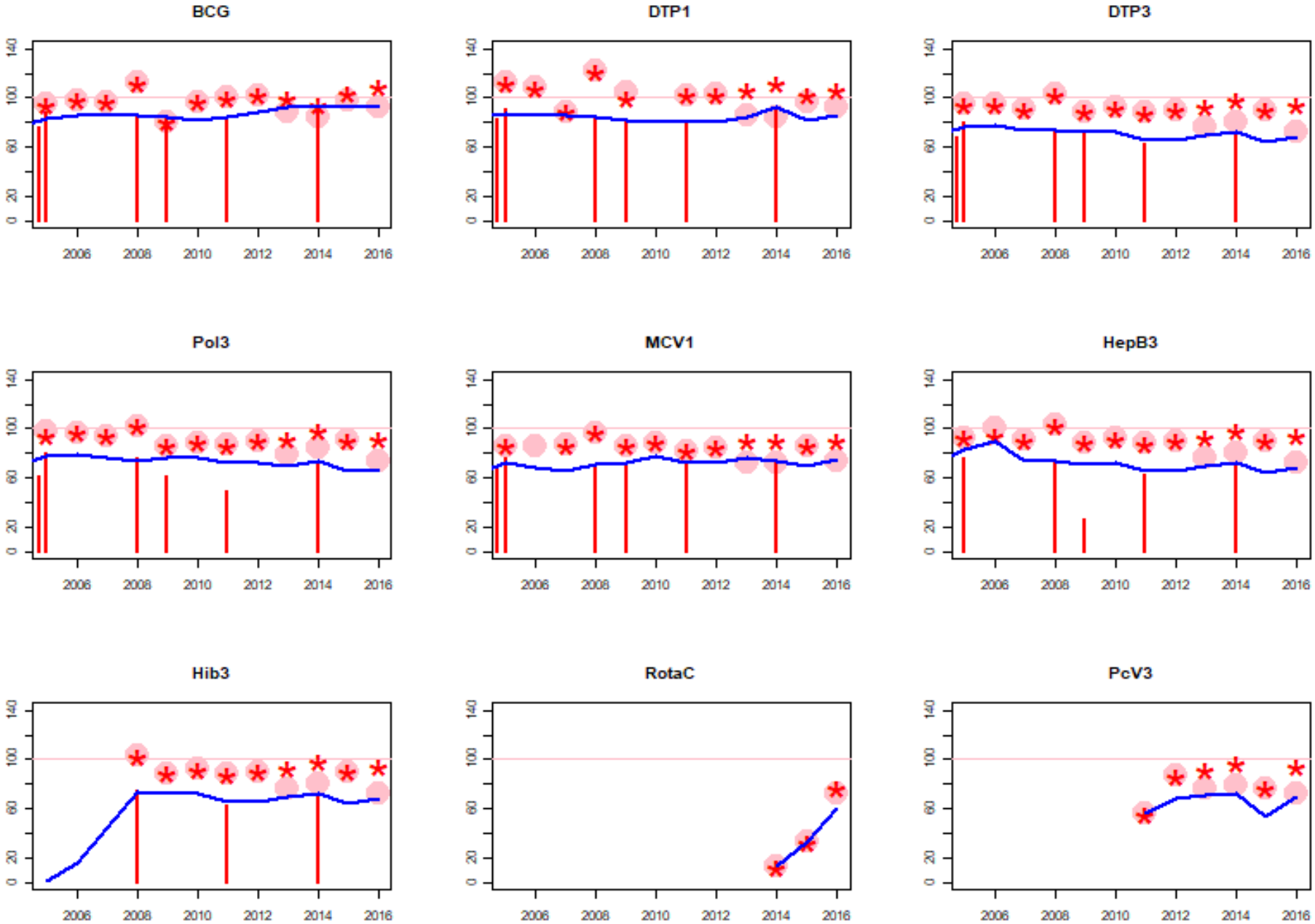

BCG
DTP1
DTP3
Pol3
MCV1
HepB3
Hib3
RotaC
PcV3
0
20
60
100
140
2006
2008
2010
2012
2014
2016

BACKGROUND NOTE: Each year WHO and UNICEF jointly review reports submitted by Member States regarding national immunization coverage, finalized survey reports as well as data from the published and grey literature. Based on these data, with due consideration to potential biases and the views of local experts, WHO and UNICEF attempt to distinguish between situations where the available empirical data accurately reflect immunization system performance and those where the data are likely to be compromised and present a misleading view of immunization coverage while jointly estimating the most likely coverage levels for each country.

WHO and UNICEF estimates are country-specific; that is to say, each country's data are reviewed individually, and data are not borrowed from other countries in the absence of data. Estimates are not based on ad hoc adjustments to reported data; in some instances empirical data are available from a single source, usually the nationally reported coverage data. In cases where no data are available for a given country/vaccine/year combination, data are considered from earlier and later years and interpolated to estimate coverage for the missing year(s). In cases where data sources are mixed and show large variation, an attempt is made to identify the most likely estimate with consideration of the possible biases in available data. For methods see:

*Burton et al. 2009. WHO and UNICEF estimates of national infant immunization coverage: methods and processes.
*Burton et al. 2012. A formal representation of the WHO and UNICEF estimates of national immunization coverage: a computational logic approach.
*Brown et al. 2013. An introduction to the grade of confidence used to characterize uncertainty around the WHO and UNICEF estimates of national immunization coverage.

DATA SOURCES.

ADMINISTRATIVE coverage: Reported by national authorities and based on aggregated administrative reports from health service providers on the number of vaccinations administered during a given period (numerator data) and reported target population data (denominator data). May be biased by inaccurate numerator and/or denominator data.

OFFICIAL coverage: Estimated coverage reported by national authorities that reflects their assessment of the most likely coverage based on any combination of administrative coverage, survey-based estimates or other data sources or adjustments. Approaches to determine OFFICIAL coverage may differ across countries.

SURVEY coverage: Based on estimated coverage from population-based household surveys among children aged 12-23 months or 24-35 months following a review of survey methods and results. Information is based on the combination of vaccination history from documented evidence or caregiver recall. Survey results are considered for the appropriate birth cohort based on the period of data collection.

ABBREVIATIONS

BCG: percentage of births who received one dose of Bacillus Calmette Guerin vaccine.

DTP1 / DTP3: percentage of surviving infants who received the 1st / 3rd dose, respectively, of diphtheria and tetanus toxoid with pertussis containing vaccine.

Pol3: percentage of surviving infants who received the 3rd dose of polio containing vaccine. May be either oral or inactivated polio vaccine.

IPV1: percentage of surviving infants who received at least one dose of inactivated polio vaccine. In countries utilizing an immunization schedule recommending either (i) a primary series of three doses of oral polio vaccine (OPV) plus at least one dose of IPV where OPV is included in routine immunization and/or campaign or (ii) a sequential schedule of IPV followed by OPV, WHO and UNICEF estimates for IPV1 reflect coverage with at least one routine dose of IPV among infants <1 year of age among countries. For countries utilizing IPV containing vaccine use only, i.e., no recommended dose of OPV, the WHO and UNICEF estimate for IPV1 corresponds to coverage for the 1st dose of IPV.

Production of IPV coverage estimates, which begins in 2015, results in no change of the estimated coverage levels for the 3rd dose of polio (Pol3). For countries recommending routine immunization with a primary series of three doses of IPV alone, WHO and UNICEF estimated Pol3 coverage is equivalent to estimated coverage with three doses of IPV. For countries with a sequential schedule, estimated Pol3 coverage is based on that for the 3rd dose of polio vaccine regardless of vaccine type.

MCV1: percentage of surviving infants who received the 1st dose of measles containing vaccine. In countries where the national schedule recommends the 1st dose of MCV at 12 months or later based on the epidemiology of disease in the country, coverage estimates reflect the percentage of children who received the 1st dose of MCV as recommended.

MCV2: percentage of children who received the 2nd dose of measles containing vaccine according to the nationally recommended schedule.

RCV1: percentage of surviving infants who received the 1st dose of rubella containing vaccine. Co verage estimates are based on WHO and UNICEF estimates of coverage for the dose of measles containing vaccine that corresponds to the first measles-rubella combination vaccine. Nationally reported coverage of RCV is not taken into consideration nor are the data represented in the accompanying graph and data table.

HepBB: percentage of births which received a dose of hepatitis B vaccine within 24 hours of delivery. Estimates of hepatitis B birth dose coverage are producted only for countries with a universal birth dose policy. Estimates are not produced for countries that recommend a birth dose to infants born to HepB virus-infected mothers only or where there is insufficient information to determine whether vaccination is within 24 hours of birth.

HepB3: percentage of surviving infants who received the 3rd dose of hepatitis B containing vaccine following the birth dose.

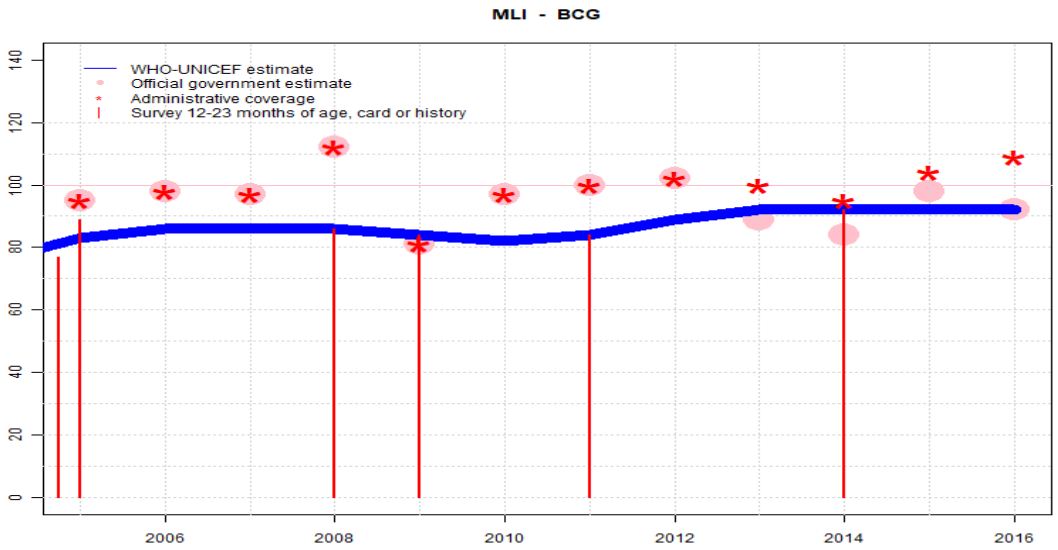
Hib3: percentage of surviving infants who received the 3rd dose of Haemophilus influenzae type b containing vaccine.

RotaC: percentage of surviving infants who received the final recommended dose of rotavirus vaccine, which can be either the 2nd or the 3rd dose depending on the vaccine.

PcV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect the percentage of surviving infants who received two doses of PcV prior to the 1st birthday.

YFV: percentage of surviving infants who received one dose of yellow fever vaccine in countries where YFV is part of the national immunization schedule for children or is recommended in at risk areas; coverage estimates are annualized for the entire cohort of surviving infants.

Mali - BCG



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	83	86	86	86	84	82	84	89	92	92	92	92
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	95	98	97	112	81	97	100	102	89	84	98	92
Administrative	95	98	97	112	81	97	100	102	100	95	104	109
Survey	*	NA	NA	86	84	NA	84	NA	NA	92	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Reported data excluded because 109 percent greater than 100 percent. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 72 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Reported data excluded because 104 percent greater than 100 percent. Estimate follows trend in reported administrative data. Estimate of 92 percent changed from previous revision value of 79 percent. Estimate challenged by: D-R-

2014: Estimate of 92 percent assigned by working group. Estimate is based on survey coverage. Estimate follows trend in reported administrative data. Estimate of 92 percent changed from previous revision value of 79 percent. Estimate challenged by: R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 92 percent changed from previous revision value of 84 percent. Estimate challenged by: R-

2012: Reported data calibrated to 2011 and 2014 levels. Reported data excluded because 102 percent greater than 100 percent. Estimate of 89 percent changed from previous revision value of 84 percent. Estimate challenged by: D-R-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 84 percent based on 1 survey(s). Estimate challenged by: D-R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: D-R-

2009: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 84 percent based on 1 survey(s). Reported data excluded due to decline in reported coverage from 112 percent to 81 percent with increase to 97 percent. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: R-

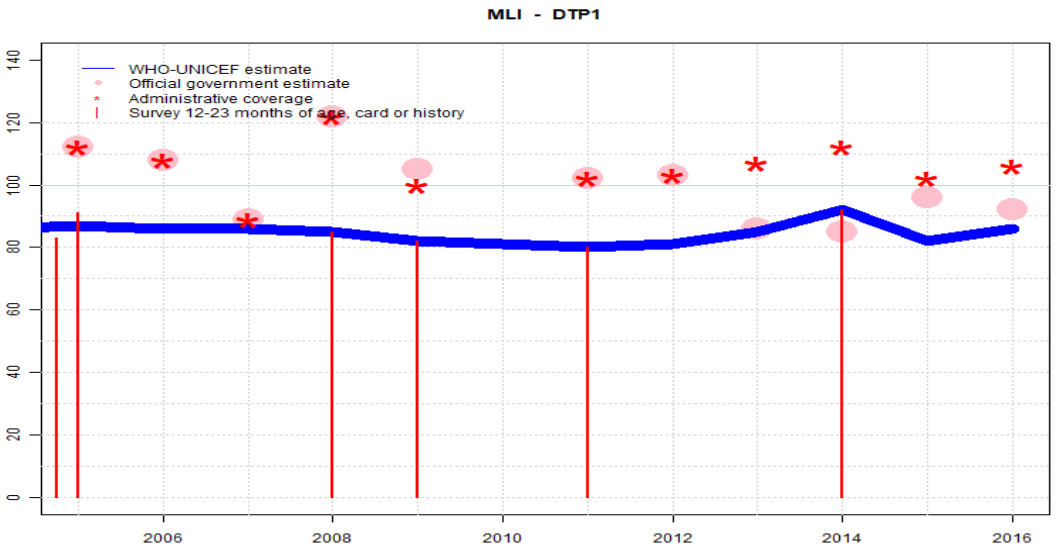
2008: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 86 percent based on 1 survey(s). Reported data excluded because 112 percent greater than 100 percent. Reported data excluded due to an unexplained increase from 97 percent to 112 percent with decrease 81 percent. Estimate challenged by: R-

2007: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2006: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 83 percent based on 2 survey(s). Estimate challenged by: R-

Mali - DTP1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	87	86	86	85	82	81	80	81	85	92	82	86
Estimate GoC	•	•	•	•	•	••	•	•	•	•	•	•
Official	112	108	89	122	105	NA	102	103	86	85	96	92
Administrative	112	108	89	122	100	NA	102	103	107	112	102	106
Survey	*	NA	NA	85	82	NA	80	NA	NA	92	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Estimate of 86 percent assigned by working group. Estimate is based on difference between survey value and reported administrative coverage observed in 2011. Reported data excluded because 106 percent greater than 100 percent. Programme reports one month vaccine stock out. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Estimate of 82 percent assigned by working group. Estimate is based on difference between survey value and reported administrative coverage observed in 2011. Reported data excluded because 102 percent greater than 100 percent. Estimate follows trend in reported administrative data. Estimate of 82 percent changed from previous revision value of 80 percent. Estimate challenged by: D-R-

2014: Estimate of 92 percent assigned by working group. Estimate is based on survey coverage. Reported data excluded because 112 percent greater than 100 percent. Estimate follows trend in reported administrative data. Estimate of 92 percent changed from previous revision value of 90 percent. Estimate challenged by: D-R-

2013: Estimate of 85 percent assigned by working group. Estimate is based on difference between survey value and reported administrative coverage observed in 2011. Reported data excluded because 107 percent greater than 100 percent. Estimate follows trend in reported administrative data. Estimate challenged by: D-R-

2012: Estimate of 81 percent assigned by working group. Estimate is based on difference between survey value and reported administrative coverage observed in 2011. Reported data excluded because 103 percent greater than 100 percent. Estimate challenged by: D-R-S-

2011: Estimate of 80 percent assigned by working group. Estimate based on survey results. Reported data excluded because 102 percent greater than 100 percent. Estimate challenged by: D-R-

2010: Reported data calibrated to 2009 and 2011 levels. GoC=S+

2009: Estimate of 82 percent assigned by working group. Estimate based on survey results. Reported data excluded because 105 percent greater than 100 percent. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: D-R-

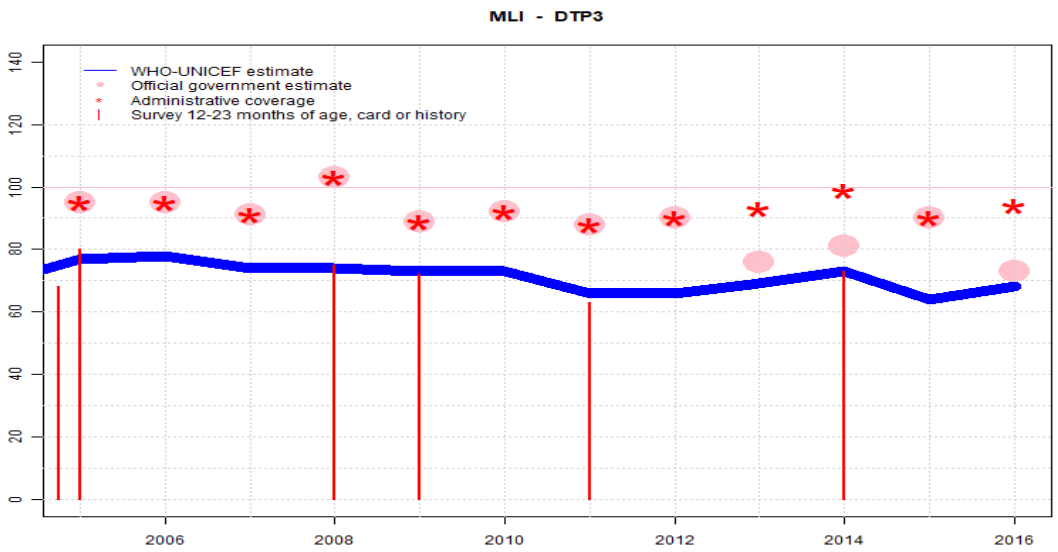
2008: Estimate of 85 percent assigned by working group. Estimate based on survey results. Reported data excluded because 122 percent greater than 100 percent. Reported data excluded due to an unexplained increase from 89 percent to 122 percent with decrease 105 percent. Estimate challenged by: D-R-

2007: Reported data calibrated to 2005 and 2008 levels. Reported data excluded due to decline in reported coverage from 108 percent to 89 percent with increase to 122 percent. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2008 levels. Reported data excluded because 108 percent greater than 100 percent. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 87 percent based on 2 survey(s). Reported data excluded because 112 percent greater than 100 percent. Estimate challenged by: R-

Mali - DTP3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	77	78	74	74	73	73	66	66	69	73	64	68
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	95	95	91	103	89	92	88	90	76	81	90	73
Administrative	95	95	91	103	89	92	88	90	93	99	90	94
Survey	*	NA	NA	75	72	NA	63	NA	NA	73	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Programme reports one month vaccine stock out. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 55 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. WHO and UNICEF are aware of the conduct of a MICS during 2015, the preliminary results of which suggest DTP3 coverage by HBR or recall less than 80 percent. Estimate follows trend in reported administrative data. Estimate of 64 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 1 survey(s). Estimate follows trend in reported administrative data. Estimate of 73 percent changed from previous revision value of 77 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 69 percent changed from previous revision value of 71 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 66 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 66 percent based on 1 survey(s). Mali Demographic and Health Survey 2012-13 card or history results of 63 percent modifed for recall bias to 66 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 35 percent and 3d dose card only coverage of 29 percent. Estimate challenged by: D-R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: D-R-

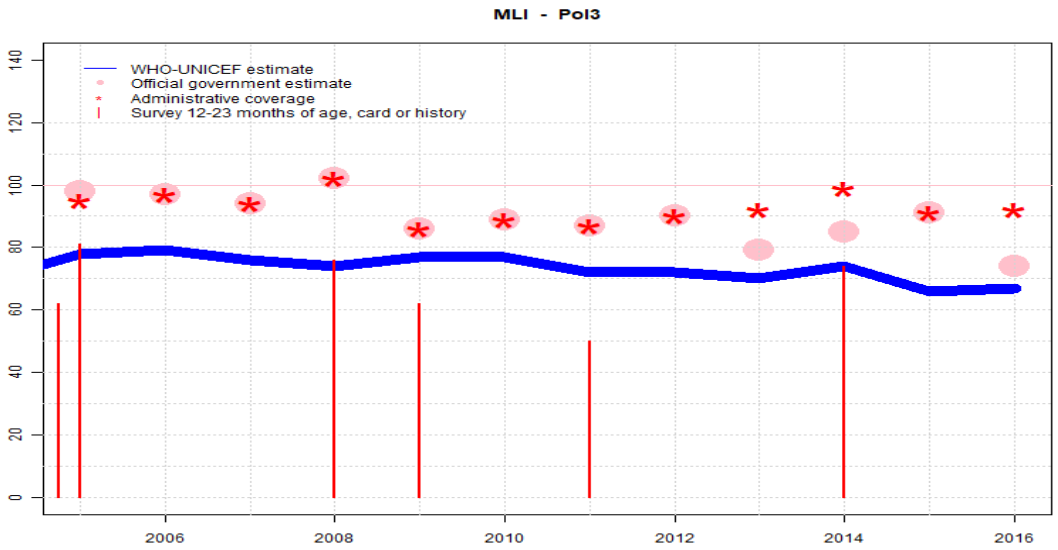
2009: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 1 survey(s). Mali Multiple Indicator Cluster Survey 2010 card or history results of 72 percent modifed for recall bias to 73 percent based on 1st dose card or history coverage of 82 percent, 1st dose card only coverage of 55 percent and 3d dose card only coverage of 49 percent. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: D-R-

2008: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 74 percent based on 1 survey(s). Mali Evaluation of Routine Immunization Coverage, 2009-2010 card or history results of 75 percent modifed for recall bias to 74 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 54 percent and 3d dose card only coverage of 47 percent. Reported data excluded because 103 percent greater than 100 percent. Reported data excluded due to an unexplained increase from 91 percent to 103 percent with decrease 89 percent. Estimate challenged by: D-R-

Mali - DTP3

2007: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-
2006: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-
2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 77 percent based on 2 survey(s). Mali Demographic and Health Survey, 2006 card or history results of 68 percent modifed for recall bias to 73 percent based on 1st dose card or history coverage of 83 percent, 1st dose card only coverage of 60 percent and 3d dose card only coverage of 53 percent. Estimate challenged by: R-

Mali - Pol3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	78	79	76	74	77	77	72	72	70	74	66	67
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	98	97	94	102	86	89	87	90	79	85	91	74
Administrative	95	97	94	102	86	89	87	90	92	99	91	92
Survey	*	NA	NA	76	62	NA	50	NA	NA	74	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 39 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Estimate follows trend in reported administrative data. Estimate of 66 percent changed from previous revision value of 76 percent. Estimate challenged by: D-R-

2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 74 percent based on 1 survey(s). Estimate follows trend in reported administrative data. Estimate of 74 percent changed from previous revision value of 84 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 70 percent changed from previous revision value of 77 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 72 percent changed from previous revision value of 75 percent. Estimate challenged by: D-R-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 72 percent based on 1 survey(s). Mali Demographic and Health Survey 2012-13 card or history results of 50 percent modifed for recall bias to 72 percent based on 1st dose card or history coverage of 84 percent, 1st dose card only coverage of 35 percent and 3d dose card only coverage of 30 percent. Estimate challenged by: D-R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: R-

2009: Estimate of 77 percent assigned by working group. Estimate based on survey results. Results for other vaccines to do not support reported data. Mali Multiple Indicator Cluster Survey 2010 card or history results of 62 percent modifed for recall bias to 77 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 54 percent and 3d dose card only coverage of 49 percent. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: R-

2008: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 74 percent based on 1 survey(s). Mali Evaluation of Routine Immunization Coverage, 2009-2010 card or history results of 76 percent modifed for recall bias to 74 percent based on 1st dose card or history coverage of 84 percent, 1st dose card only coverage of 52 percent and 3d dose card only coverage of 46 percent. Reported data excluded because 102 percent greater than 100 percent. Estimate challenged by: D-R-

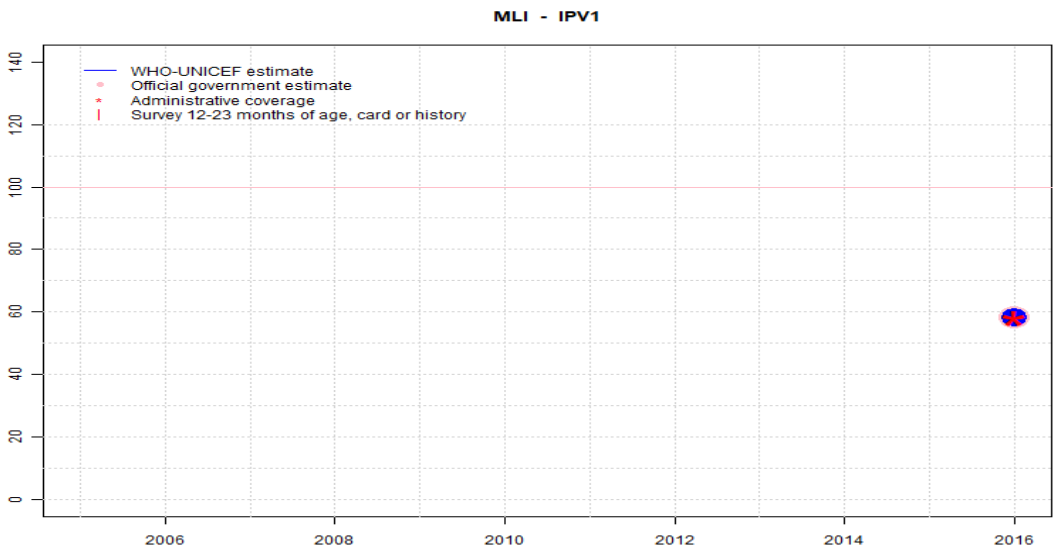
2007: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2006: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 78 percent based on 2 survey(s). Mali Demographic and Health Survey, 2006 card or history results of 62 percent modifed for recall bias to 75 percent based on 1st

dose card or history coverage of 85 percent, 1st dose card only coverage of 60 percent and 3d dose card only coverage of 53 percent. Estimate challenged by: R-

Mali - IPV1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	•
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

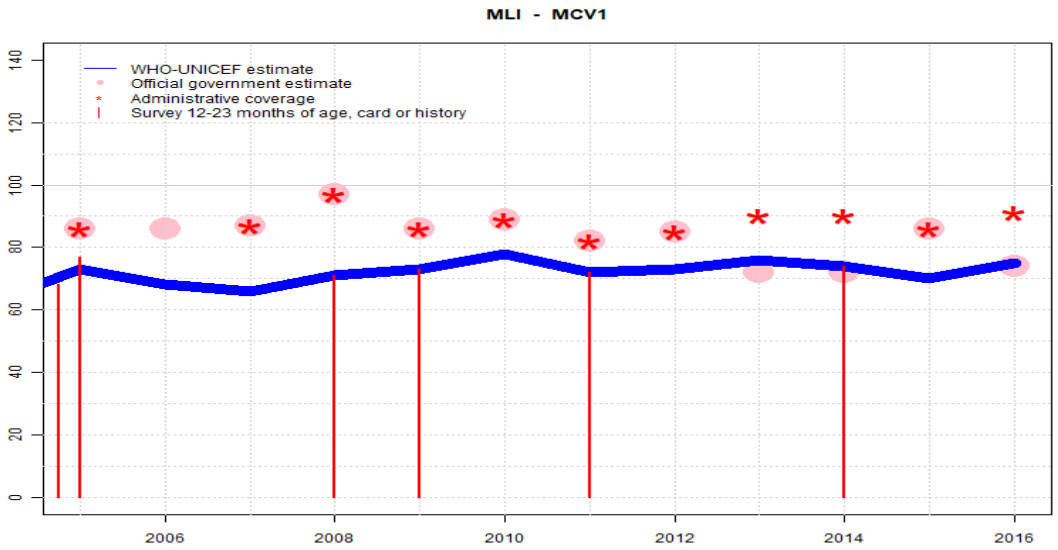
● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Estimate based on reported administrative estimate. Programme reports six month vaccine stock out. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. GoC=Assigned by working group. Consistency with other vaccines during introduction period.

Mali - MCV1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	73	68	66	71	73	78	72	73	76	74	70	75
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	86	86	87	97	86	89	82	85	72	72	86	74
Administrative	86	NA	87	97	86	89	82	85	90	90	86	91
Survey	*	NA	NA	71	73	NA	72	NA	NA	74	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 57 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Estimate follows trend in reported administrative data. Estimate of 70 percent changed from previous revision value of 76 percent. Estimate challenged by: D-R-

2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 74 percent based on 1 survey(s). Estimate follows trend in reported administrative data. Estimate of 74 percent changed from previous revision value of 80 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 76 percent changed from previous revision value of 80 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 73 percent changed from previous revision value of 75 percent. Estimate challenged by: D-R-

2011: Estimate of 72 percent assigned by working group. Estimate is based on survey. Estimate challenged by: R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: R-

2009: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 1 survey(s). Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: R-

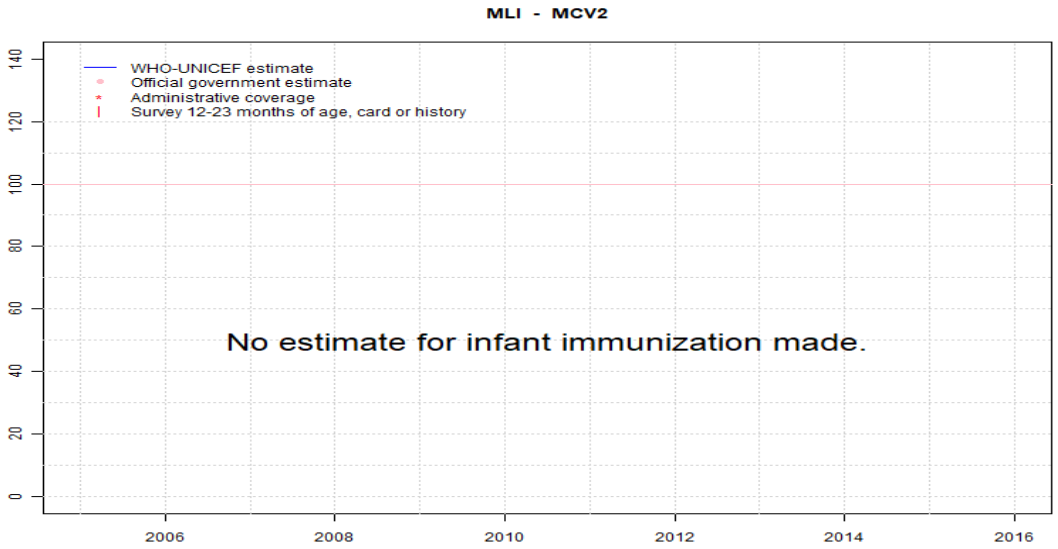
2008: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 71 percent based on 1 survey(s). Estimate challenged by: R-

2007: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2006: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 2 survey(s). Estimate challenged by: R-

Mali - MCV2



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

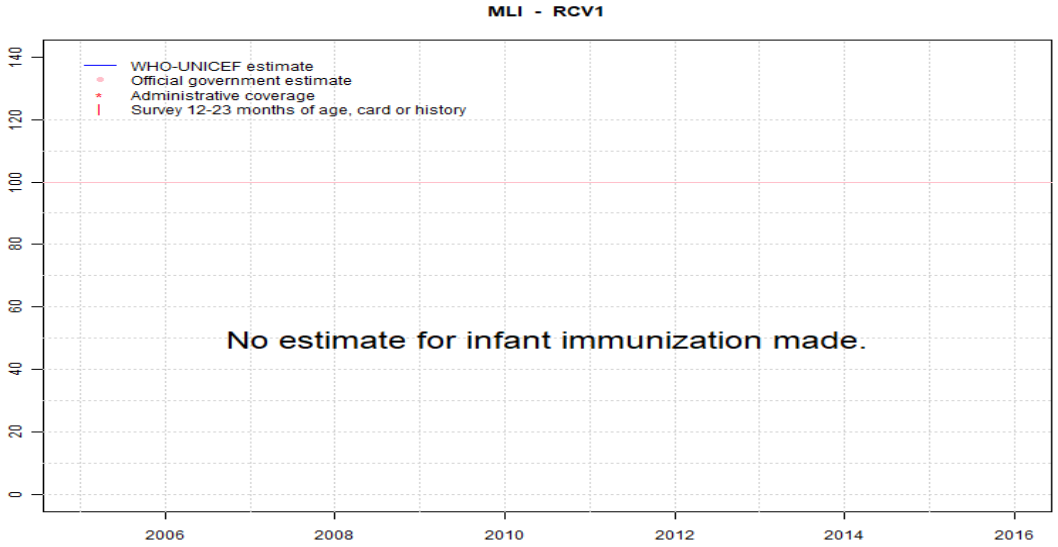
●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Mali - RCV1



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

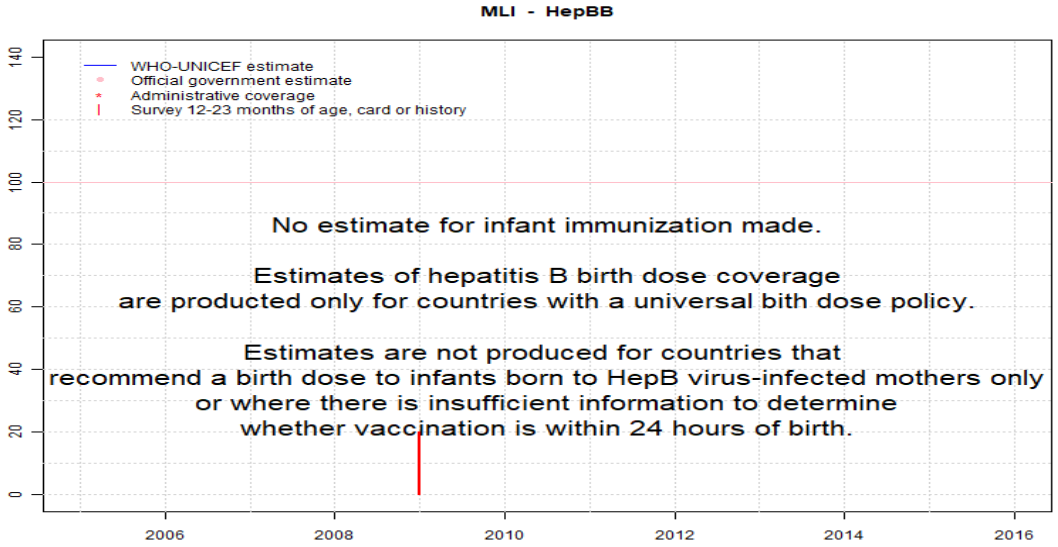
●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Mali - HepBB



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

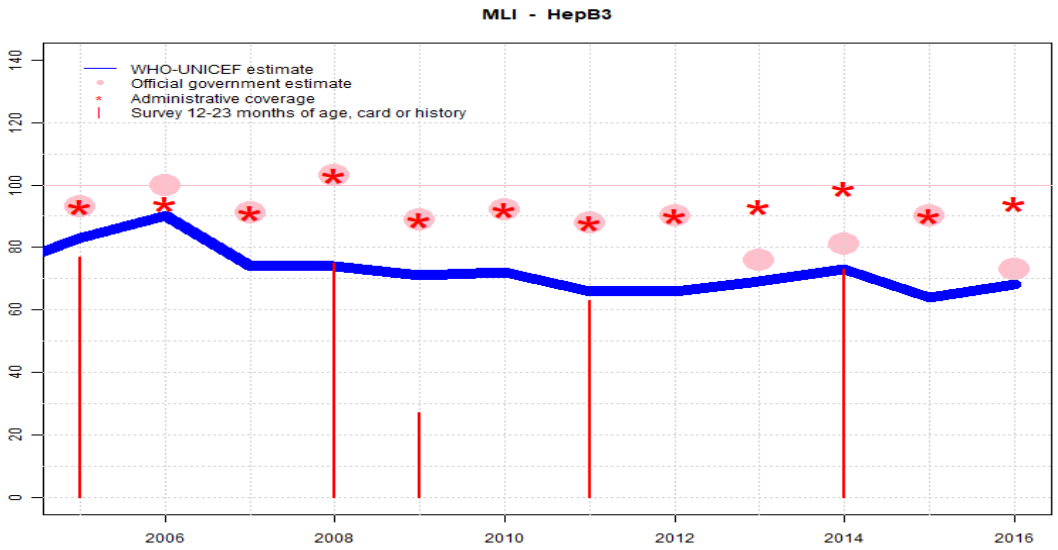
●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Mali - HepB3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	83	90	74	74	71	72	66	66	69	73	64	68
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	93	100	91	103	89	92	88	90	76	81	90	73
Administrative	93	94	91	103	89	92	88	90	93	99	90	94
Survey	77	NA	NA	75	27	NA	63	NA	NA	73	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Programme reports one month vaccine stock out. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 55 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Estimate follows trend in reported administrative data. Estimate of 64 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 1 survey(s). Estimate follows trend in reported administrative data. Estimate of 73 percent changed from previous revision value of 77 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 69 percent changed from previous revision value of 71 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 66 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 66 percent based on 1 survey(s). Mali Demographic and Health Survey 2012-13 card or history results of 63 percent modifed for recall bias to 66 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 35 percent and 3d dose card only coverage of 29 percent. Estimate challenged by: D-R-

2010: Reported data calibrated to 2008 and 2011 levels. Estimate challenged by: D-R-

2009: Reported data calibrated to 2008 and 2011 levels. Mali Multiple Indicator Cluster Survey 2010 results ignored by working group. Hepatitis b vaccine is offered in a pentavalent DTP-HepB-Hib combination vaccine. Coverage of 27 percent is inconsistent with 72 percent DTP3 coverage.Mali Multiple Indicator Cluster Survey 2010 card or history results of 27 percent modifed for recall bias to 46 percent based on 1st dose card or history coverage of 46 percent, 1st dose card only coverage of 23 percent and 3d dose card only coverage of 23 percent. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: D-R-

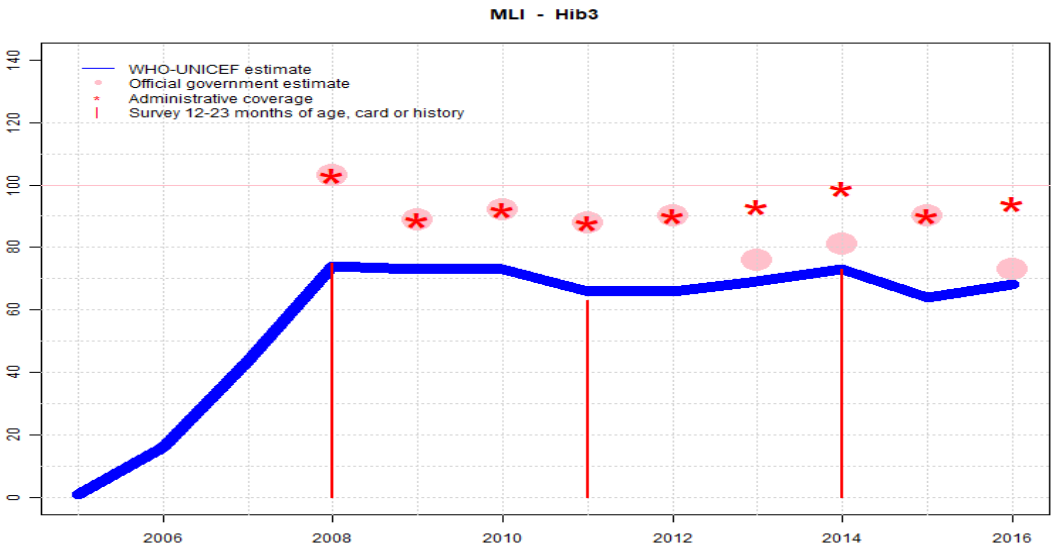
2008: Estimate of 74 percent assigned by working group. Estimate follows DTP3 levels. Mali Evaluation of Routine Immunization Coverage, 2009-2010 card or history results of 75 percent modifed for recall bias to 74 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 54 percent and 3d dose card only coverage of 47 percent. Reported data excluded because 103 percent greater than 100 percent. Reported data excluded due to an unexplained increase from 91 percent to 103 percent with decrease 89 percent. Estimate challenged by: D-R-

2007: Estimate follows the DTP3 levels of coverage. Estimate challenged by: D-R-

2006: Estimate of 90 percent assigned by working group. In 2006 sensitization of the population for Pentavalent introduction led to higher levels of coverage but included children outside the target age group. Reported coverage of 100 percent was reduced to 90 percent to adjust for children vaccinated outside Estimate challenged by: D-R-S-

2005: Reported data calibrated to 2006 levels. Republic of Mali External Review of EPI, 2006 results ignored by working group. Survey data available for only one of two surveys conducted in review year. Estimate challenged by: R-

Mali - Hib3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	1	16	44	74	73	73	66	66	69	73	64	68
Estimate GoC	••	•	•	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	103	89	92	88	90	76	81	90	73
Administrative	NA	NA	NA	103	89	92	88	90	93	99	90	94
Survey	NA	NA	NA	75	NA	NA	63	NA	NA	73	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

••• Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

•• Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

• There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Programme reports one month vaccine stock out. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 55 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Estimate follows trend in reported administrative data. Estimate of 64 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2014: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 73 percent based on 1 survey(s). Estimate follows trend in reported administrative data. Estimate of 73 percent changed from previous revision value of 77 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 69 percent changed from previous revision value of 71 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 66 percent changed from previous revision value of 68 percent. Estimate challenged by: D-R-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 66 percent based on 1 survey(s). Mali Demographic and Health Survey 2012-13 card or history results of 63 percent modifed for recall bias to 66 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 35 percent and 3d dose card only coverage of 29 percent. Estimate challenged by: D-R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: D-R-

2009: Estimate of 73 percent assigned by working group. Estimate follows DTP3 levels. Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: D-R-

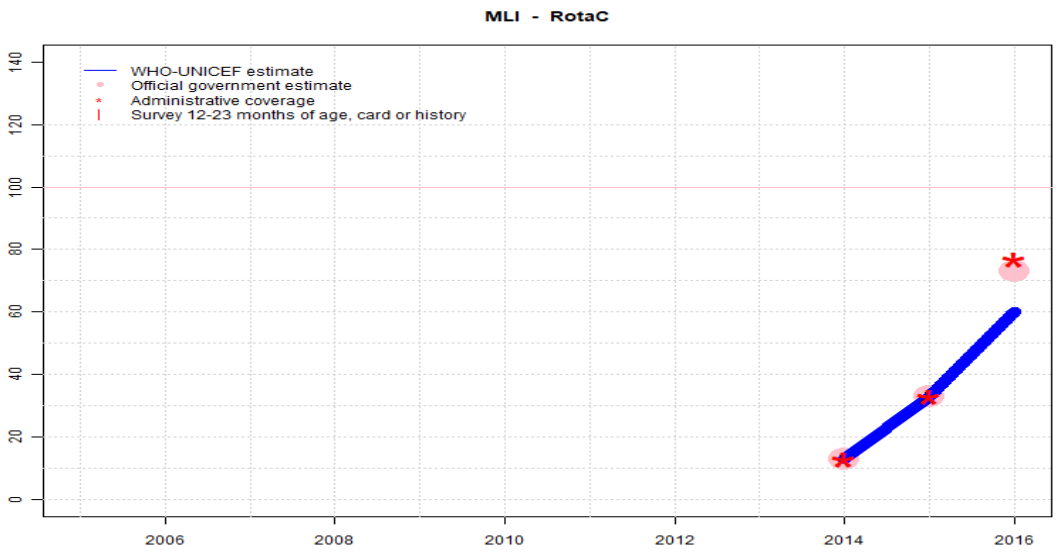
2008: Estimate of 74 percent assigned by working group. Estimate follows DTP3 levels. Mali Evaluation of Routine Immunization Coverage, 2009-2010 card or history results of 75 percent modifed for recall bias to 74 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 54 percent and 3d dose card only coverage of 47 percent. Reported data excluded because 103 percent greater than 100 percent. Estimate challenged by: D-R-

2007: Pentavalent DTP-HepB-Hib vaccine introduced subnationally, 94 percent coverage achieved in 47 percent of national target population. Estimate challenged by: S-

2006: Pentavalent DTP-HepB-Hib vaccine introduced sub nationally, 100 percent coverage achieved in 16 percent of national target population. Estimate challenged by: S-

2005: Hib partially introduced in 2005 nationally in 2007 reporting started in 2005 Vaccine presentation is DTP-HepB-Hib. Estimate of 1 percent changed from previous revision value of 3 percent. GoC=D+

Mali - RotaC



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	33	60
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	•	•	•
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	33	73
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	33	77
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

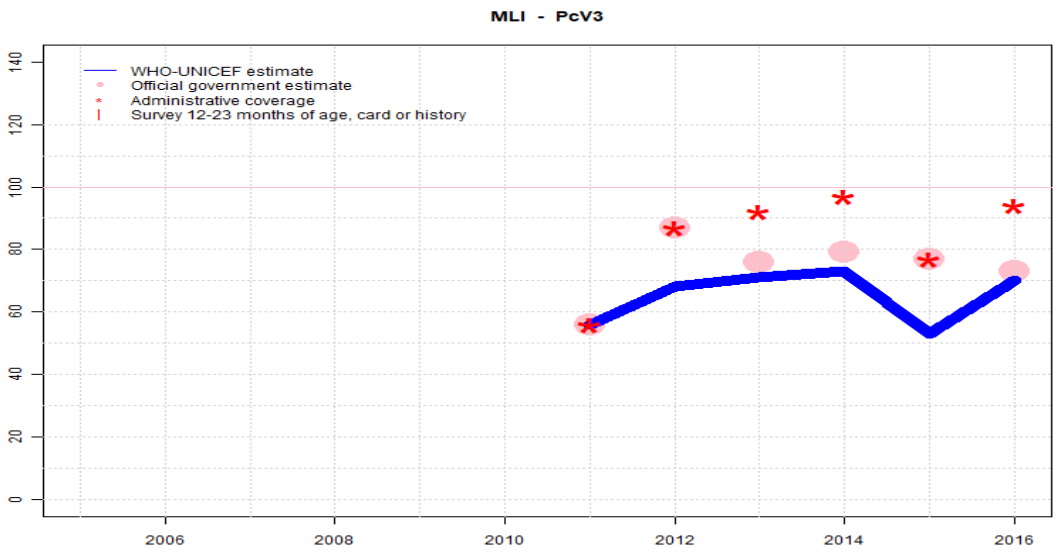
Description:

2016: Estimate of 60 percent assigned by working group. Estimate is based on relative relationship between the reported number of children vaccinated with DTP3 and three doses of rotavirus vaccine applied to the reported official coverage for DTP3. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 23 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Estimate is based on reported coverage. GoC=Assigned by working group. Consistency with other vaccines during an introduction period.

2014: Estimate based on reported data. Rotavirus vaccine was introduced during 2014. GoC=Assigned by working group. Consistency with other vaccines.

Mali - PcV3



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	NA	NA	NA	NA	NA	NA	56	68	71	73	53	70
Estimate GoC	NA	NA	NA	NA	NA	NA	●●	●	●	●	●	●
Official	NA	NA	NA	NA	NA	NA	56	87	76	79	77	73
Administrative	NA	NA	NA	NA	NA	NA	56	87	92	97	77	94
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 47 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Programme reports an 18 percent decline in number of children vaccinated between 2014 and 2015. Estimate follows trend in reported administrative data. Estimate of 53 percent changed from previous revision value of 58 percent. Estimate challenged by: D-R-

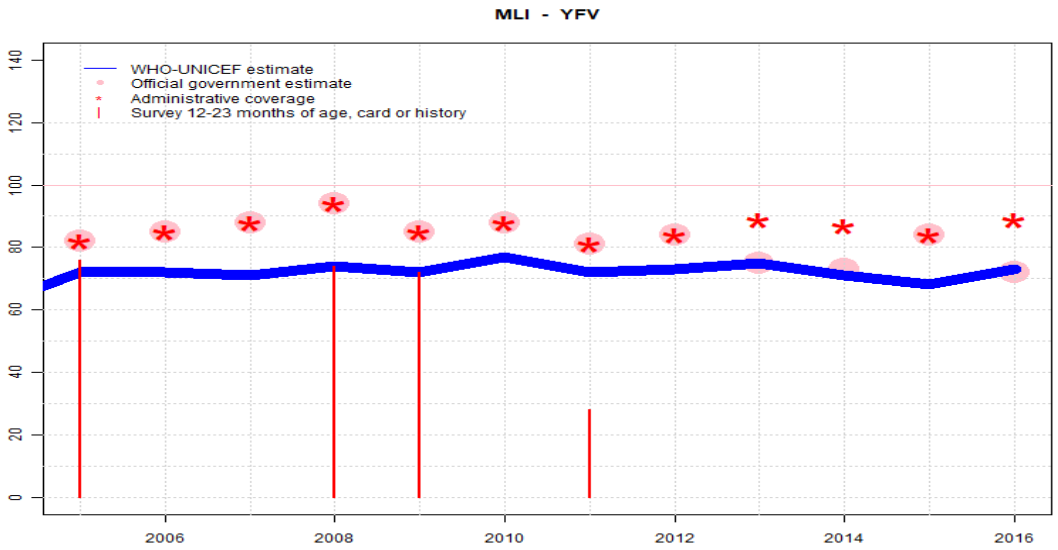
2014: Estimate of 73 percent assigned by working group. Estimate is based on estimated DTP3 coverage level. Estimate follows trend in reported administrative data. Estimate of 73 percent changed from previous revision value of 78 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2012 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 71 percent changed from previous revision value of 73 percent. Estimate challenged by: D-R-

2012: Estimate of 68 percent assigned by working group. Estimate based on DTP3 coverage. Estimate challenged by: D-R-

2011: Pneumococcal conjugate vaccine was introduced in 2011. GoC=R+

Mali - YFV



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Estimate	72	72	71	74	72	77	72	73	75	71	68	73
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	82	85	88	94	85	88	81	84	75	73	84	72
Administrative	82	85	88	94	85	88	81	84	89	87	84	89
Survey	76	NA	NA	74	72	NA	28	NA	NA	NA	NA	NA

The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability model upon which the estimates are based, we are unable to present classical measures of uncertainty, e.g., confidence intervals. Moreover, we have chosen not to make subjective estimates of plausibility/certainty ranges around the coverage. The GoC reflects the degree of empirical support upon which the estimates are based. It is not a judgment of the quality of data reported by national authorities.

●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2015 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.

●● Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.

● There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2016: Reported data calibrated to 2014 levels. Preliminary results from the 2015 Mali Multiple Indicator Cluster Survey suggest coverage of 55 percent. Reported official coverage is based on the vaccination coverage survey results for the 2014 birth cohort suggesting a decrease in reported coverage from 2015 levels while reported number of children vaccinated increased. Estimate challenged by: D-R-

2015: Reported data calibrated to 2014 levels. Estimate follows trend in reported administrative data. Estimate of 68 percent changed from previous revision value of 64 percent. Estimate challenged by: D-R-

2014: Estimate of 71 percent assigned by working group. Estimate is based on survey result for MCV1 adjusted by the relative difference in the reported number of children vaccinated with MCV1 and YFV. Estimate follows trend in reported administrative data. Estimate of 71 percent changed from previous revision value of 64 percent. Estimate challenged by: D-R-

2013: Reported data calibrated to 2011 and 2014 levels. Estimate follows trend in reported administrative data. Estimate of 75 percent changed from previous revision value of 66 percent. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 and 2014 levels. Estimate of 73 percent changed from previous revision value of 75 percent. Estimate challenged by: R-

2011: Estimate of 72 percent assigned by working group. Estimate is based on survey result for MCV1. Mali Demographic and Health Survey 2012-13 results ignored by working group. Survey results inconsistent with other vaccines. Estimate challenged by: R-

2010: Reported data calibrated to 2009 and 2011 levels. Estimate challenged by: R-

2009: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 72 percent based on 1 survey(s). Decline in 2009 due to an increase the denominator issued by du Recensement General de la Population et de l Habitat in 2009. Estimate challenged by: R-

2008: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 74 percent based on 1 survey(s). Estimate challenged by: R-

2007: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2006: Reported data calibrated to 2005 and 2008 levels. Estimate challenged by: R-

2005: Estimate of 72 percent assigned by working group. Estimate follows MCV coverage levels. Republic of Mali External Review of EPI, 2006 results ignored by working group. Results based on only one of two surveys available in review year. Estimate challenged by: R-

Mali - survey details

2014 Programme Elargi de Vaccination Revue Externe 2016

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	92	12-23 m	9402	34
DTP1	Card or History	92	12-23 m	9402	34
DTP3	Card or History	73	12-23 m	9402	34
HepB1	Card or History	92	12-23 m	9402	34
HepB3	Card or History	73	12-23 m	9402	34
Hib1	Card or History	92	12-23 m	9402	34
Hib3	Card or History	73	12-23 m	9402	34
MCV1	Card or History	74	12-23 m	9402	34
Pol1	Card or History	92	12-23 m	9402	34
Pol3	Card or History	74	12-23 m	9402	34

2011 Mali Enquête Démographique et de Santé 2012-13

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	81	12-23 m	1846	38
BCG	Card	37	12-23 m	702	38
BCG	Card or History	84	12-23 m	1846	38
BCG	History	47	12-23 m	1145	38
DTP1	C or H <12 months	78	12-23 m	1846	38
DTP1	Card	35	12-23 m	702	38
DTP1	Card or History	80	12-23 m	1846	38
DTP1	History	45	12-23 m	1145	38
DTP3	C or H <12 months	57	12-23 m	1846	38
DTP3	Card	29	12-23 m	702	38
DTP3	Card or History	63	12-23 m	1846	38
DTP3	History	34	12-23 m	1145	38
HepB1	C or H <12 months	78	12-23 m	1846	38
HepB1	Card	35	12-23 m	702	38
HepB1	Card or History	80	12-23 m	1846	38
HepB1	History	45	12-23 m	1145	38
HepB3	C or H <12 months	57	12-23 m	1846	38
HepB3	Card	29	12-23 m	702	38
HepB3	Card or History	63	12-23 m	1846	38
HepB3	History	34	12-23 m	1145	38
Hib1	C or H <12 months	78	12-23 m	1846	38
Hib1	Card	35	12-23 m	702	38
Hib1	Card or History	80	12-23 m	1846	38
Hib1	History	45	12-23 m	1145	38
Hib3	C or H <12 months	57	12-23 m	1846	38
Hib3	Card	29	12-23 m	702	38
Hib3	Card or History	63	12-23 m	1846	38
Hib3	History	34	12-23 m	1145	38
MCV1	C or H <12 months	59	12-23 m	1846	38
MCV1	Card	30	12-23 m	702	38
MCV1	Card or History	72	12-23 m	1846	38
MCV1	History	42	12-23 m	1145	38
Pol1	C or H <12 months	82	12-23 m	1846	38
Pol1	Card	35	12-23 m	702	38
Pol1	Card or History	84	12-23 m	1846	38
Pol1	History	49	12-23 m	1145	38
Pol3	C or H <12 months	47	12-23 m	1846	38
Pol3	Card	30	12-23 m	702	38
Pol3	Card or History	50	12-23 m	1846	38
Pol3	History	20	12-23 m	1145	38
YFV	C or H <12 months	23	12-23 m	1846	38
YFV	Card	28	12-23 m	702	38
YFV	Card or History	28	12-23 m	1846	38
YFV	History	0	12-23 m	1145	38

2010 Mali Enquête Démographique et de Santé 2012-13

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	73	24-35 m	1798	38
DTP1	C or H <12 months	70	24-35 m	1798	38
DTP3	C or H <12 months	49	24-35 m	1798	38
HepB1	C or H <12 months	70	24-35 m	1798	38
HepB3	C or H <12 months	49	24-35 m	1798	38
Hib1	C or H <12 months	70	24-35 m	1798	38
Hib3	C or H <12 months	49	24-35 m	1798	38
MCV1	C or H <12 months	54	24-35 m	1798	38
Pol1	C or H <12 months	76	24-35 m	1798	38
Pol3	C or H <12 months	38	24-35 m	1798	38
YFV	C or H <12 months	14	24-35 m	1798	38

Mali - survey details

2009 Mali Enquête Démographique et de Santé 2012-13

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	71	36-47 m	2053	38
DTP1	C or H <12 months	70	36-47 m	2053	38
DTP3	C or H <12 months	52	36-47 m	2053	38
HepB1	C or H <12 months	70	36-47 m	2053	38
HepB3	C or H <12 months	52	36-47 m	2053	38
Hib1	C or H <12 months	70	36-47 m	2053	38
Hib3	C or H <12 months	52	36-47 m	2053	38
MCV1	C or H <12 months	53	36-47 m	2053	38
Pol1	C or H <12 months	74	36-47 m	2053	38
Pol3	C or H <12 months	39	36-47 m	2053	38
YFV	C or H <12 months	12	36-47 m	2053	38

2009 Mali Multiple Indicator Cluster Survey 2010

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	83	12-23 m	5122	59
BCG	Card	54	12-23 m	-	59
BCG	Card or History	84	12-23 m	5122	59
BCG	History	30	12-23 m	-	59
DTP1	C or H <12 months	81	12-23 m	5122	59
DTP1	Card	55	12-23 m	-	59
DTP1	Card or History	82	12-23 m	5122	59
DTP1	History	28	12-23 m	-	59
DTP3	C or H <12 months	69	12-23 m	5122	59
DTP3	Card	49	12-23 m	-	59
DTP3	Card or History	72	12-23 m	5122	59
DTP3	History	23	12-23 m	-	59
HepB1	C or H <12 months	46	12-23 m	5122	59
HepB1	Card	23	12-23 m	-	59
HepB1	Card or History	46	12-23 m	5122	59
HepB1	History	24	12-23 m	-	59
HepB3	C or H <12 months	26	12-23 m	5122	59
HepB3	Card	23	12-23 m	-	59
HepB3	Card or History	27	12-23 m	5122	59
HepB3	History	4	12-23 m	-	59
HepBB	Card	0	12-23 m	-	59
HepBB	Card or History	20	12-23 m	5122	59
HepBB	History	20	12-23 m	-	59
MCV1	C or H <12 months	67	12-23 m	5122	59
MCV1	Card	47	12-23 m	-	59
MCV1	Card or History	73	12-23 m	5122	59
MCV1	History	26	12-23 m	-	59
Pol1	C or H <12 months	84	12-23 m	5122	59
Pol1	Card	54	12-23 m	-	59
Pol1	Card or History	85	12-23 m	5122	59
Pol1	History	31	12-23 m	-	59
Pol3	C or H <12 months	60	12-23 m	5122	59
Pol3	Card	49	12-23 m	-	59
Pol3	Card or History	62	12-23 m	5122	59
Pol3	History	13	12-23 m	-	59
YFV	C or H <12 months	67	12-23 m	5122	59
YFV	Card	46	12-23 m	-	59
YFV	Card or History	72	12-23 m	5122	59
YFV	History	27	12-23 m	-	59

2008 Evaluation de la couverture vaccinale du PEV Mali, 2009-2010

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	54	12-23 m	11760	65
BCG	Card or History	86	12-23 m	11760	65
BCG	History	32	12-23 m	11760	65
DTP1	Card	54	12-23 m	11760	65
DTP1	Card or History	85	12-23 m	11760	65
DTP1	History	31	12-23 m	11760	65
DTP3	Card	47	12-23 m	11760	65
DTP3	Card or History	75	12-23 m	11760	65
DTP3	History	28	12-23 m	11760	65
HepB1	Card	54	12-23 m	11760	65
HepB1	Card or History	85	12-23 m	11760	65
HepB1	History	31	12-23 m	11760	65
HepB3	Card	47	12-23 m	11760	65
HepB3	Card or History	75	12-23 m	11760	65
HepB3	History	28	12-23 m	11760	65
Hib1	Card	54	12-23 m	11760	65

Hib1	Card or History	85	12-23 m	11760	65
Hib1	History	31	12-23 m	11760	65
Hib3	Card	47	12-23 m	11760	65
Hib3	Card or History	75	12-23 m	11760	65
Hib3	History	28	12-23 m	11760	65
MCV1	Card	46	12-23 m	11760	65
MCV1	Card or History	71	12-23 m	11760	65
MCV1	History	26	12-23 m	11760	65
Pol1	Card	52	12-23 m	11760	65
Pol1	Card or History	84	12-23 m	11760	65
Pol1	History	33	12-23 m	11760	65
Pol3	Card	46	12-23 m	11760	65
Pol3	Card or History	76	12-23 m	11760	65
Pol3	History	30	12-23 m	11760	65
YFV	Card	43	12-23 m	11760	65
YFV	Card or History	74	12-23 m	11760	65
YFV	History	30	12-23 m	11760	65

2008 Mali Enquête Démographique et de Santé 2012-13

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	67	48-59 m	1890	38
DTP1	C or H <12 months	64	48-59 m	1890	38
DTP3	C or H <12 months	47	48-59 m	1890	38
HepB1	C or H <12 months	64	48-59 m	1890	38
HepB3	C or H <12 months	47	48-59 m	1890	38
Hib1	C or H <12 months	64	48-59 m	1890	38
Hib3	C or H <12 months	47	48-59 m	1890	38
MCV1	C or H <12 months	48	48-59 m	1890	38
Pol1	C or H <12 months	68	48-59 m	1890	38
Pol3	C or H <12 months	36	48-59 m	1890	38
YFV	C or H <12 months	10	48-59 m	1890	38

2005 Enquête Démographique et de Santé du Mali, 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	75	12-23 m	2626	61
BCG	Card	54	12-23 m	2626	61
BCG	Card or History	77	12-23 m	2626	61
BCG	History	23	12-23 m	2626	61
DTP1	C or H <12 months	80	12-23 m	2626	61
DTP1	Card	60	12-23 m	2626	61
DTP1	Card or History	83	12-23 m	2626	61
DTP1	History	23	12-23 m	2626	61
DTP3	C or H <12 months	62	12-23 m	2626	61
DTP3	Card	53	12-23 m	2626	61
DTP3	Card or History	68	12-23 m	2626	61
DTP3	History	15	12-23 m	2626	61
MCV1	C or H <12 months	59	12-23 m	2626	61
MCV1	Card	49	12-23 m	2626	61
MCV1	Card or History	68	12-23 m	2626	61
MCV1	History	20	12-23 m	2626	61
Pol1	C or H <12 months	82	12-23 m	2626	61
Pol1	Card	60	12-23 m	2626	61
Pol1	Card or History	85	12-23 m	2626	61
Pol1	History	26	12-23 m	2626	61
Pol3	C or H <12 months	57	12-23 m	2626	61
Pol3	Card	53	12-23 m	2626	61
Pol3	Card or History	62	12-23 m	2626	61
Pol3	History	9	12-23 m	2626	61

2005 République du Mali, Programme élargi du vaccination, Revue externe éàà-

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	89	12-23 m	1710	78
DTP1	Card or History	91	12-23 m	1710	78
DTP3	Card or History	80	12-23 m	1710	78
HepB1	Card or History	87	12-23 m	1710	78
HepB3	Card or History	77	12-23 m	1710	78
MCV1	Card or History	77	12-23 m	1710	78
Pol1	Card or History	91	12-23 m	1710	78
Pol3	Card or History	81	12-23 m	1710	78
YFV	Card or History	76	12-23 m	1710	78

Mali - survey details

2000 Enquête Démographique et de Santé Mali 2001, 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	64	12-23 m	2197	48
BCG	Card	47	12-23 m	2197	48
BCG	Card or History	69	12-23 m	2197	48
BCG	History	22	12-23 m	2197	48
DTP1	C or H <12 months	56	12-23 m	2197	48
DTP1	Card	44	12-23 m	2197	48
DTP1	Card or History	61	12-23 m	2197	48
DTP1	History	17	12-23 m	2197	48
DTP3	C or H <12 months	34	12-23 m	2197	48
DTP3	Card	31	12-23 m	2197	48
DTP3	Card or History	40	12-23 m	2197	48
DTP3	History	8	12-23 m	2197	48
MCV1	C or H <12 months	36	12-23 m	2197	48
MCV1	Card	36	12-23 m	2197	48
MCV1	Card or History	49	12-23 m	2197	48
MCV1	History	13	12-23 m	2197	48
Pol1	C or H <12 months	68	12-23 m	2197	48
Pol1	Card	46	12-23 m	2197	48
Pol1	Card or History	74	12-23 m	2197	48
Pol1	History	28	12-23 m	2197	48
Pol3	C or H <12 months	34	12-23 m	2197	48
Pol3	Card	33	12-23 m	2197	48
Pol3	Card or History	39	12-23 m	2197	48
Pol3	History	6	12-23 m	2197	48

1997 Enquete de couverture vaccinale au Mali 1998

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	62	12-23 m	1521	57
BCG	Card or History	84	12-23 m	1521	57
DTP1	Card	52	12-23 m	1521	57
DTP1	Card or History	79	12-23 m	1521	57
DTP3	Card	37	12-23 m	1521	57
DTP3	Card or History	52	12-23 m	1521	57
MCV1	Card	41	12-23 m	1521	57
MCV1	Card or History	57	12-23 m	1521	57
Pol3	Card	37	12-23 m	1521	57
Pol3	Card or History	52	12-23 m	1521	57

Further information and estimates for previous years are available at:
http://www.data.unicef.org/child-health/immunization
http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index4.html