Benin: 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

Benin - BCG

BEN - 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	90	89	88	93	97	96	93	90	88	88	87	88
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	105	109	110	100	116	114	110	109	100	97	98	96
Administrative	105	109	98	111	116	114	110	109	109	112	95	96
Survey	NA	NA	88	NA	97	NA	NA	NA	88	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: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Reported data excluded. 105 percent greater than 100 percent. Estimate challenged by: R-

2004: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Reported data excluded. 109 percent greater than 100 percent. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 88 percent based on 1 survey(s). Reported data excluded. 110 percent greater than 100 percent. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: Estimate based on survey results to maintain consistency with other vaccines. Reported data excluded. 116 percent greater than 100 percent. Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 114 percent greater than 100 percent. Estimate of 96 percent changed from previous revision value of 95 percent. Estimate challenged by: D-

2009: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 110 percent greater than 100 percent. Estimate challenged by: D-

2010: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 109 percent greater than 100 percent. Estimate challenged by: D-

2011: Estimate is based on survey result. Reported data excluded. 109 percent greater than 100 percent. Official government estimate based on survey results. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 levels. Reported data excluded. 112 percent greater than 100 percent. Official government estimate based on survey results. Estimate challenged by: D-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin Multiple Indicator Cluster Survey, 2014 (data collection July-September 2014) suggests BCG coverage of 89 percent for the 2013 birth cohort. During 2014, a 2 phase EPI review was completed including coverage surveys. The first phase was completed in February across 10 low performing communes accounting for 15-20 percent of the total population, and the second phase was completed in October across the remaining 75 communes. Results from the two commune level surveys suggest high BCG coverage greater than 95 percent. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate of 87 percent changed from previous revision value of 88 percent. Estimate

challenged by: D-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

Benin - DTP1

BEN - DTP1

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history
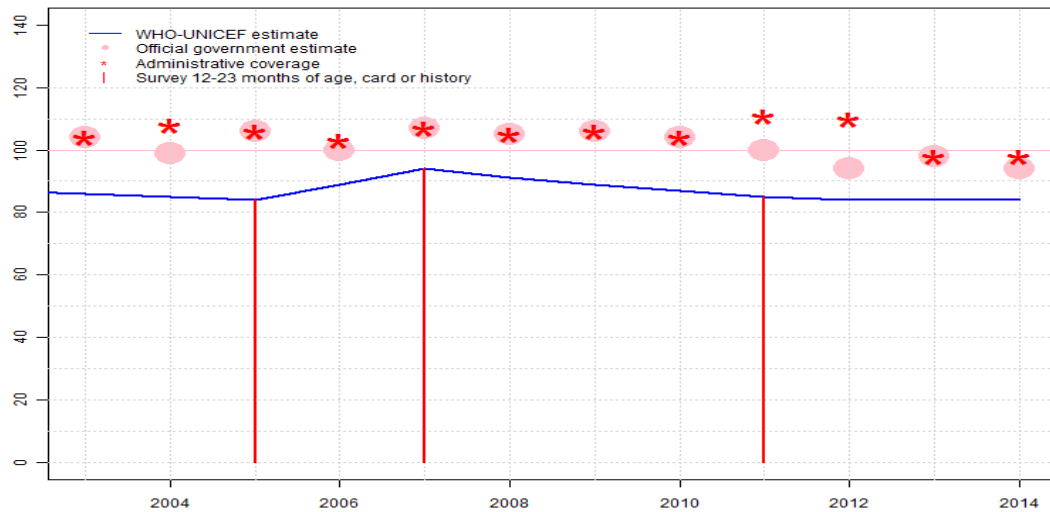
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	86	85	84	89	94	91	89	87	85	84	84	84
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	104	99	106	100	107	105	106	104	100	94	98	94
Administrative	104	108	106	103	107	105	106	104	111	110	98	98
Survey	NA	NA	84	NA	94	NA	NA	NA	85	NA	NA	NA

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: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Reported data excluded. 104 percent greater than 100 percent. Estimate challenged by: D-R-

2004: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Estimate challenged by: D-R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 84 percent based on 1 survey(s). Reported data excluded. 106 percent greater than 100 percent. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: Estimate is based on survey results for all antigens. Reported data excluded. 107 percent greater than 100 percent. Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 105 percent greater than 100 percent. Estimate of 91 percent changed from previous revision value of 92 percent. Estimate challenged by: D-

2009: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 106 percent greater than 100 percent. Estimate of 89 percent changed from previous revision value of 90 percent. Estimate challenged by: D-

2010: Reported data calibrated to 2007 and 2011 levels. Reported data excluded. 104 percent greater than 100 percent. Estimate challenged by: D-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 85 percent based on 1 survey(s). Reported data excluded. 111 percent greater than 100 percent. Official government estimate based on survey results. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 levels. Reported data excluded. 110 percent greater than 100 percent. Official government estimate based on survey results. Estimate of 84 percent changed from previous revision value of 85 percent. Estimate challenged by: D-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin Multiple Indicator Cluster Survey, 2014 (data collection July-September 2014) suggests coverage for the first dose of DTP containing vaccine of 85 percent for the 2013 birth cohort. During 2014, a 2 phase EPI review was completed including coverage surveys. The first phase was completed in February across 10 low performing communes accounting for 15-20 percent of the total population, and the second phase was completed in October across the remaining 75 communes. Results from the two commune level surveys suggest high DTP1 coverage greater than 95 percent. Reported official government estimate based on the results of an external EPI review

conducted in 10 communes. Estimate of 84 percent changed from previous revision value of 85 percent. Estimate challenged by: D-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

Benin - DTP3

BEN - DTP3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history
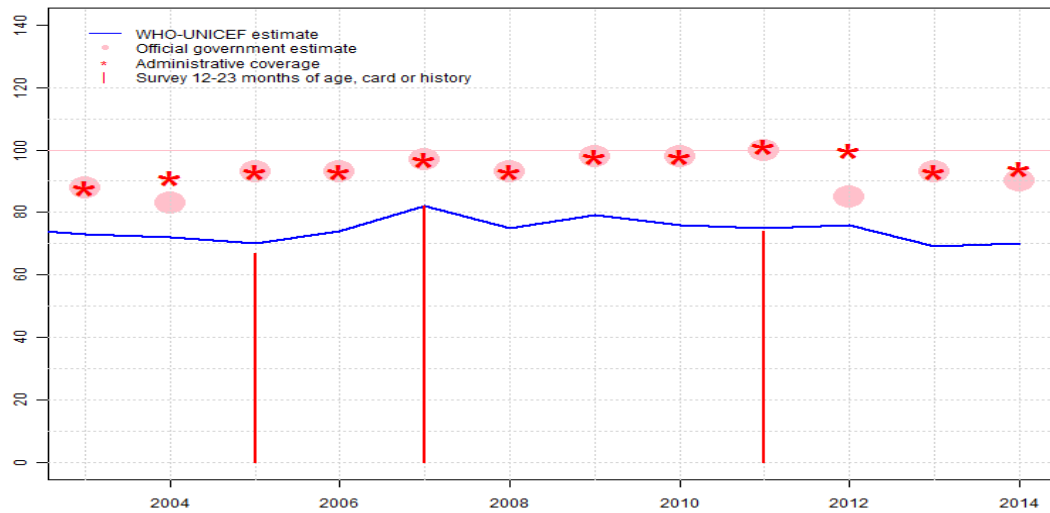
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	73	72	70	74	82	75	79	76	75	76	69	70
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	88	83	93	93	97	93	98	98	100	85	93	90
Administrative	88	91	93	93	97	93	98	98	101	100	93	94
Survey	NA	NA	67	NA	82	NA	NA	NA	74	NA	NA	NA

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: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Estimate challenged by: D-R-

2004: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Estimate challenged by: R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 70 percent based on 1 survey(s). Benin Demographic and Health Survey, 2006 card or history results of 67 percent modifed for recall bias to 70 percent based on 1st dose card or history coverage of 84 percent, 1st dose card only coverage of 62 percent and 3d dose card only coverage of 52 percent. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 82 percent based on 1 survey(s). Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2009: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2010: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 75 percent based on 1 survey(s). Benin Demographic and Health Survey EDSB IV 2011-2012 card or history results of 74 percent modifed for recall bias to 75 percent based on 1st dose card or history coverage of 85 percent, 1st dose card only coverage of 52 percent and 3d dose card only coverage of 46 percent. Reported data excluded. 101 percent greater than 100 percent. Official government estimate based on survey results. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 levels. Official government estimate based on survey results. Estimate challenged by: D-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin Multiple Indicator Cluster Survey, 2014 (data collection July-September 2014) suggests coverage for the third dose of DTP containing vaccine lower than that reported by the administrative reporting system for the 2013 birth cohort. During 2014, a 2 phase EPI review was completed including coverage surveys. The first phase was completed in February across 10 low performing communes accounting for 15-20 percent of the total population, and the second phase was completed in October across the remaining 75

communes. Results from the two commune level surveys suggest DTP3 coverage of 86 percent. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate challenged by: D-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

Benin - Pol3

BEN - Pol3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- Administrative coverage
- Survey 12-23 months of age, card or history
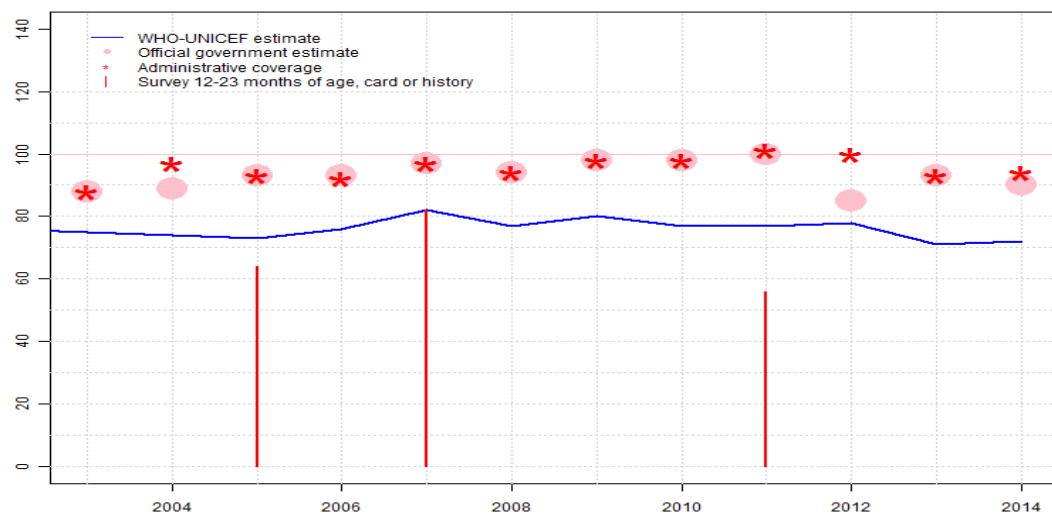
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	75	74	73	76	82	77	80	77	77	78	71	72
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	88	89	93	93	97	94	98	98	100	85	93	90
Administrative	88	97	93	92	97	94	98	98	101	100	93	94
Survey	NA	NA	64	NA	82	NA	NA	NA	56	NA	NA	NA

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: Estimate based on interpolation between 2000 and 2005 levels. Fluctua-
    tions in reported data suggest poor quality administrative recording and
    reporting. Estimate challenged by: D-R-

2004: Estimate based on interpolation between 2000 and 2005 levels. Fluctua-
    tions in reported data suggest poor quality administrative recording and
    reporting. Estimate challenged by: D-R-

2005: Survey evidence does not support reported data. Estimate based on survey
    results. Survey evidence of 73 percent based on 1 survey(s). Benin De-
    mographic and Health Survey, 2006 card or history results of 64 percent
    modifed for recall bias to 73 percent based on 1st dose card or history
    coverage of 89 percent, 1st dose card only coverage of 63 percent and 3d
    dose card only coverage of 52 percent. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by:
    D-

2007: Survey evidence does not support reported data. Estimate based on survey
    results. Survey evidence of 82 percent based on 1 survey(s). Estimate
    challenged by: D-R-

2007: Survey evidence does not support reported data. Estimate based on survey
    results. Survey evidence of 82 percent based on 1 survey(s). Estimate
    challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by:
    D-

2009: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by:
    D-

2010: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by:
    D-

2011: Survey evidence does not support reported data. Estimate based on survey
    results. Survey evidence of 77 percent based on 1 survey(s). Benin Demo-
    graphic and Health Survey EDSB IV 2011-2012 card or history results of
    56 percent modifed for recall bias to 77 percent based on 1st dose card or
    history coverage of 85 percent, 1st dose card only coverage of 50 percent
    and 3d dose card only coverage of 45 percent. Reported data excluded.
    101 percent greater than 100 percent. Official government estimate based
    on survey results. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 levels. Official government estimate based
    on survey results. Estimate challenged by: D-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin
    Multiple Indicator Cluster Survey, 2014 (data collection July-September
    2014) suggests coverage for the third dose of polio vaccine lower than that
    reported by the administrative reporting system for the 2013 birth cohort.
    Reported official government estimate based on the results of an external

EPI review conducted in 10 communes. Estimate challenged by: D-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

Benin - MCV1

BEN - MCV1

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history
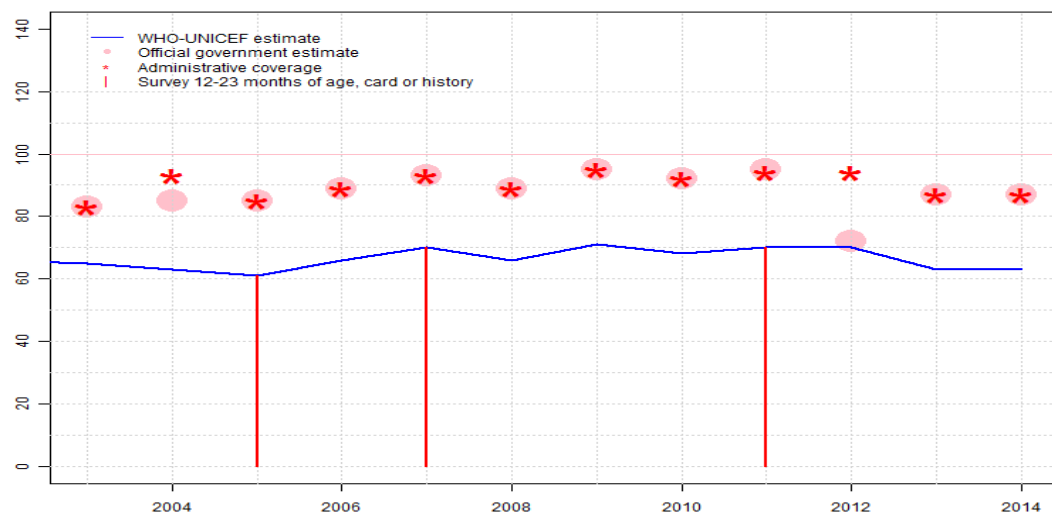
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	65	63	61	66	70	66	71	68	70	70	63	63
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	83	85	85	89	93	89	95	92	95	72	87	87
Administrative	83	93	85	89	93	89	95	92	94	94	87	87
Survey	NA	NA	61	NA	70	NA	NA	NA	70	NA	NA	NA

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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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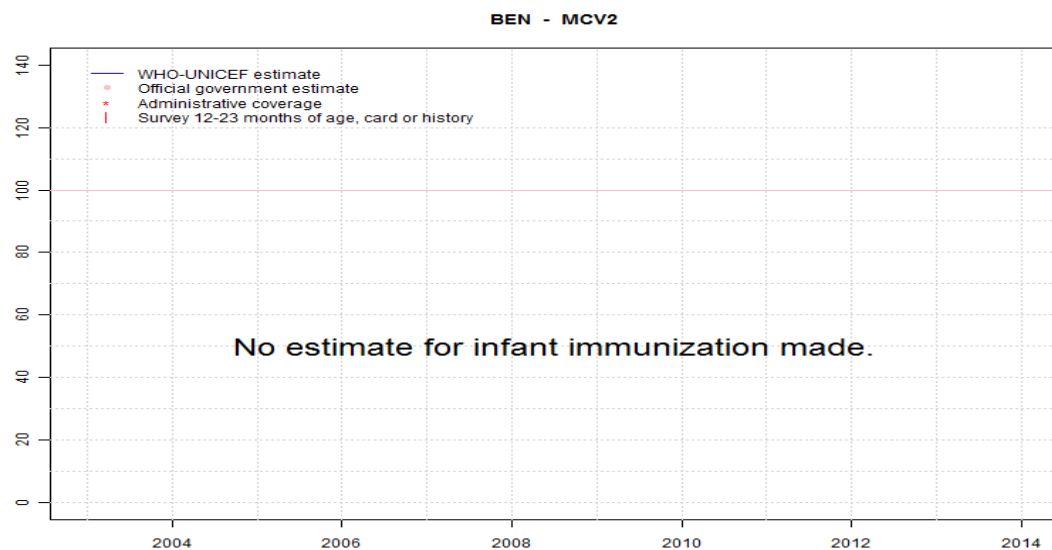
- ●●● Estimate is supported by reported data [R+], coverage recalculated with an independent denominator from the World Population Prospects: 2012 revision from the UN Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a 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 interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Estimate challenged by: D-R-

2004: Estimate based on interpolation between 2000 and 2005 levels. Fluctuations in reported data suggest poor quality administrative recording and reporting. Estimate challenged by: D-R-

2005: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 61 percent based on 1 survey(s). Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 70 percent based on 1 survey(s). Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2009: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2010: Reported data calibrated to 2007 and 2011 levels. Estimate challenged by: D-

2011: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 70 percent based on 1 survey(s). Official government estimate based on survey results. Estimate challenged by: D-R-

2012: Reported data calibrated to 2011 levels. Official government estimate based on survey results. Estimate challenged by: D-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin Multiple Indicator Cluster Survey, 2014 (data collection July-September 2014) suggests coverage for the first dose of measles containing vaccine of 65 percent for the 2013 birth cohort. During 2014, a 2 phase EPI review was completed including coverage surveys. The first phase was completed in February across 10 low performing communes accounting for 15-20 percent of the total population, and the second phase was completed in October across the remaining 75 communes. Results from the two commune level surveys suggest MCV1 coverage of around 80 percent. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate challenged by: D-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-
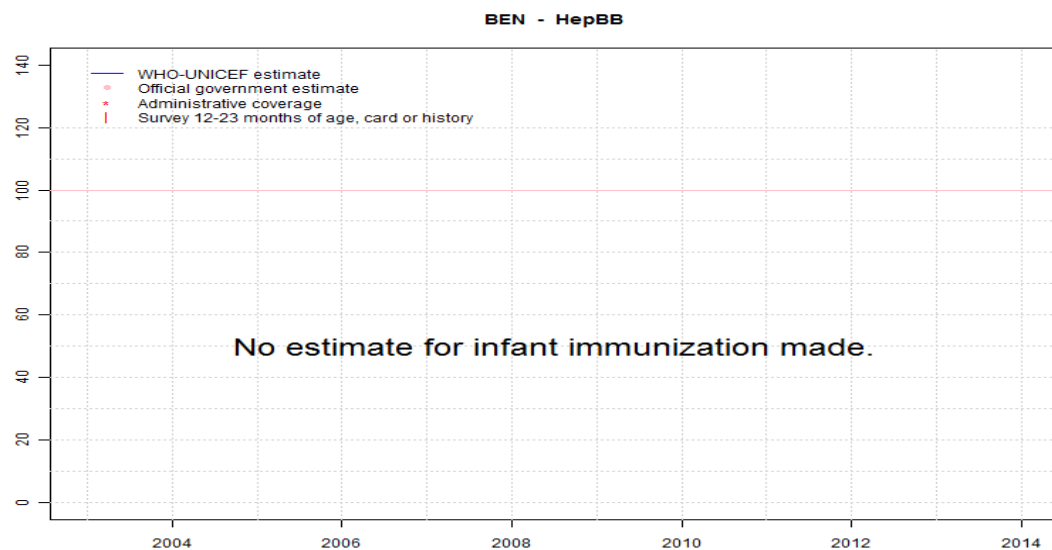
Benin - MCV2

No estimate for infant immunization made.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
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: 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.

Benin - HepBB

BEN - HepBB

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

No estimate for infant immunization made.

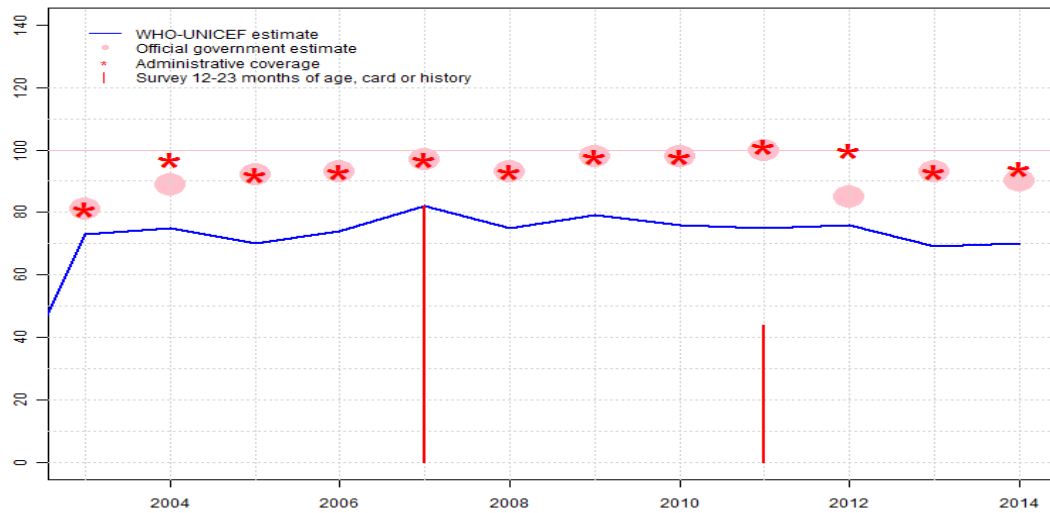|	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: 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.

Benin - HepB3

BEN - 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	73	75	70	74	82	75	79	76	75	76	69	70
Estimate GoC	•	•	•	•	•	•	•	•	•	•	•	•
Official	81	89	92	93	97	93	98	98	100	85	93	90
Administrative	81	97	92	93	97	93	98	98	101	100	93	94
Survey	NA	NA	NA	NA	82	NA	NA	NA	44	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.

```
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 2002 and 2005 levels. Estimate challenged by: D-

2004: Reported data calibrated to 2002 and 2005 levels. Estimate challenged by: D-

2005: DTP-HepB-Hib pentavalent vaccine introduced in 2005. Estimate based on estimated DTP3 coverage. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: Survey evidence does not support reported data. Estimate based on survey results. Survey evidence of 82 percent based on 1 survey(s). Estimate challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Estimate of 75 percent changed from previous revision value of 78 percent. Estimate challenged by: D-S-

2009: Reported data calibrated to 2007 and 2011 levels. Estimate of 79 percent changed from previous revision value of 83 percent. Estimate challenged by: D-S-

2010: Reported data calibrated to 2007 and 2011 levels. Estimate of 76 percent changed from previous revision value of 83 percent. Estimate challenged by: D-S-

2011: Estimate follows DTP3 coverage level based on survey. Benin Demographic and Health Survey EDSB IV 2011-2012 results ignored by working group. Survey results for HepB3 are inconsistent with DTP3 results.Reported data excluded. 101 percent greater than 100 percent. Official government estimate based on survey results. Estimate of 75 percent changed from previous revision value of 85 percent. Estimate challenged by: D-R-S-

2012: Reported data calibrated to 2011 levels. Official government estimate based on survey results. Estimate of 76 percent changed from previous revision value of 85 percent. Estimate challenged by: D-S-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin Multiple Indicator Cluster Survey, 2014 (data collection July-September 2014) suggests coverage for the third dose of DTP containing vaccine lower than that reported by the administrative reporting system for the 2013 birth cohort. During 2014, a 2 phase EPI review was completed including coverage surveys. The first phase was completed in February across 10 low performing communes accounting for 15-20 percent of the total population, and the second phase was completed in October across the remaining 75 communes. Results from the two commune level surveys suggest DTP3 coverage of 86 percent. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate of 69 percent changed from previous revision value of 78 percent. Estimate

challenged by: D-S-

2014: Reported data calibrated to 2011 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

Benin - Hib3

BEN - Hib3

Legend:
- WHO-UNICEF estimate
- Official government estimate
- * Administrative coverage
- | Survey 12-23 months of age, card or history
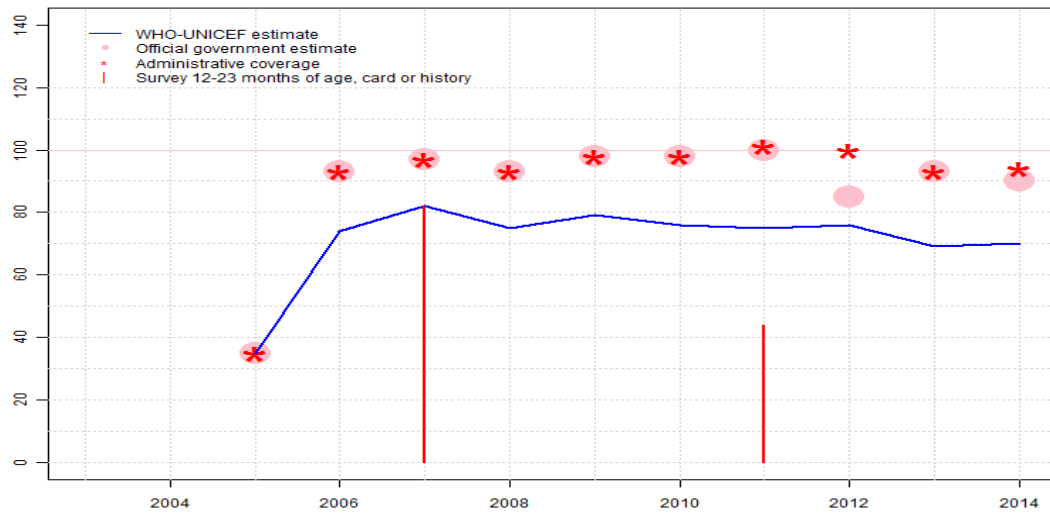
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	35	74	82	75	79	76	75	76	69	70
Estimate GoC	NA	NA	••	•	•	•	•	•	•	•	•	•
Official	NA	NA	35	93	97	93	98	98	100	85	93	90
Administrative	NA	NA	35	93	97	93	98	98	101	100	93	94
Survey	NA	NA	NA	NA	82	NA	NA	NA	44	NA	NA	NA

```
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:

2005: Hib vaccine introduced in 2005 as part of DTP-HepB-Hib pentavalent vac-
cine. GoC=R+ D+

2006: Estimate based on estimated DTP3 coverage. Estimate challenged by: D-R-

2007: Survey evidence does not support reported data. Estimate based on survey
results. Survey evidence of 82 percent based on 1 survey(s). Estimate
challenged by: D-R-

2008: Reported data calibrated to 2007 and 2011 levels. Estimate of 75 percent
changed from previous revision value of 78 percent. Estimate challenged
by: D-

2009: Reported data calibrated to 2007 and 2011 levels. Estimate of 79 percent
changed from previous revision value of 83 percent. Estimate challenged
by: D-S-

2010: Reported data calibrated to 2007 and 2011 levels. Estimate of 76 percent
changed from previous revision value of 83 percent. Estimate challenged
by: D-S-

2011: Estimate follows DTP3 coverage level based on survey. Benin Demographic
and Health Survey EDSB IV 2011-2012 results ignored by working group.
Survey results for Hib3 are inconsistent with DTP3 results.Reported data
excluded. 101 percent greater than 100 percent. Official government esti-
mate based on survey results. Estimate of 75 percent changed from previ-
ous revision value of 84 percent. Estimate challenged by: D-R-S-

2012: Reported data calibrated to 2011 levels. Official government estimate based
on survey results. Estimate of 76 percent changed from previous revision
value of 85 percent. Estimate challenged by: D-S-

2013: Reported data calibrated to 2011 levels. Preliminary results from the Benin
Multiple Indicator Cluster Survey, 2014 (data collection July-September
2014) suggests coverage for the third dose of DTP containing vaccine lower
than that reported by the administrative reporting system for the 2013
birth cohort. During 2014, a 2 phase EPI review was completed including
coverage surveys. The first phase was completed in February across 10 low
performing communes accounting for 15-20 percent of the total popula-
tion, and the second phase was completed in October across the remaining
75 communes. Results from the two commune level surveys suggest DTP3
coverage of 86 percent. Reported official government estimate based on the
results of an external EPI review conducted in 10 communes. Estimate of
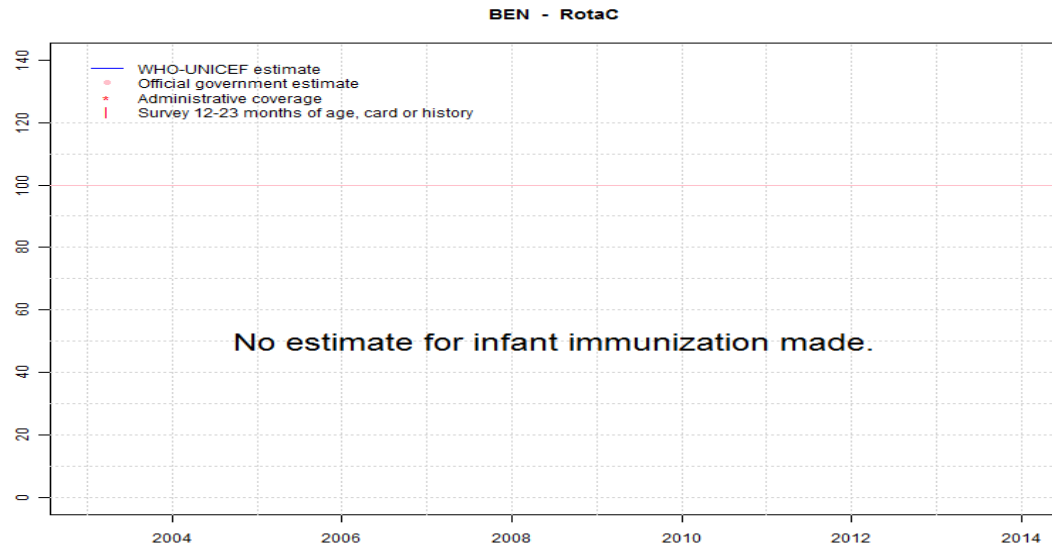69 percent changed from previous revision value of 78 percent. Estimate
challenged by: D-S-

2014: Reported data calibrated to 2011 levels. Reported official government es-
timate is based on DQS results from ten zone sanitaires and supervisory
reports, however the methodology used to adjust from the administrative
coverage levels is not described. Estimate challenged by: D-

BEN - RotaC

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

No estimate for infant immunization made.

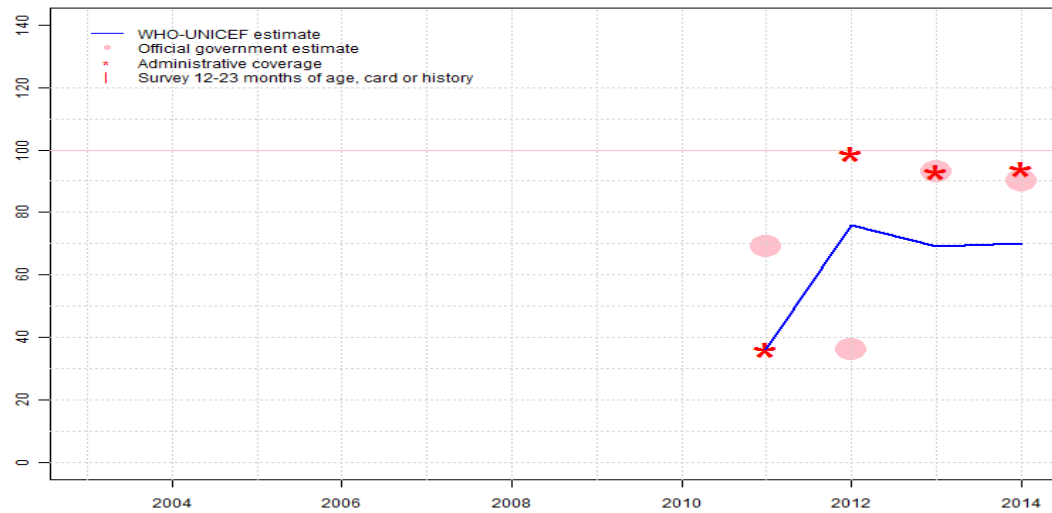|	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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: 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.

BEN - PcV3

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

Description:

2011: Pneumococcal conjugate vaccine was introduced in 2011. Official government estimate based on survey results. Methodology for adjusted national estimates unclear. GoC=R+ D+

2012: Downward adjustment by the government unexplained. Administrative coverage suggests levels comparable with third dose of DTP-HepB-Hib. Estimate based on DTP3 coverage. Official government estimate based on survey results. Estimate challenged by: D-R-

2013: Estimate based on DTP3 coverage. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate challenged by: D-R-

2014: Reported data calibrated to 2013 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

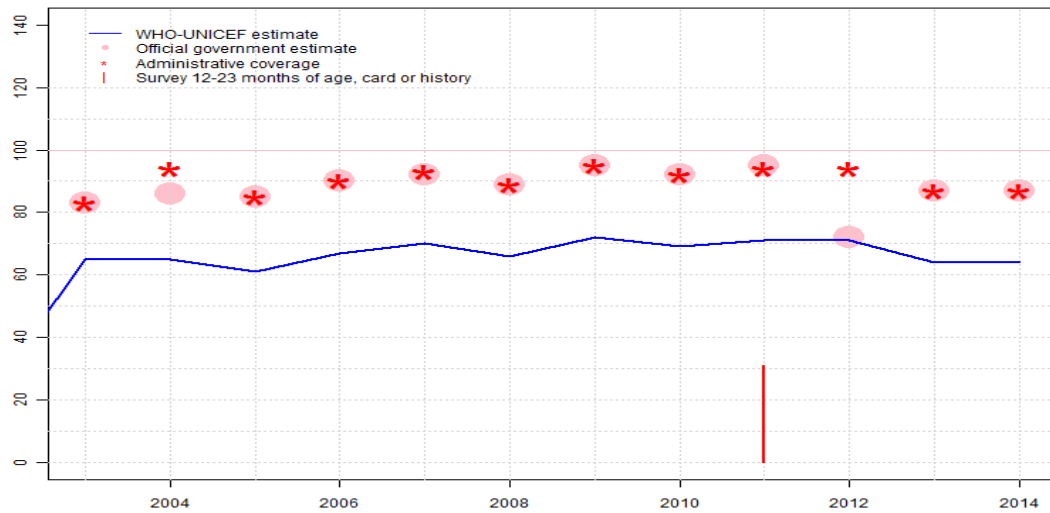|	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	36	76	69	70
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	●●	●	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	69	36	93	90
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	36	99	93	94
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

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

Benin - YFV

BEN - 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	65	65	61	67	70	66	72	69	71	71	64	64
Estimate GoC	●	●	●	●	●	●	●	●	●	●	●	●
Official	83	86	85	90	92	89	95	92	95	72	87	87
Administrative	83	94	85	90	93	89	95	92	94	94	87	87
Survey	NA	NA	NA	NA	NA	NA	NA	NA	31	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.

```
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: YFV estimate follows the MCV estimate levels. Estimate challenged by: D-R-

2004: Reported data calibrated to 2003 and 2005 levels. Estimate challenged by: D-

2005: YFV estimate follows the MCV estimate levels. Estimate challenged by: D-R-

2006: Reported data calibrated to 2005 and 2007 levels. Estimate challenged by: D-

2007: YFV estimate follows the MCV estimate levels. Estimate challenged by: D-R-

2008: YFV estimate follows the MCV estimate levels. Estimate challenged by: D-R-

2009: Reported data calibrated to 2008 levels. Estimate challenged by: D-S-

2010: Reported data calibrated to 2008 levels. Estimate challenged by: D-S-

2011: Reported data calibrated to 2008 levels. Benin Demographic and Health Survey EDSB IV 2011-2012 results ignored by working group. Survey results for yellow fever vaccine are based on measles estimates. Official government estimate based on survey results. Estimate challenged by: D-S-

2012: Reported data calibrated to 2008 levels. Official government estimate based on survey results. Estimate challenged by: D-S-

2013: Reported data calibrated to 2008 levels. Reported official government estimate based on the results of an external EPI review conducted in 10 communes. Estimate challenged by: D-S-

2014: Reported data calibrated to 2008 levels. Reported official government estimate is based on DQS results from ten zone sanitaires and supervisory reports, however the methodology used to adjust from the administrative coverage levels is not described. Estimate challenged by: D-

2011 Enquête Démographique et de Santé du Bénin EDSB IV 2011-2012

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	87	12-23 m	2535	54
BCG	Card	53	12-23 m	1375	54
BCG	Card or History	88	12-23 m	2534	54
BCG	History	35	12-23 m	1159	54
DTP1	C or H <12 months	84	12-23 m	2535	54
DTP1	Card	52	12-23 m	1375	54
DTP1	Card or History	85	12-23 m	2534	54
DTP1	History	34	12-23 m	1159	54
DTP3	C or H <12 months	80	12-23 m	2535	54
DTP3	Card	46	12-23 m	1375	54
DTP3	Card or History	74	12-23 m	2534	54
DTP3	History	27	12-23 m	1159	54
HepB1	C or H <12 months	49	12-23 m	2535	54
HepB1	Card	49	12-23 m	1375	54
HepB1	Card or History	49	12-23 m	2534	54
HepB3	C or H <12 months	43	12-23 m	2535	54
HepB3	Card	44	12-23 m	1375	54
HepB3	Card or History	44	12-23 m	2534	54
Hib1	C or H <12 months	49	12-23 m	2535	54
Hib1	Card	49	12-23 m	1375	54
Hib1	Card or History	49	12-23 m	2534	54
Hib3	C or H <12 months	43	12-23 m	2535	54
Hib3	Card	44	12-23 m	1375	54
Hib3	Card or History	44	12-23 m	2534	54
MCV1	C or H <12 months	62	12-23 m	2535	54
MCV1	Card	42	12-23 m	1375	54
MCV1	Card or History	70	12-23 m	2534	54
MCV1	History	28	12-23 m	1159	54
Pol1	C or H <12 months	84	12-23 m	2535	54
Pol1	Card	50	12-23 m	1375	54
Pol1	Card or History	85	12-23 m	2534	54
Pol1	History	34	12-23 m	1159	54
Pol3	C or H <12 months	54	12-23 m	2535	54
Pol3	Card	45	12-23 m	1375	54
Pol3	Card or History	56	12-23 m	2534	54
Pol3	History	12	12-23 m	1159	54
YFV	C or H <12 months	24	12-23 m	2534	54
YFV	Card	31	12-23 m	1375	54
YFV	Card or History	31	12-23 m	2534	54

2007 Revue externe 2008 du Programme Elargi de Vaccination

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	94	12-23 m	7105	77
BCG	Card or History	97	12-23 m	7105	77
DTP1	Card	71	12-23 m	7105	77
DTP1	Card or History	94	12-23 m	7105	77
DTP3	Card	62	12-23 m	7105	77
DTP3	Card or History	82	12-23 m	7105	77
HepB1	Card	71	12-23 m	7105	77
HepB1	Card or History	94	12-23 m	7105	77
HepB3	Card	62	12-23 m	7105	77
HepB3	Card or History	82	12-23 m	7105	77
Hib1	Card	71	12-23 m	7105	77
Hib1	Card or History	94	12-23 m	7105	77
Hib3	Card	62	12-23 m	7105	77
Hib3	Card or History	82	12-23 m	7105	77
MCV1	Card	53	12-23 m	7105	77
MCV1	Card or History	70	12-23 m	7105	77
Pol1	Card	70	12-23 m	7105	77
Pol1	Card or History	93	12-23 m	7105	77
Pol3	Card	62	12-23 m	7105	77
Pol3	Card or History	82	12-23 m	7105	77

2005 Enquête Démographique et de Santé au Bénin de 2006

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	88	12-23 m	3005	66
BCG	Card	65	12-23 m	3005	66
BCG	Card or History	88	12-23 m	3005	66
BCG	History	23	12-23 m	3005	66
DTP1	C or H <12 months	83	12-23 m	3005	66

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
DTP1	Card	62	12-23 m	3005	66
DTP1	Card or History	84	12-23 m	3005	66
DTP1	History	22	12-23 m	3005	66
DTP3	C or H <12 months	64	12-23 m	3005	66
DTP3	Card	52	12-23 m	3005	66
DTP3	Card or History	67	12-23 m	3005	66
DTP3	History	15	12-23 m	3005	66
MCV1	C or H <12 months	51	12-23 m	3005	66
MCV1	Card	45	12-23 m	3005	66
MCV1	Card or History	61	12-23 m	3005	66
MCV1	History	16	12-23 m	3005	66
Pol1	C or H <12 months	88	12-23 m	3005	66
Pol1	Card	63	12-23 m	3005	66
Pol1	Card or History	89	12-23 m	3005	66
Pol1	History	25	12-23 m	3005	66
Pol3	C or H <12 months	62	12-23 m	3005	66
Pol3	Card	52	12-23 m	3005	66
Pol3	Card or History	64	12-23 m	3005	66
Pol3	History	12	12-23 m	3005	66

2000 Benin, Revue Externe du Programme Elargi de Vaccination, 2001

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card or History	94	12-23 m	2699	85
DTP1	Card or History	91	12-23 m	2699	85
DTP3	Card or History	79	12-23 m	2699	85
MCV1	Card or History	72	12-23 m	2699	85
Pol1	Card or History	92	12-23 m	2699	85
Pol3	Card or History	78	12-23 m	2699	85

2000 Enquête Démographique et de Santé au Bénin 2001, 2002

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	89	12-23 m	932	73
BCG	Card	72	12-23 m	932	73
BCG	Card or History	90	12-23 m	932	73
BCG	History	18	12-23 m	932	73
DTP1	C or H <12 months	86	12-23 m	932	73
DTP1	Card	71	12-23 m	932	73
DTP1	Card or History	87	12-23 m	932	73
DTP1	History	16	12-23 m	932	73
DTP3	C or H <12 months	68	12-23 m	932	73
DTP3	Card	62	12-23 m	932	73
DTP3	Card or History	72	12-23 m	932	73
DTP3	History	10	12-23 m	932	73
MCV1	C or H <12 months	56	12-23 m	932	73
MCV1	Card	58	12-23 m	932	73
MCV1	Card or History	68	12-23 m	932	73
MCV1	History	10	12-23 m	932	73
Pol1	C or H <12 months	89	12-23 m	932	73
Pol1	Card	72	12-23 m	932	73
Pol1	Card or History	90	12-23 m	932	73
Pol1	History	18	12-23 m	932	73
Pol3	C or H <12 months	66	12-23 m	932	73
Pol3	Card	62	12-23 m	932	73
Pol3	Card or History	69	12-23 m	932	73
Pol3	History	8	12-23 m	932	73

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

Benin
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	84
2004	93
2005	95
2006	95
2007	93
2008	92
2009	92
2010	92
2011	92
2012	93
2013	93
2014	93

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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.