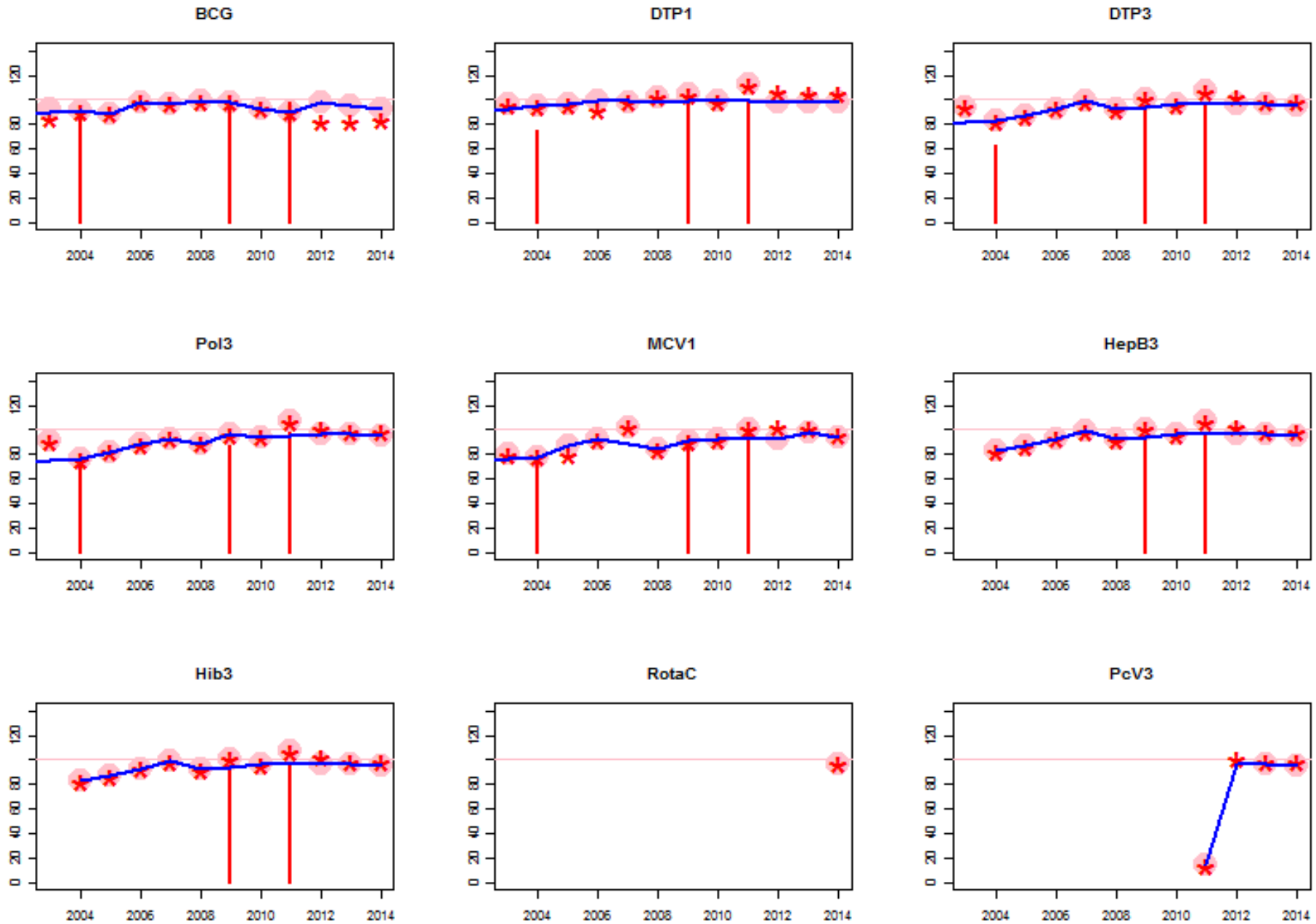
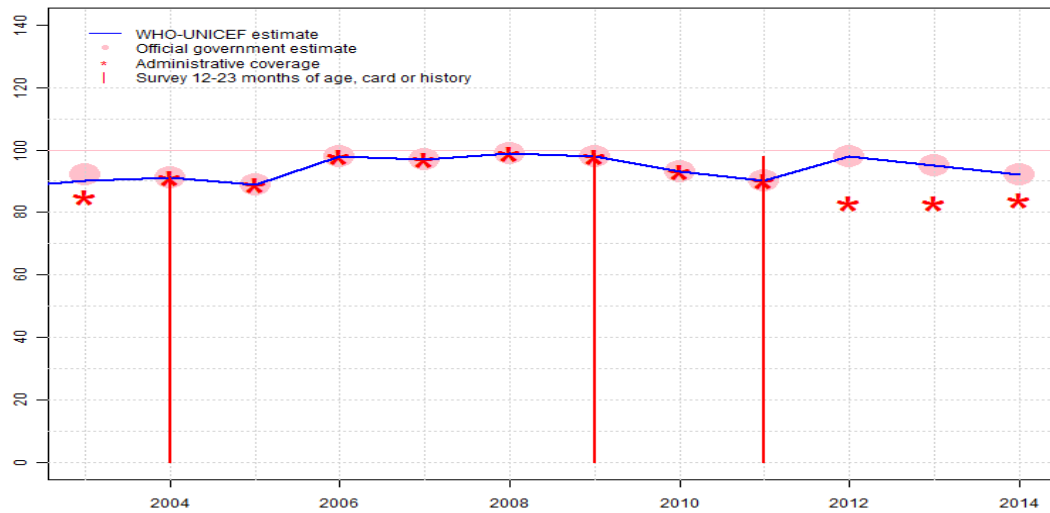


Burundi: WHO and UNICEF estimates of immunization coverage: 2014 revision



# Burundi - BCG

BDI - BCG



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	90	91	89	98	97	99	98	93	90	98	95	92
Estimate GoC	•	•••	•••	•••	•••	•••	•	•	•••	•	•	•
Official	92	91	89	98	97	99	98	93	90	98	95	92
Administrative	85	91	89	98	97	99	98	93	90	83	83	84
Survey	NA	91	NA	NA	NA	NA	99	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 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.

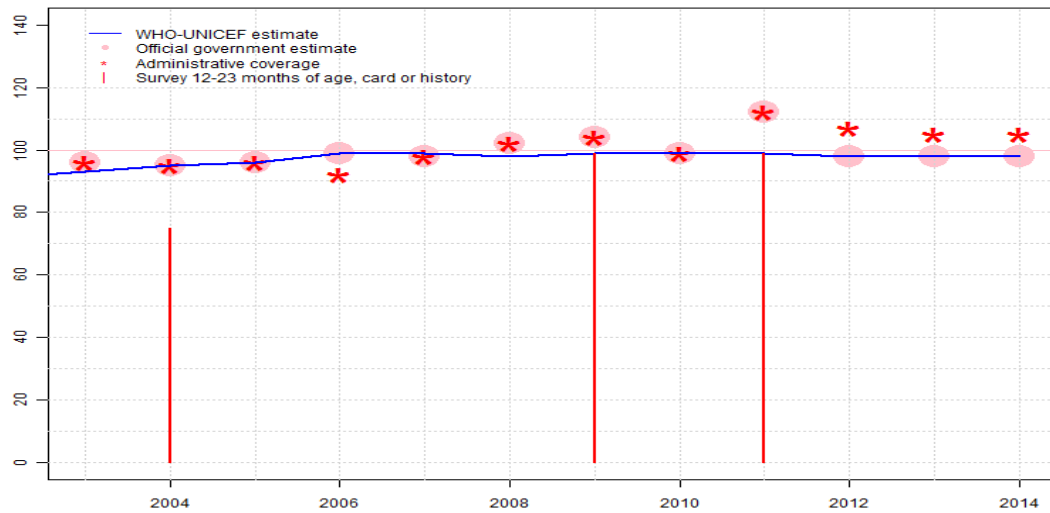
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2003: Estimate based on interpolation between 1999 and 2004 levels. Fluctuation in officially reported data suggests problems in reporting system. Estimate challenged by: D-R-
- 2004: Estimate based on coverage reported by national government supported by survey. Survey evidence of 91 percent based on 1 survey(s). Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. GoC=R+ S+ D+
- 2005: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2006: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2007: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2008: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2009: Estimate based on coverage reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on coverage reported by national government supported by survey. Survey evidence of 98 percent based on 1 survey(s). GoC=R+ S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - DTP1

BDI - DTP1



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	93	95	96	99	99	98	99	99	99	98	98	98
Estimate GoC	•	••	••	•	•	••	••	•	••	•	•	•
Official	96	95	96	99	98	102	104	99	112	98	98	98
Administrative	96	95	96	92	98	102	104	99	112	107	105	105
Survey	NA	75	NA	NA	NA	NA	99	NA	99	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.

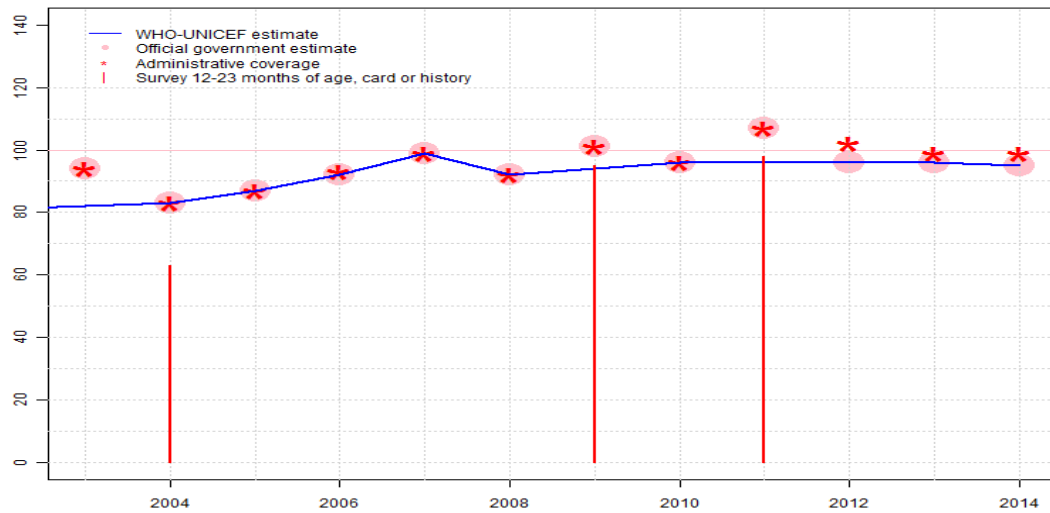
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2003: Estimate based on interpolation between 1999 and 2004 levels. Fluctuation in officially reported data suggests problems in reporting system. Estimate challenged by: R-
- 2004: DTP survey results are inconsistent with results for other vaccines. DTP coverage may not include doses received through DTP3-HepB-Hib pentavalent vaccine introduced in 2004. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. GoC=R+ D+
- 2005: Estimate based on coverage reported by national government. GoC=R+ D+
- 2006: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2007: DTP1 coverage estimated based on DTP3 coverage of 99. Estimate challenged by: R-
- 2008: Estimate based on interpolation between coverage reported by national government. Reported data excluded. 102 percent greater than 100 percent. GoC=S+ D+
- 2009: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Reported data excluded. 104 percent greater than 100 percent. GoC=S+ D+
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Reported data excluded. 112 percent greater than 100 percent. Reported data excluded. Unexplained increase from 99 percent to 112 percent with decrease 98 percent. GoC=S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - DTP3

BDI - DTP3



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	82	83	87	92	99	92	94	96	96	96	96	95
Estimate GoC	•	••	••	••	•••	•••	••	•	••	•	•	•
Official	94	83	87	92	99	92	101	96	107	96	96	95
Administrative	94	83	87	93	99	92	101	96	107	102	99	99
Survey	NA	63	NA	NA	NA	NA	95	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 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 1999 and 2004 levels. Fluctuation in officially reported data suggests problems in reporting system. Estimate challenged by: R-
- 2004: DTP survey results are inconsistent with results for other vaccines. DTP coverage may not include doses received through DTP3-HepB-Hib pentavalent vaccine introduced in 2004. Burundi Multiple Indicator Cluster Survey 2005 card or history results of 63 percent modified for recall bias to 70 percent based on 1st dose card or history coverage of 75 percent, 1st dose card only coverage of 47 percent and 3d dose card only coverage of 44 percent. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. GoC=R+ D+
- 2005: Estimate based on coverage reported by national government. GoC=R+ D+
- 2006: Estimate based on coverage reported by national government. GoC=R+ D+
- 2007: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2008: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2009: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 97 percent based on 1 survey(s). Burundi Demographic and Health Survey 2010 card or history results of 95 percent modified for recall bias to 97 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 62 percent and 3d dose card only coverage of 61 percent. Reported data excluded. 101 percent greater than 100 percent. GoC=S+ D+
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Routine Immunization Coverage Survey and Post Measles Campaign Survey 2012 card or history results of 98 percent modified for recall bias to 99 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 29 percent and 3d dose card only coverage of 29 percent. Reported data excluded. 107 percent greater than 100 percent. Reported data excluded. Unexplained increase from 96 percent to 107 percent with decrease 96 percent. GoC=S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that

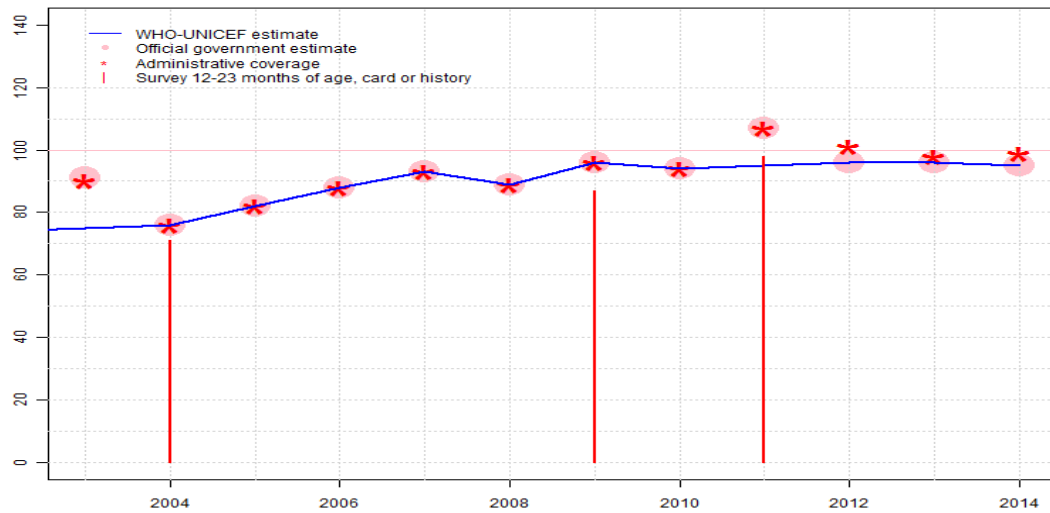
# Burundi - DTP3

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surviving infants are underestimated. Estimate challenged by: D-  
2014: Estimate based on coverage reported by national government. Estimate  
challenged by: D-

# Burundi - Pol3

BDI - Pol3



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	75	76	82	88	93	89	96	94	95	96	96	95
Estimate GoC	•	•••	•••	••	•••	•••	•	•	••	•	•	•
Official	91	76	82	88	93	89	96	94	107	96	96	95
Administrative	90	76	82	88	93	89	96	94	107	101	98	99
Survey	NA	71	NA	NA	NA	NA	87	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 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 1999 and 2004 levels. Fluctuation in officially reported data suggests problems in reporting system. Estimate challenged by: R-
- 2004: Estimate based on coverage reported by national government supported by survey. Survey evidence of 77 percent based on 1 survey(s). Burundi Multiple Indicator Cluster Survey 2005 card or history results of 71 percent modified for recall bias to 77 percent based on 1st dose card or history coverage of 90 percent, 1st dose card only coverage of 63 percent and 3d dose card only coverage of 54 percent. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. GoC=R+ S+ D+
- 2005: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2006: Estimate based on coverage reported by national government. GoC=R+ D+
- 2007: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2008: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2009: Estimate based on coverage reported by national government supported by survey. Survey evidence of 96 percent based on 1 survey(s). Burundi Demographic and Health Survey 2010 card or history results of 87 percent modified for recall bias to 96 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 62 percent and 3d dose card only coverage of 60 percent. Estimate challenged by: D-
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Routine Immunization Coverage Survey and Post Measles Campaign Survey 2012 card or history results of 98 percent modified for recall bias to 99 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 29 percent and 3d dose card only coverage of 29 percent. Reported data excluded. 107 percent greater than 100 percent. Reported data excluded. Unexplained increase from 94 percent to 107 percent with decrease 96 percent. GoC=S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-

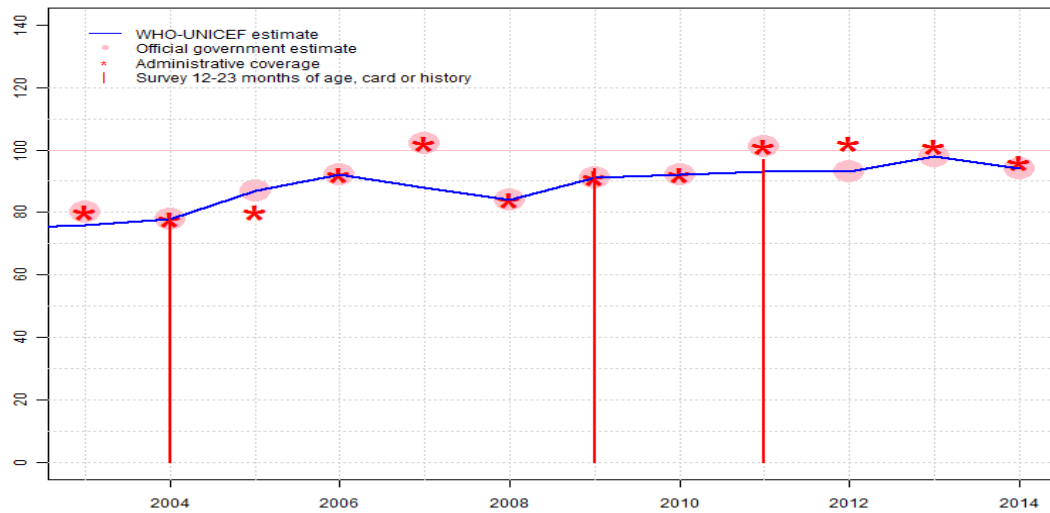
# Burundi - Pol3

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2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - MCV1

BDI - MCV1



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	76	78	87	92	88	84	91	92	93	93	98	94
Estimate GoC	•	•••	•	••	••	•••	•••	•	•	•	•	•
Official	80	78	87	92	102	84	91	92	101	93	98	94
Administrative	80	78	80	92	102	84	91	92	101	102	101	96
Survey	NA	78	NA	NA	NA	NA	94	NA	97	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.

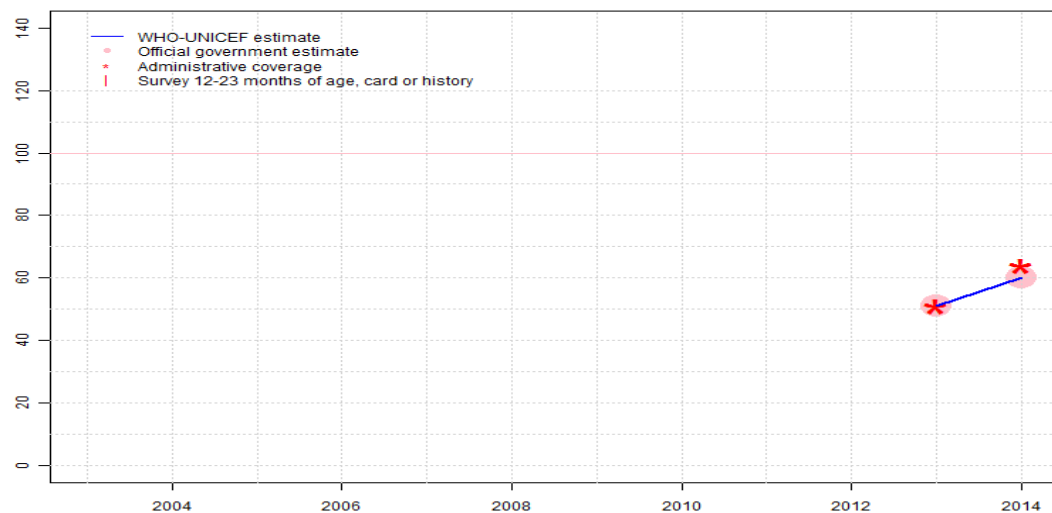
## Description:

- 2003: Estimate based on interpolation between 1999 and 2004 levels. Fluctuation in officially reported data suggests problems in reporting system. Estimate challenged by: R-
- 2004: Estimate based on coverage reported by national government supported by survey. Survey evidence of 78 percent based on 1 survey(s). Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. GoC=R+ S+ D+
- 2005: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2006: Estimate based on coverage reported by national government. GoC=R+ D+
- 2007: Estimate based on interpolation between coverage reported by national government. Reported data excluded. 102 percent greater than 100 percent. GoC=S+ D+
- 2008: Estimate based on coverage reported by national government. GoC=R+ S+ D+
- 2009: Estimate based on coverage reported by national government supported by survey. Survey evidence of 94 percent based on 1 survey(s). GoC=R+ S+ D+
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 97 percent based on 1 survey(s). Reported data excluded. 101 percent greater than 100 percent. Estimate challenged by: D-
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate challenged by: D-



# Burundi - MCV2

BDI - MCV2



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51	60
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51	60
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51	64
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.

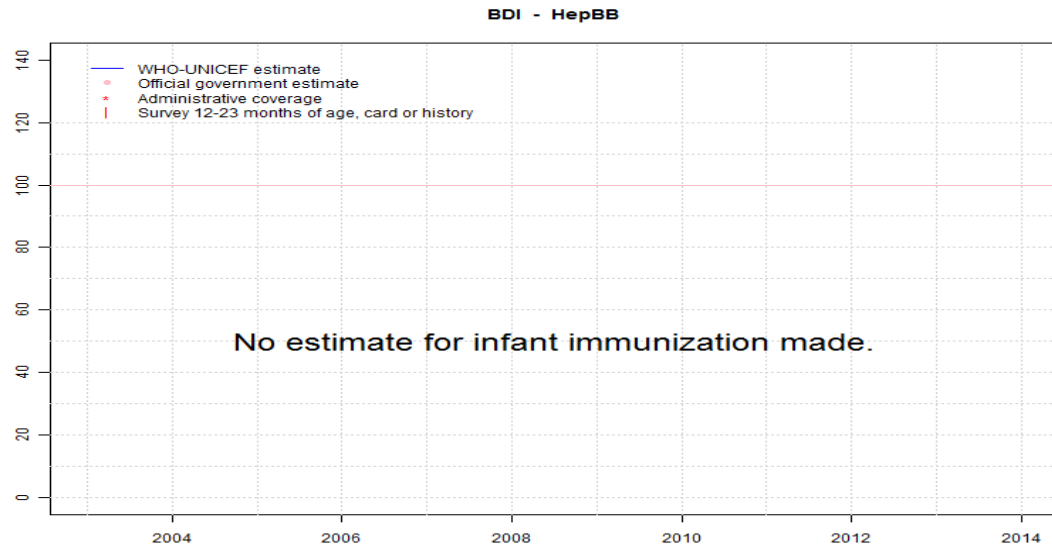
## Description:

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

2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Measles 2nd dose introduced in 2013. Estimate challenged by: D-

2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - HepBB



	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

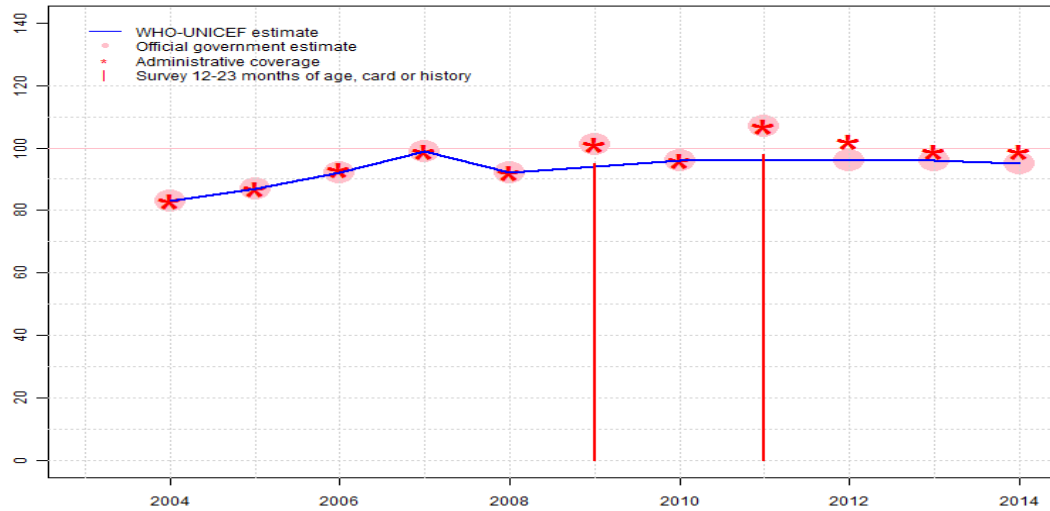
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

# Burundi - HepB3

BDI - HepB3



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	83	87	92	99	92	94	96	96	96	96	95
Estimate GoC	NA	●●	●●	●●	●●●	●●●	●●	●	●●	●	●	●
Official	NA	83	87	92	99	92	101	96	107	96	96	95
Administrative	NA	83	87	93	99	92	101	96	107	102	99	99
Survey	NA	NA	NA	NA	NA	NA	95	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 Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

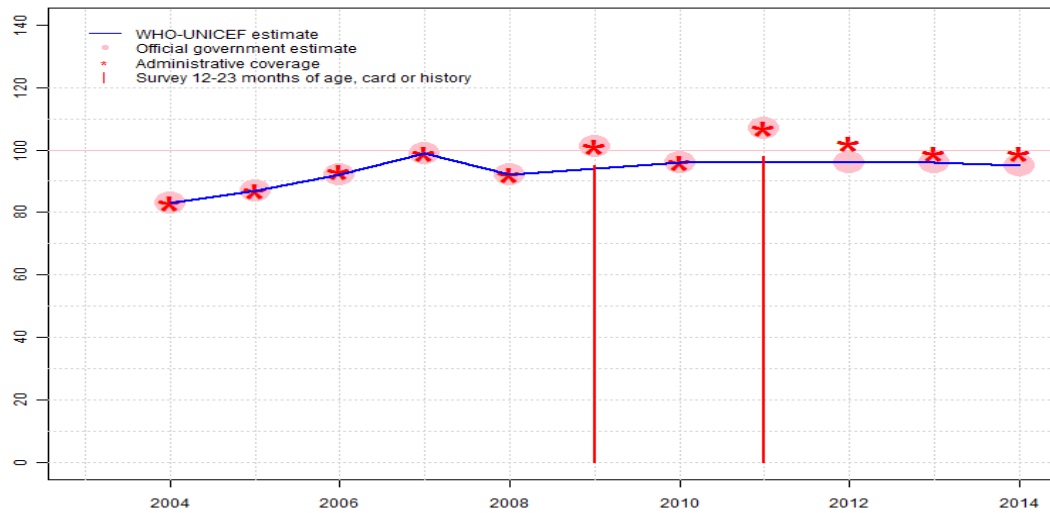
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2004: Estimate based on reported data. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. HepB vaccine introduced in 2004 Vaccine presentation is DTP-HepB-Hib. GoC=R+ D+
- 2005: Estimate based on reported data. GoC=R+ D+
- 2006: Estimate based on reported data. GoC=R+ D+
- 2007: Estimate based on reported data. GoC=R+ S+ D+
- 2008: Estimate based on reported data. GoC=R+ S+ D+
- 2009: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 97 percent based on 1 survey(s). Burundi Demographic and Health Survey 2010 card or history results of 95 percent modified for recall bias to 97 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 62 percent and 3d dose card only coverage of 61 percent. Reported data excluded. 101 percent greater than 100 percent. GoC=S+ D+
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Routine Immunization Coverage Survey and Post Measles Campaign Survey 2012 card or history results of 98 percent modified for recall bias to 99 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 29 percent and 3d dose card only coverage of 29 percent. Reported data excluded. 107 percent greater than 100 percent. Reported data excluded. Unexplained increase from 96 percent to 107 percent with decrease 96 percent. GoC=S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - Hib3

BDI - Hib3



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Estimate	NA	83	87	92	99	92	94	96	96	96	96	95
Estimate GoC	NA	●●	●●	●●	●●●	●●●	●●	●	●●	●	●	●
Official	NA	83	87	92	99	92	101	96	107	96	96	95
Administrative	NA	83	87	93	99	92	101	96	107	102	99	99
Survey	NA	NA	NA	NA	NA	NA	95	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 Population Division (D+), and at least one supporting survey within 2 years [S+]. While well supported, the estimate still carries a risk of being wrong.
- Estimate is supported by at least one data source; [R+], [S+], or [D+]; and no data source, [R-], [D-], or [S-], challenges the estimate.
- There are no directly supporting data; or data from at least one source; [R-], [D-], [S-]; challenge the estimate.

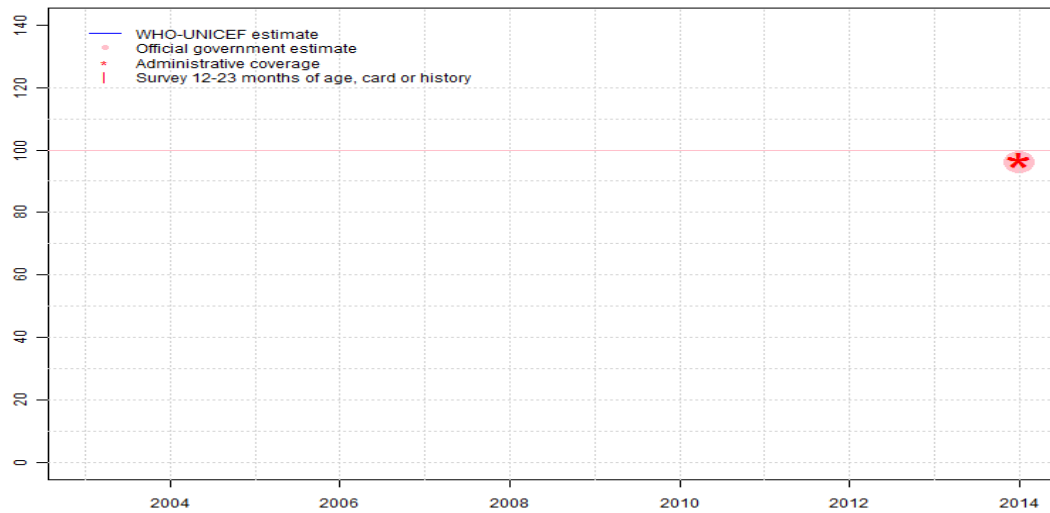
In all cases these estimates should be used with caution and should be assessed in light of the objective for which they are being used.

## Description:

- 2004: Estimate based on reported data. Data quality audit conducted for the Vaccine Fund suggested inadequacies in the reporting system. Hib vaccine introduced in 2004 Vaccine presentation is DTP-HepB-Hib. GoC=R+ D+
- 2005: Estimate based on reported data. GoC=R+ D+
- 2006: Estimate based on reported data. GoC=R+ D+
- 2007: Estimate based on reported data. GoC=R+ S+ D+
- 2008: Estimate based on reported data. GoC=R+ S+ D+
- 2009: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 97 percent based on 1 survey(s). Burundi Demographic and Health Survey 2010 card or history results of 95 percent modified for recall bias to 97 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 62 percent and 3d dose card only coverage of 61 percent. Reported data excluded. 101 percent greater than 100 percent. GoC=S+ D+
- 2010: Estimate based on coverage reported by national government. Estimate challenged by: D-
- 2011: Estimate based on interpolation between data reported by national government supported by survey. Survey evidence of 99 percent based on 1 survey(s). Routine Immunization Coverage Survey and Post Measles Campaign Survey 2012 card or history results of 98 percent modified for recall bias to 99 percent based on 1st dose card or history coverage of 99 percent, 1st dose card only coverage of 29 percent and 3d dose card only coverage of 29 percent. Reported data excluded. 107 percent greater than 100 percent. Reported data excluded. Unexplained increase from 96 percent to 107 percent with decrease 96 percent. GoC=S+ D+
- 2012: Estimate based on coverage reported by national government. Official estimate based on preliminary survey result. Estimate challenged by: D-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. Estimate challenged by: D-

# Burundi - RotaC

BDI - RotaC



## Description:

2014: Estimate based on coverage reported by national government. Rotavirus vaccine introduced during 2013 and reporting began during 2014. 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	NA	NA	NA	96
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●
Official	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	96
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	97
Survey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

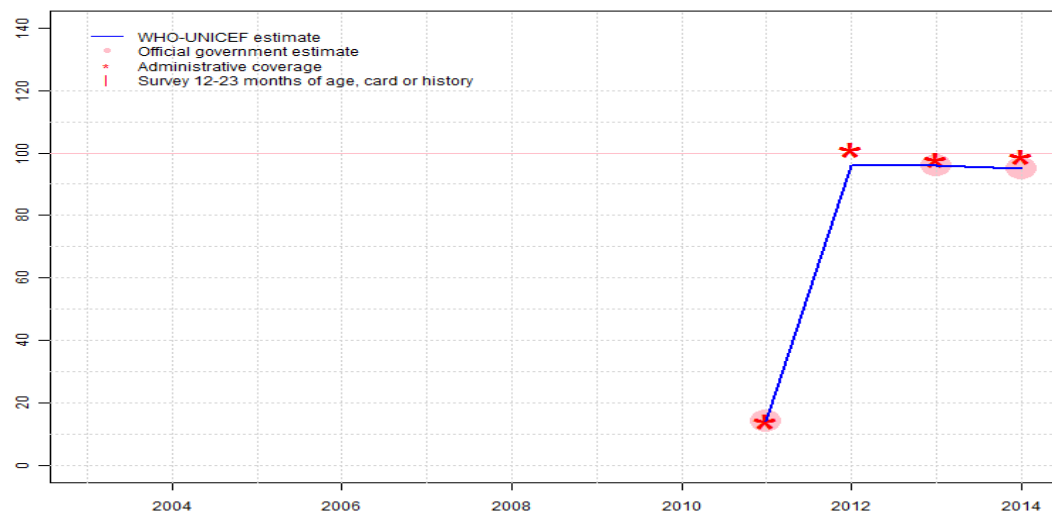
The WHO and UNICEF estimates of national immunization coverage (wuenic) are based on data and information that are of varying, and, in some instances, unknown quality. Beginning with the 2011 revision we describe the grade of confidence (GoC) we have in these estimates. As there is no underlying probability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

# Burundi - PcV3

BDI - PcV3



## Description:

- 2011: Estimate based on coverage reported by national government. Pneumococcal conjugate vaccine introduced in 2011. GoC=R+
- 2012: Based on DTP3 coverage estimate. Reported data excluded. 101 percent greater than 100 percent. Estimate challenged by: D-R-
- 2013: Estimate based on coverage reported by national government. Relationship between births and SI is inconsistent with external sources suggesting that surviving infants are underestimated. Estimate challenged by: D-
- 2014: Estimate based on coverage reported by national government. 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	14	96	96	95
Estimate GoC	NA	NA	NA	NA	NA	NA	NA	NA	••	•	•	•
Official	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	96	95
Administrative	NA	NA	NA	NA	NA	NA	NA	NA	14	101	98	99
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.

# Burundi - survey details

2011 Enquête de Couverture Vaccinale de Routine et apres une Campagne de Suivi de Vaccination Contre la Rougeole Couplee a l'Administration de la Vitamine A, de l'Albendazole et du Praziquantel 2012 (ENCV 2012)

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	98	12-23 m	5951	51
BCG	Card	29	12-23 m	-	51
BCG	Card or History	98	12-23 m	5951	51
BCG	History	69	12-23 m	-	51
DTP1	C or H <12 months	97	12-23 m	5951	51
DTP1	Card	29	12-23 m	-	51
DTP1	Card or History	99	12-23 m	5951	51
DTP1	History	70	12-23 m	-	51
DTP3	C or H <12 months	96	12-23 m	5951	51
DTP3	Card	29	12-23 m	-	51
DTP3	Card or History	98	12-23 m	5951	51
DTP3	History	69	12-23 m	-	51
HepB1	C or H <12 months	97	12-23 m	5951	51
HepB1	Card	29	12-23 m	-	51
HepB1	Card or History	99	12-23 m	5951	51
HepB1	History	70	12-23 m	-	51
HepB3	C or H <12 months	96	12-23 m	5951	51
HepB3	Card	29	12-23 m	-	51
HepB3	Card or History	98	12-23 m	5951	51
HepB3	History	69	12-23 m	-	51
Hib1	C or H <12 months	97	12-23 m	5951	51
Hib1	Card	29	12-23 m	-	51
Hib1	Card or History	99	12-23 m	5951	51
Hib1	History	70	12-23 m	-	51
Hib3	C or H <12 months	96	12-23 m	5951	51
Hib3	Card	29	12-23 m	-	51
Hib3	Card or History	98	12-23 m	5951	51
Hib3	History	69	12-23 m	-	51
MCV1	C or H <12 months	93	12-23 m	5951	51
MCV1	Card	28	12-23 m	-	51
MCV1	Card or History	97	12-23 m	5951	51
MCV1	History	69	12-23 m	-	51
Pol1	C or H <12 months	98	12-23 m	5951	51

Pol1	Card	29	12-23 m	-	51
Pol1	Card or History	99	12-23 m	5951	51
Pol1	History	70	12-23 m	-	51
Pol3	C or H <12 months	96	12-23 m	5951	51
Pol3	Card	29	12-23 m	-	51
Pol3	Card or History	98	12-23 m	5951	51
Pol3	History	70	12-23 m	-	51

2009 Enquête Démographique et de Santé Burundi 2010

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	99	12-23 m	1552	62
BCG	Card	62	12-23 m	961	62
BCG	Card or History	99	12-23 m	1552	62
BCG	History	37	12-23 m	591	62
DTP1	C or H <12 months	99	12-23 m	1552	62
DTP1	Card	62	12-23 m	961	62
DTP1	Card or History	99	12-23 m	1552	62
DTP1	History	37	12-23 m	591	62
DTP3	C or H <12 months	95	12-23 m	1552	62
DTP3	Card	61	12-23 m	961	62
DTP3	Card or History	95	12-23 m	1552	62
DTP3	History	35	12-23 m	591	62
HepB1	C or H <12 months	99	12-23 m	1552	62
HepB1	Card	62	12-23 m	961	62
HepB1	Card or History	99	12-23 m	1552	62
HepB1	History	37	12-23 m	591	62
HepB3	C or H <12 months	95	12-23 m	1552	62
HepB3	Card	61	12-23 m	961	62
HepB3	Card or History	95	12-23 m	1552	62
HepB3	History	35	12-23 m	591	62
Hib1	C or H <12 months	99	12-23 m	1552	62
Hib1	Card	62	12-23 m	961	62
Hib1	Card or History	99	12-23 m	1552	62
Hib1	History	37	12-23 m	591	62
Hib3	C or H <12 months	95	12-23 m	1552	62
Hib3	Card	61	12-23 m	961	62
Hib3	Card or History	95	12-23 m	1552	62
Hib3	History	35	12-23 m	591	62

# Burundi - survey details

MCV1	C or H <12 months	89	12-23 m	1552	62
MCV1	Card	59	12-23 m	961	62
MCV1	Card or History	94	12-23 m	1552	62
MCV1	History	35	12-23 m	591	62
Pol1	C or H <12 months	98	12-23 m	1552	62
Pol1	Card	62	12-23 m	961	62
Pol1	Card or History	99	12-23 m	1552	62
Pol1	History	37	12-23 m	591	62
Pol3	C or H <12 months	87	12-23 m	1552	62
Pol3	Card	60	12-23 m	961	62
Pol3	Card or History	87	12-23 m	1552	62
Pol3	History	27	12-23 m	591	62

Pol1	C or H <12 months	89	12-23 m	1453	64
Pol1	Card	63	12-23 m	1453	64
Pol1	Card or History	90	12-23 m	1453	64
Pol1	History	28	12-23 m	1453	64
Pol3	C or H <12 months	68	12-23 m	1453	64
Pol3	Card	54	12-23 m	1453	64
Pol3	Card or History	71	12-23 m	1453	64
Pol3	History	17	12-23 m	1453	64

1999 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi (ENECEF-BURUNDI 2000), Rapport Préliminaire

2004 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi - 2005

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	C or H <12 months	90	12-23 m	1453	64
BCG	Card	62	12-23 m	1453	64
BCG	Card or History	91	12-23 m	1453	64
BCG	History	28	12-23 m	1453	64
DTP1	C or H <12 months	74	12-23 m	1453	64
DTP1	Card	47	12-23 m	1453	64
DTP1	Card or History	75	12-23 m	1453	64
DTP1	History	28	12-23 m	1453	64
DTP3	C or H <12 months	60	12-23 m	1453	64
DTP3	Card	44	12-23 m	1453	64
DTP3	Card or History	63	12-23 m	1453	64
DTP3	History	19	12-23 m	1453	64
MCV1	C or H <12 months	69	12-23 m	1453	64
MCV1	Card	51	12-23 m	1453	64
MCV1	Card or History	78	12-23 m	1453	64
MCV1	History	27	12-23 m	1453	64

Vaccine	Confirmation method	Coverage	Age cohort	Sample	Cards seen
BCG	Card	61	12-23 m	-	62
BCG	Card or History	84	12-23 m	598	62
BCG	History	23	12-23 m	-	62
DTP1	Card	62	12-23 m	-	62
DTP1	Card or History	86	12-23 m	598	62
DTP1	History	24	12-23 m	-	62
DTP3	Card	57	12-23 m	-	62
DTP3	Card or History	73	12-23 m	598	62
DTP3	History	17	12-23 m	-	62
MCV1	Card	52	12-23 m	-	62
MCV1	Card or History	70	12-23 m	598	62
MCV1	History	23	12-23 m	-	62
Pol1	Card	60	12-23 m	-	62
Pol1	Card or History	87	12-23 m	598	62
Pol1	History	27	12-23 m	-	62
Pol3	Card	48	12-23 m	-	62
Pol3	Card or History	63	12-23 m	598	62
Pol3	History	16	12-23 m	-	62

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](http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index4.html)



## Burundi

### 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	65
2004	66
2005	65
2006	66
2007	76
2008	78
2009	94
2010	94
2011	80
2012	85
2013	85
2014	85

<sup>1</sup> 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.