Ecuador: WHO and UNICEF estimates of immunization coverage: 2014 revision

WHO and UNICEF estimates of national immunization coverage - next revision available July 15, 2016 data as of July 7, 2015

ECU - BCG

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	99	99	99	99	99	98	99	98	98	94	90	89
Estimate GoC	●	●	●	●●	●●	●●	●●	●●	●	●●	●●●	●●
Official	99	113	113	116	116	118	120	117	117	122	90	89
Administrative	99	113	113	116	116	118	120	117	117	122	90	89
Survey	97	NA	NA	NA	NA	NA	NA	NA	98	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: 2012 revision from the UN Popula-
    tion 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-];
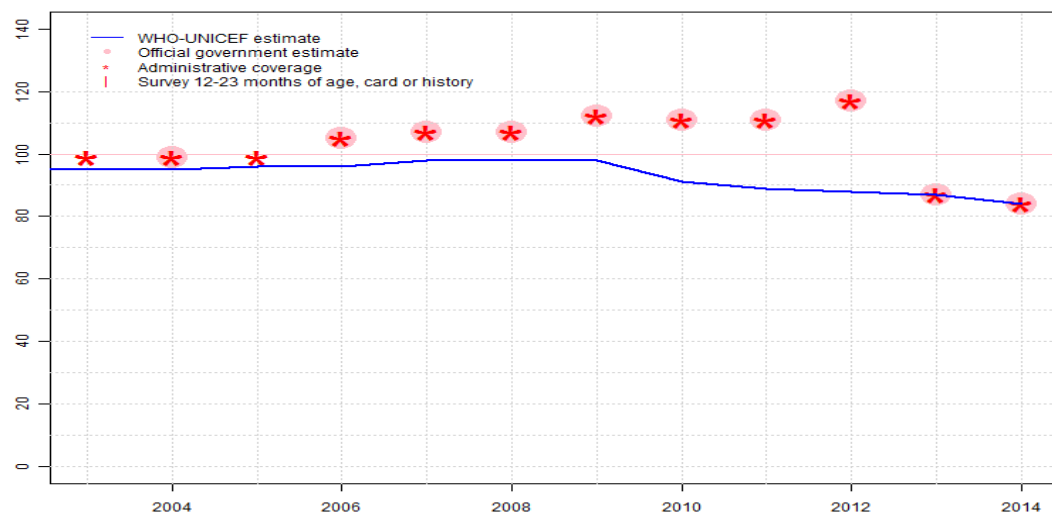   challenge the estimate.

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:

2003: Reported data calibrated to 1998 and 2011 levels. Survey of Demography and Maternal and Child Health (ENDEMAIN-2004) results ignored by working group. Estimate based on reported data for other antigens.Reported data excluded. Decline in reported coverage from 117 percent to 99 percent with increase to 113 percent. Estimate challenged by: S-

2004: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 113 percent greater than 100 percent. Estimate challenged by: S-

2005: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 113 percent greater than 100 percent. Estimate challenged by: S-

2006: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 116 percent greater than 100 percent. GoC=D+

2007: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 116 percent greater than 100 percent. GoC=D+

2008: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 118 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. GoC=D+

2009: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 120 percent greater than 100 percent. GoC=S+ D+

2010: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 117 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. GoC=S+ D+

2011: Estimate is based on survey result. Reported data excluded. 117 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. 122 percent greater than 100 percent. Estimate of 94 percent changed from previous revision value of 99 percent. GoC=S+ D+

2013: Coverage levels for 2013 following a revision of the target population are in line with the results of the 2012 coverage survey for the 2011 birth cohort. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 90 percent changed from previous revision value of 99 percent. GoC=R+ S+ D+

2014: Estimate based on coverage reported by national government. GoC=R+ D+

ECU - DTP1

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	95	95	96	96	98	98	98	91	89	88	87	84
Estimate GoC	••	••	••	••	•	•	•	••	••	•	••	••
Official	NA	99	NA	105	107	107	112	111	111	117	87	84
Administrative	99	99	99	105	107	107	112	111	111	117	87	84
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: 2012 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.
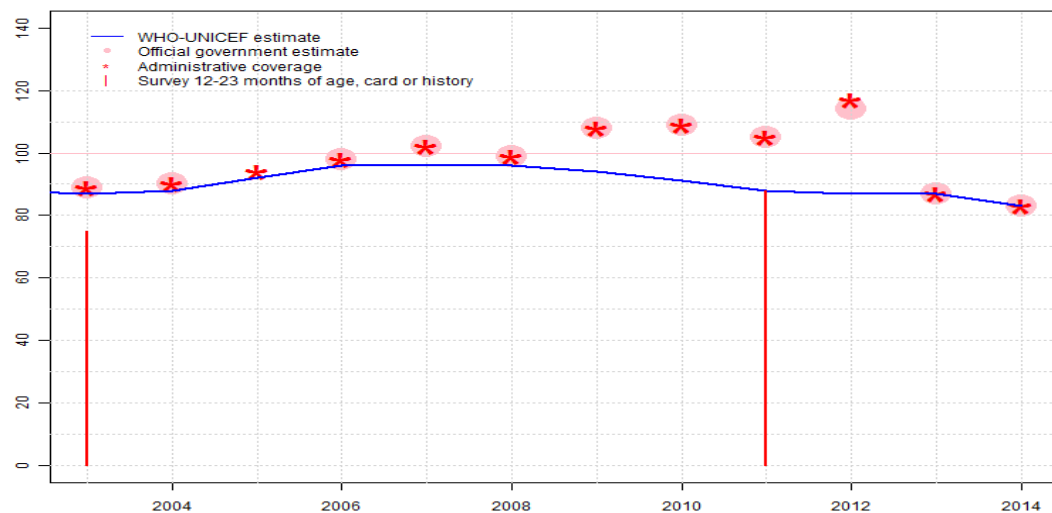
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Description:

2003: Reported data calibrated to 1997 and 2013 levels. Estimate of 95 percent changed from previous revision value of 93 percent. GoC=D+

2004: Reported data calibrated to 1997 and 2013 levels. Estimate of 95 percent changed from previous revision value of 93 percent. GoC=D+

2005: Reported data calibrated to 1997 and 2013 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=D+

2006: Reported data calibrated to 1997 and 2013 levels. Reported data excluded. 105 percent greater than 100 percent. Estimate of 96 percent changed from previous revision value of 99 percent. GoC=D+

2007: DTP1 coverage estimated based on DTP3 coverage of 96. Reported data excluded. 107 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2008: DTP1 coverage estimated based on DTP3 coverage of 96. Reported data excluded. 107 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2009: DTP1 coverage estimated based on DTP3 coverage of 94. Reported data excluded. 112 percent greater than 100 percent. Estimate of 98 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2010: Reported data calibrated to 1997 and 2013 levels. Reported data excluded. 111 percent greater than 100 percent. Estimate of 91 percent changed from previous revision value of 99 percent. GoC=D+

2011: Reported data calibrated to 1997 and 2013 levels. Reported data excluded. 111 percent greater than 100 percent. Estimate of 89 percent changed from previous revision value of 99 percent. GoC=D+

2012: Reported data calibrated to 1997 and 2013 levels. Reported data excluded. 117 percent greater than 100 percent. Estimate of 88 percent changed from previous revision value of 99 percent. Estimate challenged by: D-

2013: Coverage levels for 2013 following a revision of the target population are in line with the results of the 2012 coverage survey for the 2011 birth cohort. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 87 percent changed from previous revision value of 99 percent. GoC=R+ D+

2014: Estimate based on coverage reported by national government. Programme reports four month stock-out at national level. GoC=R+ D+

Ecuador - DTP3

ECU - DTP3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	87	88	92	96	96	96	94	91	88	87	87	83
Estimate GoC	●	●	●	●●	●●	●●	●●	●●	●	●	●●●	●●
Official	89	90	NA	98	102	99	108	109	105	114	87	83
Administrative	89	90	94	98	102	99	108	109	105	117	87	83
Survey	75	NA	NA	NA	NA	NA	NA	NA	88	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent
   denominator from the World Population Prospects: 2012 revision from the UN Popula-
   tion 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-];
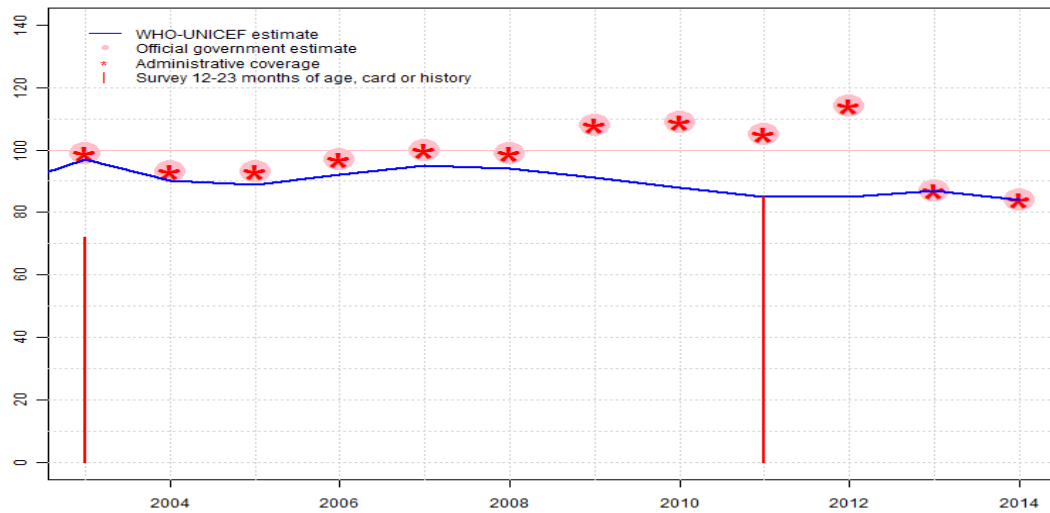   challenge the estimate.

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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.
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Description:

2003: Reported data calibrated to 1998 and 2011 levels. Survey of Demogra-
phy and Maternal and Child Health (ENDEMAIN-2004) results ignored
by working group. Data not available for DTP1 and HepB3. No CARD
only data to adjust for recall bias. Estimate of 87 percent changed from
previous revision value of 89 percent. Estimate challenged by: D-S-

2004: Reported data calibrated to 1998 and 2011 levels. Estimate of 88 percent
changed from previous revision value of 90 percent. Estimate challenged
by: S-

2005: Reported data calibrated to 1998 and 2011 levels. Estimate of 92 percent
changed from previous revision value of 94 percent. Estimate challenged
by: S-

2006: Reported data calibrated to 1998 and 2011 levels. Estimate of 96 percent
changed from previous revision value of 98 percent. GoC=D+

2007: Reported data calibrated to 1998 and 2011 levels. Reported data excluded.
102 percent greater than 100 percent. Estimate of 96 percent changed from
previous revision value of 99 percent. GoC=D+

2008: Reported data calibrated to 1998 and 2011 levels. Estimate of 96 percent
changed from previous revision value of 99 percent. GoC=D+

2009: Reported data calibrated to 1998 and 2011 levels. Reported data excluded.
108 percent greater than 100 percent. Estimate of 94 percent changed from
previous revision value of 99 percent. GoC=S+ D+

2010: Reported data calibrated to 1998 and 2011 levels. Reported data excluded.
109 percent greater than 100 percent. Estimate of 91 percent changed from
previous revision value of 99 percent. GoC=S+ D+

2011: Estimate is based on survey result. Information on DTP1 is not provided
in the survey. Survey result not adjusted for recall bias. Reported data
excluded. 105 percent greater than 100 percent. Estimate of 88 percent
changed from previous revision value of 99 percent. Estimate challenged
by: R-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded.
114 percent greater than 100 percent. Estimate of 87 percent changed from
previous revision value of 99 percent. Estimate challenged by: D-

2013: Coverage levels for 2013 following a revision of the target population are in
line with the results of the 2012 coverage survey for the 2011 birth cohort.
Decline in reported coverage is partly due to a revision of the target pop-
ulation estimate in 2013. Estimate of 87 percent changed from previous
revision value of 99 percent. GoC=R+ S+ D+

2014: Estimate based on coverage reported by national government. Programme
reports four month stock-out at national level. GoC=R+ D+

ECU - Pol3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	97	90	89	92	95	94	91	88	85	85	87	84
Estimate GoC	●	●	●	●●	●●	●●	●●	●●	●	●	●●●	●●
Official	99	93	93	97	100	99	108	109	105	114	87	84
Administrative	99	93	93	97	100	99	108	109	105	114	87	84
Survey	72	NA	NA	NA	NA	NA	NA	NA	85	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2012 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.
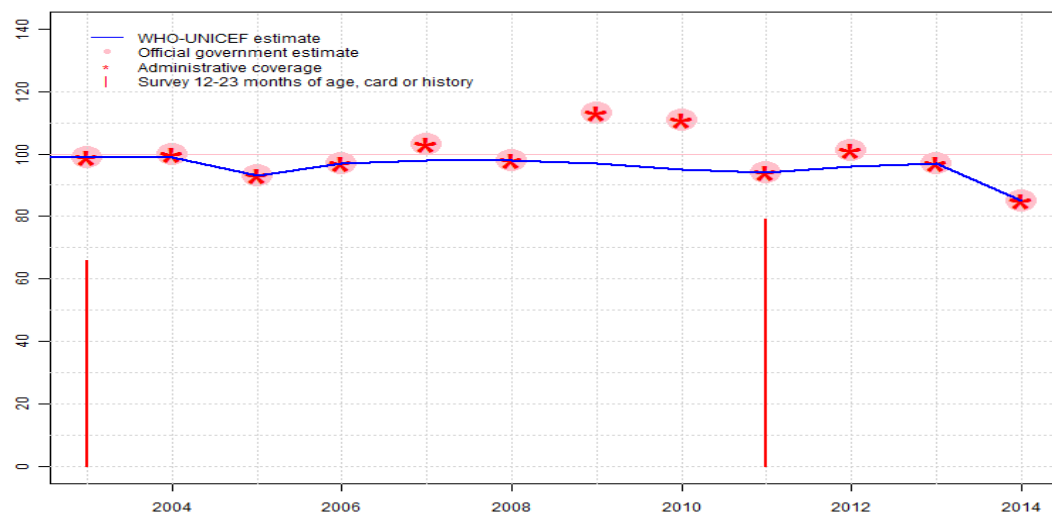
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In all cases these estimates should be used with caution and should be assessed in light
of the objective for which they are being used.
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Description:

2003: Reported data calibrated to 1998 and 2011 levels. Survey of Demography and Maternal and Child Health (ENDEMAIN-2004) results ignored by working group. Data not available for DTP1 or HepB3. No CARD only data available to adjust for recall bias. Estimate of 97 percent changed from previous revision value of 99 percent. Estimate challenged by: D-S-

2004: Reported data calibrated to 1998 and 2011 levels. Estimate of 90 percent changed from previous revision value of 93 percent. Estimate challenged by: S-

2005: Reported data calibrated to 1998 and 2011 levels. Estimate of 89 percent changed from previous revision value of 93 percent. Estimate challenged by: S-

2006: Reported data calibrated to 1998 and 2011 levels. Estimate of 92 percent changed from previous revision value of 97 percent. GoC=D+

2007: Reported data calibrated to 1998 and 2011 levels. Estimate of 95 percent changed from previous revision value of 99 percent. GoC=D+

2008: Reported data calibrated to 1998 and 2011 levels. Estimate of 94 percent changed from previous revision value of 99 percent. GoC=D+

2009: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 108 percent greater than 100 percent. Estimate of 91 percent changed from previous revision value of 99 percent. GoC=S+ D+

2010: Reported data calibrated to 1998 and 2011 levels. Reported data excluded. 109 percent greater than 100 percent. Estimate of 88 percent changed from previous revision value of 99 percent. GoC=S+ D+

2011: Estimate is based on survey result. Information on Pol1 is not provided in the survey. Survey result not adjusted for recall bias. Reported data excluded. 105 percent greater than 100 percent. Estimate of 85 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. 114 percent greater than 100 percent. Estimate of 85 percent changed from previous revision value of 99 percent. Estimate challenged by: D-

2013: Coverage levels for 2013 following a revision of the target population are in line with the results of the 2012 coverage survey for the 2011 birth cohort. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 87 percent changed from previous revision value of 99 percent. GoC=R+ S+ D+

2014: Estimate based on coverage reported by national government. GoC=R+ D+

Ecuador - MCV1

ECU - MCV1

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	99	99	93	97	98	98	97	95	94	96	97	85
Estimate GoC	●	●	●	●●	●●	●	●	●	●	●	●	●●
Official	99	100	93	97	103	98	113	111	94	101	97	85
Administrative	99	100	93	97	103	98	113	111	94	101	97	85
Survey	66	NA	NA	NA	NA	NA	NA	NA	79	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent
denominator from the World Population Prospects: 2012 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.

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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.
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Description:

2003: Estimate based on coverage reported by national government. Survey of Demography and Maternal and Child Health (ENDEMAIN-2004) results ignored by working group. Survey results likely underestimate coverage. Measles vaccination recommended between 12 and 23 months of age. Survey cohort of 12-23 months of age includes children still eligible for vaccination. Estimate challenged by: S-

2004: Estimate based on coverage reported by national government. Estimate challenged by: D-S-

2005: Estimate based on coverage reported by national government. Estimate challenged by: S-

2006: Estimate based on coverage reported by national government. GoC=R+ D+

2007: Estimate based on interpolation between data reported by national government. Reported data excluded. 103 percent greater than 100 percent. GoC=D+

2008: Estimate based on coverage reported by national government. Estimate challenged by: D-

2009: Estimate based on interpolation between data reported by national government. Reported data excluded. 113 percent greater than 100 percent. Estimate challenged by: S-

2010: Estimate based on interpolation between data reported by national government. Reported data excluded. 111 percent greater than 100 percent. Estimate challenged by: S-

2011: Estimate based on coverage reported by national government. National Health and Nutrition Survey, 2012 results ignored by working group. Survey results likely underestimate coverage. Measles vaccination recommended between 12 and 23 months of age. Survey cohort of 12-23 months of age includes children still eligible for vaccination. Estimate challenged by: D-S-

2012: Estimate based on interpolation between data reported by national government. Reported data excluded. 101 percent greater than 100 percent. Estimate challenged by: S-

2013: Estimate based on coverage reported by national government. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Programme reports a 3 month stockout at the national level. Estimate challenged by: S-

2014: Estimate based on coverage reported by national government. Programme reports a decrease in the number of children vaccinated with first dose of measles containing vaccine (MCV). The current immunization schedule includes an additional dose at six month followed by recommended doses at 12 and 6 years. Programme provides a dose of MR at 6 months fol-
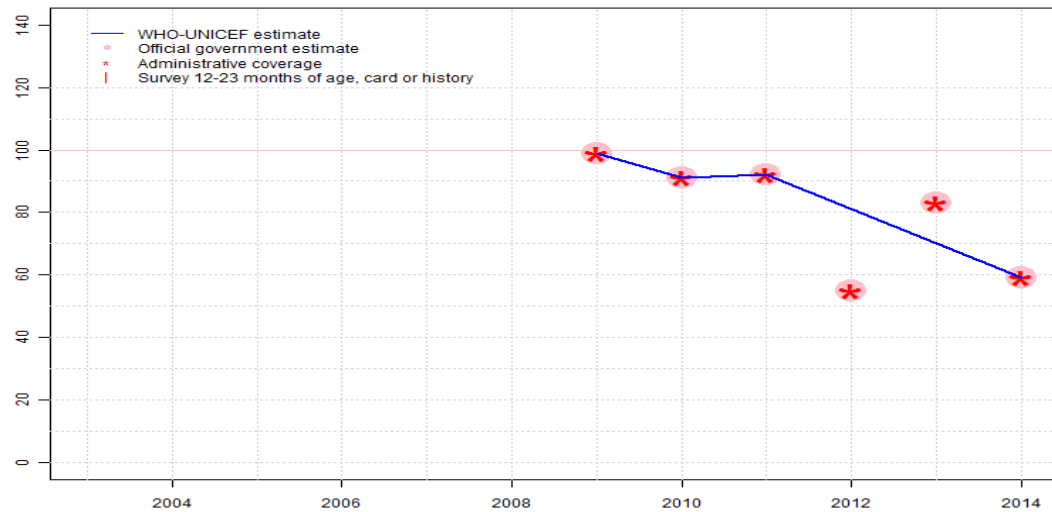
lowing recent outbreak but that dose is a temporary response. The first
dose of MMR is recommended at 12 months and is the coverage reflected
here. Estimate is based on reported data to be consistent across vaccines.
GoC=R+ D+

Ecuador - MCV2

ECU - MCV2

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	99	91	92	81	70	59
Estimate GoC	NA	NA	NA	NA	NA	NA	●	●●	●	●	●	●●
Official	NA	NA	NA	NA	NA	NA	99	91	92	55	83	59
Administrative	NA	NA	NA	NA	NA	NA	99	91	92	55	83	59
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent
denominator from the World Population Prospects: 2012 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.

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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.
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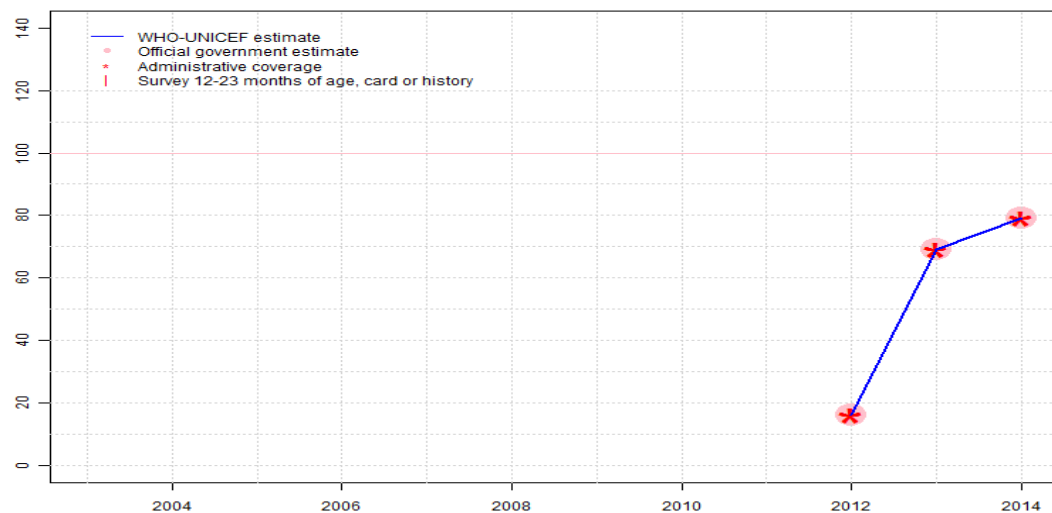
Description:

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

2009: Estimate based on coverage reported by national government. Estimate challenged by: D-

2010: Estimate based on coverage reported by national government. GoC=R+ D+

2011: Estimate based on coverage reported by national government. Estimate challenged by: D-

2012: Estimate based on interpolation between reported values. Reported data excluded. Decline in reported coverage from 92 percent to 55 percent with increase to 83 percent. Estimate of 81 percent changed from previous revision value of 92 percent. Estimate challenged by: D-

2013: Estimate based on interpolation between reported values. Reported data excluded. Unexplained increase from 55 percent to 83 percent with decrease 59 percent. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Programme reports a 3 month stockout at the national level. Estimate of 70 percent changed from previous revision value of 92 percent. Estimate challenged by: D-

2014: Estimate based on coverage reported by national government. Estimate is based on reported coverage consistent with other vaccines. The number of doses of measles containing vaccine administered has declined year-to-year from 2012. GoC=R+ D+

Ecuador - HepBB

Description:

2012: Estimate based on coverage reported by national government. HepB birth dose introduced universally in 2012. GoC=R+ D+

2013: Estimate based on coverage reported by national government. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Programme reports a three month stockout of monovalent HepB vaccine. Estimate based on reported coverage. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+ D+

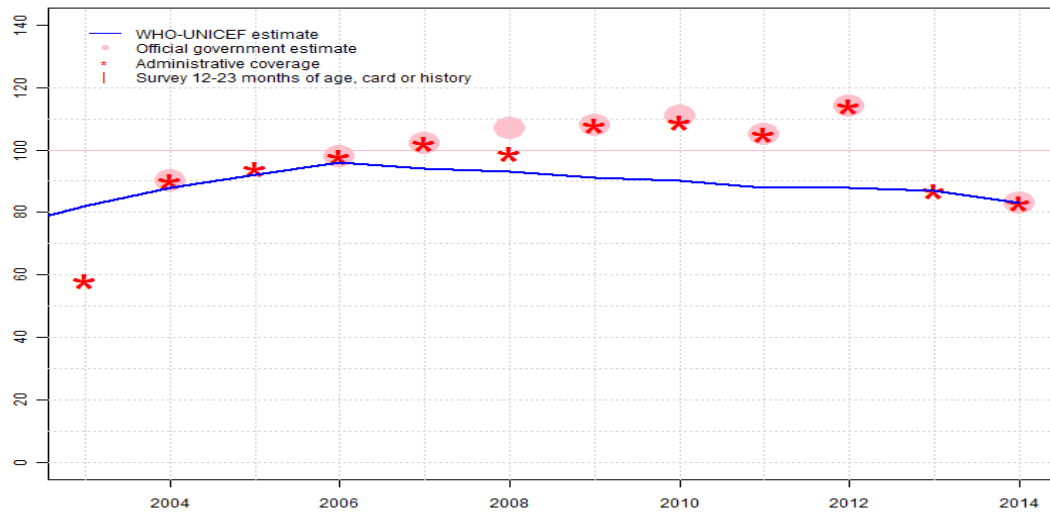|	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	69	79
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	••	••	••
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	69	79
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	69	79
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: 2012 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.

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● 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.

Ecuador - HepB3

ECU - HepB3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	82	88	92	96	94	93	91	90	88	88	87	83
Estimate GoC	●	●●	●●	●●	●●	●●	●●	●●	●	●●	●●	●●
Official	NA	90	NA	98	102	107	108	111	105	114	NA	83
Administrative	58	90	94	98	102	99	108	109	105	114	87	83
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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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
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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent
   denominator from the World Population Prospects: 2012 revision from the UN Popula-
   tion 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-];
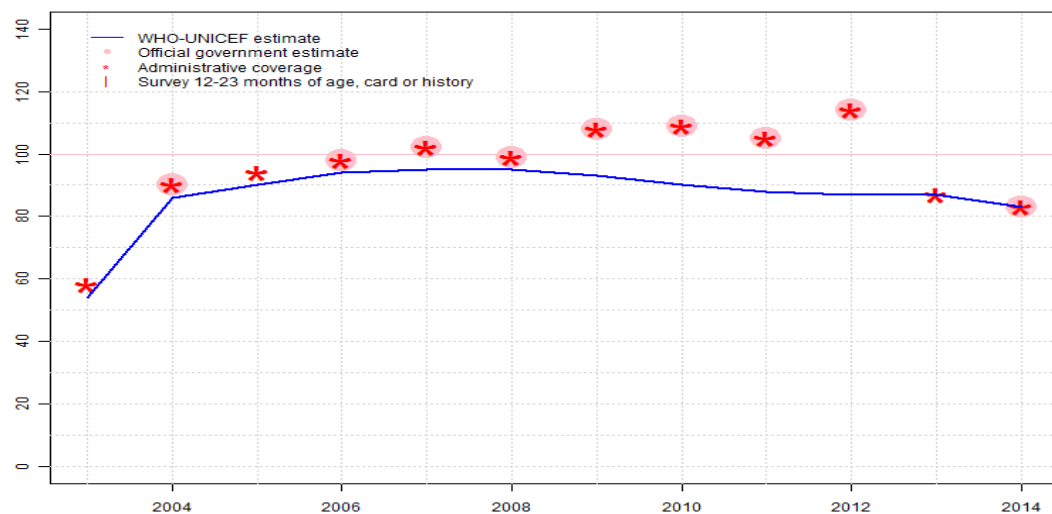   challenge the estimate.

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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.
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Description:

2003: Reported data calibrated to 2011 levels. Reported data excluded. Decline in reported coverage from 85 percent to 58 percent with increase to 90 percent. Decline associated with replacement of monovalent hepatitis B vaccine with DTP-HepB-Hib combination vaccine. Estimate of 82 percent changed from previous revision value of 84 percent. Estimate challenged by: D-

2004: Reported data calibrated to 2011 levels. Estimate of 88 percent changed from previous revision value of 90 percent. GoC=D+

2005: Reported data calibrated to 2011 levels. Estimate of 92 percent changed from previous revision value of 94 percent. GoC=D+

2006: Reported data calibrated to 2011 levels. Estimate of 96 percent changed from previous revision value of 98 percent. GoC=D+

2007: Reported data calibrated to 2011 levels. Reported data excluded. 102 percent greater than 100 percent. Estimate of 94 percent changed from previous revision value of 98 percent. GoC=D+

2008: Reported data calibrated to 2011 levels. Reported data excluded. 107 percent greater than 100 percent. Estimate of 93 percent changed from previous revision value of 98 percent. GoC=D+

2009: Reported data calibrated to 2011 levels. Reported data excluded. 108 percent greater than 100 percent. Estimate of 91 percent changed from previous revision value of 98 percent. GoC=D+

2010: Reported data calibrated to 2011 levels. Reported data excluded. 111 percent greater than 100 percent. Estimate of 90 percent changed from previous revision value of 98 percent. GoC=D+

2011: Estimate is based on survey result. Information on DTP1 is not provided in the survey. Survey result not adjusted for recall bias. Reported data excluded. 105 percent greater than 100 percent. Estimate of 88 percent changed from previous revision value of 98 percent. Estimate challenged by: R-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. 114 percent greater than 100 percent. Estimate of 88 percent changed from previous revision value of 98 percent. GoC=D+

2013: Coverage levels for 2013 following a revision of the target population are in line with the results of the 2012 coverage survey for the 2011 birth cohort. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 87 percent changed from previous revision value of 98 percent. GoC=R+ D+

2014: Estimate based on coverage reported by national government. Programme reports four month stock-out at national level. GoC=R+ D+

Ecuador - Hib3

ECU - Hib3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- I Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	54	86	90	94	95	95	93	90	88	87	87	83
Estimate GoC	●●	●●	●●	●●	●●	●●	●●	●●	●	●●	●●	●●
Official	NA	90	NA	98	102	99	108	109	105	114	NA	83
Administrative	58	90	94	98	102	99	108	109	105	114	87	83
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent
denominator from the World Population Prospects: 2012 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-];
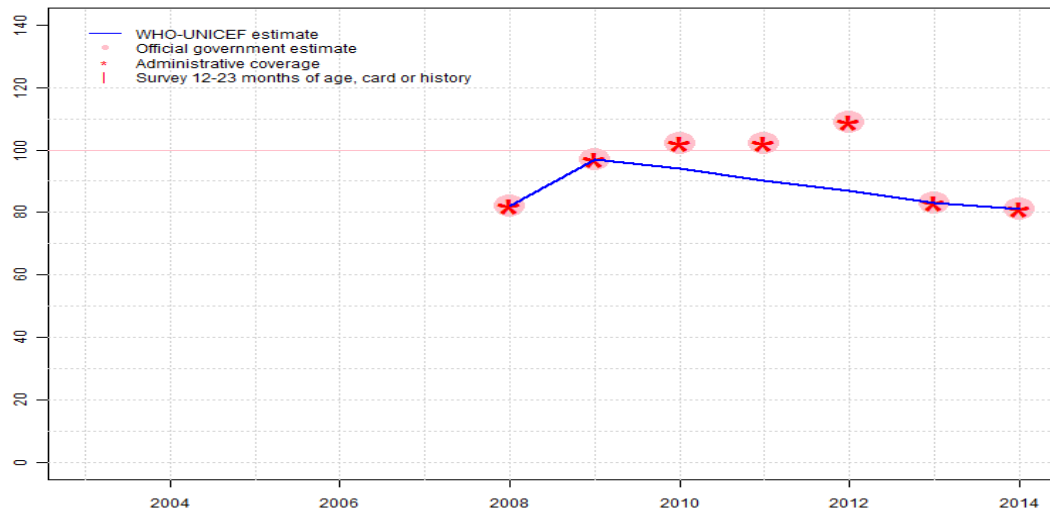challenge the estimate.

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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.
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Description:

2003: Reported data calibrated to 2011 levels. Hib vaccine introduced in 2003. Vaccine presentation is DTP-HepB-Hib. Estimate of 54 percent changed from previous revision value of 58 percent. GoC=D+

2004: Reported data calibrated to 2011 levels. Estimate of 86 percent changed from previous revision value of 90 percent. GoC=D+

2005: Reported data calibrated to 2011 levels. Estimate of 90 percent changed from previous revision value of 94 percent. GoC=D+

2006: Reported data calibrated to 2011 levels. Estimate of 94 percent changed from previous revision value of 98 percent. GoC=D+

2007: Reported data calibrated to 2011 levels. Reported data excluded. 102 percent greater than 100 percent. Estimate of 95 percent changed from previous revision value of 99 percent. GoC=D+

2008: Reported data calibrated to 2011 levels. Estimate of 95 percent changed from previous revision value of 99 percent. GoC=D+

2009: Reported data calibrated to 2011 levels. Reported data excluded. 108 percent greater than 100 percent. Estimate of 93 percent changed from previous revision value of 99 percent. GoC=D+

2010: Reported data calibrated to 2011 levels. Reported data excluded. 109 percent greater than 100 percent. Estimate of 90 percent changed from previous revision value of 99 percent. GoC=D+

2011: Estimate is based on survey result. Information on DTP1 is not provided in the survey. Survey result not adjusted for recall bias. Reported data excluded. 105 percent greater than 100 percent. Estimate of 88 percent changed from previous revision value of 99 percent. Estimate challenged by: R-

2012: Reported data calibrated to 2011 and 2013 levels. Reported data excluded. 114 percent greater than 100 percent. Estimate of 87 percent changed from previous revision value of 99 percent. GoC=D+

2013: Coverage levels for 2013 following a revision of the target population are in line with the results of the 2012 coverage survey for the 2011 birth cohort. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 87 percent changed from previous revision value of 99 percent. GoC=R+ D+

2014: Estimate based on coverage reported by national government. Programme reports four month stock-out at national level. GoC=R+ D+

ECU - RotaC

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

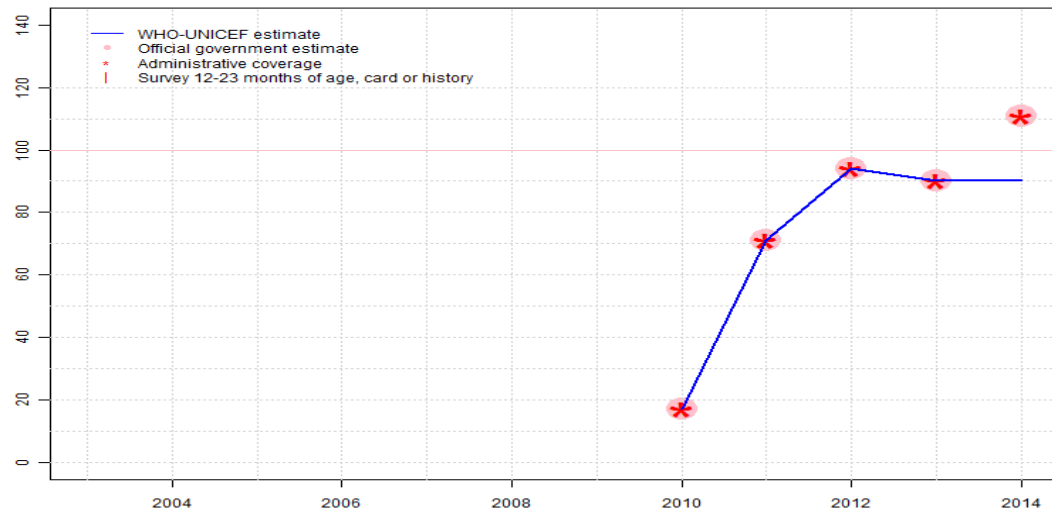|	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	82	97	94	90	87	83	81
Estimate GoC	NA	NA	NA	NA	NA	••	••	••	••	••	••	••
Official	NA	NA	NA	NA	NA	82	97	102	102	109	83	81
Administrative	NA	NA	NA	NA	NA	82	97	102	102	109	83	81
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: 2012 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:

2008: Estimate based on coverage reported by national government. Rotavirus vaccine introduced in 2007, reporting began in 2008. GoC=R+ D+

2009: Estimate based on coverage reported by national government. GoC=R+ D+

2010: Estimate based on interpolation between reported values. Reported data excluded. 102 percent greater than 100 percent. Estimate of 94 percent changed from previous revision value of 97 percent. GoC=D+

2011: Estimate based on interpolation between reported values. Reported data excluded. 102 percent greater than 100 percent. Estimate of 90 percent changed from previous revision value of 97 percent. GoC=D+

2012: Estimate based on interpolation between reported values. Reported data excluded. 109 percent greater than 100 percent. Estimate of 87 percent changed from previous revision value of 97 percent. GoC=D+

2013: Estimate based on coverage reported by national government. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Estimate of 83 percent changed from previous revision value of 97 percent. GoC=R+ D+

2014: Estimate based on coverage reported by national government. GoC=R+ D+

Ecuador - PcV3

ECU - PcV3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history

Description:

2010: Estimate based on coverage reported by national government. Pneumococcal conjugate vaccine was introduced in 2010. GoC=R+ D+

2011: Estimate based on coverage reported by national government. GoC=R+

2012: Estimate based on coverage reported by national government. GoC=R+ D+

2013: Estimate based on coverage reported by national government. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. GoC=R+ D+

2014: Estimate based on extrapolation from data reported by national government. Reported data excluded. 111 percent greater than 100 percent. Programme reports a change in schedule from 2+1 to a 3-dose schedule recommended at 2 m, 4 m, and 6 m. Estimate challenged by: D-

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	17	71	94	90	90
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	••	••	••	••	•
Official	NA	NA	NA	NA	NA	NA	NA	17	71	94	90	111
Administrative	NA	NA	NA	NA	NA	NA	NA	17	71	94	90	111
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: 2012 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.
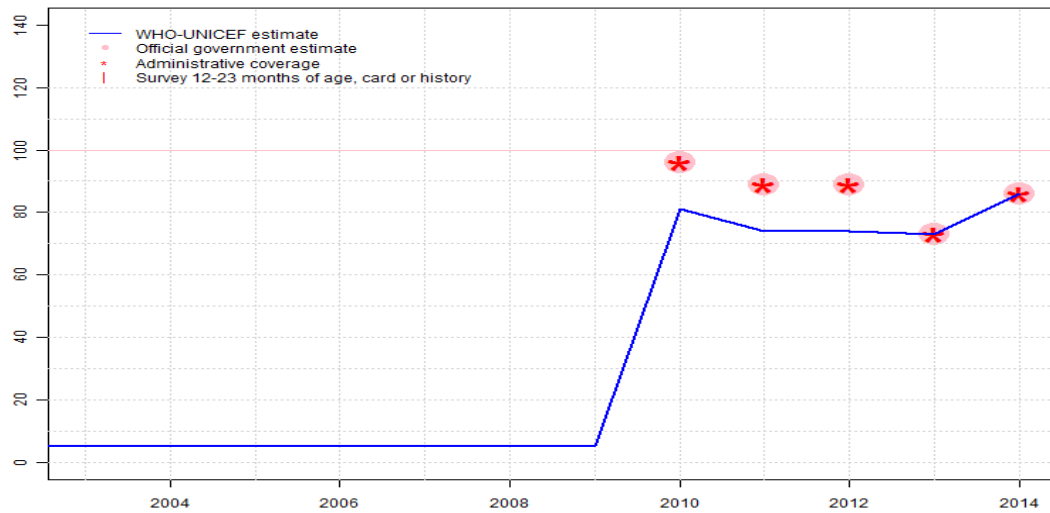
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

Ecuador - YFV

ECU - YFV

- —— WHO-UNICEF estimate
- • Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	5	5	5	5	5	5	5	81	74	74	73	86
Estimate GoC	•	••	••	•	••	••	••	•	•	•	••	••
Official	NA	NA	NA	NA	NA	NA	NA	96	89	89	73	86
Administrative	NA	NA	NA	NA	NA	NA	NA	96	89	89	73	86
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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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.
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●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2012 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.

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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.
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Description:

2003: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=No accepted empirical data

2004: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=D+

2005: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=D+

2006: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. Estimate challenged by: D-

2007: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=D+

2008: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=D+

2009: Routine infant immunization recommended in high risk areas which comprises approximately 5 percent of the national birth cohort. GoC=D+

2010: Estimate is calibrated to measles coverage based on difference between survey result and reported data for MCV1 applied to YFV official estimate. Routine infant immunization is national. Estimate of 81 percent changed from previous revision value of 65 percent. Estimate challenged by: R-

2011: Estimate is calibrated to measles coverage based on difference between survey result and reported data for MCV1 applied to YFV official estimate. Estimate of 74 percent changed from previous revision value of 58 percent. Estimate challenged by: R-

2012: Estimate is calibrated to measles coverage based on difference between survey result and reported data for MCV1 applied to YFV official estimate. Estimate of 74 percent changed from previous revision value of 58 percent. Estimate challenged by: D-R-

2013: Programme reports a 1 month stockout at the national level. Decline in reported coverage is partly due to a revision of the target population estimate in 2013. Programme reports a 1 month stockout at the national level. Estimate of 73 percent changed from previous revision value of 42 percent. GoC=R+ D+

2014: Estimate based on coverage reported by national government. Estimate is based on reported data. GoC=R+ D+

2011 Encuesta Nacional de Salud y Nutrición: ENSANUT-ECU 2012

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	98	12-23 m	2065	88
DTP3	Card or History	88	12-23 m	2065	88
MCV1	Card or History	79	12-23 m	2065	88
Pol3	Card or History	85	12-23 m	2065	88

2003 Encuesta Demográfica y de Salud Materna e Infantil (ENDEMAIN-2004)

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	93	12-23 m	788	72
BCG	Card or History	97	12-23 m	788	72
DTP3	C or H <12 months	70	12-23 m	788	72
DTP3	Card or History	75	12-23 m	788	72
MCV1	C or H <12 months	18	12-23 m	788	72
MCV1	Card or History	66	12-23 m	788	72
Pol3	C or H <12 months	68	12-23 m	788	72
Pol3	Card or History	72	12-23 m	788	72

1998 República del Ecuador, Encuesta Demográfica y de Salud Materna e Infantil Endemain-99

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	58	12-23 m	679	-
DTP1	Card	58	12-23 m	679	-
DTP3	Card	52	12-23 m	679	-
MCV1	Card	46	12-23 m	679	-
Pol1	Card	58	12-23 m	679	-
Pol3	Card	52	12-23 m	679	-

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

Ecuador
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 (%)
2003	60
2004	60
2005	65
2006	72
2007	72
2008	73
2009	73
2010	74
2011	85
2012	85
2013	85
2014	85

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[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.