

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. Coverage 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 produced 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.

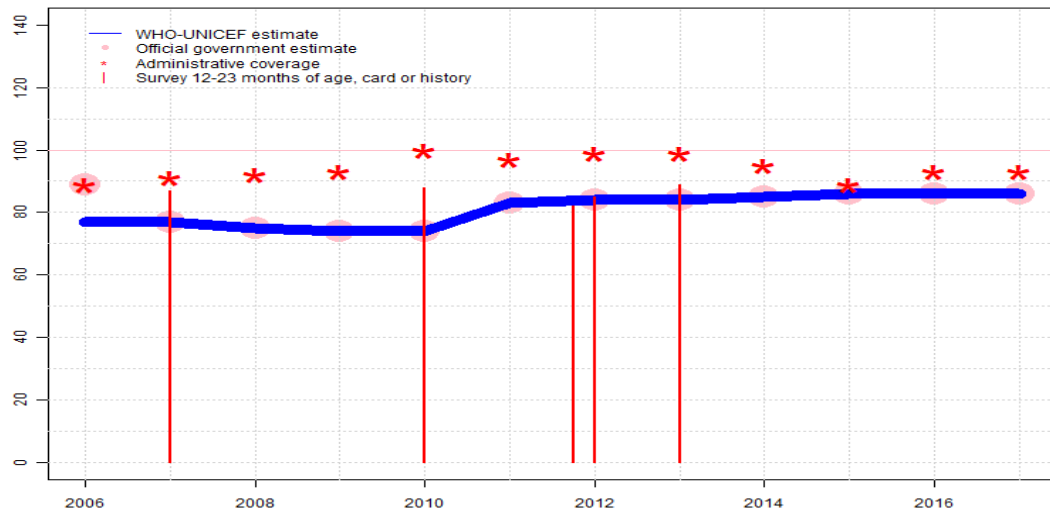
PcV3: percentage of surviving infants who received the 3rd dose of pneumococcal conjugate vaccine. In countries where the national schedule recommends two doses during infancy and a booster dose at 12 months or later based on the epidemiology of disease in the country, coverage estimates may reflect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

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Pakistan - BCG

PAK - BCG



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	77	77	75	74	74	83	84	84	85	86	86	86
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	89	77	75	74	74	83	84	84	85	86	86	86
Administrative	89	91	92	93	100	97	99	99	95	89	93	93
Survey	NA	87	NA	NA	88	NA	*	89	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: 2017 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:

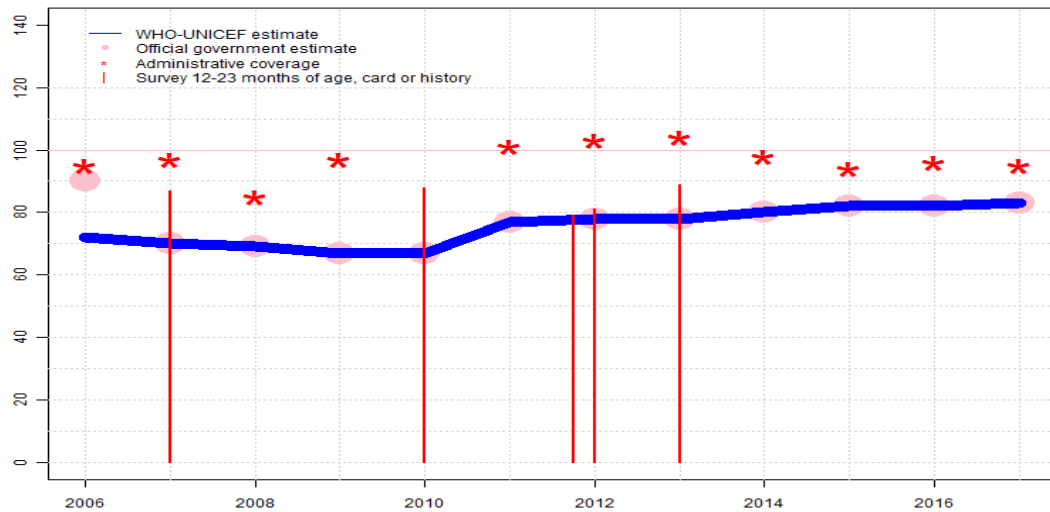
- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 86 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Programme reports three month national level stock-out of BCG vaccine. Estimate of 86 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 84 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 85 percent based on 1 survey(s). Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 84 percent changed from previous revision value of 85 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 83 percent changed from previous revision value of 84 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Pakistan Social and Living Standards Measurement Survey 2010-2011 results ignored by working group. Home-based record retention not reported. HBR only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Increase in administrative coverage is partially due to the reduction in growth rate used in population projections (from 2.6 to 1.9). Estimate of 74 percent changed from previous revision value of 90 percent. Estimate challenged by: D-S-
- 2009: Estimate based on coverage reported by national government. Estimate of 74 percent changed from previous revision value of 81 percent. Estimate challenged by: D-

Pakistan - BCG

- 2008: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 83 percent. Estimate challenged by: D-
- 2007: Estimate based on reported data Pakistan Social and Living Standards Measurement Survey 2008-2009 results ignored by working group. Card retention not reported. Card only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Estimate of 77 percent changed from previous revision value of 84 percent. Estimate challenged by: D-
- 2006: Estimate based on interpolation between 2004 and 2007 levels. test Reported data excluded. test Estimate of 77 percent changed from previous revision value of 85 percent. Estimate challenged by: D-R-

Pakistan - DTP1

PAK - DTP1



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	72	70	69	67	67	77	78	78	80	82	82	83
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	90	70	69	67	67	77	78	78	80	82	82	83
Administrative	95	97	85	97	NA	101	103	104	98	94	96	95
Survey	NA	87	NA	NA	88	NA	*	89	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: 2017 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:

- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 82 percent changed from previous revision value of 79 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate of 82 percent changed from previous revision value of 79 percent. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 80 percent changed from previous revision value of 79 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 78 percent changed from previous revision value of 79 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 79 percent based on 1 survey(s). Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 78 percent changed from previous revision value of 79 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 77 percent changed from previous revision value of 84 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Pakistan Social and Living Standards Measurement Survey 2010-2011 results ignored by working group. Home-based record retention not reported. HBR only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Estimate of 67 percent changed from previous revision value of 88 percent. Estimate challenged by: S-
- 2009: Estimate based on coverage reported by national government. Estimate of 67 percent changed from previous revision value of 88 percent. Estimate challenged by: D-
- 2008: Estimate based on coverage reported by national government. Estimate of 69 percent

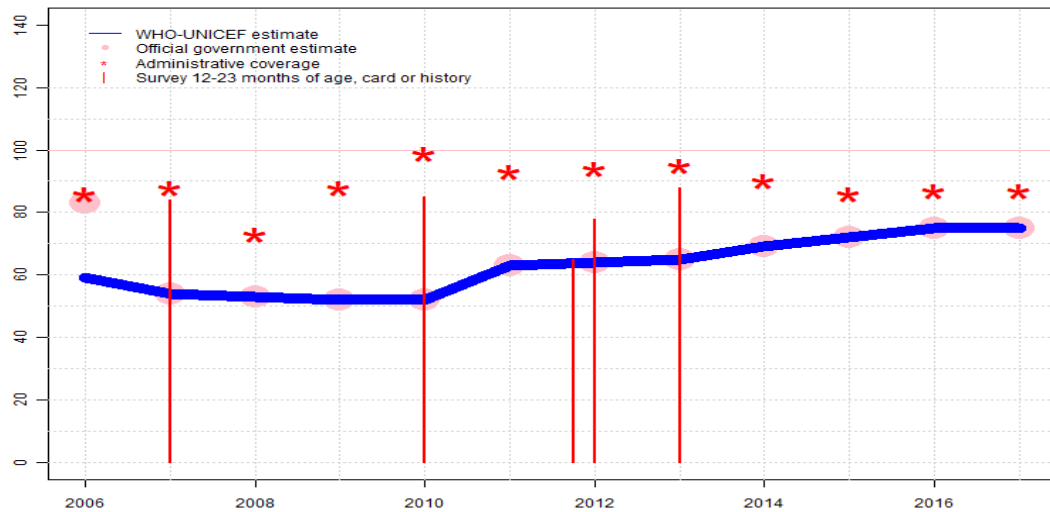
Pakistan - DTP1

changed from previous revision value of 84 percent. Estimate challenged by: D-

- 2007: Estimate based on reported data. Pakistan Social and Living Standards Measurement Survey 2008-2009 results ignored by working group. Card retention not reported. Card only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Estimate of 70 percent changed from previous revision value of 89 percent. Estimate challenged by: D-
- 2006: Reported data calibrated to 2004 and 2007 levels. Reported data excluded. test Estimate of 72 percent changed from previous revision value of 89 percent. Estimate challenged by: D-R-

Pakistan - DTP3

PAK - DTP3



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	59	54	53	52	52	63	64	65	69	72	75	75
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	83	54	53	52	52	63	64	65	69	72	75	75
Administrative	86	88	73	88	99	93	94	95	90	86	87	87
Survey	NA	84	NA	NA	85	NA	*	88	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: 2017 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:

- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 69 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15 card or history results of 88 percent modified for recall bias to 89 percent based on 1st dose card or history coverage of 89 percent, 1st dose card only coverage of 65 percent and 3rd dose card only coverage of 65 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 65 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 72 percent based on 1 survey(s). Survey results ignored. Sample size 0 less than 300. Pakistan Demographic and Health Survey 2012-2013 card or history results of 65 percent modified for recall bias to 72 percent based on 1st dose card or history coverage of 79 percent, 1st dose card only coverage of 35 percent and 3rd dose card only coverage of 32 percent. Pakistan Social and Living Standards Measurement Survey (PSLM), 2013-14 card or history results of 78 percent modified for recall bias to 80 percent based on 1st dose card or history coverage of 81 percent, 1st dose card only coverage of 62 percent and 3rd dose card only coverage of 61 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 64 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 63 percent changed from previous revision value of 74 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Pakistan Social and Living

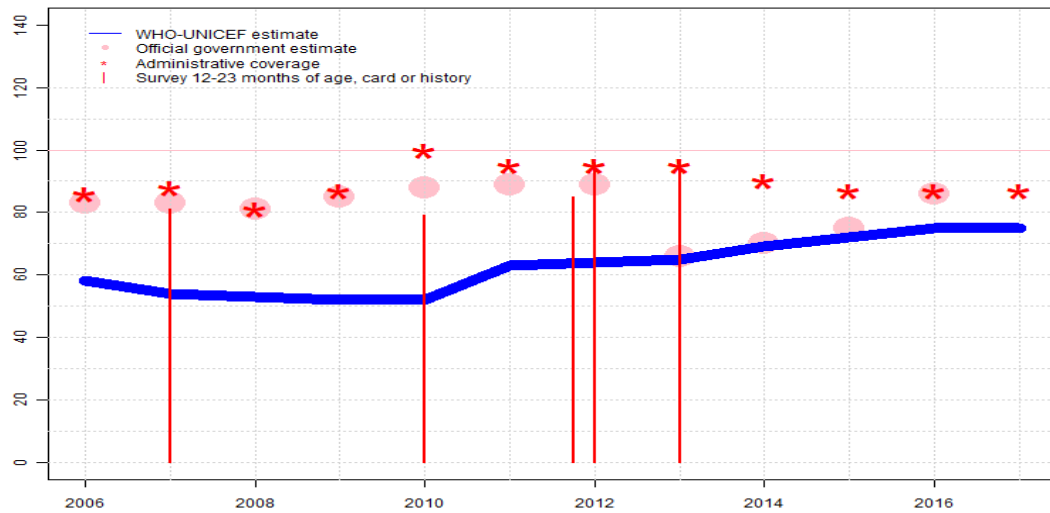
Pakistan - DTP3

Standards Measurement Survey 2010-2011 results ignored by working group. Home-based record retention not reported. HBR only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Pakistan Social and Living Standards Measurement Survey 2010-2011 card or history results of 85 percent modified for recall bias to 86 percent based on 1st dose card or history coverage of 88 percent, 1st dose card only coverage of 57 percent and 3rd dose card only coverage of 56 percent. Increase in administrative coverage is partially due to the reduction in growth rate used in population projections (from 2.6 to 1.9). Estimate of 52 percent changed from previous revision value of 82 percent. Estimate challenged by: D-S-

- 2009: Estimate based on coverage reported by national government. Estimate of 52 percent changed from previous revision value of 71 percent. Estimate challenged by: D-
- 2008: Estimate based on coverage reported by national government. Estimate of 53 percent changed from previous revision value of 62 percent. Estimate challenged by: D-
- 2007: Estimate based on reported data. Pakistan Social and Living Standards Measurement Survey 2008-2009 results ignored by working group. Card retention not reported. Card only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Pakistan Social and Living Standards Measurement Survey 2008-2009 card or history results of 84 percent modified for recall bias to 85 percent based on 1st dose card or history coverage of 87 percent, 1st dose card only coverage of 52 percent and 3rd dose card only coverage of 51 percent. Estimate of 54 percent changed from previous revision value of 75 percent. Estimate challenged by: D-
- 2006: Reported data calibrated to 2004 and 2007 levels. Reported data excluded. test Estimate of 59 percent changed from previous revision value of 78 percent. Estimate challenged by: D-R-

Pakistan - Pol3

PAK - Pol3



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	58	54	53	52	52	63	64	65	69	72	75	75
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	83	83	81	85	88	89	89	66	70	75	86	NA
Administrative	86	88	81	87	100	95	95	95	90	87	87	87
Survey	NA	81	NA	NA	79	NA	*	97	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: 2017 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:

2017: Coverage based on DTP3 estimates. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-R-

2016: Coverage based on DTP3 estimates. Estimate of 75 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-

2015: Coverage based on DTP3 estimates. Estimate challenged by: D-R-

2014: Coverage based on DTP3 estimates. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 69 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-S-

2013: Coverage based on DTP3 estimates. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15 card or history results of 97 percent modified for recall bias to 98 percent based on 1st dose card or history coverage of 98 percent, 1st dose card only coverage of 65 percent and 3rd dose card only coverage of 65 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 65 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-S-

2012: Coverage based on DTP3 estimates. Survey results ignored. Sample size 0 less than 300. Pakistan Demographic and Health Survey 2012-2013 card or history results of 85 percent modified for recall bias to 87 percent based on 1st dose card or history coverage of 92 percent, 1st dose card only coverage of 35 percent and 3rd dose card only coverage of 33 percent. Pakistan Social and Living Standards Measurement Survey (PSLM), 2013-14 card or history results of 96 percent modified for recall bias to 98 percent based on 1st dose card or history coverage of 98 percent, 1st dose card only coverage of 62 percent and 3rd dose card only coverage of 62 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 64 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-S-

2011: Coverage based on DTP3 estimates. Estimate of 63 percent changed from previous revision value of 75 percent. Estimate challenged by: D-R-S-

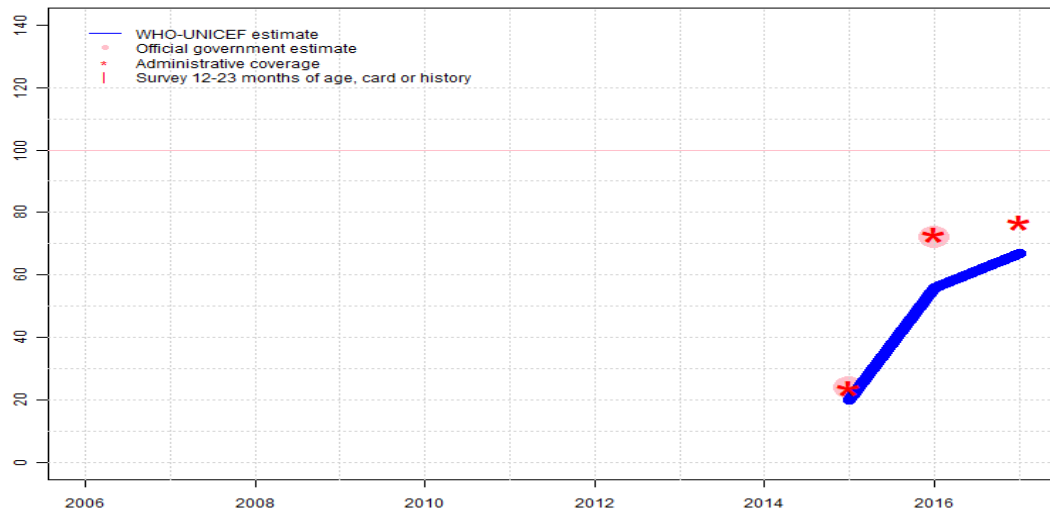
2010: Coverage based on DTP3 estimates. Pakistan Social and Living Standards Measurement Survey 2010-2011 results ignored by working group. Home-based record retention

not reported. HBR only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Pakistan Social and Living Standards Measurement Survey 2010-2011 card or history results of 79 percent modified for recall bias to 80 percent based on 1st dose card or history coverage of 81 percent, 1st dose card only coverage of 54 percent and 3rd dose card only coverage of 53 percent. Increase in administrative coverage is partially due to the reduction in growth rate used in population projections (from 2.6 to 1.9). Estimate of 52 percent changed from previous revision value of 82 percent. Estimate challenged by: D-R-S-

- 2009: Coverage based on DTP3 estimates. Estimate of 52 percent changed from previous revision value of 70 percent. Estimate challenged by: D-R-
- 2008: Coverage based on DTP3 estimates. Estimate of 53 percent changed from previous revision value of 70 percent. Estimate challenged by: D-R-
- 2007: Estimate of 54 percent assigned by working group. Coverage based on DTP3 estimates. Pakistan Social and Living Standards Measurement Survey 2008-2009 results ignored by working group. Card retention not reported. Card only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Estimate of 54 percent changed from previous revision value of 75 percent. Estimate challenged by: D-R-
- 2006: Reported data calibrated to 2004 and 2007 levels. Reported data excluded. test Estimate of 58 percent changed from previous revision value of 77 percent. Estimate challenged by: D-R-

Pakistan - IPV1

PAK - IPV1



Description:

Estimates for a dose of IPV begin in 2015 following the Global Polio Eradication Initiative's Polio Eradication and Endgame Strategic Plan: 2013-2018 which recommended at least one dose of inactivated polio vaccine (IPV) into routine immunization schedules as a strategy to mitigate the potential consequences should any re-emergence of type 2 poliovirus occur following the planned withdrawal of Sabin type 2 strains from oral polio vaccine (OPV).

2017: Estimate of 67 percent assigned by working group. Estimate is based on DTP3 coverage adjusted by the relative difference in the reported number of children vaccinated with DTP3 and IPV1. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-R-

2016: Estimate is based on DTP3 coverage adjusted by the relative difference in the reported number of children vaccinated with DTP3 and IPV1. Estimate challenged by: D-R-

2015: IPV introduced during 2015. Estimate challenged by: R-

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	56	67
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	24	72	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	24	73	77
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

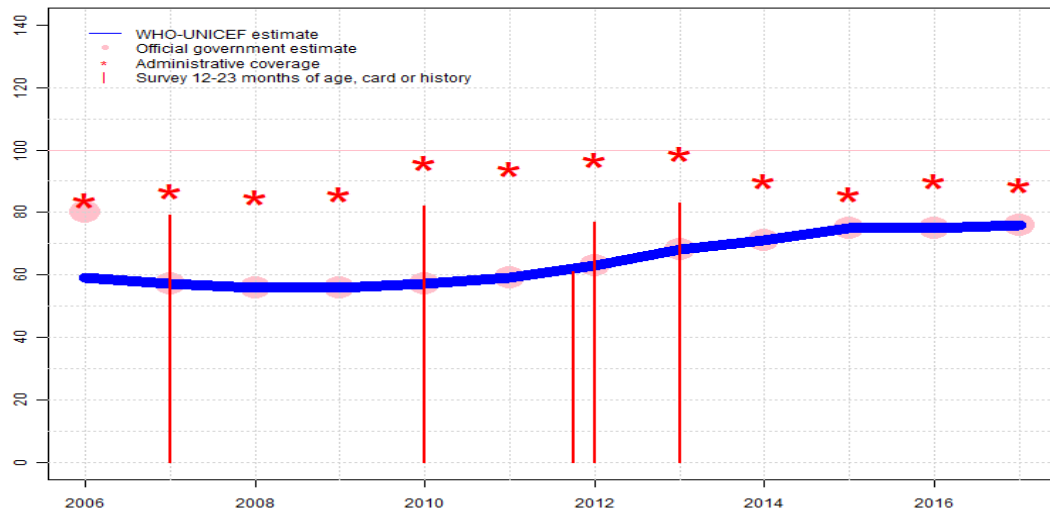
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2017 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.

Pakistan - MCV1

PAK - MCV1



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	59	57	56	56	57	59	63	68	71	75	75	76
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	80	57	56	56	57	59	63	68	71	75	75	76
Administrative	84	87	85	86	96	94	97	99	90	86	90	89
Survey	NA	79	NA	NA	82	NA	*	83	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: 2017 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:

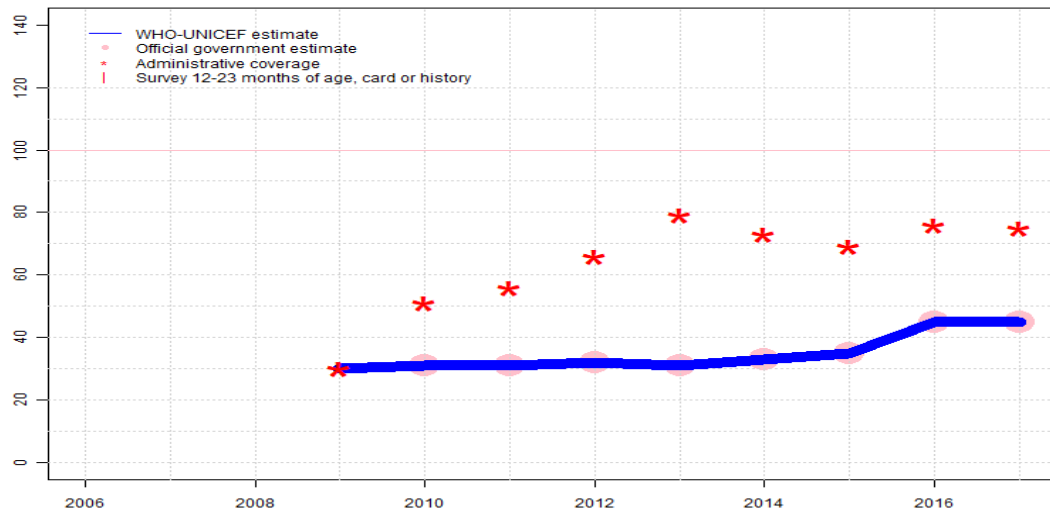
- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 61 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 61 percent. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 71 percent changed from previous revision value of 61 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 68 percent changed from previous revision value of 61 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government supported by survey. Survey evidence of 61 percent based on 1 survey(s). Survey results ignored. Sample size 0 less than 300. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 63 percent changed from previous revision value of 61 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 59 percent changed from previous revision value of 63 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Pakistan Social and Living Standards Measurement Survey 2010-2011 results ignored by working group. Home-based record retention not reported. HBR only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Increase in administrative coverage is partially due to the reduction in growth rate used in population projections (from 2.6 to 1.9). Estimate of 57 percent changed from previous revision value of 69 percent. Estimate challenged by: D-
- 2009: Estimate based on coverage reported by national government. Estimate of 56 percent changed from previous revision value of 57 percent. Estimate challenged by: D-

Pakistan - MCV1

- 2008: Estimate based on coverage reported by national government. Estimate of 56 percent changed from previous revision value of 67 percent. Estimate challenged by: D-
- 2007: Estimates based on reported data. Pakistan Social and Living Standards Measurement Survey 2008-2009 results ignored by working group. Card retention not reported. Card only coverage inconsistent with card retention levels and maximum possible card only coverage observed in two surveys during 2006 and one survey in 2012-13. Estimate of 57 percent changed from previous revision value of 67 percent. Estimate challenged by: D-
- 2006: Reported data calibrated to 2004 and 2007 levels. Reported data excluded. test Estimate of 59 percent changed from previous revision value of 71 percent. Estimate challenged by: D-R-

Pakistan - MCV2

PAK - MCV2



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	30	31	31	32	31	33	35	45	45
Estimate GoC	NA	NA	NA	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	NA	31	31	32	31	33	35	45	45
Administrative	NA	NA	NA	30	51	56	66	79	73	69	76	75
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: 2017 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.

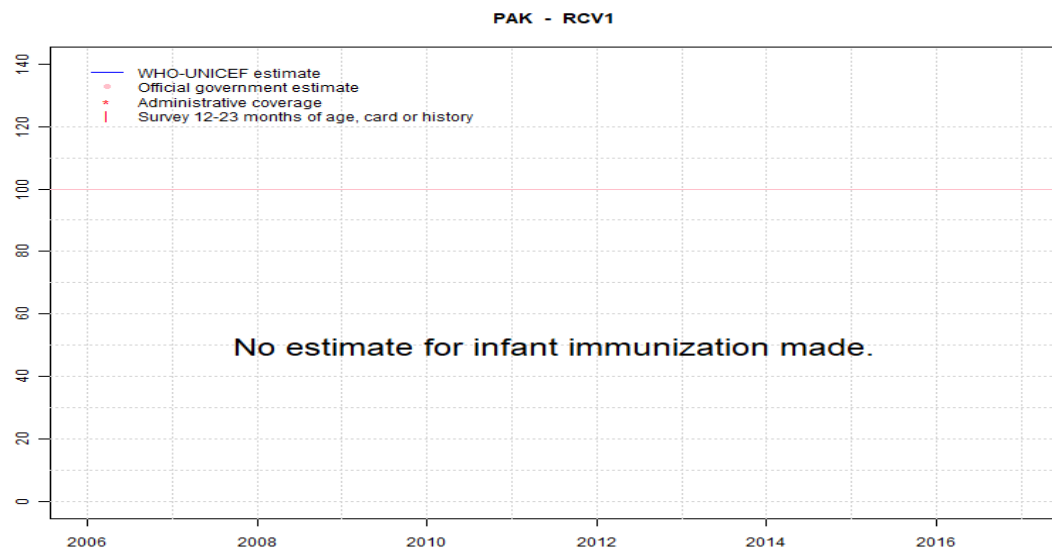
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

Coverage estimates for the second dose of measles containing vaccine are for children by the nationally recommended age.

- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 45 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate of 35 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate of 33 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 31 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 32 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 31 percent changed from previous revision value of 53 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Estimate of 31 percent changed from previous revision value of 51 percent. Estimate challenged by: D-
- 2009: Estimate based on reported administrative estimate. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

Pakistan - RCV1



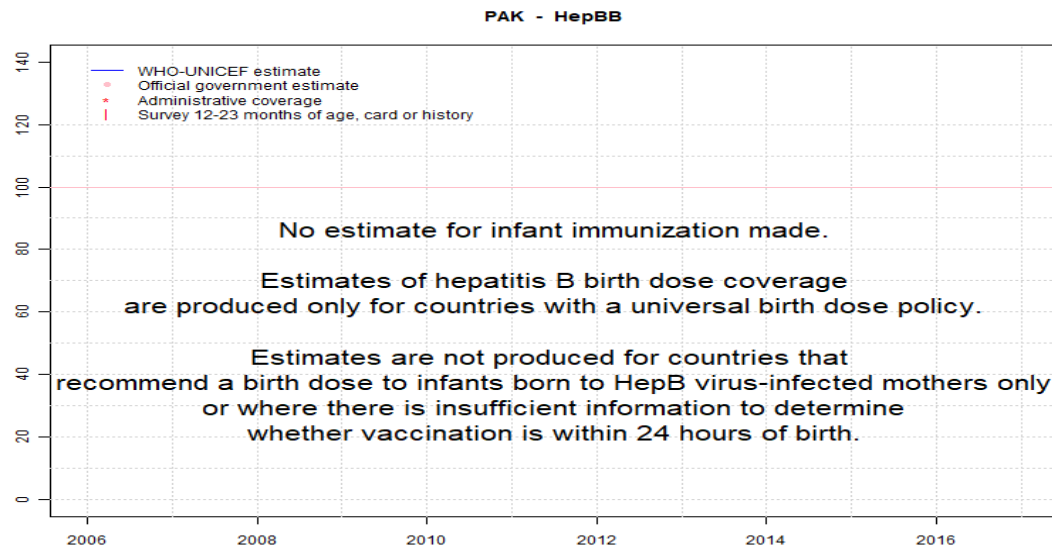
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: 2017 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.

Pakistan - HepBB



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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

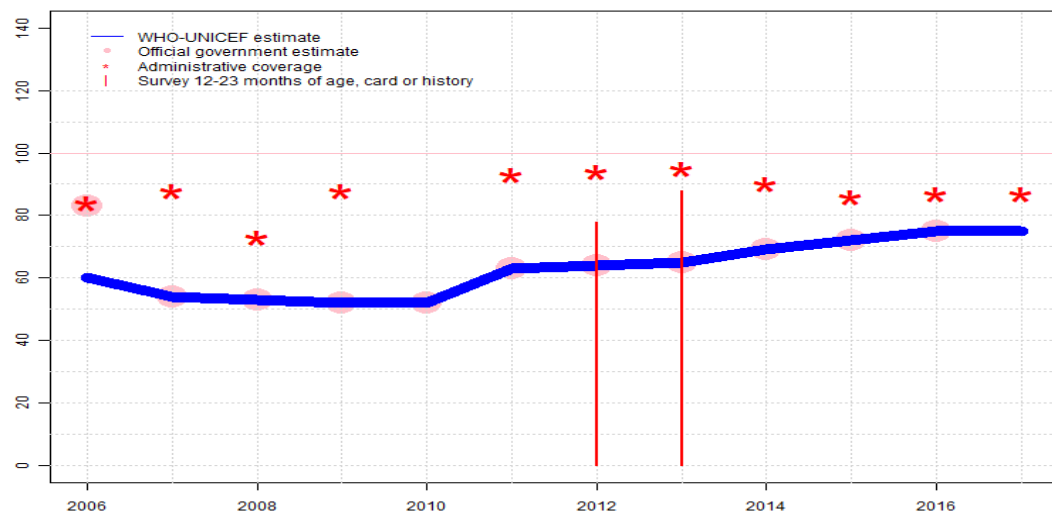
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2017 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.

Pakistan - HepB3

PAK - HepB3



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	60	54	53	52	52	63	64	65	69	72	75	75
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	83	54	53	52	52	63	64	65	69	72	75	NA
Administrative	84	88	73	88	NA	93	94	95	90	86	87	87
Survey	NA	NA	NA	NA	NA	NA	78	88	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: 2017 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:

- 2017: Estimate based on extrapolation from data reported by national government. Reported data excluded due to sudden change in coverage from 75 level to 87 percent. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate of 69 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15 card or history results of 88 percent modified for recall bias to 89 percent based on 1st dose card or history coverage of 89 percent, 1st dose card only coverage of 65 percent and 3rd dose card only coverage of 65 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 65 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2013-14 card or history results of 78 percent modified for recall bias to 80 percent based on 1st dose card or history coverage of 81 percent, 1st dose card only coverage of 62 percent and 3rd dose card only coverage of 61 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 64 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 63 percent changed from previous revision value of 74 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Estimate of 52 percent changed from previous revision value of 82 percent. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
- 2009: Estimate based on coverage reported by national government. Estimate of 52 percent changed from previous revision value of 78 percent. Estimate challenged by: D-
- 2008: Estimate based on coverage reported by national government. Estimate of 53 percent

Pakistan - HepB3

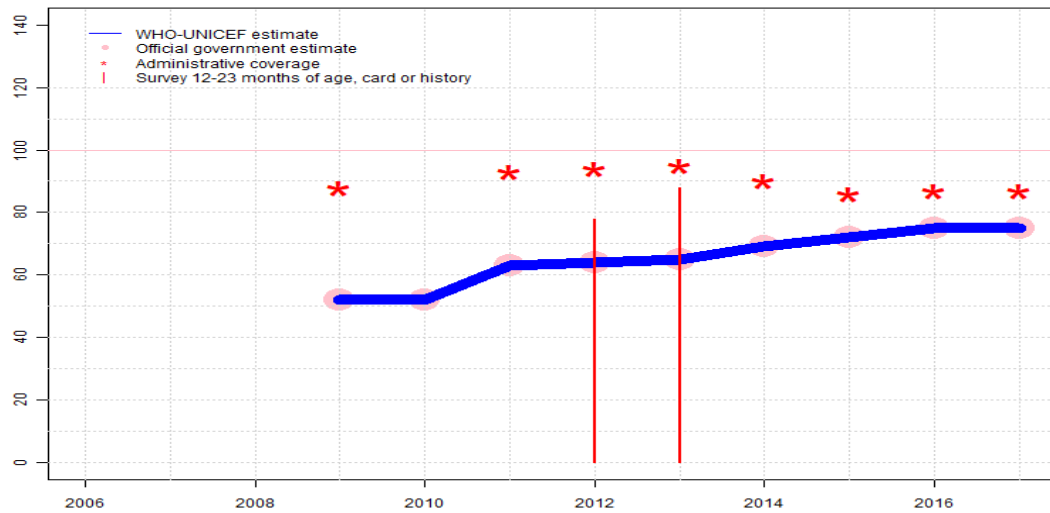
changed from previous revision value of 65 percent. Estimate challenged by: D-

2007: Coverage based on DTP3 estimates. Estimate of 54 percent changed from previous revision value of 75 percent. Estimate challenged by: D-S-

2006: Reported data calibrated to 2005 and 2007 levels. Reported data excluded. test Estimate of 60 percent changed from previous revision value of 78 percent. Estimate challenged by: D-R-

Pakistan - Hib3

PAK - Hib3



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	52	52	63	64	65	69	72	75	75
Estimate GoC	NA	NA	NA	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	52	52	63	64	65	69	72	75	75
Administrative	NA	NA	NA	88	NA	93	94	95	90	86	87	87
Survey	NA	NA	NA	NA	NA	NA	78	88	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: 2017 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:

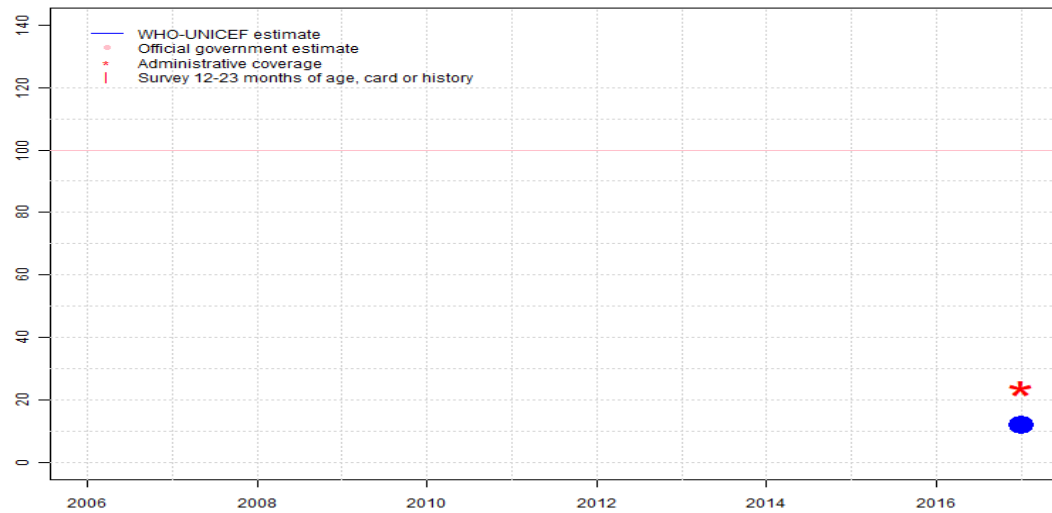
- 2017: Estimate based on coverage reported by national government. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-
- 2016: Estimate based on coverage reported by national government. Estimate of 75 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2015: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 69 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15 card or history results of 88 percent modified for recall bias to 89 percent based on 1st dose card or history coverage of 89 percent, 1st dose card only coverage of 65 percent and 3rd dose card only coverage of 65 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 65 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government. Survey results ignored. Sample size 0 less than 300. Pakistan Social and Living Standards Measurement Survey (PSLM), 2013-14 card or history results of 78 percent modified for recall bias to 80 percent based on 1st dose card or history coverage of 81 percent, 1st dose card only coverage of 62 percent and 3rd dose card only coverage of 61 percent. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 64 percent changed from previous revision value of 72 percent. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government. Estimate of 63 percent changed from previous revision value of 74 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Estimate of 52 percent changed from previous revision value of 82 percent. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.
- 2009: Estimate based on coverage reported by national government. Hib vaccine introduced in 2009 Vaccine presentation is DTP-HepB-Hib. Estimate of 52 percent changed from

Pakistan - Hib3

previous revision value of 76 percent. Estimate challenged by: D-

Pakistan - RotaC

PAK - RotaC



Description:

2017: Rotavirus vaccine was introduced in 2017. Programme reports 24 percent coverage achieved in 51 percent of the national target population. Estimate is based on annualized coverage achieved in the national target population. Estimates exceptionally based on administrative coverage as it was an introduction year and no other data was available. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: R-

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12
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	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

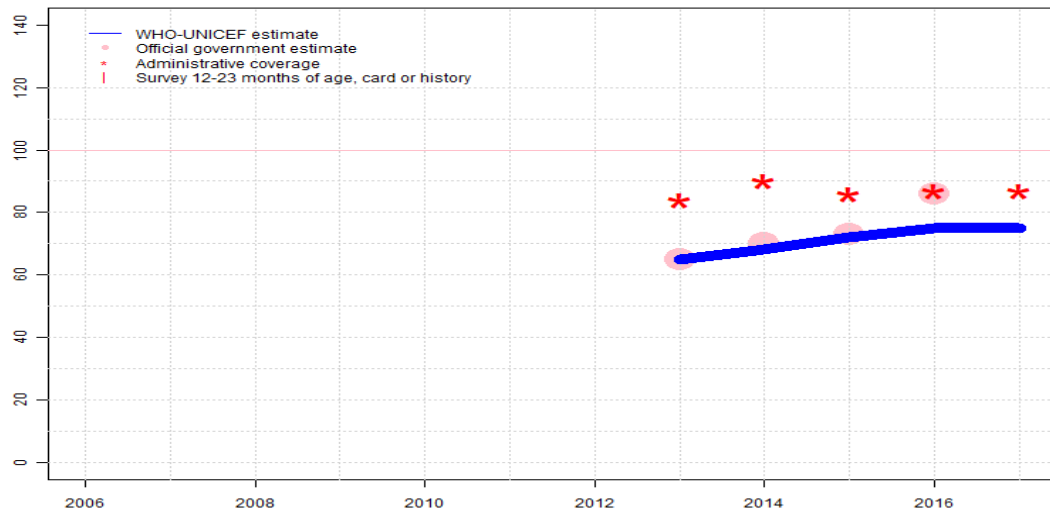
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability 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: 2017 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.

Pakistan - PcV3

PAK - PcV3



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Estimate	NA	NA	NA	NA	NA	NA	NA	65	68	72	75	75
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	•	•	•	•	•
Official	NA	NA	NA	NA	NA	NA	NA	65	70	73	86	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	84	90	86	87	87
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: 2017 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:

- 2017: Estimate is based on DTP3 coverage. Estimate is likely an overestimate. The official estimates for Pakistan were determined through an exercise conducted with technical assistance from WHO and UNICEF in consultation with all provinces and areas using locally available survey data, data quality assessment results, administrative reports and data from the polio programme. WHO and UNICEF are aware of the 2017-2018 DHS survey and the 2018 coverage evaluation survey and await the results. Estimate challenged by: D-R-
- 2016: Estimate is based on DTP3 coverage. Estimate is likely an overestimate. Estimate of 75 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-
- 2015: Estimate is based on DTP3 coverage. Estimate is likely an overestimate. Estimate challenged by: D-R-
- 2014: Estimate is based on DTP3 coverage. Estimate is likely an overestimate. Reported target population increase from 2013 to 2014, which was larger than any prior year-to-year change, is also unexplained while the number of children vaccinated remained largely unchanged from 2013 to 2014. Estimate of 68 percent changed from previous revision value of 72 percent. Estimate challenged by: D-R-
- 2013: Estimate based on coverage reported by national government. The Pakistan Social and Living Standards Measurement Survey report does not include the sample size (number of children aged 12-23 m) from which coverage is estimated. Report also does not include prevalence of home-based record ownership. In addition, the report suggests exceptionally low drop-out for multi-dose vaccines. Estimate of 65 percent changed from previous revision value of 66 percent. GoC=Assigned by working group. GoC assigned to maintain consistency across vaccines.

Pakistan - survey details

2013 Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	65	12-23 m	-	-
BCG	Card or History	89	12-23 m	-	-
DTP1	Card	65	12-23 m	-	-
DTP1	Card or History	89	12-23 m	-	-
DTP3	Card	65	12-23 m	-	-
DTP3	Card or History	88	12-23 m	-	-
HepB1	Card	65	12-23 m	-	-
HepB1	Card or History	89	12-23 m	-	-
HepB3	Card	65	12-23 m	-	-
HepB3	Card or History	88	12-23 m	-	-
Hib1	Card	65	12-23 m	-	-
Hib1	Card or History	89	12-23 m	-	-
Hib3	Card	65	12-23 m	-	-
Hib3	Card or History	88	12-23 m	-	-
MCV1	Card	61	12-23 m	-	-
MCV1	Card or History	83	12-23 m	-	-
Pol1	Card	65	12-23 m	-	-
Pol1	Card or History	98	12-23 m	-	-
Pol3	Card	65	12-23 m	-	-
Pol3	Card or History	97	12-23 m	-	-

2012 Pakistan Demographic and Health Survey 2012-2013

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	83.2	12-23 m	2074	36
BCG	Card	35.9	12-23 m	748	36
BCG	Card or History	85.2	12-23 m	2074	36
BCG	History	49.3	12-23 m	1327	36
DTP1	C or H <12 months	76.8	12-23 m	2074	36
DTP1	Card	35.1	12-23 m	748	36
DTP1	Card or History	78.8	12-23 m	2074	36
DTP1	History	43.7	12-23 m	1327	36
DTP3	C or H <12 months	62.5	12-23 m	2074	36
DTP3	Card	32.2	12-23 m	748	36

DTP3	Card or History	65.2	12-23 m	2074	36
DTP3	History	33	12-23 m	1327	36
MCV1	C or H <12 months	49.7	12-23 m	2074	36
MCV1	Card	28.7	12-23 m	748	36
MCV1	Card or History	61.4	12-23 m	2074	36
MCV1	History	32.7	12-23 m	1327	36
Pol1	C or H <12 months	90.2	12-23 m	2074	36
Pol1	Card	35.3	12-23 m	748	36
Pol1	Card or History	92.3	12-23 m	2074	36
Pol1	History	57	12-23 m	1327	36
Pol3	C or H <12 months	82.1	12-23 m	2074	36
Pol3	Card	32.8	12-23 m	748	36
Pol3	Card or History	85.3	12-23 m	2074	36
Pol3	History	52.5	12-23 m	1327	36

2012 Pakistan Social and Living Standards Measurement Survey (PSLM), 2013-14

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	62	12-23 m	-	-
BCG	Card or History	82	12-23 m	-	-
DTP1	Card	62	12-23 m	-	-
DTP1	Card or History	81	12-23 m	-	-
DTP3	Card	61	12-23 m	-	-
DTP3	Card or History	78	12-23 m	-	-
HepB1	Card	62	12-23 m	-	-
HepB1	Card or History	81	12-23 m	-	-
HepB3	Card	61	12-23 m	-	-
HepB3	Card or History	78	12-23 m	-	-
Hib1	Card	62	12-23 m	-	-
Hib1	Card or History	81	12-23 m	-	-
Hib3	Card or History	78	12-23 m	-	-
Hib3	Card	61	12-23 m	-	-
MCV1	Card	59	12-23 m	-	-
MCV1	Card or History	77	12-23 m	-	-
Pol1	Card	62	12-23 m	-	-
Pol1	Card or History	98	12-23 m	-	-
Pol3	Card	62	12-23 m	-	-
Pol3	Card or History	96	12-23 m	-	-

Pakistan - survey details

2010 National Nutrition Survey Pakistan 2011

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	31.5	6-49 m	-	-
BCG	History	86.6	6-49 m	-	-
DTP3	Card	90	6-49 m	-	-
DTP3	Card Or History	76	6-49 m	-	-
HepB3	C or H <12 Months	76	6-49 m	-	-
HepB3	Card	90	6-49 m	-	-
Hib3	Card	90	6-49 m	-	-
Hib3	History	76	6-49 m	-	-
MCV1	Card	23.1	6-49 m	-	-
MCV1	History	64.6	6-49 m	-	-
Pol3	Card	27.2	6-49 m	-	-
Pol3	Card Or History	95	6-49 m	-	-

2010 Pakistan Social and Living Standards Measurement Survey 2010-2011

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	57	12-23 m	76546	-
BCG	Card or History	88	12-23 m	76546	-
DTP1	Card	57	12-23 m	76546	-
DTP1	Card or History	88	12-23 m	76546	-
DTP3	Card	56	12-23 m	76546	-
DTP3	Card or History	85	12-23 m	76546	-
MCV1	Card	53	12-23 m	76546	-
MCV1	Card or History	82	12-23 m	76546	-
Pol1	Card	54	12-23 m	76546	-
Pol1	Card or History	81	12-23 m	76546	-
Pol3	Card	53	12-23 m	76546	-
Pol3	Card or History	79	12-23 m	76546	-

2007 Pakistan Social and Living Standards Measurement Survey 2008-2009

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	52	12-23 m	75188	-
BCG	Card or History	87	12-23 m	75188	-
DTP1	Card	52	12-23 m	75188	-
DTP1	Card or History	87	12-23 m	75188	-
DTP3	Card	51	12-23 m	75188	-
DTP3	Card or History	84	12-23 m	75188	-
MCV1	Card	51	12-23 m	75188	-
MCV1	Card or History	79	12-23 m	75188	-
Pol1	Card	51	12-23 m	75188	-
Pol1	Card or History	83	12-23 m	75188	-
Pol3	Card	50	12-23 m	75188	-
Pol3	Card or History	81	12-23 m	75188	-

2006 Pakistan Social and Living Standards Measurement Survey 2007-2008

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	82	12-23 m	-	-
DTP1	Card	83	12-23 m	-	-
DTP3	Card	79	12-23 m	-	-
MCV1	Card	76	12-23 m	-	-
Pol1	Card	95	12-23 m	-	-
Pol3	Card	93	12-23 m	-	-

2005 Pakistan Demographic and Health Survey 2006-07

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	77.6	12-23 m	1522	24
BCG	Card	23.6	12-23 m	1522	24
BCG	Card or History	80.3	12-23 m	1522	24
BCG	History	56.8	12-23 m	1522	24
DTP1	C or H <12 months	71.7	12-23 m	1522	24
DTP1	Card	23.3	12-23 m	1522	24
DTP1	Card or History	74.8	12-23 m	1522	24
DTP1	History	51.5	12-23 m	1522	24
DTP3	C or H <12 months	56.1	12-23 m	1522	24
DTP3	Card	20.9	12-23 m	1522	24

Pakistan - survey details

DTP3	Card or History	58.5	12-23 m	1522	24
DTP3	History	37.5	12-23 m	1522	24
HepB1	C or H <12 months	68.2	12-23 m	1522	24
HepB1	Card	23.1	12-23 m	1522	24
HepB1	Card or History	71	12-23 m	1522	24
HepB1	History	48	12-23 m	1522	24
HepB3	C or H <12 months	54.5	12-23 m	1522	24
HepB3	Card	20.8	12-23 m	1522	24
HepB3	Card or History	57.3	12-23 m	1522	24
HepB3	History	36.5	12-23 m	1522	24
MCV1	C or H <12 months	50.2	12-23 m	1522	24
MCV1	Card	19.2	12-23 m	1522	24
MCV1	Card or History	59.9	12-23 m	1522	24
MCV1	History	40.7	12-23 m	1522	24
Pol1	C or H <12 months	89.1	12-23 m	1522	24
Pol1	Card	23.4	12-23 m	1522	24
Pol1	Card or History	93	12-23 m	1522	24
Pol1	History	69.7	12-23 m	1522	24
Pol3	C or H <12 months	78.6	12-23 m	1522	24
Pol3	Card	21	12-23 m	1522	24
Pol3	Card or History	83.1	12-23 m	1522	24
Pol3	History	62.1	12-23 m	1522	24

2004 EPI Coverage Evaluation Survey, Draft Report, Pakistan 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	10.2	12-23 m	72280	11
BCG	Card or History	77.7	12-23 m	72280	11
BCG	History	67.5	12-23 m	72280	11
DTP1	Card	10.2	12-23 m	72280	11
DTP1	Card or History	74.6	12-23 m	72280	11
DTP1	History	64.4	12-23 m	72280	11
DTP3	Card	9.2	12-23 m	72280	11
DTP3	Card or History	64.5	12-23 m	72280	11
DTP3	History	55.3	12-23 m	72280	11
HepB1	Card	9.8	12-23 m	72280	11
HepB1	Card or History	68.8	12-23 m	72280	11
HepB1	History	59	12-23 m	72280	11
HepB3	Card	8.9	12-23 m	72280	11

HepB3	Card or History	60.7	12-23 m	72280	11
HepB3	History	51.7	12-23 m	72280	11
MCV1	Card	8.6	12-23 m	72280	11
MCV1	Card or History	62.6	12-23 m	72280	11
MCV1	History	54	12-23 m	72280	11
Pol1	Card	10	12-23 m	72280	11
Pol1	Card or History	73.7	12-23 m	72280	11
Pol1	History	63.7	12-23 m	72280	11
Pol3	Card	9.1	12-23 m	72280	11
Pol3	Card or History	64.4	12-23 m	72280	11
Pol3	History	55.3	12-23 m	72280	11

2003 Pakistan Social and Living Standards Measurement Survey 2004-2005

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	82	12-23 m	-	-
BCG	Card	51	12-23 m	-	-
DTP1	C or H <12 months	82	12-23 m	-	-
DTP1	Card	51	12-23 m	-	-
DTP3	C or H <12 months	80	12-23 m	-	-
DTP3	Card	50	12-23 m	-	-
MCV1	C or H <12 months	78	12-23 m	-	-
MCV1	Card	49	12-23 m	-	-
Pol1	C or H <12 months	82	12-23 m	-	-
Pol1	Card	51	12-23 m	-	-
Pol3	C or H <12 months	81	12-23 m	-	-
Pol3	Card	50	12-23 m	-	-

2000 Pakistan Integrated Household Survey, 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	34	12-23 m	-	-
BCG	Card or History	67	12-23 m	-	-
DTP1	Card	36	12-23 m	-	-
DTP1	Card or History	71	12-23 m	-	-
DTP3	Card	33	12-23 m	-	-
DTP3	Card or History	63	12-23 m	-	-

Pakistan - survey details

MCV1	Card	30	12-23 m	-	-
MCV1	Card or History	57	12-23 m	-	-
Pol1	Card	34	12-23 m	-	-
Pol1	Card or History	68	12-23 m	-	-
Pol3	Card	36	12-23 m	-	-
Pol3	Card or History	89	12-23 m	-	-

1998 Assessment of Immunization Coverage, Pakistan February - April 1999

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or Scar	72.5	12-23 m	3664	37
MCV1	Card or History	54	12-23 m	3664	37
Pol3	Card or History	58.4	12-23 m	3664	37

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	39	12-23 m	-	-
BCG	Card or History	65	12-23 m	-	-
DTP1	Card	41	12-23 m	-	-
DTP1	Card or History	67	12-23 m	-	-
DTP3	Card	37	12-23 m	-	-
DTP3	Card or History	58	12-23 m	-	-
MCV1	Card	36	12-23 m	-	-
MCV1	Card or History	55	12-23 m	-	-
Pol1	Card	42	12-23 m	-	-
Pol1	Card or History	77	12-23 m	-	-
Pol3	Card	39	12-23 m	-	-
Pol3	Card or History	70	12-23 m	-	-

1997 Pakistan Integrated Household Survey, 2002

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