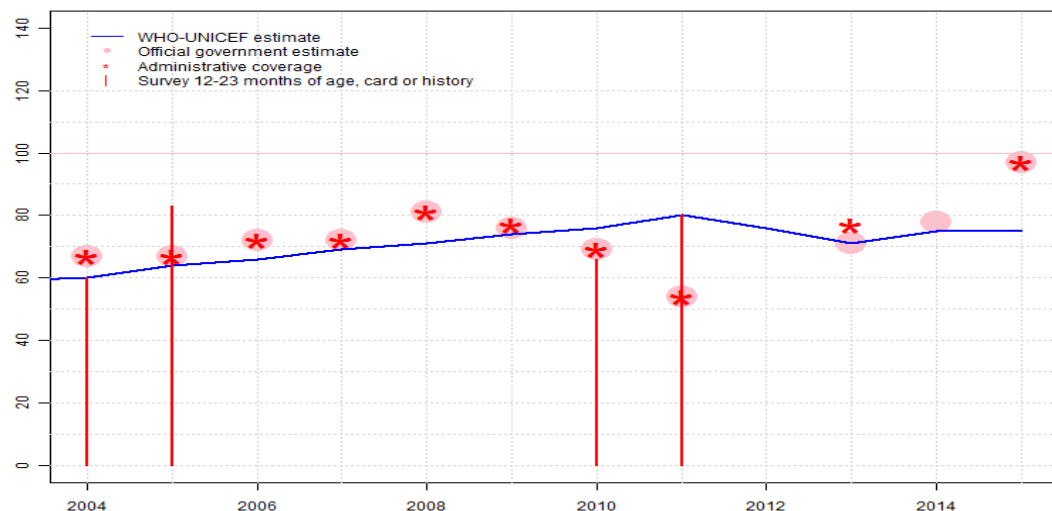


Ethiopia - BCG

ETH - BCG



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	60	64	66	69	71	74	76	80	76	71	75	75
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	67	67	72	72	81	76	69	54	NA	71	78	97
Administrative	67	67	72	72	81	77	69	54	NA	77	NA	97
Survey	60	83	NA	NA	NA	NA	66	80	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:

- 2004: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 60 percent based on 1 survey(s). Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2005: Reported data calibrated to 2004 and 2011 levels. EPI Coverage Cluster Sampling Survey 2006 Ethiopia results ignored by working group. Survey results inconsistent with other data. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2006: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2007: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2008: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2009: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2010: Reported data calibrated to 2004 and 2011 levels. Ethiopia Demographic and Health Survey 2011 results ignored by working group. Survey results do not include data obtained from health facility records. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 80 percent based on 1 survey(s). Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: D-R-S-
- 2012: Reported data calibrated to 2011 and 2013 levels. Estimate challenged by: S-
- 2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013,

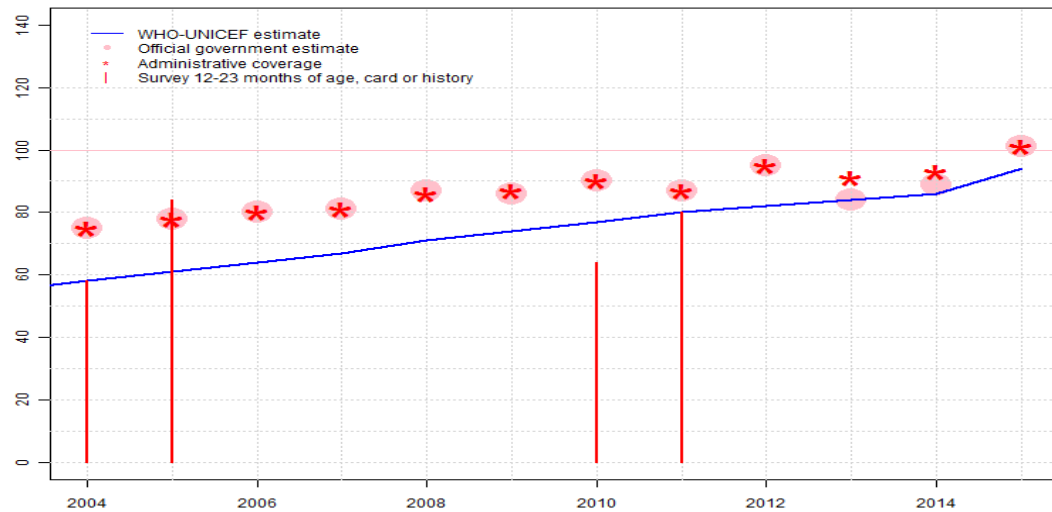
the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. Programme reports two month stock-out at national level. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Reported data calibrated to 2014 levels. Reported data excluded. Change in reported coverage from 78 level to 97 percent. Unexplained increase of 19 percentage points in the reported coverage between 2014 and 2015. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - DTP1

ETH - DTP1



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	58	61	64	67	71	74	77	80	82	84	86	94
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	75	78	80	81	87	86	90	87	95	84	89	101
Administrative	75	78	80	81	86	87	90	87	95	91	93	101
Survey	58	84	NA	NA	NA	NA	64	80	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:

- 2004: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 58 percent based on 1 survey(s). Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-R-S-
- 2005: Reported data calibrated to 2004 and 2011 levels. EPI Coverage Cluster Sampling Survey 2006 Ethiopia results ignored by working group. Survey results inconsistent with other data. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2006: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2007: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2008: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2009: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2010: Reported data calibrated to 2004 and 2011 levels. Ethiopia Demographic and Health Survey 2011 results ignored by working group. Survey results do not include data obtained from health facility records. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2011: . Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: R-S-
- 2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme im-

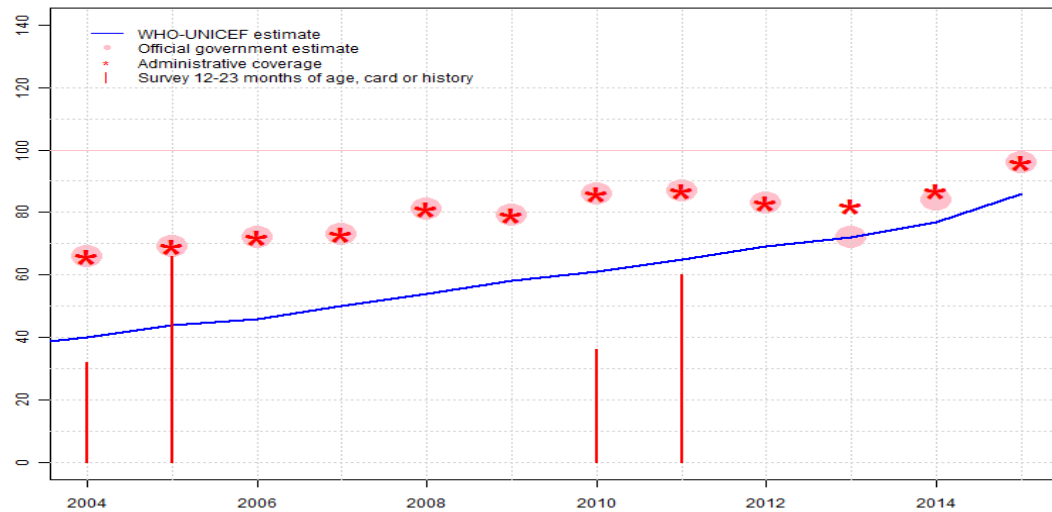
provement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative system. Reported data excluded. 101 percent greater than 100 percent. Reported data excluded. Change in reported coverage from 89 level to 101 percent. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - DTP3

ETH - DTP3



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	40	44	46	50	54	58	61	65	69	72	77	86
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	66	69	72	73	81	79	86	87	83	72	84	96
Administrative	66	69	72	73	81	79	86	87	83	82	87	96
Survey	32	66	NA	NA	NA	NA	36	60	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:

2004: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 40 percent based on 1 survey(s). Ethiopia Demographic and Health Survey 2005 card or history results of 32 percent modified for recall bias to 40 percent based on 1st dose card or history coverage of 58 percent, 1st dose card only coverage of 36 percent and 3d dose card only coverage of 25 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-R-S-

2005: Reported data calibrated to 2004 and 2011 levels. EPI Coverage Cluster Sampling Survey 2006 Ethiopia results ignored by working group. Survey results inconsistent with other data.EPI Coverage Cluster Sampling Survey 2006 Ethiopia card or history results of 66 percent modified for recall bias to 64 percent based on 1st dose card or history coverage of 84 percent, 1st dose card only coverage of 54 percent and 3d dose card only coverage of 41 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2006: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2007: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2008: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2009: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2010: Reported data calibrated to 2004 and 2011 levels. Ethiopia Demographic and Health Survey 2011 results ignored by working group. Survey results do not include data obtained from health facility records.Ethiopia Demographic and Health Survey 2011 card or history results of 36 percent modified for recall bias to 50 percent based on 1st dose card or history coverage of 64 percent, 1st dose card only coverage of 28 percent and 3d dose card only coverage of 22 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

2011: . Ethiopian Immunization Coverage Survey 2012 card or history results of 60 percent modified for recall bias to 65 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 59 percent

and 3d dose card only coverage of 48 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: D-R-S-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-

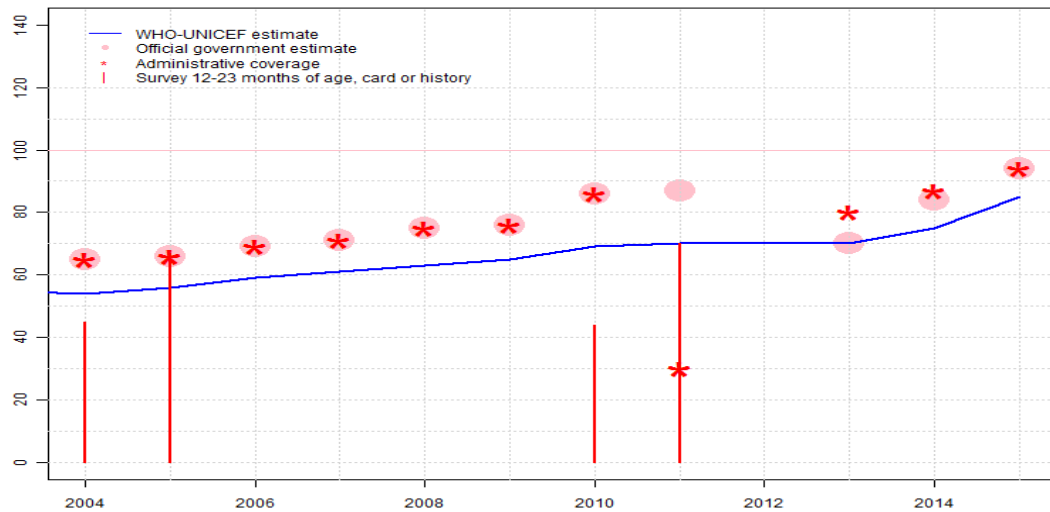
2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative system. Reported data excluded. Change in reported coverage from 84 level to 96 percent. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - Pol3

ETH - Pol3



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	54	56	59	61	63	65	69	70	70	70	75	85
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	65	66	69	71	75	76	86	87	NA	70	84	94
Administrative	65	66	69	71	75	76	86	30	NA	80	87	94
Survey	45	67	NA	NA	NA	NA	44	70	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:

- 2004: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 51 percent based on 1 survey(s). Ethiopia Demographic and Health Survey 2005 card or history results of 45 percent modified for recall bias to 51 percent based on 1st dose card or history coverage of 74 percent, 1st dose card only coverage of 36 percent and 3d dose card only coverage of 25 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2005: Reported data calibrated to 2004 and 2011 levels. EPI Coverage Cluster Sampling Survey 2006 Ethiopia results ignored by working group. Survey results inconsistent with other data. EPI Coverage Cluster Sampling Survey 2006 Ethiopia card or history results of 67 percent modified for recall bias to 64 percent based on 1st dose card or history coverage of 83 percent, 1st dose card only coverage of 52 percent and 3d dose card only coverage of 40 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2006: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2007: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2008: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2009: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: S-
- 2010: Reported data calibrated to 2004 and 2011 levels. Ethiopia Demographic and Health Survey 2011 results ignored by working group. Survey results do not include data obtained from health facility records. Ethiopia Demographic and Health Survey 2011 card or history results of 44 percent modified for recall bias to 61 percent based on 1st dose card or history coverage of 82 percent, 1st dose card only coverage of 27 percent and 3d dose card only coverage of 20 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2011: . Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23

months, additional documented information was obtained through health facility review. OPV coverage is not include in the Health Management Information System and the third dose of DTP-HepB-Hib coverage is used as a proxy indicator for coverage of third dose of polio vaccine. Estimate challenged by: D-R-S-

2012: Reported data calibrated to 2011 and 2013 levels. Estimate challenged by: S-

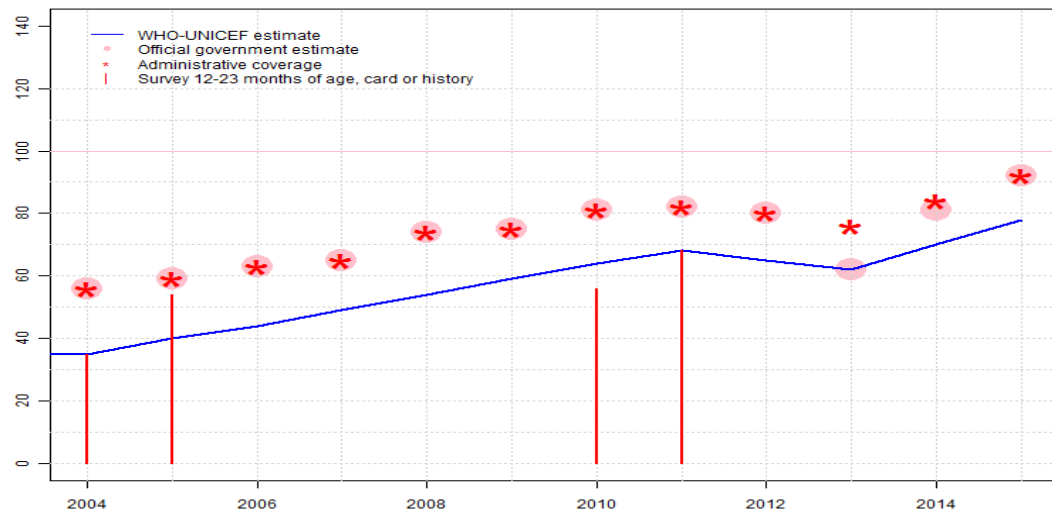
2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Reported data calibrated to 2014 levels. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - MCV1

ETH - MCV1



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	35	40	44	49	54	59	64	68	65	62	70	78
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	56	59	63	65	74	75	81	82	80	62	81	92
Administrative	56	59	63	65	74	75	81	82	80	76	84	92
Survey	35	54	NA	NA	NA	NA	56	68	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:

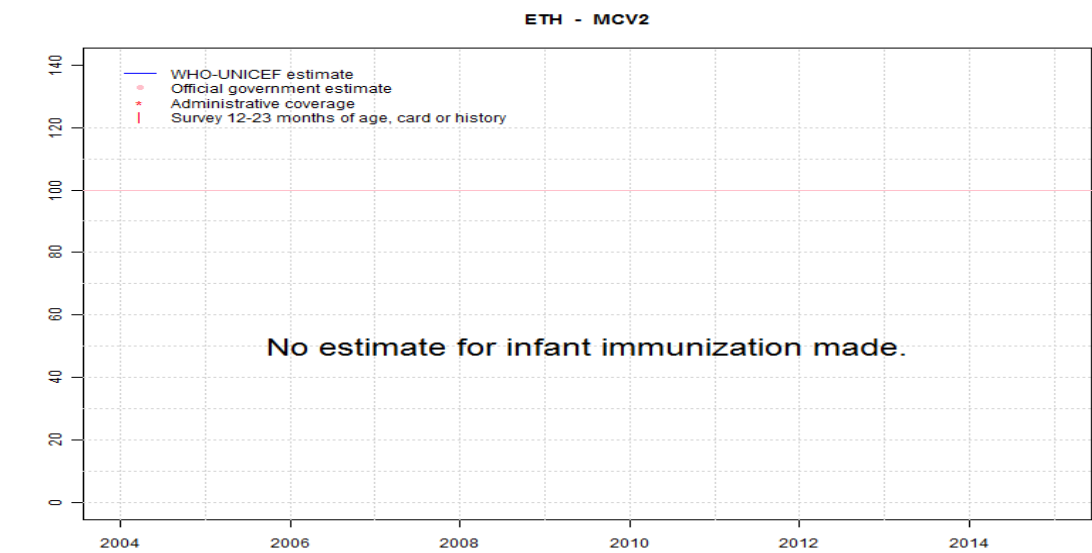
- 2004: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 35 percent based on 1 survey(s). Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-R-S-
- 2005: Reported data calibrated to 2004 and 2011 levels. EPI Coverage Cluster Sampling Survey 2006 Ethiopia results ignored by working group. Survey results inconsistent with other data. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2006: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2007: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2008: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2009: Reported data calibrated to 2004 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2010: Reported data calibrated to 2004 and 2011 levels. Ethiopia Demographic and Health Survey 2011 results ignored by working group. Survey results do not include data obtained from health facility records. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2011: . Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: D-R-S-
- 2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme im-

provement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative system. Reported data excluded. Change in reported coverage from 81 level to 92 percent. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - MCV2

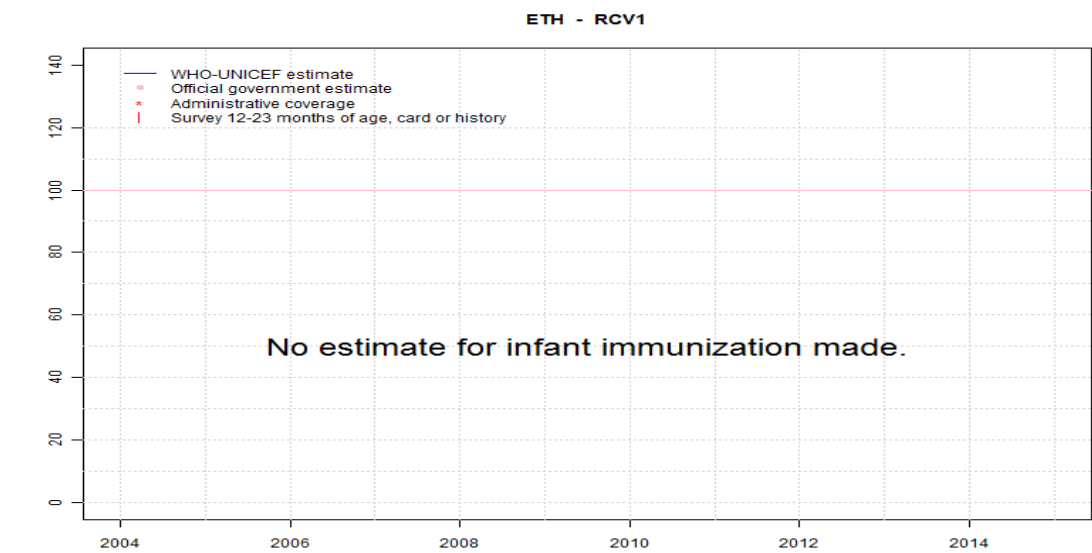


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.



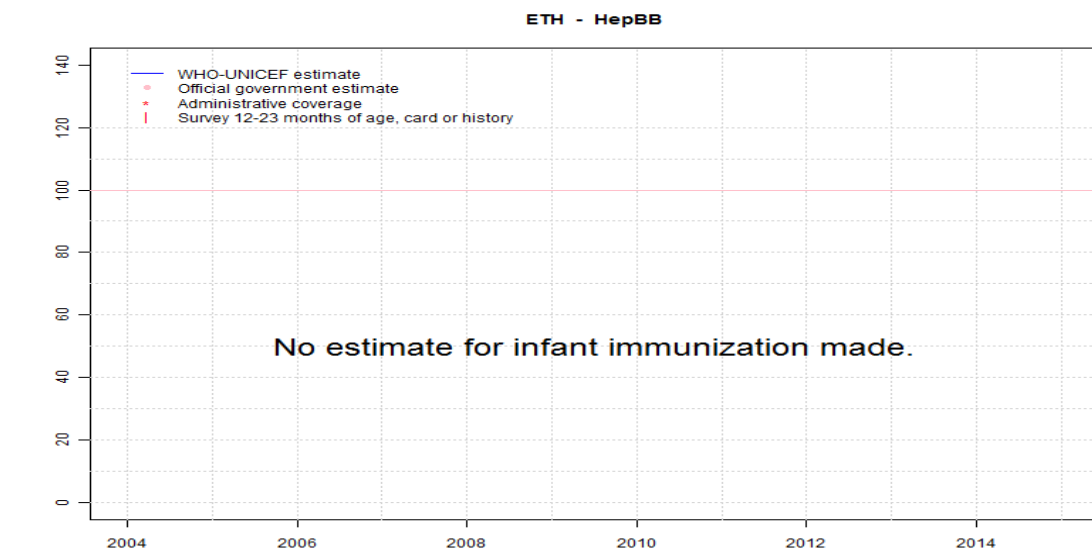
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.

Ethiopia - HepBB



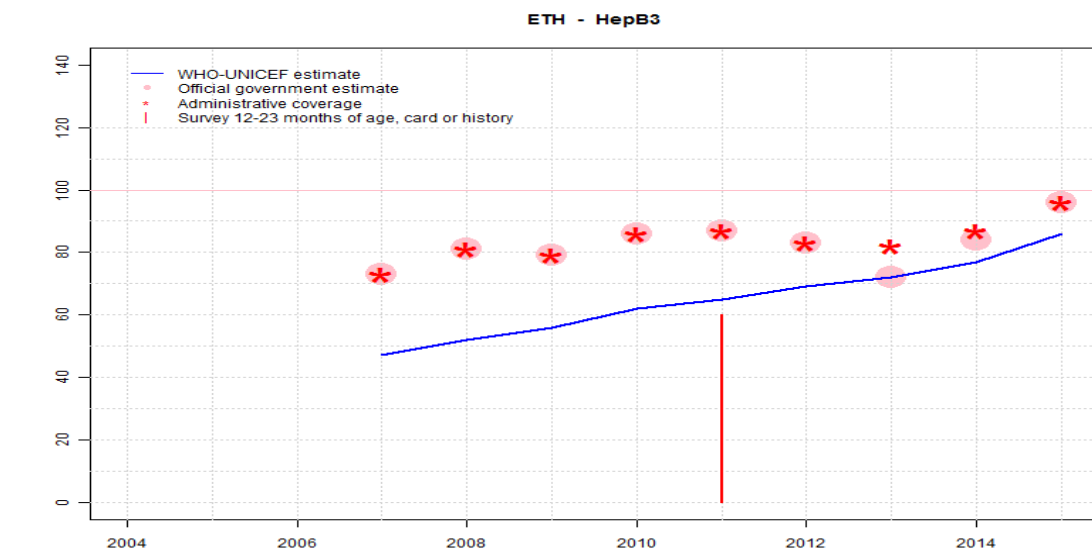
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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.

Ethiopia - HepB3



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	47	52	56	62	65	69	72	77	86
Estimate GoC	NA	NA	NA	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	73	81	79	86	87	83	72	84	96
Administrative	NA	NA	NA	73	81	79	86	87	83	82	87	96
Survey	NA	NA	NA	NA	NA	NA	NA	60	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.

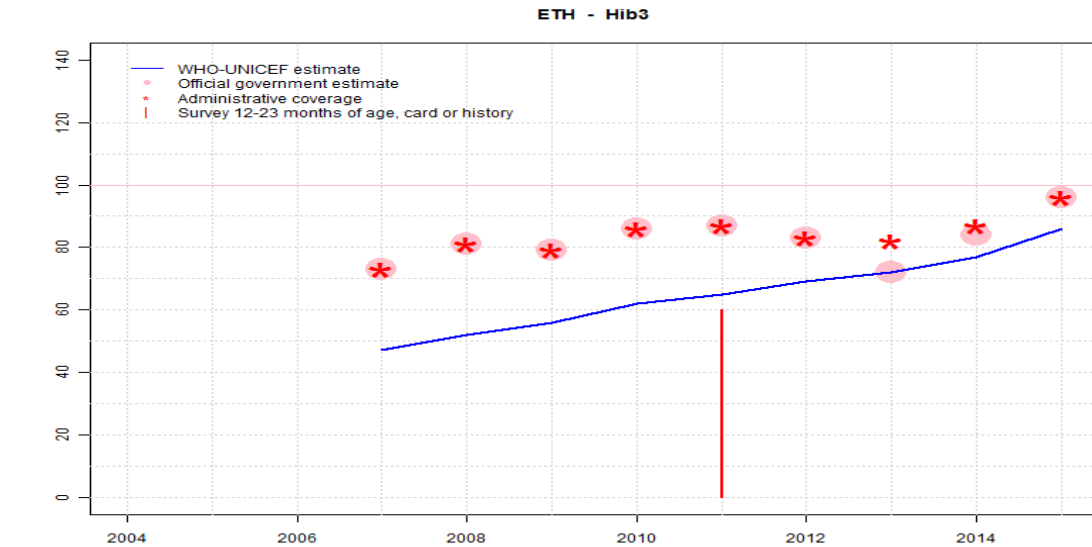
Description:

- 2007: Estimate based on DTP3 value. HepB vaccine introduced in 2007. Vaccine presentation is DTP-HepB-Hib. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2009: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2010: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2011: . Ethiopian Immunization Coverage Survey 2012 card or history results of 60 percent modified for recall bias to 65 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 59 percent and 3d dose card only coverage of 48 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: D-R-S-
- 2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .
- 2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased

with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative system. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - Hib3



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	47	52	56	62	65	69	72	77	86
Estimate GoC	NA	NA	NA	•	•	•	•	•	•	•	•	•
Official	NA	NA	NA	73	81	79	86	87	83	72	84	96
Administrative	NA	NA	NA	73	81	79	86	87	83	82	87	96
Survey	NA	NA	NA	NA	NA	NA	NA	60	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.

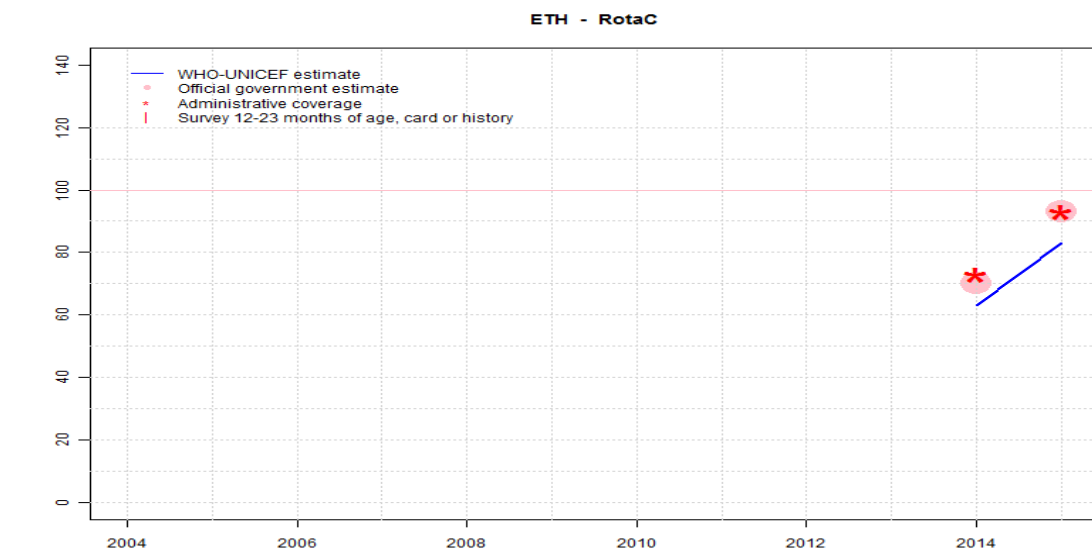
Description:

- 2007: Estimate based on DTP3 value. Hib vaccine introduced in 2007 Vaccine presentation is DTP-HepB-Hib. Estimate challenged by: D-R-
- 2008: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2009: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2010: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2011: . Ethiopian Immunization Coverage Survey 2012 card or history results of 60 percent modified for recall bias to 65 percent based on 1st dose card or history coverage of 80 percent, 1st dose card only coverage of 59 percent and 3d dose card only coverage of 48 percent. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Estimate challenged by: D-R-S-
- 2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. See comment in 2013 regarding deficiencies in administrative reporting system. Estimate challenged by: D-S-
- 2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .
- 2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased

with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative system. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - RotaC



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	83
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70	93
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73	93
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.

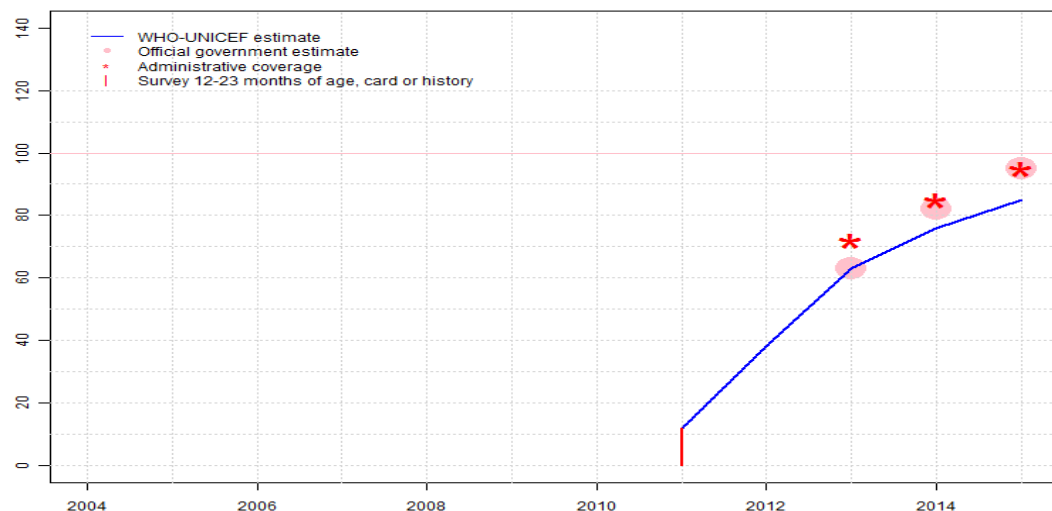
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

- 2014: Estimate reflects the difference between the estimate and reported administrative coverage for DTP3. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. Rotavirus vaccine introduced during November 2013 and reporting began during 2014. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.
- 2015: Estimate reflects the increase in coverage documented by the administrative system. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - PcV3

ETH - PcV3



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Estimate	NA	NA	NA	NA	NA	NA	NA	12	38	63	76	85
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	•	•	•	•	•
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	82	95
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	72	85	95
Survey	NA	NA	NA	NA	NA	NA	NA	12	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:

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 12 percent based on 1 survey(s). Information on child immunization was available from immunization cards for 47 percent of children aged 12-23 months, additional documented information was obtained through health facility review. Pneumococcal conjugate vaccine (PCV) was introduced in 3rd quarter of 2011. PCV coverage is not include in the Health Management Information System. GoC=Assigned by working group. .

2012: Reported data calibrated to 2011 and 2013 levels. GoC=No accepted empirical data

2013: National programme reports deficiencies in the accuracy of the administrative reporting system. An electronic HMIS was implemented in several regions during 2011-12 with national roll-out on-going in 2013. Reported coverage levels reflect an adjustment to the administrative coverage levels, based on the results of a DQS conducted in 2013. WHO and UNICEF encourage a revision of the reported time series of coverage data. During 2013, the national immunization programme has implemented a programme improvement plan. During 2013, the number of health centers and health posts increased as did the number of health extension workers in health posts. Observed decreases in the number of children vaccinated between 2012 and 2013 are believed to reflect improved recording and reporting rather than a true decline in service delivery. The official government estimate is based on the application of a verification factor from a 2013 DQS applied to HMIS coverage levels. GoC=Assigned by working group. .

2014: Estimate reflects the increase in coverage documented by the administrative system. Beginning in 2013 and continuing through 2014, the national immunization programme has implemented a programme improvement plan. From 2013 to 2014, the number of health centers and health posts increased with more than 90 percent of health facilities providing immunization services. Intensified efforts were conducted in training on supportive supervision and immunization in practice with a focus on Reaching Every District. The government reports an increase in reporting completeness from 83 to 98 percent. The official government estimate is based on the application of a verification factor from a 2014 DQS applied to HMIS coverage levels. Observed increases between 2013 and 2014 in the reported official coverage are of such magnitude that additional supporting evidence of the increase is needed. WHO and UNICEF are aware of a planned survey in early 2016 and await the final results. GoC=Assigned by working group. Consistency across antigens. Unexplained, inconsistent target population estimates during past four years.

2015: Estimate reflects the increase in coverage documented by the administrative

Ethiopia - PcV3

system. GoC=Assigned by working group. Consistency across antigens.
Unexplained, inconsistent target population estimates in recent years following drop in target population size between 2012 and 2013.

Ethiopia - survey details

2011 Ethiopian Immunization Coverage Survey 2012

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	53	12-23 m	-	47
BCG	Card or History	80	12-23 m	3762	47
BCG	History	27	12-23 m	-	47
DTP1	Card	59	12-23 m	-	47
DTP1	Card or History	80	12-23 m	3762	47
DTP1	History	21	12-23 m	-	47
DTP3	Card	48	12-23 m	-	47
DTP3	Card or History	60	12-23 m	3762	47
DTP3	History	12	12-23 m	-	47
HepB1	Card	59	12-23 m	-	47
HepB1	Card or History	80	12-23 m	3762	47
HepB1	History	21	12-23 m	-	47
HepB3	Card	48	12-23 m	-	47
HepB3	Card or History	60	12-23 m	3762	47
HepB3	History	12	12-23 m	-	47
Hib1	Card	59	12-23 m	-	47
Hib1	Card or History	80	12-23 m	3762	47
Hib1	History	21	12-23 m	-	47
Hib3	Card	48	12-23 m	-	47
Hib3	Card or History	60	12-23 m	3762	47
Hib3	History	12	12-23 m	-	47
MCV1	Card	42	12-23 m	-	47
MCV1	Card or History	68	12-23 m	3762	47
MCV1	History	26	12-23 m	-	47
PcV1	Card or History	19	12-23 m	3762	47
PcV3	Card or History	12	12-23 m	3762	47
Pol1	Card	58	12-23 m	-	47
Pol1	Card or History	90	12-23 m	3762	47
Pol1	History	32	12-23 m	-	47
Pol3	Card	45	12-23 m	-	47
Pol3	Card or History	70	12-23 m	3762	47
Pol3	History	25	12-23 m	-	47

* coverage levels confirmed by card include evidence of vaccination from cards as well as information obtained from a review of health facility records

2010 Ethiopia Demographic and Health Survey 2011

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	65	12-23 m	1927	29
BCG	Card	26	12-23 m	1927	29
BCG	Card or History	66	12-23 m	1927	29
BCG	History	41	12-23 m	1927	29
DTP1	C or H <12 months	62	12-23 m	1927	29
DTP1	Card	28	12-23 m	1927	29
DTP1	Card or History	64	12-23 m	1927	29
DTP1	History	36	12-23 m	1927	29
DTP3	C or H <12 months	35	12-23 m	1927	29
DTP3	Card	22	12-23 m	1927	29
DTP3	Card or History	36	12-23 m	1927	29
DTP3	History	15	12-23 m	1927	29
MCV1	C or H <12 months	49	12-23 m	1927	29
MCV1	Card	22	12-23 m	1927	29
MCV1	Card or History	56	12-23 m	1927	29
MCV1	History	34	12-23 m	1927	29
Pol1	C or H <12 months	81	12-23 m	1927	29
Pol1	Card	27	12-23 m	1927	29
Pol1	Card or History	82	12-23 m	1927	29
Pol1	History	55	12-23 m	1927	29
Pol3	C or H <12 months	43	12-23 m	1927	29
Pol3	Card	20	12-23 m	1927	29
Pol3	Card or History	44	12-23 m	1927	29
Pol3	History	24	12-23 m	1927	29

2005 EPI Coverage Cluster Sampling Survey 2006 Ethiopia

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	58	12-23 m	6903	60
BCG	Card or History	83	12-23 m	6903	60
DTP1	Card	54	12-23 m	6903	60
DTP1	Card or History	84	12-23 m	6903	60
DTP3	Card	41	12-23 m	6903	60
DTP3	Card or History	66	12-23 m	6903	60
MCV1	Card	27	12-23 m	6903	60
MCV1	Card or History	54	12-23 m	6903	60
Pol1	Card	52	12-23 m	6903	60
Pol1	Card or History	83	12-23 m	6903	60

Ethiopia - survey details

Pol3	Card	40	12-23 m	6903	60
Pol3	Card or History	67	12-23 m	6903	60

MCV1	NA	60	12-23 m	1949368 -
Pol1	NA	64	12-23 m	1949368 -
Pol3	NA	56	12-23 m	1949368 -

2004 Ethiopia Demographic and Health Survey 2005

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	57	12-23 m	1877	37
BCG	Card	33	12-23 m	1877	37
BCG	Card or History	60	12-23 m	1877	37
BCG	History	27	12-23 m	1877	37
DTP1	C or H <12 months	55	12-23 m	1877	37
DTP1	Card	36	12-23 m	1877	37
DTP1	Card or History	58	12-23 m	1877	37
DTP1	History	22	12-23 m	1877	37
DTP3	C or H <12 months	29	12-23 m	1877	37
DTP3	Card	25	12-23 m	1877	37
DTP3	Card or History	32	12-23 m	1877	37
DTP3	History	7	12-23 m	1877	37
MCV1	C or H <12 months	28	12-23 m	1877	37
MCV1	Card	22	12-23 m	1877	37
MCV1	Card or History	35	12-23 m	1877	37
MCV1	History	13	12-23 m	1877	37
Pol1	C or H <12 months	70	12-23 m	1877	37
Pol1	Card	36	12-23 m	1877	37
Pol1	Card or History	74	12-23 m	1877	37
Pol1	History	38	12-23 m	1877	37
Pol3	C or H <12 months	41	12-23 m	1877	37
Pol3	Card	25	12-23 m	1877	37
Pol3	Card or History	45	12-23 m	1877	37
Pol3	History	20	12-23 m	1877	37

2003 Ethiopia Welfare Monitoring Survey 2004

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	NA	57	12-23 m	1949368	-
DTP1	NA	59	12-23 m	1949368	-
DTP3	NA	50	12-23 m	1949368	-

2000 National EPI Coverage Survey, Ethiopia 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	76	12-23 m	3564	52
DTP1	Card or History	74	12-23 m	3564	52
DTP3	Card or History	56	12-23 m	3564	52
MCV1	Card or History	52	12-23 m	3564	52
Pol1	Card or History	74	12-23 m	3564	52
Pol3	Card or History	57	12-23 m	3564	52

1999 Ethiopia Demographic and Health Survey 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	41	12-23 m	2143	27
BCG	Card	24	12-23 m	2143	27
BCG	Card or History	46	12-23 m	2143	27
BCG	History	22	12-23 m	2143	27
DTP1	C or H <12 months	40	12-23 m	2143	27
DTP1	Card	26	12-23 m	2143	27
DTP1	Card or History	44	12-23 m	2143	27
DTP1	History	18	12-23 m	2143	27
DTP3	C or H <12 months	18	12-23 m	2143	27
DTP3	Card	16	12-23 m	2143	27
DTP3	Card or History	21	12-23 m	2143	27
DTP3	History	4	12-23 m	2143	27
MCV1	C or H <12 months	21	12-23 m	2143	27
MCV1	Card	17	12-23 m	2143	27
MCV1	Card or History	27	12-23 m	2143	27
MCV1	History	10	12-23 m	2143	27
Pol1	C or H <12 months	74	12-23 m	2143	27
Pol1	Card	26	12-23 m	2143	27
Pol1	Card or History	83	12-23 m	2143	27
Pol1	History	56	12-23 m	2143	27

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Pol3	C or H <12 months	30	12-23 m	2143	27
Pol3	Card	18	12-23 m	2143	27
Pol3	Card or History	35	12-23 m	2143	27
Pol3	History	16	12-23 m	2143	27

1998 Ethiopia Demographic and Health Survey 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	43	24-35 m	2084	27
DTP1	C or H <12 months	41	24-35 m	2084	27
DTP3	C or H <12 months	21	24-35 m	2084	27
MCV1	C or H <12 months	22	24-35 m	2084	27
Pol1	C or H <12 months	72	24-35 m	2084	27
Pol3	C or H <12 months	40	24-35 m	2084	27

1997 Ethiopia Demographic and Health Survey 2000, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	43	36-47 m	2260	27
DTP1	C or H <12 months	39	36-47 m	2260	27
DTP3	C or H <12 months	22	36-47 m	2260	27
MCV1	C or H <12 months	20	36-47 m	2260	27
Pol1	C or H <12 months	71	36-47 m	2260	27
Pol3	C or H <12 months	43	36-47 m	2260	27

1997 Ethiopia, Report on the 1998 Health and Nutrition Survey, 1999

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	52	12-23 m	-	-
DTP3	Card or History	53	12-23 m	-	-
MCV1	Card or History	49	12-23 m	-	-
Pol3	Card or History	82	12-23 m	-	-

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

Ethiopia

WHO/UNICEF Estimates of Protection at Birth (PAB) against tetanus

In countries where tetanus is recommended for girls and women coverage is usually reported as "TT2+", i.e. the proportion of (pregnant) women who have received their second or superior TT dose in a given year. TT2 + coverage, however, can under-represent the actual proportion of births that are protected against tetanus as it does not include women who have previously received protective doses, women who received one dose without documentation of previous doses, and women who received doses in TT (or Td) supplemental immunization activities (SIA). In addition, girls who have received DTP in their childhood and are entering childbearing age, may be protected with TT booster doses.

WHO and UNICEF have developed a model that takes into account the above scenarios, and calculates the proportion of births in a given year that can be considered as having been protected against tetanus - "Protection at Birth".

In this model, annual cohorts of women are followed from infancy through their life. A proportion receives DTP in infancy (estimated based on the WHO-UNICEF estimates of DTP3 coverage). In addition some of these women also receive TT through routine services when they are pregnant and may also receive TT during SIAs. The model also adjusts reported data, taking into account coverage patterns in other years, and/or results available through surveys. The duration of protection is then calculated, based on WHO estimates of the duration of protection by doses ever received. The proportion of births that are protected against tetanus as a result of maternal immunization reflects the tetanus immunization received by the mother throughout her life rather than simply the TT immunizations received during the current pregnancy.

The model was used in the mid to late 2000. Currently, the coverage series developed by the model is used as the baseline, and efforts are made to obtain data from all sources that include the JRF and reported trend over the years, routine PAB reporting and its trend over the years, data from surveys (DHS, MICS, EPI), whether countries have been validated for the attainment of maternal and neonatal tetanus elimination and what the TT coverage figures are from the survey etc and all the information is used to arrive at an estimate of the protection-at-birth from TT vaccination.

Year	PAB coverage estimate (%)
2004	77
2005	80
2006	82
2007	83
2008	84
2009	88
2010	88
2011	88
2012	68
2013	72
2014	80
2015	80

¹ This model is described in: Griffiths U., Wolfson L., Quddus A., Younus M., Hafiz R.. Incremental cost-effectiveness of supplementary immunization activities to prevent neo-natal tetanus in Pakistan. Bulletin of the World Health Organization 2004; 82:643-651.