

## 7 Immunisation

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### 7.1 Immunisation coverage under 1 year

Immunisation coverage under 1 year measures the percentage of children under 1 year of age who have received all the following immunisations:

- ◆ At birth: OPV<sup>a</sup> (0), BCG<sup>b</sup>
- ◆ 6 weeks: OPV (1), DTaP-IPV/Hib<sup>c</sup> (1), Hep B<sup>d</sup> (1), PCV<sup>e</sup> (1), RV<sup>f</sup> (1)
- ◆ 10 weeks: DTaP-IPV/Hib (2), Hep B (2)
- ◆ 14 weeks: DTaP-IPV/Hib (3), Hep B (3), (3), PCV (2) RV (2)
- ◆ 9 months: Measles vaccine (1), PCV (3)

The indicator is calculated as the total number of children under 1 year old that have received all these vaccines, divided by the target population of children under 1 year old. Data from the District Health Information Software (DHIS) was used to calculate this indicator. Although the Expanded Programme on Immunisation (EPI) schedule changed in December 2015, the data element definition for the numerator remained the same.

Immunisation coverage levels and trends are used as follows: (i) to monitor the performance and trends of immunisation services at district, provincial, national and international levels; (ii) to guide strategies for the control and subsequent elimination of vaccine-preventable diseases; (iii) to identify districts or provinces that may need investment of additional resources to improve coverage; and (iv) to evaluate the need to update the EPI schedule by introducing new vaccines into the immunisation programme.<sup>9</sup>

It is important to note that this indicator is very sensitive to changes in the denominator (population estimates) and that following the Census in 2011, Statistics South Africa revised the population figures, particularly the under 1 year population figures. Due to these changes, immunisation coverage that had been previously calculated using the old population estimates was amended, and immunisation coverage in the *District Health Barometer* (DHB) has been updated retrospectively.

The EPI is one of the most successful and cost-effective public health initiatives to reduce infant morbidity and mortality from vaccine-preventable diseases.<sup>h</sup>

The benefits of immunisation are so immense that in 2011 the World Health Assembly took a resolution to declare the decade from 2011 to 2020 a Decade of Vaccines.<sup>i</sup> Furthermore, target 3.8 of the Sustainable Development Goals (SDGs) emphasises the importance of immunisation and as such calls for “access to safe, effective, quality and affordable medicines and vaccines for all” by 2030. Improved coverage of early childhood immunisation is essential to achieving SDG goal 3.8, and as such the global Vaccine Alliance (Gavi) is calling for a universally applicable vaccine indicator to “reach and sustain 90% national coverage and 80% in every district with all vaccines in national programmes” and for this indicator to be one of the measures of target 3.8.<sup>j</sup>

Worldwide, about 2–3 million deaths from diphtheria, tetanus, pertussis and measles are prevented annually due to immunisation. However, approximately 18.7 million infants under 1 year of age from the global population still do not receive the basic vaccines.<sup>1</sup> Globally, approximately 86% of infants (n = 115 million) receive three doses of the diphtheria-tetanus-pertussis (DTP3)-containing vaccine. According to the World Health Organization (WHO), the 10 countries with most unvaccinated children include: India, Nigeria, Pakistan, Indonesia, Ethiopia, Democratic Republic of Congo,

a OPV = oral polio vaccine.

b BCG = bacille Calmette-Guérin.

c DTaP-IPV/Hib = Diphtheria, tetanus and acellular pertussis vaccine + inactivated polio vaccine + Haemophilus influenzae type B vaccine combined.

d HepB = Hepatitis B.

e PCV = Pneumococcal conjugate vaccine.

f RV = Rotavirus vaccine.

g Burton A, Monasch R, Lautenbach B, et al. WHO and UNICEF estimates of national infant immunization coverage: methods and processes. *Bull World Health Organ.* 2009; 87:535-41. doi: 10.2471/BLT.08.053819.

h World Health Organization. Immunization coverage fact sheet. Available from: <http://www.who.int/mediacentre/factsheets/fs378/en/> [Accessed 11 July 2016].

i Strategic Advisory Group of Experts on Immunization (SAGE). 2015 Assessment report of the global vaccine action plan. Available from: [http://who.int/immunization/global\\_vaccine\\_action\\_plan/SAGE\\_GVAP\\_Assessment\\_Report\\_2015\\_EN.pdf?ua=1&ua=1](http://who.int/immunization/global_vaccine_action_plan/SAGE_GVAP_Assessment_Report_2015_EN.pdf?ua=1&ua=1) [Accessed 11 July 2016].

j GAVI brief on the vaccine indicator for the SDG monitoring framework. Available from: <http://www.gavi.org/library/gavi-documents/advocacy/gavi-brief-on-the-vaccine-indicator-for-the-sdg-monitoring-framework/> [Accessed 11 July 2016].

Philippines, Iraq, Uganda and South Africa.<sup>i</sup> It is likely that in the case of South Africa, these WHO estimates are based on outdated data.

The factors contributing to missed opportunities for immunisation occur at multiple levels. At a health-system level these include: logistical factors (vaccine stock-outs or poor stock control, immunisation not offered on every clinic day, immunisations not offered routinely at secondary and tertiary hospitals, cold chain failures); poor knowledge of immunisation procedures (poor staff training on immunisations, poor management of adverse events, and failure to check or document immunisations in the Road to Health Book (RtHB)); and inadequate resources (staff shortages, high workloads, and lack of resources, e.g. no EPI fridge).<sup>k,l</sup> At a parental level, these factors include: failure to carry the RtHB or to report lost books, lack of knowledge of EPI, lack of reminders of clinic visits, and cultural beliefs and economic barriers (cost of transport to clinic and loss of a day's pay).<sup>k,l</sup>

Currently the EPI schedule in South Africa has 11 antigens. These include vaccines against polio, measles, tuberculosis, diphtheria, pertussis, tetanus, Haemophilus influenzae type B, hepatitis B, rotavirus and pneumococcal infection, which are provided free of charge at all public health facilities. The human papillomavirus vaccine is administered via the integrated school health programme.<sup>m</sup> As of 1 December 2015, the measles vaccination product and EPI schedule were updated. The measles vaccine will be administered at the ages of 6 and 12 months, thus two additional visits have been added to the EPI schedule.<sup>n</sup>

According to the old EPI schedule, the first measles vaccine was given at 9 months of age and the second dose was given at 18 months. The reason for the change includes the recommendation to vaccinate infants against measles as early as 6 months of age to prevent the high morbidity and mortality rates associated with the disease. Since vaccine efficacy becomes optimal after 1 year of age, a second dose at 12 months is recommended to ensure increased population immunity rates.<sup>m</sup> The new South African EPI schedule is shown in Table 1.<sup>n</sup>

**Table 1: Expanded Programme on Immunisation (EPI) South Africa – Revised immunisation schedule from December 2015**

Age of child	Vaccines needed
At birth	BCG
	OPV (0)
6 weeks	OPV (1)
	RV (1)
	DTaP-IPV-Hib-HBV (1) <sup>o</sup>
	PCV (1)
10 weeks	DTaP-IPV-Hib-HBV (2)
14 weeks	RV (2)
	DTaP-IPV-Hib-HBV (3)
	PCV (2)
6 months	Measles vaccine (1)
9 months	PCV (3)
12 months	Measles vaccine (2)
18 months	DTaP-IPV-Hib-HBV (4)
6 years	Td vaccine <sup>p</sup>
12 years	Td vaccine

Source: National Institute for Communicable Diseases (NICD), 2016.<sup>n</sup>

During 2015/16, immunisation coverage nationally was 89.2%, marginally below the national target of 90%. This was a 0.6 percentage point reduction from the immunisation coverage of 89.8% reported in 2014/15. Over the past years there has been a general upward trend, with immunisation coverage increasing from 80.8% in 2010/11 to 89.2% in 2015/16 (Table 2). This increased coverage may be attributed to the intense efforts implemented to improve the functioning of the immunisation programme.

k Sridhar S, Maleq N, Guillermet E, et al. A systematic literature review of missed opportunities for immunization in low- and middle-income countries. *Vaccine*. 2014; 32(51):6870-9. <http://dx.doi.org/10.1016/j.vaccine.2014.10.063>.

l Jacob N, Coetzee D. Missed opportunities for immunisation in health facilities in Cape Town, South Africa. *S Afr Med J*. 2015; 105(11):917-21. doi:10.7196/SAMJ.2015.v105i11.10194.

m World Health Organization. Expanded Programme on Immunisation (EPI), South Africa. Available from: <http://www.afro.who.int/en/south-africa/country-programmes/4245-expanded-program-on-immunization-epi.html> [Accessed 11 July 2016].

n National Institute for Communicable Diseases. Communicable Diseases Communiqué, January 2016, Vol. 15(1). Available from: [http://www.nicd.ac.za/assets/files/NICD%20Communicable%20Diseases%20Communique\\_Jan2016\\_final%20pdf.pdf](http://www.nicd.ac.za/assets/files/NICD%20Communicable%20Diseases%20Communique_Jan2016_final%20pdf.pdf) [Accessed 11 July 2016].

o DTaP-IPV-Hib-HBV = Diphtheria, tetanus, acellular pertussis + Inactivated polio vaccine + Haemophilus influenzae type B + Hepatitis B combined.

p Td vaccine = Tetanus and reduced-strength diphtheria vaccine.

## Section A: Immunisation

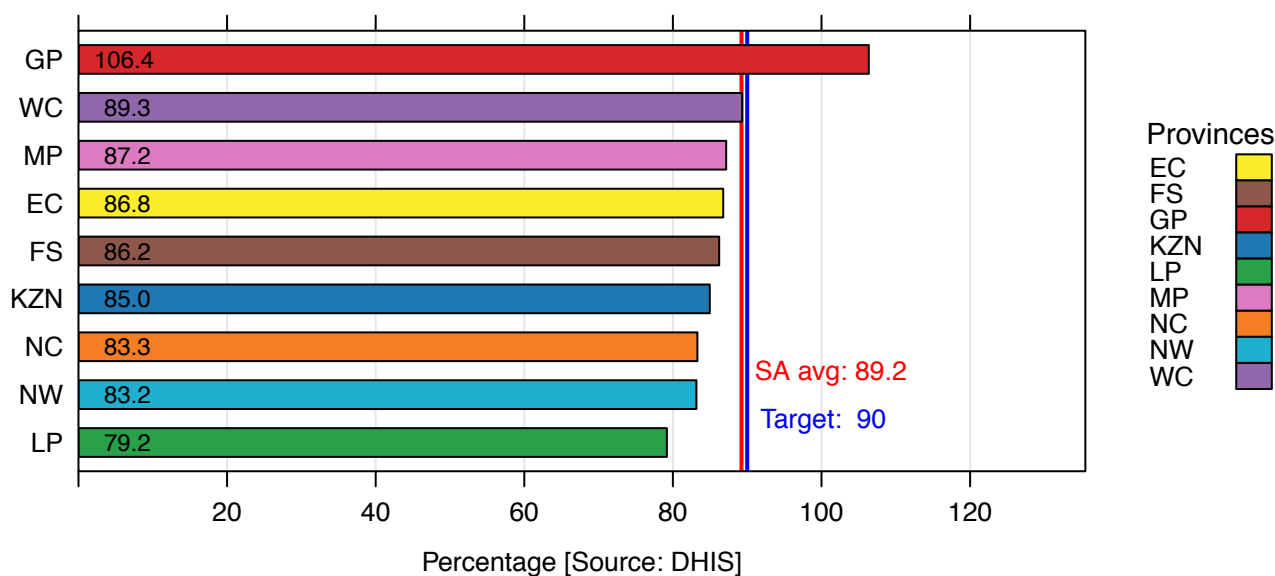
**Table 2: National immunisation coverage under 1 year, 2010/11–2015/16 (%)**

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
SA	80.8	83.9	83.6	84.4	89.8	89.2

Source: DHIS.

Figure 1 shows immunisation coverage by province. Provincial variation in immunisation coverage ranged from 79.2% in Limpopo (LP) to 106.4% in Gauteng (GP). Table 3 outlines immunisation coverage at provincial level for the period 2010/11–2015/16. While most provinces (namely the Eastern Cape (EC), Limpopo, Mpumalanga (MP), North West (NW) and the Western Cape (WC)) improved on the immunisation coverage reported in 2013/14, immunisation coverage declined in some provinces (Free State (FS), Gauteng, KwaZulu-Natal (KZN) and the Northern Cape (NC)) from the 2013/14 figure. The five provinces showing the biggest improvement in this indicator between 2013/14 and 2015/16 were the Eastern Cape (14.5 percentage points), Limpopo (8.9 percentage points), Mpumalanga (16.1 percentage points), North West (9.0 percentage points) and the Western Cape (4.4 percentage points). However, in the 2014/15–2015/16 period, immunisation coverage reduced by 3.9 percentage points in the Free State, 1.3 in Gauteng, 4.9 in KwaZulu-Natal, 3.0 in Limpopo, 2.1 in the Northern Cape and 1.6 percentage points in the Western Cape.

**Figure 1: Immunisation coverage under 1 year by province, 2015/16**



**Table 3: Provincial immunisation coverage under 1 year, 2010/11–2015/16 (%)**

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
EC	69.2	71.7	72.3	72.3	80.9	86.8
FS	94.3	96.6	96.2	86.6	90.1	86.2
GP	105.3	106.5	102.6	109.0	107.7	106.4
KZN	77.8	87.5	85.6	85.8	89.9	85.0
LP	76.9	74.7	71.1	70.3	82.2	79.2
MP	58.3	58.9	67.8	71.1	80.1	87.2
NC	85.8	88.5	86.6	84.9	85.4	83.3
NW	66.5	68.2	72.4	74.2	82.1	83.2
WC	85.0	86.2	88.8	84.9	90.9	89.3

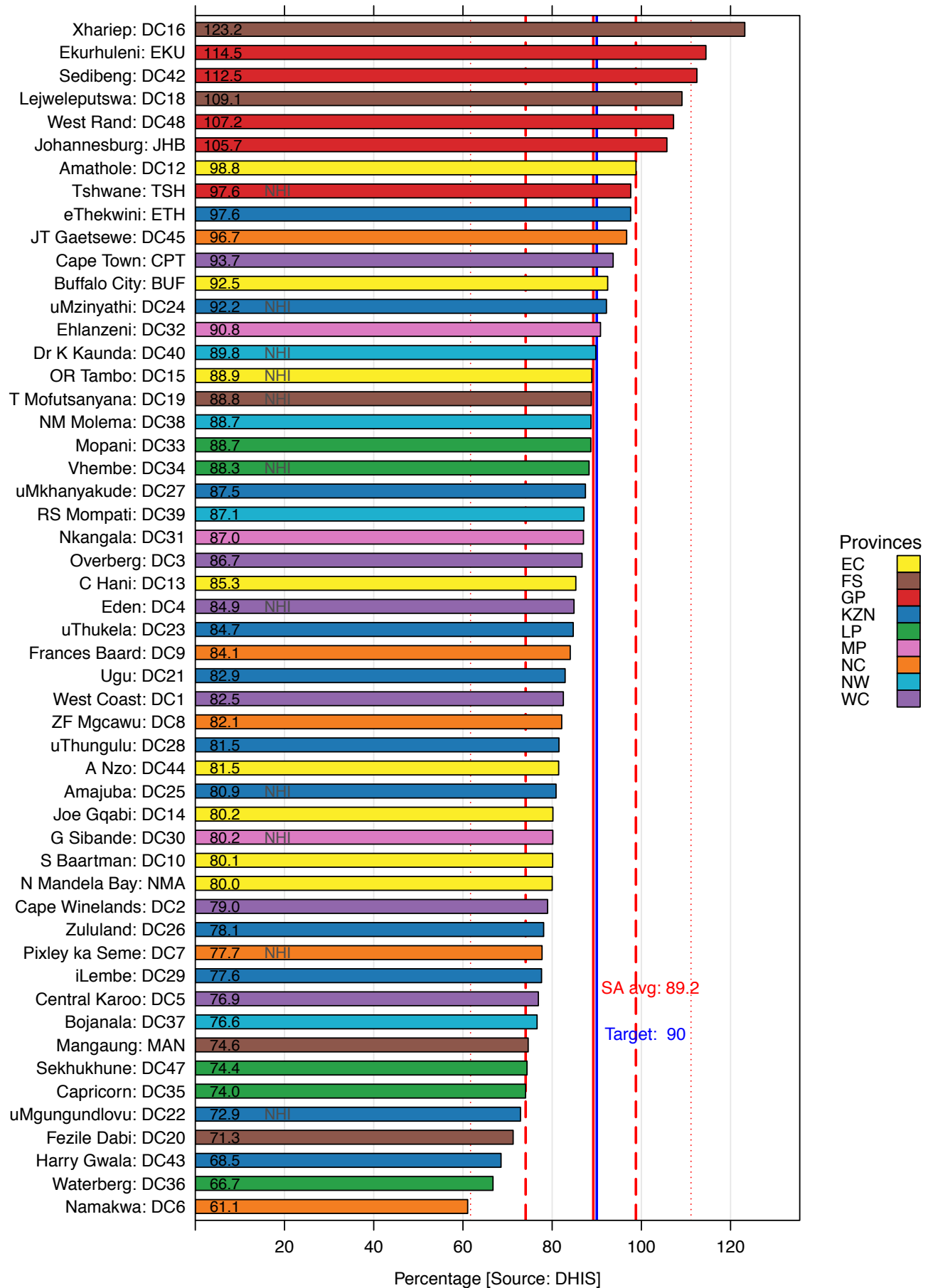
Source: DHIS.

In 2015/16, all provinces except Gauteng (106.4%) were below the national target of 90% immunisation coverage for children under 1 year of age. Seven provinces had immunisation coverage rates below the national average, although the high rate in Gauteng raised the level. The most likely reason for Gauteng exceeding 100% was in-migration of mothers with infants under 1 year of age born elsewhere, as they would have increased the numerator but not been included in the denominator. Other reasons include errors in the numerator or denominator; a change in the population estimate for that age group; and children who were older than the target age group being included in the numerator.<sup>1</sup>

Figure 2 shows the wide variation in immunisation coverage across districts, which is further illustrated in Map 1. At district level, immunisation coverage ranged from 61.1% in Namakwa (NC) to 123.2% in Xhariep (FS).

Fourteen districts exceeded the national target of 90%. Overall, 38 of the 52 districts (73.1%) reported immunisation coverage below the national target.

Figure 2: Immunisation coverage under 1 year by district, 2015/16



Map 1: Immunisation coverage under 1 year by sub-district, 2015/16

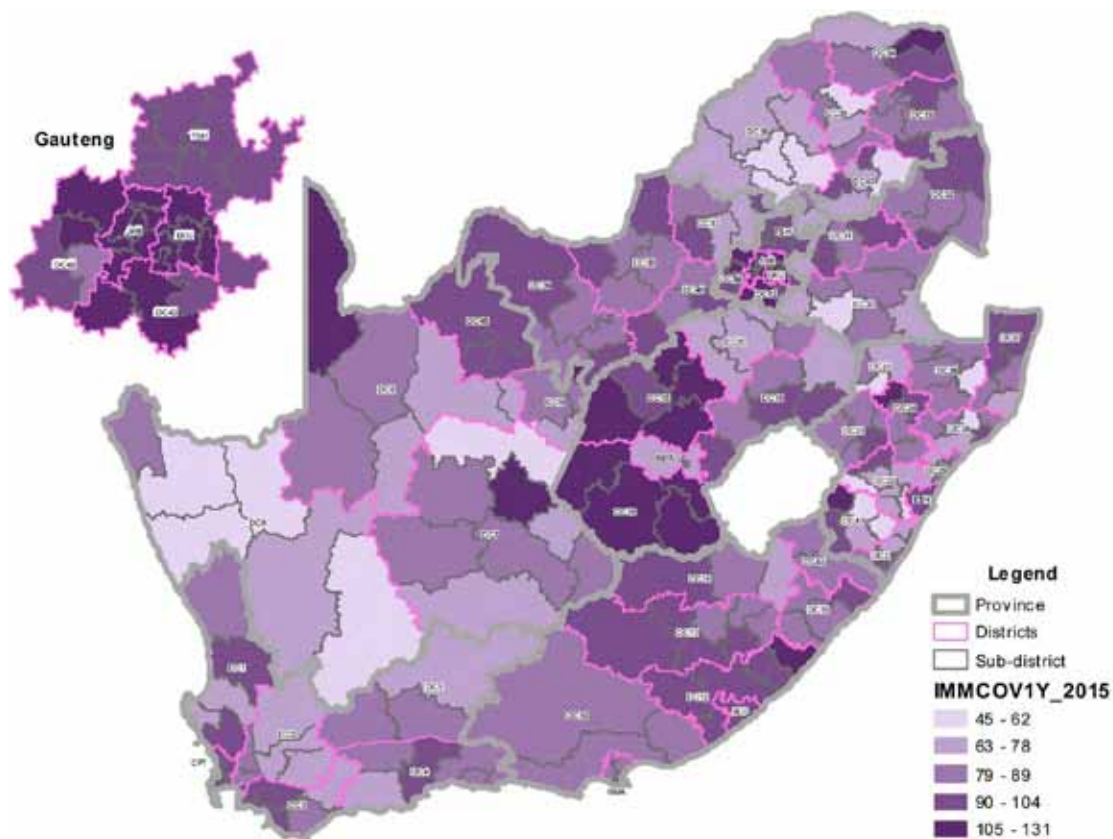


Table 4 shows immunisation coverage for the period 2014/15–2015/16. In the Eastern Cape, all districts except Buffalo City and N Mandela Bay showed an increase in coverage from 2014/15. Although Buffalo City showed a 4.0% decrease, immunisation coverage remained above the national target. In the Free State, Fezile Dabi, Mangaung and T Mofutsanyana districts showed decreases in coverage (8.4, 8.0 and 3.7 percentage point decreases respectively).

Four districts in Gauteng (Ekurhuleni, Sedibeng, West Rand and Johannesburg) had immunisation coverage exceeding 100%; however, Johannesburg, Tshwane and West Rand districts showed a decrease from the coverage reported in 2014/15. In KwaZulu-Natal, seven out of 11 districts showed a decreasing trend in immunisation coverage. Most notable in the province, the uMgungundlovu district showed an 18.3 percentage point decrease (from 91.2% in 2014/15 to 72.9% in 2015/16), while the uMzinyathi district showed a 10.6 percentage point increase (from 81.5% in 2014/15 to 92.2% in 2015/16). In 2014/15, the Mopani and Vhembe districts in Limpopo had immunisation coverage above the national target (90.5% and 94.5% respectively), but in 2015/16 coverage decreased to below the national target. Decreased coverage was also noted in the Capricorn and Sekhukhune districts (both LP).

It is encouraging that all three districts in Mpumalanga showed an increase in immunisation coverage in the 2014/15–2015/16 period. An increase of 8.2 percentage points was reported in the Ehlanzeni district, which exceeded the national target in 2015/16. In the Northern Cape, increased coverage was noted in JT Gaetsewe and ZF Mgcawu districts, whereas Frances Baard, Namakwa and Pixley ka Seme (all NC) showed decreases of 9.6, 7.2 and 2.3 percentage points respectively. Namakwa was the worst-performing district in 2015/16, with 61.1% coverage. Between 2014/15 and 2015/16, two districts in North West showed increases (Dr K Kaunda 3.0 percentage point increase and NM Molema 5.9 percentage point increase), while two districts showed decreases (RS Mompoti 0.4 percentage point decrease and Bojanala 1.5 percentage point decrease). In the Western Cape, four out of six districts showed a decrease in immunisation coverage, ranging from 0.9 percentage points in Eden to 3.7 percentage points in Cape Town. The Overberg and West Coast districts showed improvements of 6.8 and 7.4 percentage points respectively between 2014/15 and 2015/16.

Table 4: Immunisation coverage under 1 year by district, 2014/15 to 2015/16

Province	District	2014/15	2015/16	% change from 2014/15 – 2015/16
EC	A Nzo: DC44	72.3	81.5	9.2
	Amathole: DC12	86.6	98.8	12.2
	Buffalo City: BUF	96.4	92.5	-4.0
	C Hani: DC13	83.6	85.3	1.7
	Joe Gqabi: DC14	73.9	80.2	6.2
	N Mandela Bay: NMA	87.6	80.0	-7.5
	OR Tambo: DC15	74.9	88.9	13.9
	S Baartman: DC10	80.1	80.1	0.0
EC Total		80.9	86.8	5.9
FS	Fezile Dabi: DC20	79.6	71.3	-8.4
	Lejweleputswa: DC18	100.7	109.1	8.4
	Mangaung: MAN	82.6	74.6	-8.0
	Xhariep: DC16	112.7	123.2	10.5
	T Mofutsanyana: DC19	92.5	88.8	-3.7
FS Total		90.1	86.2	-3.9
GP	Ekurhuleni: EKU	111.0	114.5	3.5
	Johannesburg: JHB	109.1	105.7	-3.4
	Sedibeng: DC42	104.6	112.5	7.9
	Tshwane: TSH	101.9	97.6	-4.3
	West Rand: DC48	111.6	107.2	-4.4
GP Total		107.7	106.4	-1.3
KZN	Amajuba: DC25	79.2	80.9	1.7
	eThekwin: ETH	106.5	97.6	-8.9
	iLembe: DC29	81.0	77.6	-3.4
	Ugu: DC21	78.3	82.9	4.6
	uMgungundlovu: DC22	91.2	72.9	-18.3
	uMkhanyakude: DC27	83.0	87.5	4.5
	uMzinyathi: DC24	81.5	92.2	10.6
	uThukela: DC23	86.0	84.7	-1.3
	uThungulu: DC28	88.5	81.5	-7.0
	Zululand: DC26	87.9	78.1	-9.8
	Harry Gwala: DC43	77.0	68.5	-8.5
KZN Total		89.9	85.0	-5.0
LP	Capricorn: DC35	79.0	74.0	-4.9
	Mopani: DC33	90.5	88.7	-1.8
	Vhembe: DC34	94.5	88.3	-6.2
	Waterberg: DC36	63.4	66.7	3.3
	Sekhukhune: DC47	75.6	74.4	-1.2
LP Total		82.2	79.2	-3.0
MP	Ehlanzeni: DC32	82.6	90.8	8.2
	G Sibande: DC30	79.0	80.2	1.2
	Nkangala: DC31	77.4	87.0	9.6
MP Total		80.1	87.2	7.0
NC	Frances Baard: DC9	93.6	84.1	-9.6
	JT Gaetsewe: DC45	93.1	96.7	3.6
	Namakwa: DC6	68.3	61.1	-7.2
	Pixley ka Seme: DC7	80.0	77.7	-2.3
	ZF Mgcau: DC8	77.7	82.1	4.4
NC Total		85.4	83.3	-2.1
NW	Bojanala: DC37	78.1	76.6	-1.5
	Dr K Kaunda: DC40	86.8	89.8	3.0
	NM Molema: DC38	82.8	88.7	5.9
	RS Mompoti: DC39	87.5	87.1	-0.4
NW Total		82.1	83.2	1.1
WC	Cape Town: CPT	97.3	93.7	-3.7
	Cape Winelands: DC2	80.0	79.0	-1.1
	Central Karoo: DC5	78.7	76.9	-1.8
	Eden: DC4	85.8	84.9	-0.9
	Overberg: DC3	79.9	86.7	6.8
	West Coast: DC1	75.1	82.5	7.4
WC Total		90.9	89.3	-1.6
SA Total		89.8	89.2	-0.6

Source: DHIS

**Section A: Immunisation**

Immunisation coverage in nine of the 11 National Health Insurance (NHI) districts was below the national target (Figure 3). The immunisation coverage declined between 2014/15 and 2015/16 in the following NHI districts: Tshwane (GP), T Mofutsanyana (FS), Vhembe (LP), Eden (WC), Pixley ka Seme (NC) and uMgungundlovu (KZN).

**Figure 3: Immunisation coverage under 1 year by National Health Insurance district, 2015/16**

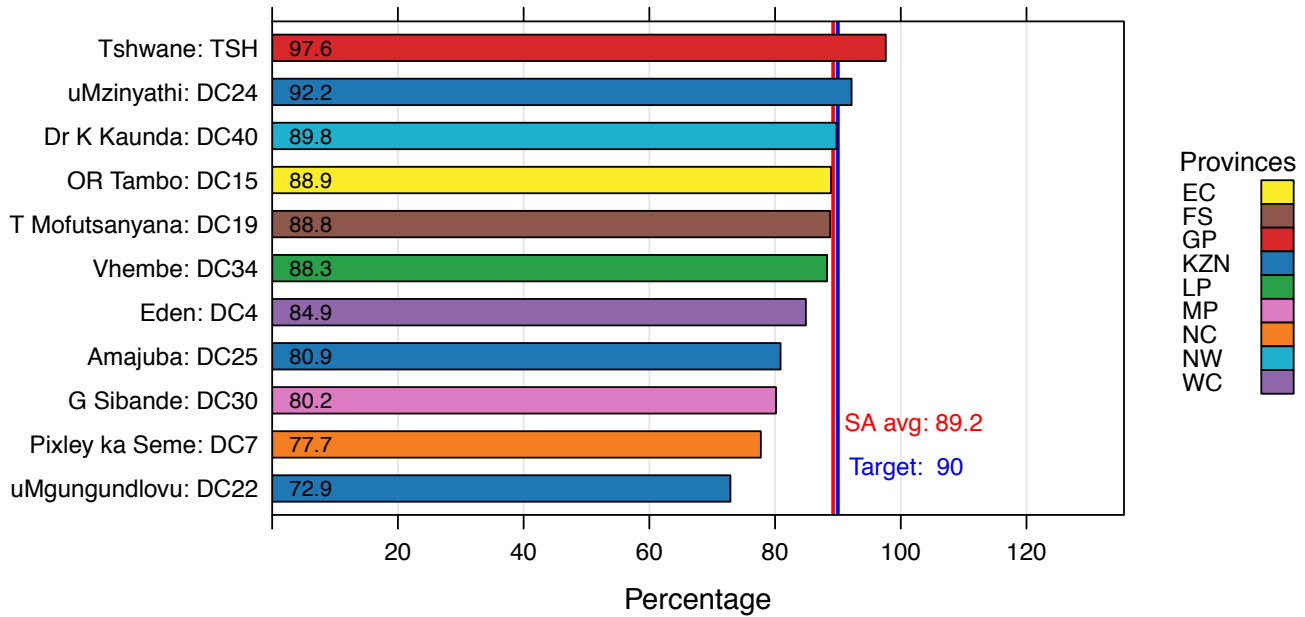
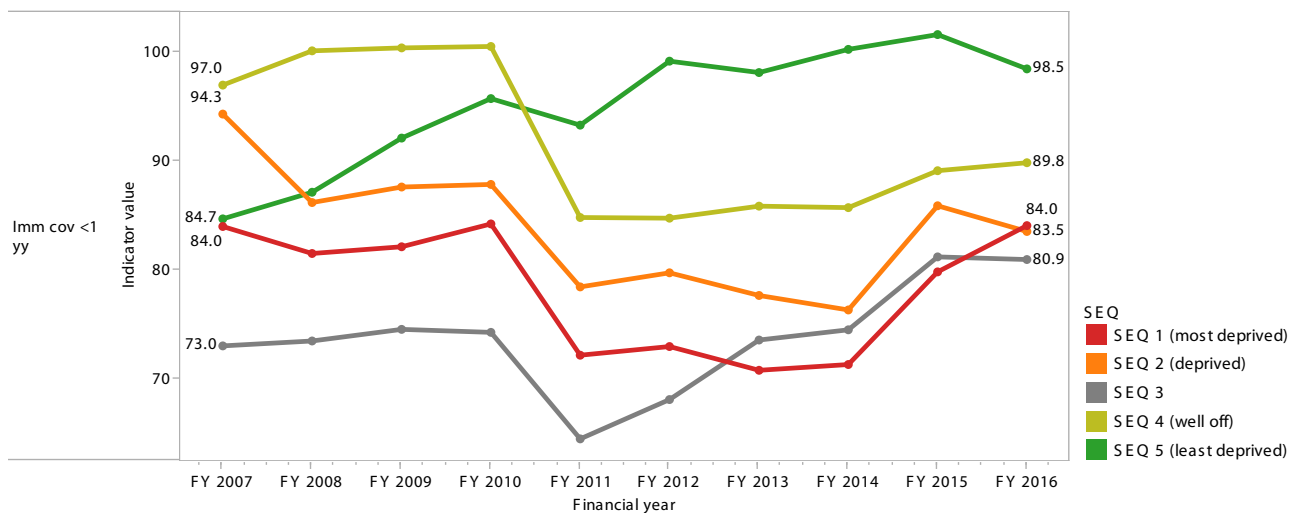


Figure 4 shows the average immunisation coverage over the past ten years by socio-economic quintile (SEQ). An inequitable trend is noted, with coverage highest in SEQ5 (least-deprived) and SEQ4, and lowest in SEQ3. There was a trend of increasing immunisation coverage in SEQ1 (most-deprived) between 2014/15 and 2015/16.

**Figure 4: Trends in average district values for immunisation coverage under 1 year by socio-economic quintile**



## 7.2 Measles 2nd dose coverage

Measles 2nd dose coverage measures the proportion of children aged 1 year (12–23 months) who received measles 2nd dose coverage, normally at 18 months.

In 2015/16, the measles 2nd dose coverage in South Africa was 84.8%. This was above the national target of 83% and a 2.0 percentage point improvement from 2014/15.

Table 5 illustrates the trends in national and provincial measles 2nd dose coverage for the period 2010/11–2015/16. All provinces showed a substantial increase in coverage between 2013/14 and 2014/15. For the period 2014/15–2015/16, measles 2nd dose coverage increased by 11 percentage points in the Free State, by 9.9 percentage points in the Western Cape, 7.5 percentage points in the Eastern Cape, 4.7 percentage points in Limpopo, and 4.1 percentage points in Mpumalanga. During the same period, coverage in Gauteng, KwaZulu-Natal, the Northern Cape and North West decreased by 2.8, 3.7, 0.1 and 1.7 percentage points respectively.

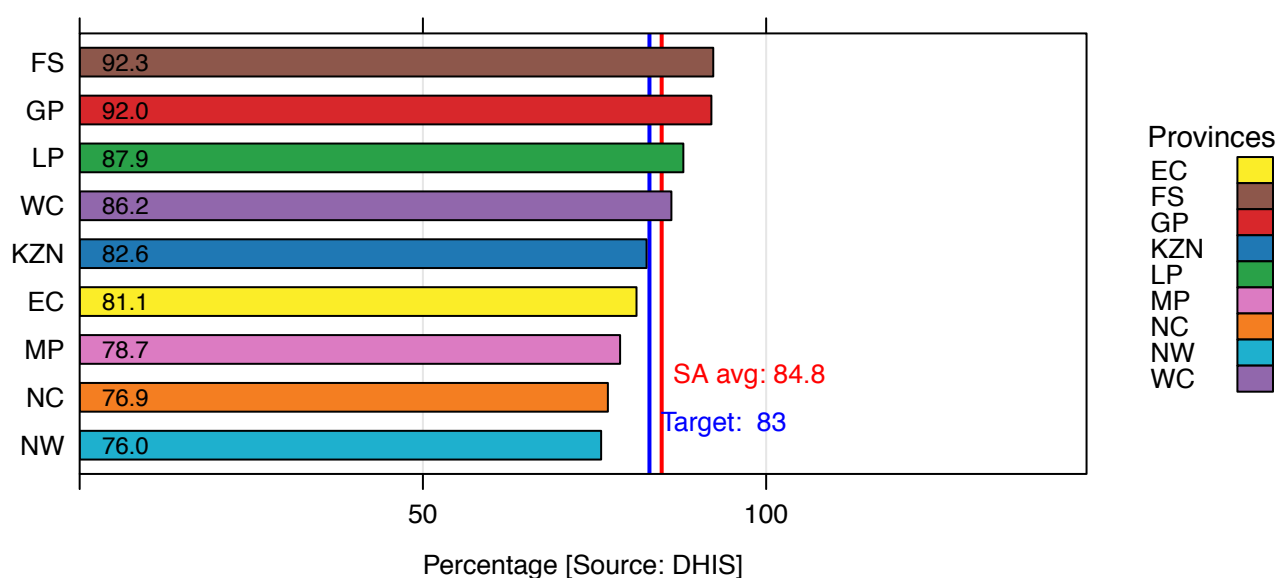
**Table 5: National and provincial measles 2nd dose coverage, 2010/11–2015/16 (%)**

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
EC	78.1	80.0	65.6	67.6	73.6	81.1
FS	75.4	82.4	85.8	80.0	81.3	92.3
GP	91.4	91.3	86.8	85.1	94.9	92.0
KZN	76.8	90.5	78.1	77.0	86.3	82.6
LP	91.2	94.2	72.4	73.5	83.3	87.9
MP	74.3	76.2	67.0	69.6	74.6	78.7
NC	82.5	83.1	77.2	75.7	77.1	76.9
NW	73.7	74.1	62.9	66.3	77.7	76.0
WC	78.7	77.0	70.1	71.2	76.3	86.2
SA	81.3	85.4	74.9	75.0	82.8	84.8

Source: DHIS.

In 2015/16, the national target of 83% and the national average of 84.8% were surpassed by four provinces, with Free State attaining the highest rate (92.3%). (Figure 5). The worst-performing province was North West with a coverage of 76.0%.

**Figure 5: Measles 2nd dose coverage by province, 2015/16**





The wide variation in measles 2nd dose coverage among districts can be seen in Figure 6 and Map 2. At district level, measles 2nd dose coverage ranged from 66.4% in Waterberg (LP) to 133.3% in Xhariep (FS).

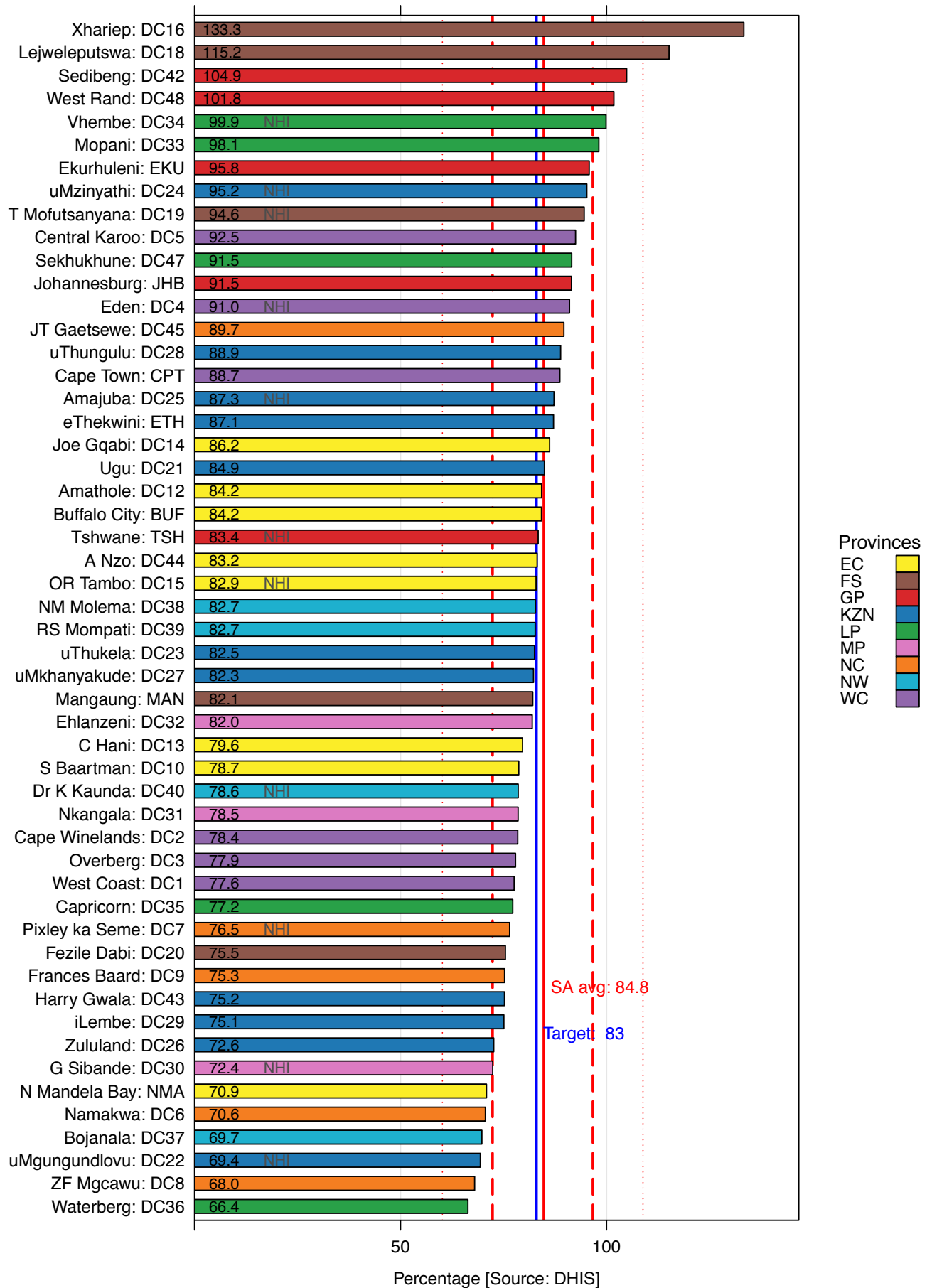
Twenty districts exceeded the national average of 84.8%, while 24 districts exceeded the national target of 83%. Four districts reported coverage below 70%, namely Bojanala (NW) (69.7%), uMgungundlovu (KZN) (69.4%), ZF Mgcawu (NC) (68.0%) and Waterberg (LP) (66.4%).

Among the metro districts, Mangaung (FS) (82.1%) and N Mandela Bay (EC) (70.9%) had coverage below the national average and target, while Ekurhuleni (GP) (95.8%), Johannesburg (GP) (91.5%), Cape Town (WC) (88.7%) and eThekweni (KZN) (87.1%) metro districts reported coverage above the national average and target.

Five NHI districts did not meet the national target. The best-performing NHI district was Vhembe (LP) (99.9%) and the worst-performing was uMgungundlovu (KZN) (69.4%).

The majority of districts showed an increase in measles 2nd dose coverage over the past three years. Districts that showed an improvement of more than 20 percentage points between 2013/14 and 2015/16 include: Joe Gqabi (EC) (24.5 percentage points increase), OR Tambo (EC) (23.3 percentage points increase), Xhariep (FS) (40.4 percentage points increase), Amajuba (KZN) (28.1 percentage points increase) and Mopani (LP) (20.2 percentage points increase). Only one district (Frances Baard (NC)) showed a decrease of more than 10 percentage points from 2013/14.

Figure 6: Measles 2nd dose coverage by district, 2015/16



Map 2: Measles 2nd dose coverage by sub-district, 2015/16

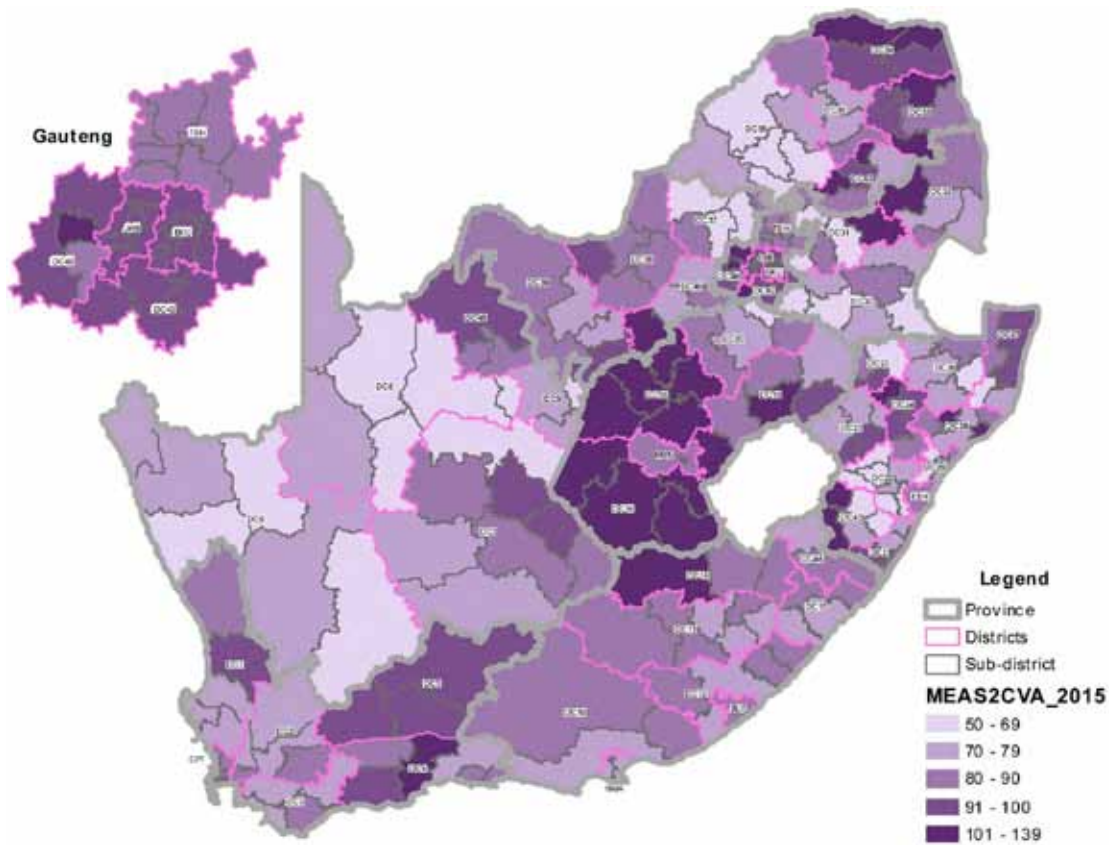
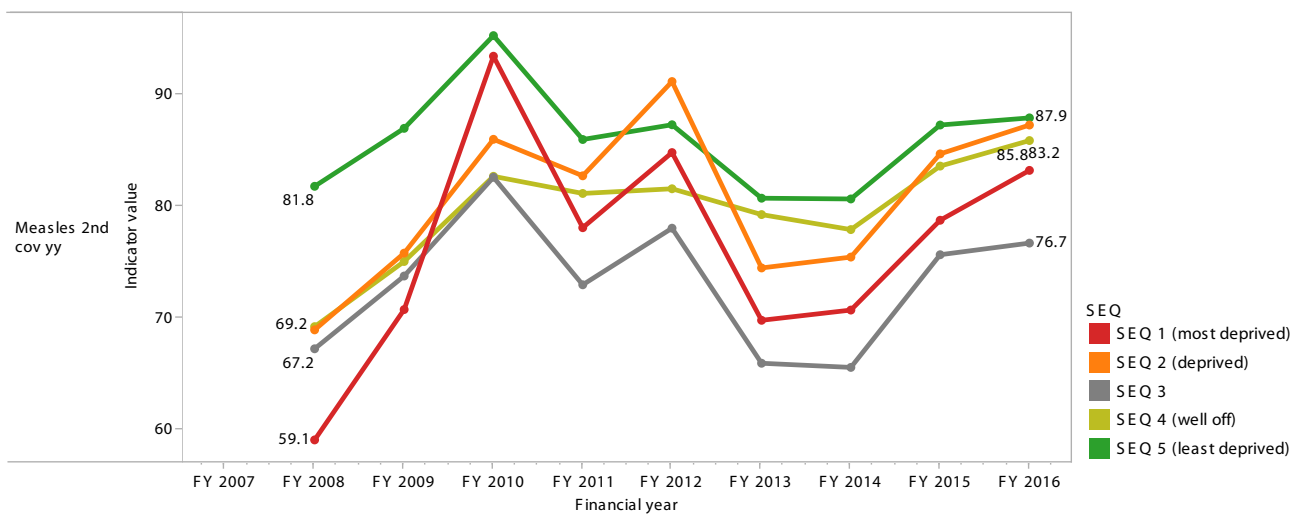


Figure 7 shows the average measles 2nd dose coverage by SEQ. Coverage of 87.9% was noted in SEQ5. Coverage in SEQ1 increased from 59.1% in 2008/09 to 85.9% in 2015/16.

Figure 7: Trends in average district values by socio-economic quintile for measles 2nd dose coverage



## Key findings

### Immunisation coverage under 1 year

- ◆ In 2015/16, immunisation coverage varied widely across the country. Only Gauteng met the national target of 90%. Since the previous reporting period, decreases in immunisation coverage have been noted in five provinces.
- ◆ There was a 27.2 percentage point difference between the best-performing province (GP) and the worst-performing province (LP).
- ◆ Nearly three-quarters of districts (73.1%) did not meet the national target, and 71.2% did not meet the national average.
- ◆ Additionally, 54% of districts showed a decrease in immunisation coverage since 2014/15.
- ◆ There was a 62.1 percentage point difference between the best-performing district (Xhariep, FS) and the worst-performing district (Namakwa, NC).

### Measles 2nd dose coverage

- ◆ Four provinces and 24 districts attained the national target of 83% for measles 2nd dose coverage.
- ◆ There was a 16.3 percentage point difference between the best-performing province (FS) and the worst-performing province (NW), and a 66.9% difference between the best-performing district (Xhariep, FS) and the worst-performing district (Waterberg, LP).
- ◆ Despite the profound achievements of the South African immunisation programme over the years, immunisation coverage for preventable diseases remains sub-optimal. The uneven rate of immunisation across provinces and districts implies that immunisation strategies are being applied effectively in some areas while other areas are lagging behind. This variation in immunisation coverage inhibits effective disease control. Therefore the underlying factors associated with low coverage in districts that are performing poorly must be investigated in order to achieve the desired targets and eventual disease elimination.

## Recommendations

- ◆ Immunisations should be offered as a service on each day of the week, and not only on dedicated days.
- ◆ Mobile clinics and mass vaccination campaigns should be better utilised to increase immunisation coverage in remote and high-risk areas.
- ◆ Every contact with a child should be used as an opportunity to check his/her RtHB to ensure that he or she is up to date with immunisations. Provision of immunisations must be recorded on the RtHB to allow tracking of the child's immunisation.
- ◆ Community health workers, ward-based outreach teams and community caregivers should be actively utilised to trace children who have missed immunisations.
- ◆ Health workers should ensure that mothers are registered on MomConnect as this will enable mothers to receive reminders of clinic visits.
- ◆ Registers must be completed accurately in real time; and overall data quality should be improved.
- ◆ Visits to verify data should be carried out at all levels by supervisors and managers.
- ◆ Measures to include immunisation data from the private sector should be developed and implemented.