

## 5 PMTCT indicators

This section presents the core national indicators used to assess the progress and performance of key services in the prevention of mother-to-child transmission (PMTCT) programme. Data are from the District Health Information Software (DHIS) and National Health Laboratory Service (NHLS).

### 5.1 Antenatal 1st visit before 20 weeks rate

*Duduzile F. Nsibandé and Nobubelo K. Ngandu*

The antenatal 1st visit before 20 weeks rate measures the percentage of pregnant women who visit antenatal clinics for the first time before 20 weeks. The denominator is the number of pregnant women who had at least one antenatal visit before delivery.<sup>a</sup> The National Department of Health's (NDoH) Annual Performance Plan 2013/14–2015/16<sup>b</sup> set a national target of 60% for antenatal 1st visit before 20 weeks. With its latest strategic plan, the NDoH aims to achieve an antenatal 1st visit before 20 weeks rate of 80% by 2019/20.<sup>c</sup>

Antenatal care (ANC) is a public health strategy that provides pregnant women with an opportunity to receive critical interventions to improve the health of mother and baby, and to reduce poor pregnancy outcomes and maternal and child mortality.<sup>d,e,f</sup> Four goal-oriented ANC visits were recommended by the World Health Organization (WHO) and have been proven adequate in providing critical interventions for women with no underlying complications.<sup>g,h</sup> Guidelines for maternity care in South Africa<sup>f</sup> specify that pregnant women should present for the first antenatal visit before 20 weeks (ideally in the first trimester of pregnancy).

ANC attendance is associated with increased chance of receiving skilled birth attendance.<sup>i</sup> Early ANC booking increases the likelihood of HIV-positive women being started on antiretroviral treatment (ART) earlier, thus preventing intrauterine and intrapartum transmission of HIV from mother to the infant.<sup>j</sup> Improved early ANC booking before 20 weeks in South Africa will help to further reduce the risk of mother-to-child transmission of HIV (MTCT) to below the current rate of 1.5%, and will improve progress towards the new global target of elimination of MTCT.

Delayed ANC booking and infrequent visits are major setbacks in providing good quality maternal care.<sup>k,l</sup> Health system bottlenecks also contribute to poor uptake of this indicator. Solarin and Black (2013),<sup>m</sup> for example, reported cases where women presenting early for ANC were turned back and asked to return a month later. Such healthcare-related issues need to be avoided as they hinder appropriate user uptake of health services. In order to achieve the Sustainable Development Goal 3 target, namely to end preventable deaths of newborns and children under 5 years of age by reducing neonatal mortality to at least as low as 12 per 1 000 live births and under-5 mortality to at least as low as 25 per 1 000 live births by 2030,<sup>n</sup> it is imperative that health system bottlenecks be addressed at all levels.

- a Massyn N, Day C, Peer N, Padarath A, English R, Barron P, editors. District Health Barometer 2013/14. Durban: Health Systems Trust; October 2014. Available from: <http://www.hst.org.za/publications/district-health-barometer-201314> [Accessed 19 July 2016].
- b South African National Department of Health. Annual Performance Plan 2012/13–2014/15. Pretoria: National Department of Health; 2012.
- c South African National Department of Health. Strategic Plan 2015/16–2019/20. Available from: <http://www.health-e.org.za/wp-content/uploads/2014/08/SA-DoH-Strategic-Plan-2014-to-2019.pdf> [Accessed 16 July 2016].
- d Bhutta ZA, Ahmed A, Black R, Cousens S, Dewey K, Giugliani E, et al. What works? Interventions for maternal and child undernutrition and survival. *Lancet*. 2008; 371(9610):417–40.
- e Hadrill R, Jones G, Mitchell C, Anumba D. Why do women attend late for antenatal booking? A qualitative interview study exploring the perspectives of maternity health and social care stakeholders. *Archives of Disease in Childhood-Fetal and Neonatal Edition* 2012; 97(Suppl 1):A117–8.
- f South African National Department of Health. Guidelines for maternity care in South Africa. A manual for clinics, community health centres and district hospitals. 4th ed. Pretoria; 2015.
- g Villar, J, Bergsjö, P. WHO antenatal care randomized trial: Manual for the implementation of the new model. WHO programme to map best reproductive health practices. Geneva: WHO; 2002. Available from: [http://apps.who.int/iris/bitstream/10665/42513/1/WHO\\_RHR\\_01.30.pdf](http://apps.who.int/iris/bitstream/10665/42513/1/WHO_RHR_01.30.pdf) [Accessed 19 July 2016].
- h Pattinson RC. Basic antenatal care handbook. Pretoria: Medical Research Council; 2007. Available from: [http://www.rmchsa.org/wp-content/resources/resources\\_by\\_theme/Mother&NewbornHealth/BasicAntenatalCareHandbook\\_PMTCT.pdf](http://www.rmchsa.org/wp-content/resources/resources_by_theme/Mother&NewbornHealth/BasicAntenatalCareHandbook_PMTCT.pdf) [Accessed 15 July 2016].
- i Wang W, Hong R. Levels and determinants of continuum of care for maternal and newborn health in Cambodia – evidence from a population-based survey. *BMC Pregnancy Childbirth* 2015; 15(1):1.
- j South African National Department of Health. National consolidated guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults. Pretoria: NDoH; 2014. Available from: [http://www.sahivsoc.org/upload/documents/HIV%20guidelines%20\\_Jan%202015.pdf](http://www.sahivsoc.org/upload/documents/HIV%20guidelines%20_Jan%202015.pdf) [Accessed 15 July 2016].
- k Schnippel K, Mongwenyana C, Long LC, Larson BA. Delays, interruptions, and losses from prevention of mother-to-child transmission of HIV services during antenatal care in Johannesburg, South Africa: a cohort analysis. *BMC Infectious Diseases* 2015; 15(1):1.
- l Haddad DN, Makin JD, Pattinson RC, Forsyth BW. Barriers to early prenatal care in South Africa. *International Journal of Gynecology & Obstetrics* 2016; 132(1):64–7.
- m Solarin I, Black V. "They told me to come back": women's antenatal care booking experience in inner-city Johannesburg. *Maternal and Child Health Journal*. 2013; 17(2):359–67.
- n United Nations. Transforming our world: the 2030 Agenda for Sustainable Development Goals. Available from: <https://sustainabledevelopment.un.org/post2015/transformingourworld> [Accessed 13 July 2016].

In 2015/16, the early booking rate (below 20 weeks) in South Africa was 61.2%. This is 1.2 percentage points above the target of 60% for this year. Table 1 shows the substantial increase of 7.3 percentage points compared with 2014/15. This has been one of the national programme successes. The national average has been improving steadily since 2006/07, with the 2015/16 rate almost double that of 2006/07. Over the last five years there have been regular annual increases of more than 10%.

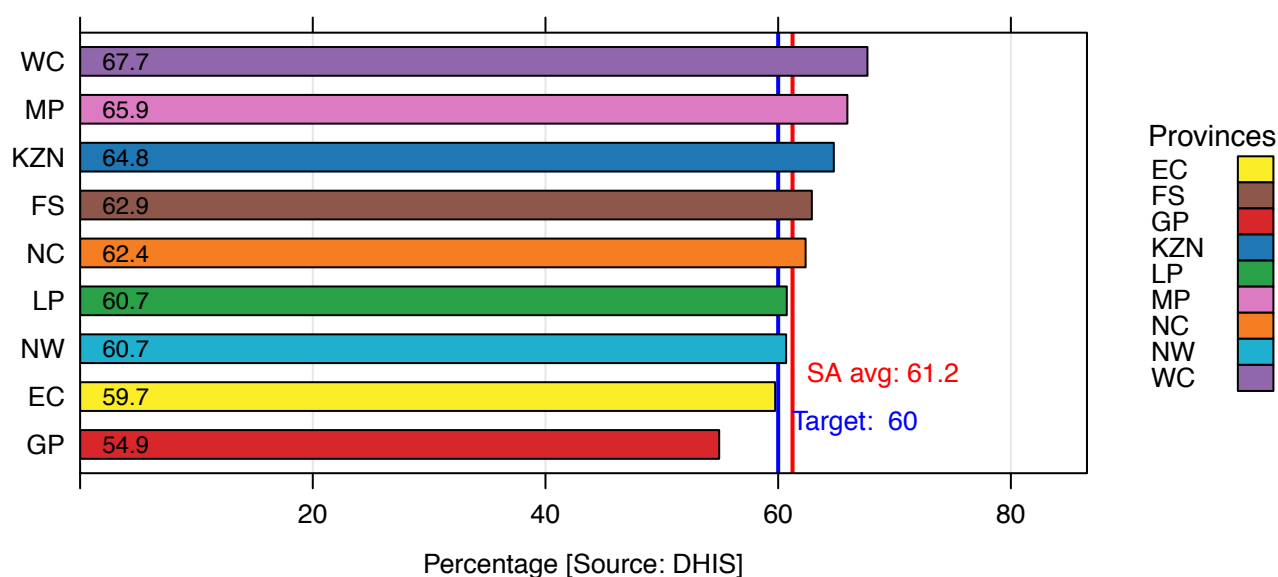
In 2015/16, all provinces except Gauteng (GP) achieved the 60% target (Figure 1).

**Table 1: Provincial and national averages for antenatal 1st visit before 20 weeks rate, 2006/07–2015/16 (%)**

	Antenatal 1st visit before 20 weeks (2006/07–2015/16)									
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
EC	27.5	27.3	27.6	28.9	31.7	33.6	39.6	43.3	48.8	59.7
FS	36.7	38.4	39.8	43.7	45.2	47.1	53.5	56.8	58.6	62.9
GP	25.4	25.8	24.3	25.2	30.6	34.6	37.8	43.7	48.4	54.9
KZN	30.9	32.3	33.5	34.6	36.9	41.0	46.4	56.2	57.3	64.8
LP	35.8	34.2	40.0	42.9	41.6	41.3	42.0	45.8	50.7	60.7
MP	29.5	28.1	32.3	33.0	36.0	37.5	42.2	49.0	56.6	65.9
NC	45.5	44.1	27.1	45.1	47.2	52.3	58.2	56.4	60.1	62.4
NW	31.8	33.2	36.4	37.2	39.6	42.3	44.1	50.6	54.3	60.7
WC	38.3	43.6	46.6	48.5	62.0	48.1	52.3	56.5	61.6	67.7
ZA	31.3	31.4	32.9	34.5	37.6	40.2	44.0	50.0	53.9	61.2

Source: DHIS.

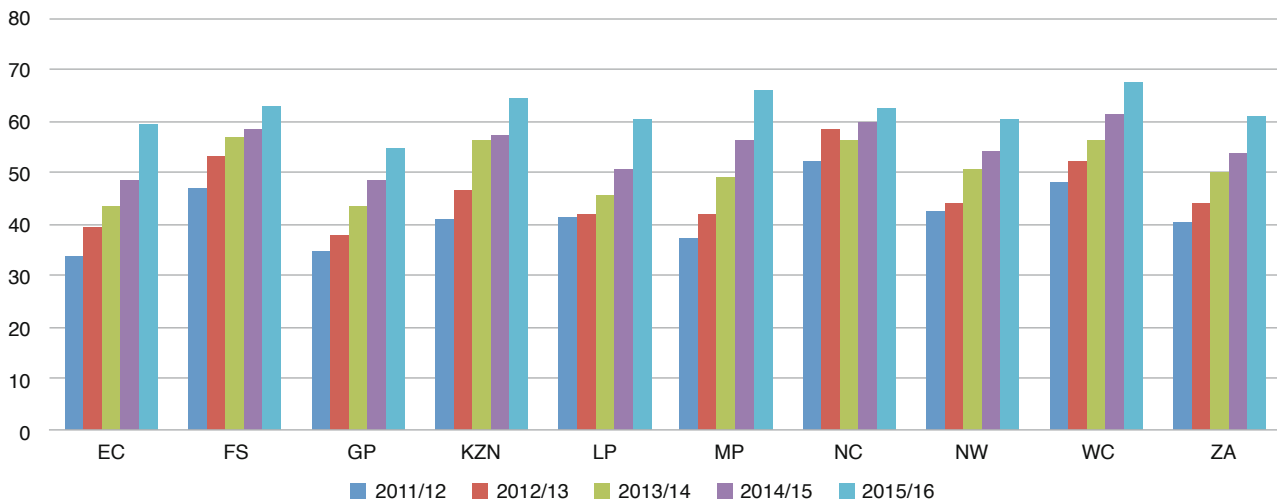
**Figure 1: Antenatal 1st visit before 20 weeks rate by province, 2015/16**



Provincial trends for the five-year period between 2010/11 and 2015/16 indicate that all provinces showed a substantial increase in early ANC uptake during this period, ranging from 5.7% in the Western Cape (WC) to 28% in the Eastern Cape (EC) (Table 1 and Figure 2).

The single exception to this was a small decline in the Northern Cape (NC) during 2013/2014. The Western Cape has consistently maintained the highest coverage since 2011/12. Although the Eastern Cape has been persistently recording rates below the national average since 2006/07, it had the highest increase of 10.9 percentage points in 2015/16, followed by Limpopo Province (LP) with an increase of 10 percentage points from 2014/15. The province with the lowest percentage increase, of 2.3 percentage points, was the Northern Cape.

Figure 2: Provincial trends for antenatal 1st visit before 20 weeks rate, 2011/12–2015/16 (%)

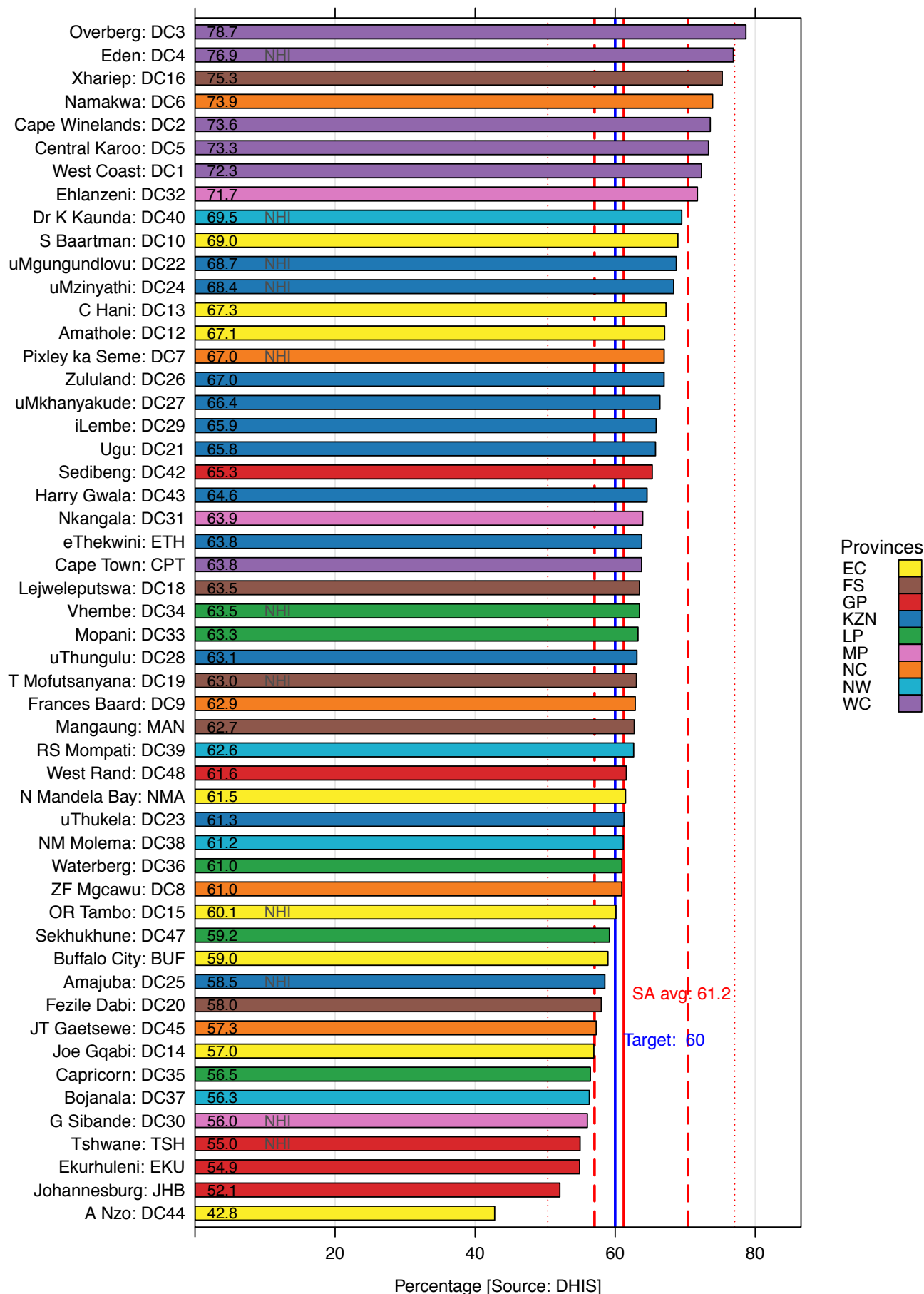


Source: DHIS.

At district level, the antenatal 1st visit before 20 weeks rate ranged widely, from 42.8% in A Nzo (EC) to 78.7% in Overberg (WC). It is encouraging that 75% of districts (39 out of 52) achieved the national target (Figure 3).

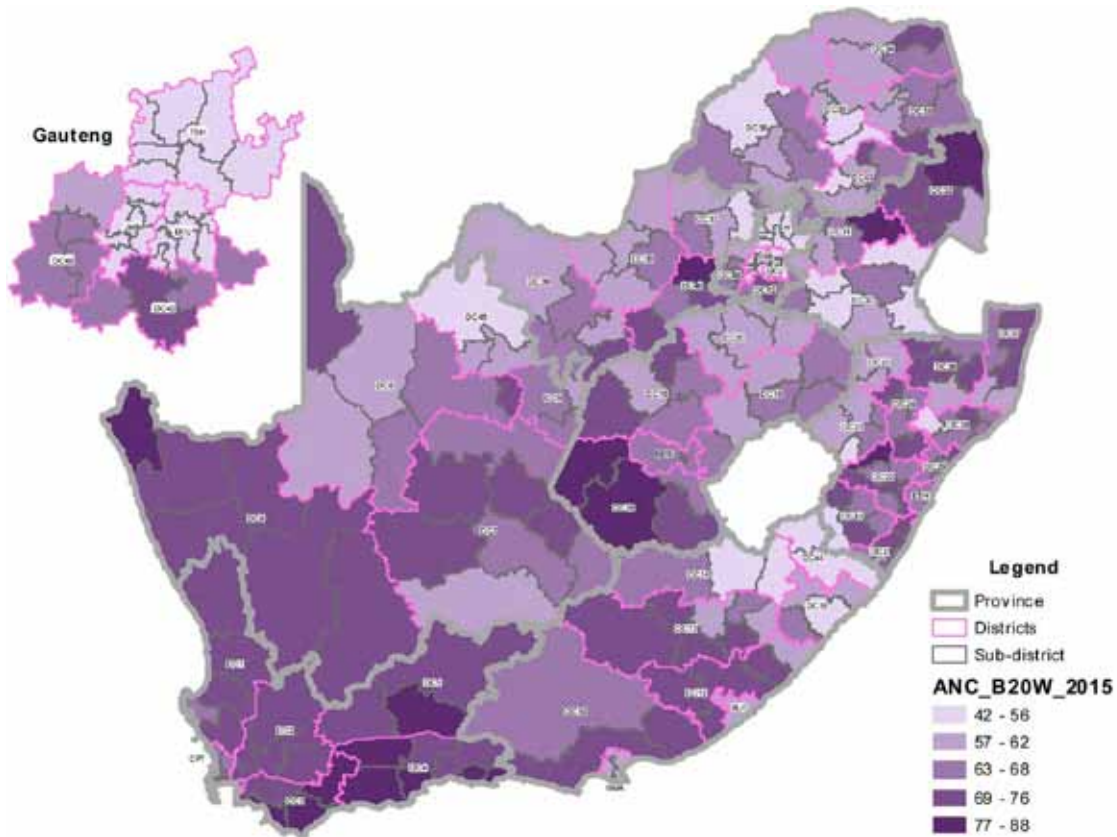
In 2015/16, antenatal 1st visit before 20 weeks rate increased in all districts except the West Coast (WC), which declined by one percentage point from the previous year. Seven districts, namely Dr K Kaunda (NW); Capricorn, Waterberg and Sekhukhune (LP); and Amathole, Buffalo City and OR Tambo (EC); increased coverage by at least 10 percentage points compared with one district in 2014/15 and five districts in 2013/14. OR Tambo (EC) had the highest increase of 18.3 percentage points, while Eden (WC) had the lowest increase of 0.7 percentage points.

Figure 3: Antenatal 1st visit before 20 weeks rate by district, 2015/16



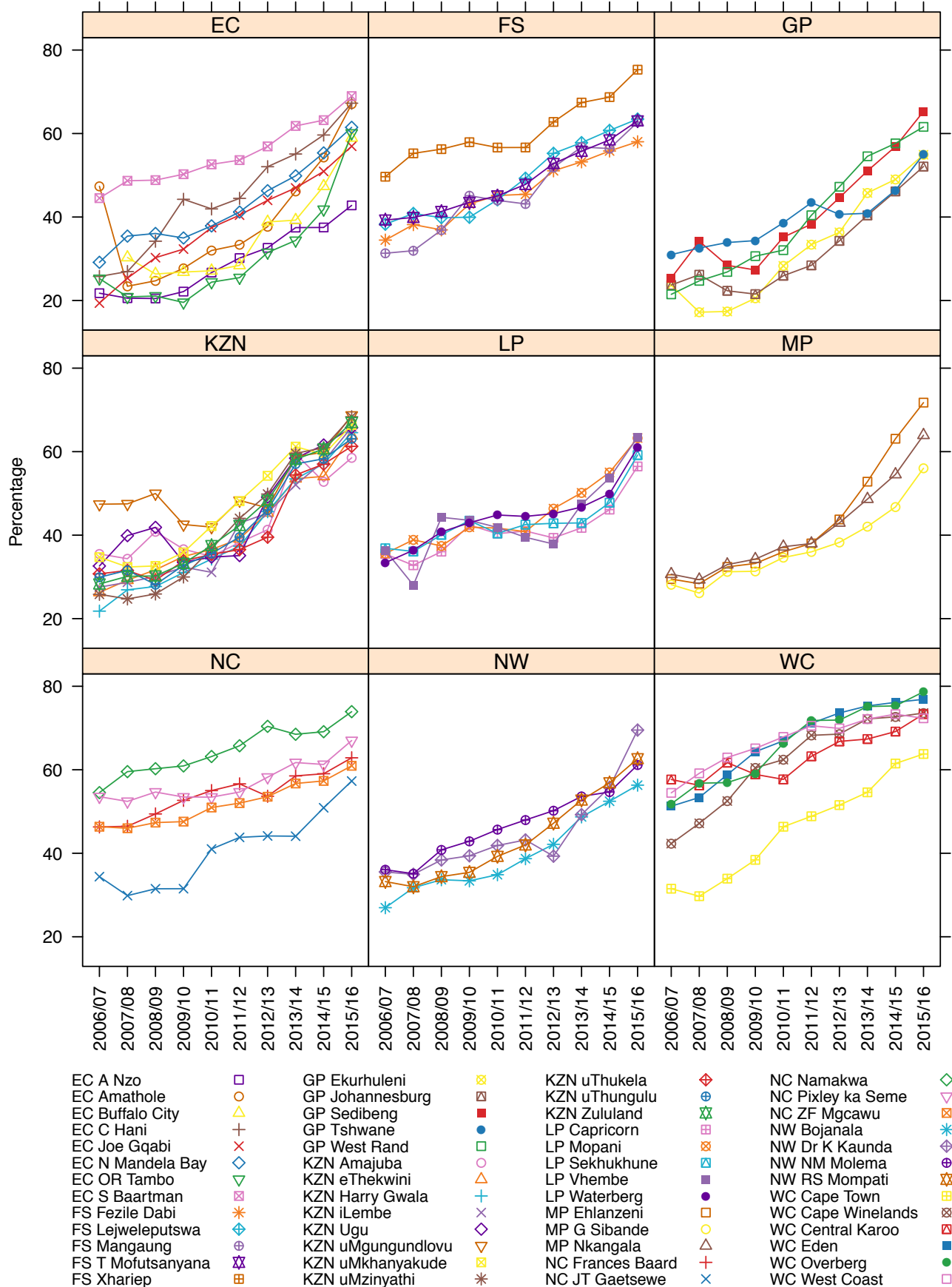
Map 1 shows the geographical distribution of antenatal 1st booking before 20 weeks rate by district and sub-district.

**Map 1: Antenatal 1st visit before 20 weeks rate by sub-district, 2015/16**



The 10-year trends also show an overall increase from 2006/07 to 2015/16 for all districts (Figure 4). However, it is notable that the rate of increase was relatively slow during the period 2006/07–2008/09, and accelerated thereafter.

Figure 4: Annual trends for antenatal 1st visit before 20 weeks rate



**Section A: PMTCT indicators**

Seven National Health Insurance (NHI) districts achieved coverage rates above the national target and average in 2015/16 (Figure 5). Eden (WC) ranked first in antenatal 1st visit before 20 weeks rate (76.9%) among the NHI districts (and second overall among all districts), while Tshwane (GP) ranked lowest (55.0%) among the NHI districts. Of note is that when rate estimates for NHI districts were pooled together, they did not appear to differ from estimates observed in non-NHI districts.

**Figure 5: Antenatal 1st visit before 20 weeks rate by National Health Insurance district, 2015/16**

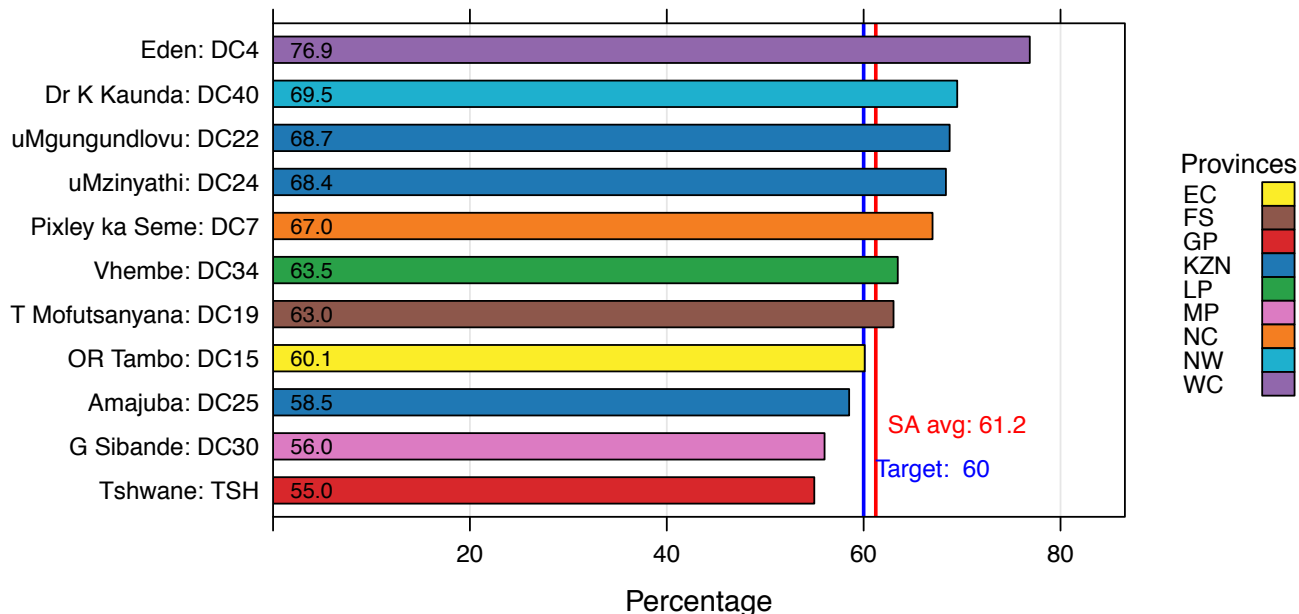
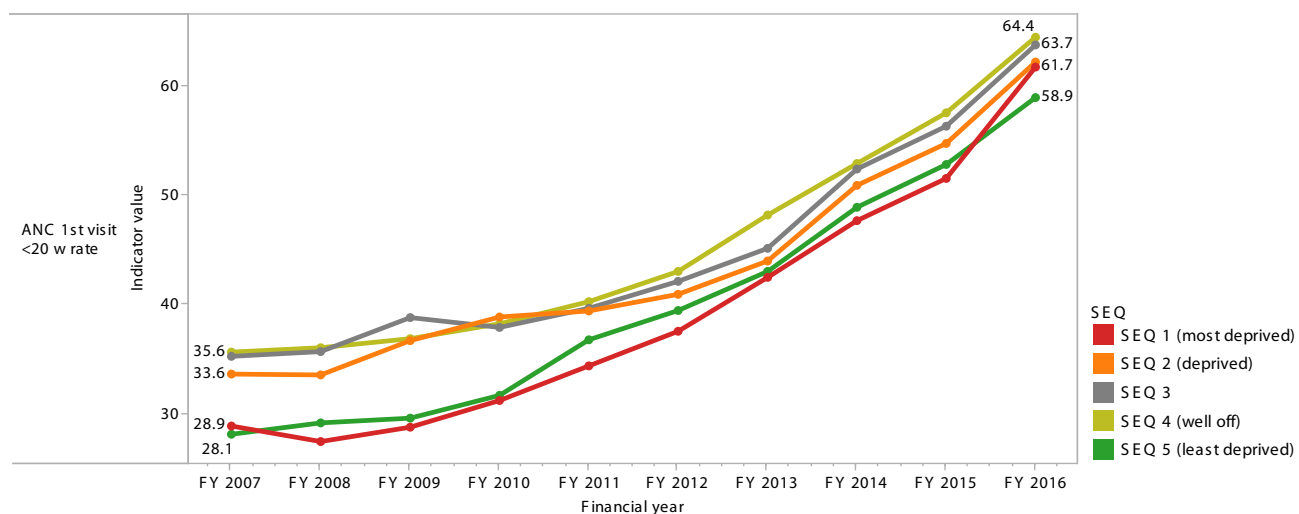


Figure 6 shows a steep increase in antenatal 1st visit before 20 weeks rate for all socio-economic quintiles (SEQs) in 2015/16, with rates ranging from 58.9% to 64.4%. Between 2006/07 and 2010/11, a wide gap separated SEQ1 and SEQ5 from the other three SEQs, with the former two consistently recording lower coverage rates. This gap was closed in 2011/12, and subsequently an upward trend has been observed in all SEQs from 2011/12 to 2015/16.

**Figure 6: Trends in average district values by socio-economic quintile for Antenatal 1st visit before 20 weeks rate**



## Key findings

Attending ANC before 20 weeks is an important strategy to achieve Sustainable Development Goal 3 targets by 2030.

In 2015/16, South Africa met the national target for antenatal 1st visit before 20 weeks rate for the first time in more than 10 years. The majority of provinces, districts and NHI districts met the national target. In 2015/16, rates for SEQs 1 and 2 were higher than rates for SEQ5, indicating that the most disadvantaged in the country are being reached for this health service.

These improvements could be attributed to focused interventions by the DoH to improve early ANC booking rates through:

- ◆ the launch of ward-based community outreach teams in 2011;<sup>o</sup>
- ◆ implementation of the 2015 PMTCT National Consolidated Guidelines;<sup>j</sup>
- ◆ implementation of interventions outlined in the Strategic Plan for Maternal, Newborn, Child and Women's Health (MNCWH) and Nutrition (2012–2016);<sup>p</sup> and
- ◆ implementation of interventions outlined in the 2012 Strategic Plan for the Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa (CARMMA).<sup>q</sup>

Variations in district performance continue to exist within the same province and between SEQs. This implies that some districts have the potential to improve more than others; it also indicates the need to address important health system barriers preventing women from accessing ANC and PMTCT services early.

## Recommendations

The following interventions are recommended to address the bottlenecks identified by participants at *District Health Barometer* workshops:<sup>f</sup>

- ◆ Involve key-stakeholders during district implementation plan meetings and health activities, and encourage districts that are performing well to share lessons learned.
- ◆ Mobilise the community and conduct dialogues to identify key messages that could promote early ANC booking.
- ◆ Improve access to ANC services. Antenatal services should be available every day, and there should be campaigns and household-based pregnancy screening.
- ◆ Ensure monthly and quarterly monitoring of ANC/data-quality audits at all levels and promote a culture of data use.
- ◆ Conduct periodic surveys into bottlenecks contributing to low early ANC and PMTCT uptake.

## 5.2 Antenatal client initiated on ART rate

*Witness Chirinda and Yages Singh*

The 'Antenatal client initiated on ART rate' indicator is derived as follows: the numerator is the number of ANC clients initiated on ART, and the denominator is the total number of ANC clients eligible for ART.

This indicator measures the proportion of all HIV-positive women enrolled on ART during their current pregnancy. The national policy changed between 2008 and 2015. This resulted in changes in eligibility criteria for ART initiation, and hence changes in estimates for this indicator over this time period.

The 2014/15 national target for this indicator was 93%. Inexplicably, the NDoH revised this target downwards for the current period (2015/16) to 88%, despite the performance for 2014/15 being 91.2%. With a national target now set below the previous performance level, it is very probable that every district will achieve it.

o Pillay Y, Barron P. The implementation of PHC re-engineering in South Africa 2011. Available from: <https://www.phasa.org.za/wp-content/uploads/2011/11/Pillay-The-implementation-of-PHC.pdf> [19 July 2016].

p South African National Department of Health. Strategic Plan for Maternal, Newborn, Child and Women's Health (MNCWH) and Nutrition in South Africa 2012–2016. Available from: <http://www.hst.org.za/publications/brief-summary-strategic-plan-maternal-newborn-child-and-women-s-health-mncwh-and-nutrit>. [Accessed 16 July 2016].

q South Africa's National Strategic Plan for a Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa 2015 (CARMMA). "South Africa cares: No woman should die while giving life". Available from: <http://www.health-e.org.za/wp>. [Accessed 19 July 2016].

r Massyn N, Peer N, Padarath A, Barron P, Day C, editors. District Health Barometer 2014/15. Durban: Health Systems Trust; October 2015.



This section reviews the 2015/16 DHIS data on the antenatal client initiated on ART rate, and compares these data with data from preceding time periods, as well as national and global targets.

The recent WHO guidelines<sup>s</sup> recommend the initiation of ART for all HIV-infected pregnant and lactating women. Most countries, including South Africa, have adopted this policy (Option B+).<sup>t</sup> Option B+ provides for life-long maternal triple antiretroviral therapy (combination ART/ART) regardless of maternal CD4 cell count and staging.<sup>‡</sup> Provision of ART to HIV-positive ANC clients reduces the chance of mother-to-child transmission of HIV during pregnancy as well intra- and post-partum and while breastfeeding. The other goals of ART treatment are to suppress the patient’s viral load to an undetectable level and to improve immunological status, with the CD4 cell count rising and remaining above baseline.

According to the South African ART guidelines,<sup>u</sup> all HIV-positive pregnant women should receive ART with appropriate counselling from their first ANC visit regardless of gestational age, CD4 count and/or WHO staging.

The antenatal client initiated on ART rate was measured at 93.0% nationally in 2015/16. This is a 1.8 percentage point increase from 91.2% in 2014/15 (Table 2).

Figure 7 shows that the provincial antenatal client initiated on ART rates for 2015/16 ranged from 77.5% in the Western Cape to 97.6% in the KwaZulu-Natal (KZN). Three provinces (North West (NW), Free State (FS) and the Western Cape) did not meet the national target for the year (i.e. 88%).

**Figure 7: Antenatal client initiated on ART rate by province, 2015/16**

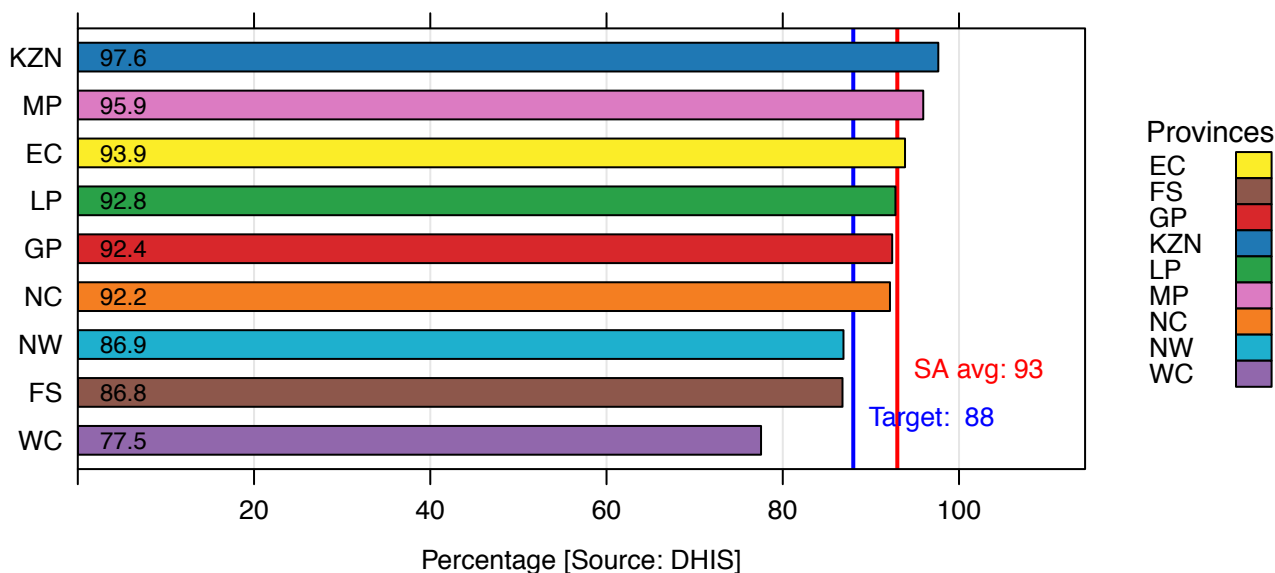


Table 2 shows provincial and national annual comparisons for the antenatal client initiated on ART rate. The Eastern Cape, Gauteng, KwaZulu-Natal, Mpumalanga (MP) and Northern Cape showed a clear upward trend over the period. Between 2014/15 and 2015/16, Gauteng had the highest increase (5.1 percentage points), followed by KwaZulu-Natal. The Western Cape and North West had decreases of 5.2 percentage points and 3.3 percentage points, respectively. Nationally, it is encouraging to note the increase in this indicator from 2013/14 to 2015/16 (Figure 8).

s World Health Organization. Guidelines on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV. Geneva: WHO; 2015.  
 t Interagency Task Team on the Prevention and Treatment of HIV Infection in Pregnant Women, Mothers and Children. Option B+ countries and PMTCT regimen. 2015.  
 u South African National Department of Health. National Consolidated Guidelines for the Prevention of Mother-to-child Transmission of HIV (PMTCT) and the Management of HIV in Children, Adolescents and Adults. Pretoria: NDoH; April 2015.

**Table 2: Provincial and national trends for antenatal client initiated on ART rate, 2013/14–2015/16**

	2013/14 (%)	2014/15 (%)	2015/16 (%)	% change between 2014/15 and 2015/16
Eastern Cape	79.0	91.7	93.9	2.2
Free State	80.8	88.7	86.8	-1.9
Gauteng	63.1	87.4	92.4	5.1
KwaZulu-Natal	85.4	95.2	97.6	2.5
Limpopo	78.6	92.9	92.8	-0.1
Mpumalanga	74.2	92.9	95.9	3.0
Northern Cape	80.3	89.8	92.2	2.4
North West	79.2	90.2	86.9	-3.3
Western Cape	68.5	82.8	77.5	-5.2
South Africa	76.3	91.2	93.0	1.8

Source: DHIS

Further investigation is required into the estimates from the Western Cape. The low proportion and huge percentage decrease may be due to differences in interpretation of either the numerator or denominator or both, poor data quality, or the result of using Western Cape-specific registers, with data incorrectly imported into the DHIS.

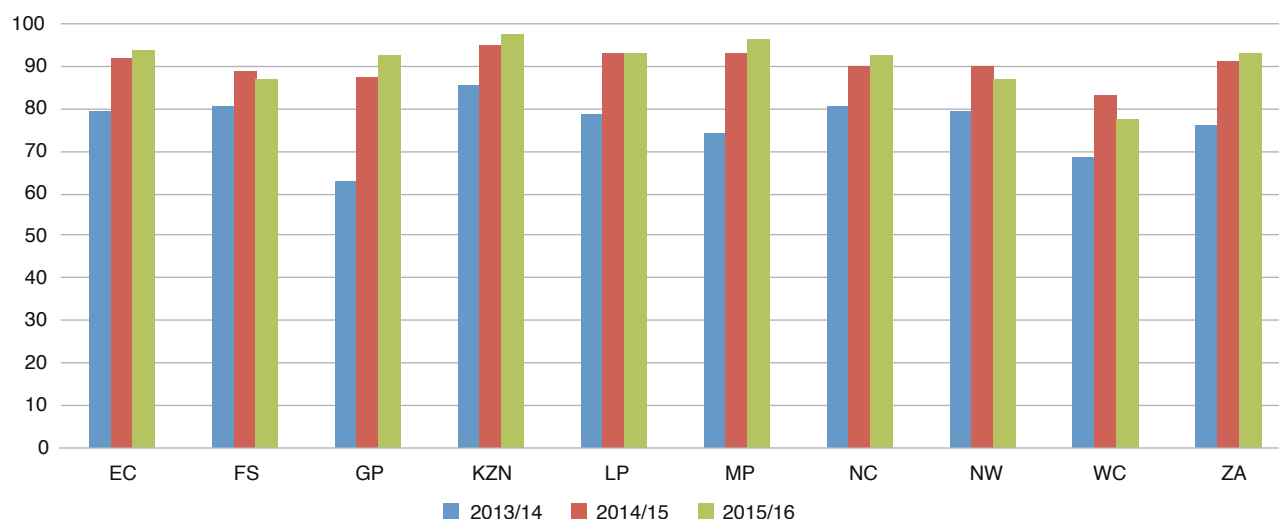
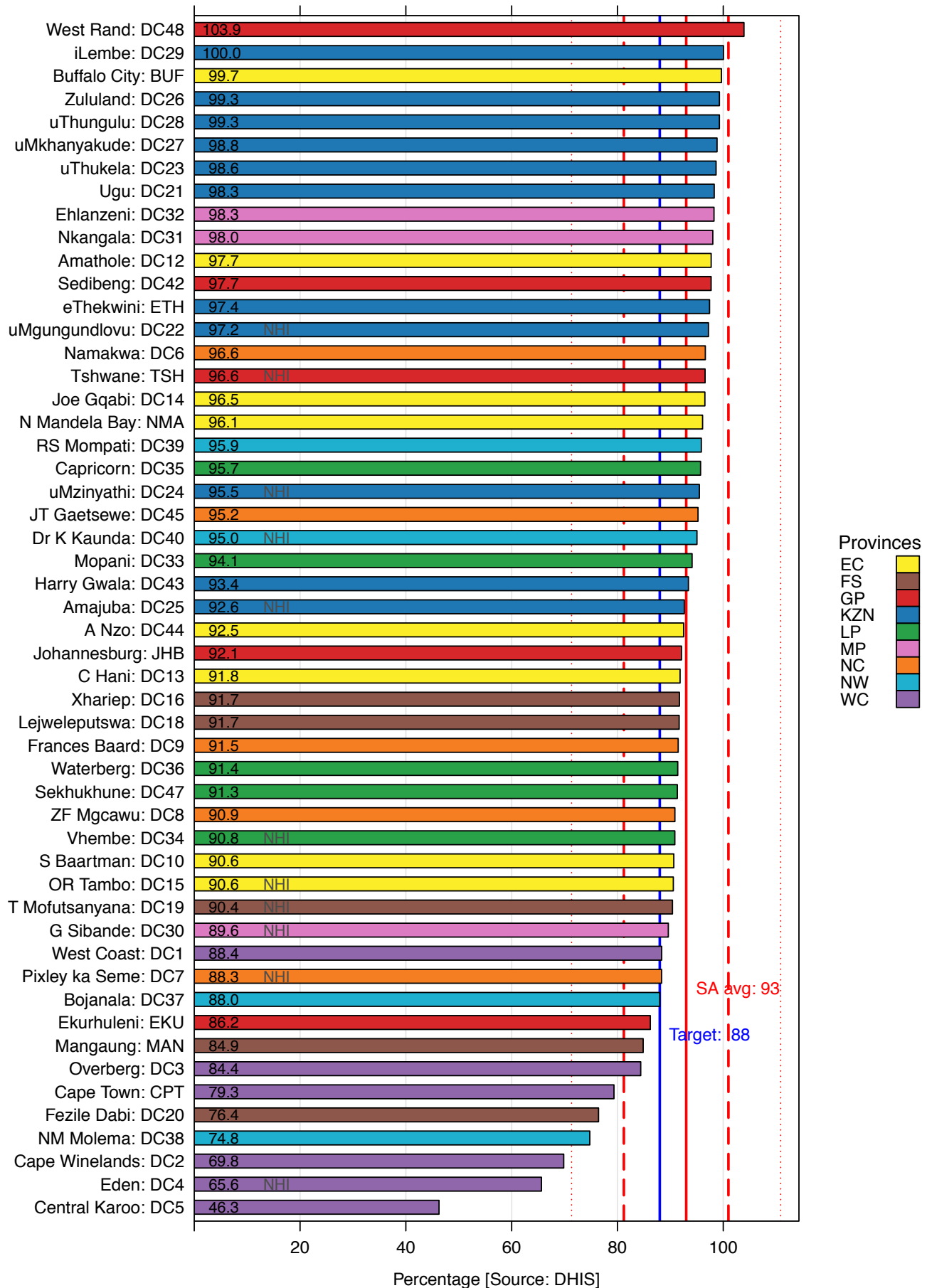
**Figure 8: Provincial and national antenatal client initiated on ART rate, 2013/14–2015/16 (%)**

Figure 9 shows the wide variation in antenatal client initiated on ART rate across districts. The rates above 100% could be the result of underestimation of the denominator, or could have resulted from client migration between sub-districts, districts and provinces. Rates for 2015/16 ranged from 103.9% in West Rand (GP) to 46.3% in the Central Karoo (WC). During the 2015/16 period, nine (17%) of the 52 districts were below the 2015/16 national target (88%) for antenatal client initiated on ART rate. However, 29 districts (56%) did not achieve the global target (95%) for the elimination of mother-to-child transmission (EMTCT) process indicator, which recommends 95% and more access to ART for pregnant and lactating women for 2 years.<sup>v</sup> Two districts, namely West Rand (GP) and iLembe (KZN), had antenatal client initiated on ART rates greater than 100% due to issues with the denominator.

<sup>v</sup> UNAIDS. 90-90-90: an ambitious treatment target to help end the AIDS epidemic. Geneva: UNAIDS; 2014.

Figure 9: Antenatal client initiated on ART rate by district, 2015/16



All but one of the NHI districts (Eden (WC)) achieved the national target of 88% for 2015/16 (Figure 10). Five out of 11 NHI districts were above the national average (93%).

**Figure 10: Antenatal client initiated on ART rate by National Health Insurance district, 2015/16**

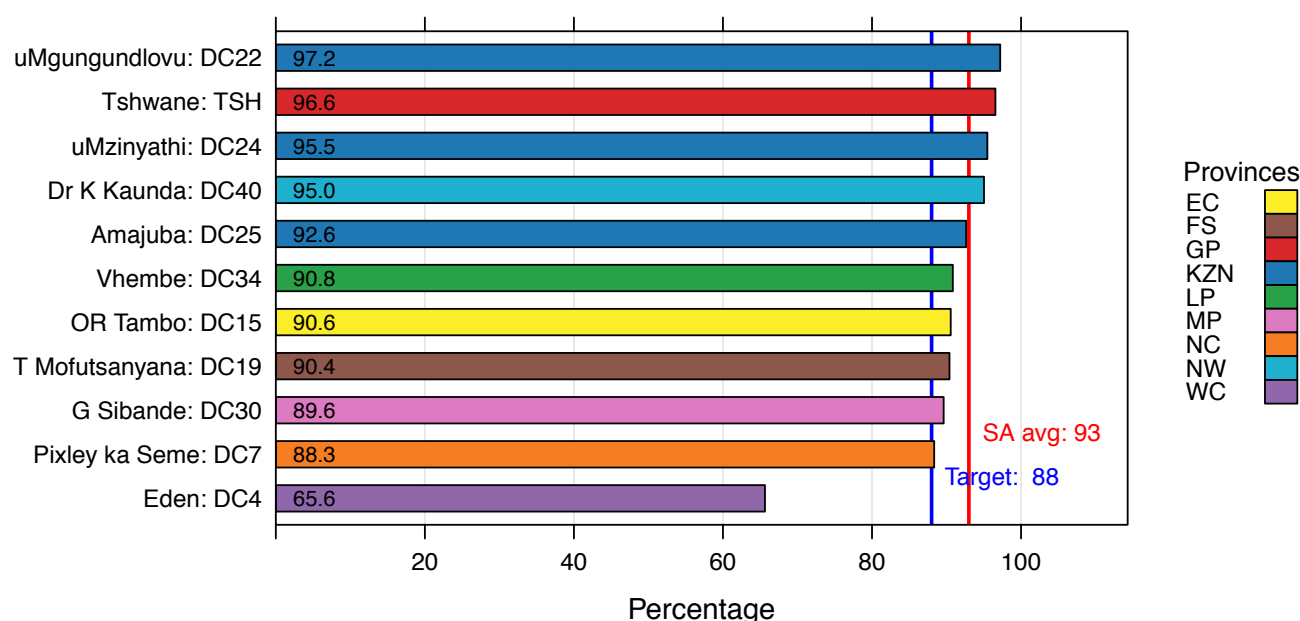


Table 3 shows annual trends in antenatal ART uptake at district level, as well as changes between 2014/15 and 2015/16. The green shading indicates districts that achieved a rate above 95% (global target). The orange shading indicates districts that achieved the national target for 2015/16 (88%), but less than 95%. The red shading indicates districts that did not meet the national target. More investigation is required into the nine districts that did not meet the national target, including five of the six Western Cape districts. It is of concern that many of the same districts also had substantial decreases in 2014/15. As discussed above, the Western Cape result is probably due to data issues; these need to be resolved urgently as they impact on the national picture.

**Table 3: Proportion of eligible antenatal clients initiated on ART, 2013/14–2015/16**

	2013/14 (%)	2014/15 (%)	2015/16 (%)	% change 2014/15–2015/16
West Rand: DC48	68.9	98.3	103.9	5.6
iLembe: DC29	96.2	100.3	100.0	-0.3
Buffalo City: BUF	79.6	98.2	99.7	1.5
Zululand: DC26	85.6	98.1	99.3	1.1
uThungulu: DC28	94.0	96.5	99.3	2.8
uMkhanyakude: DC27	73.1	90.0	98.8	8.8
uThukela: DC23	98.9	95.9	98.6	2.7
Ugu: DC21	91.3	98.0	98.3	0.3
Ehlanzeni: DC32	67.9	95.4	98.3	2.8
Nkangala: DC31	86.5	95.6	98.0	2.4
Amathole: DC12	89.4	95.9	97.7	1.8
Sedibeng: DC42	65.2	90.0	97.7	7.7
eThekwini: ETH	72.9	92.1	97.4	5.3
uMgungundlovu: DC22	102.9	98.7	97.2	-1.5
Namakwa: DC6	80.0	94.4	96.6	2.2
Tshwane: TSH	45.2	86.2	96.6	10.4
Joe Gqabi: DC14	88.3	96.0	96.5	0.5
N Mandela Bay: NMA	93.9	96.4	96.1	-0.3
RS Mompoti: DC39	74.2	92.2	95.9	3.7
Capricorn: DC35	77.0	92.3	95.7	3.5
uMzinyathi: DC24	93.5	98.3	95.5	-2.8
JT Gaetsewe: DC45	86.0	87.7	95.2	7.5
Dr K Kaunda: DC40	85.7	93.2	95.0	1.8

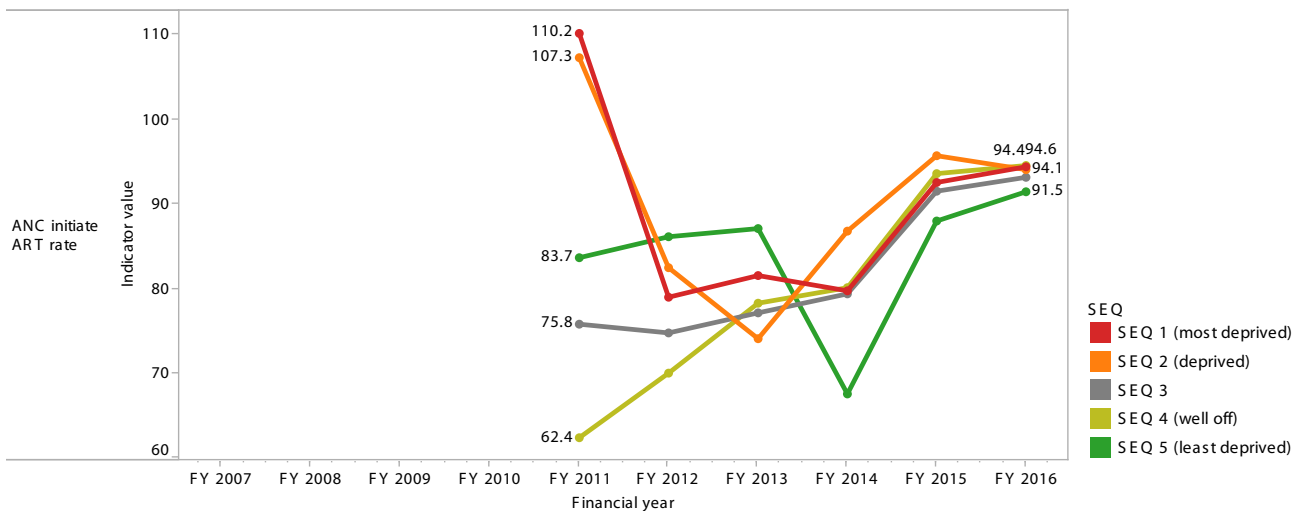
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	2013/14 (%)	2014/15 (%)	2015/16 (%)	% change 2014/15–2015/16
Mopani: DC33	80.0	92.7	94.1	1.4
Harry Gwala: DC43	96.3	97.6	93.4	-4.1
Amajuba: DC25	92.4	94.2	92.6	-1.6
A Nzo: DC44	73.9	87.0	92.5	5.5
Johannesburg: JHB	65.6	86.9	92.1	5.2
C Hani: DC13	80.0	92.6	91.8	-0.8
Xhariep: DC16	85.9	93.9	91.7	-2.2
Lejweleputswa: DC18	83.6	89.2	91.7	2.5
Frances Baard: DC9	76.2	88.5	91.5	3.0
Waterberg: DC36	74.9	88.5	91.4	2.9
Sekhukhune: DC47	78.7	93.8	91.3	-2.5
ZF Mgcawu: DC8	89.1	95.5	90.9	-4.7
Vhembe: DC34	82.0	96.7	90.8	-5.9
S Baartman: DC10	76.1	90.1	90.6	0.5
OR Tambo: DC15	69.2	86.6	90.6	4.0
T Mofutsanyana: DC19	82.7	89.3	90.4	1.1
G Sibande: DC30	75.1	85.9	89.6	3.7
West Coast: DC1	69.8	78.7	88.4	9.7
Pixley ka Seme: DC7	66.2	90.5	88.3	-2.2
Bojanala: DC37	79.7	86.1	88.0	1.9
Ekurhuleni: EKU	69.1	85.4	86.2	0.9
Mangaung: MAN	79.9	87.3	84.9	-2.4
Overberg: DC3	61.8	90.2	84.4	-5.8
Cape Town: CPT	65.3	84.1	79.3	-4.8
Fezile Dabi: DC20	73.3	87.9	76.4	-11.5
NM Molema: DC38	75.1	97.0	74.8	-22.2
Cape Winelands: DC2	85.9	80.1	69.8	-10.3
Eden: DC4	83.1	74.7	65.6	-9.1
Central Karoo: DC5	79.7	64.2	46.3	-17.9

Green: 2015/16 uptake rate >95% (global target). Orange: above national target (88%) but below global target (95%). Red: below 2015/16 national target rate of 88%.

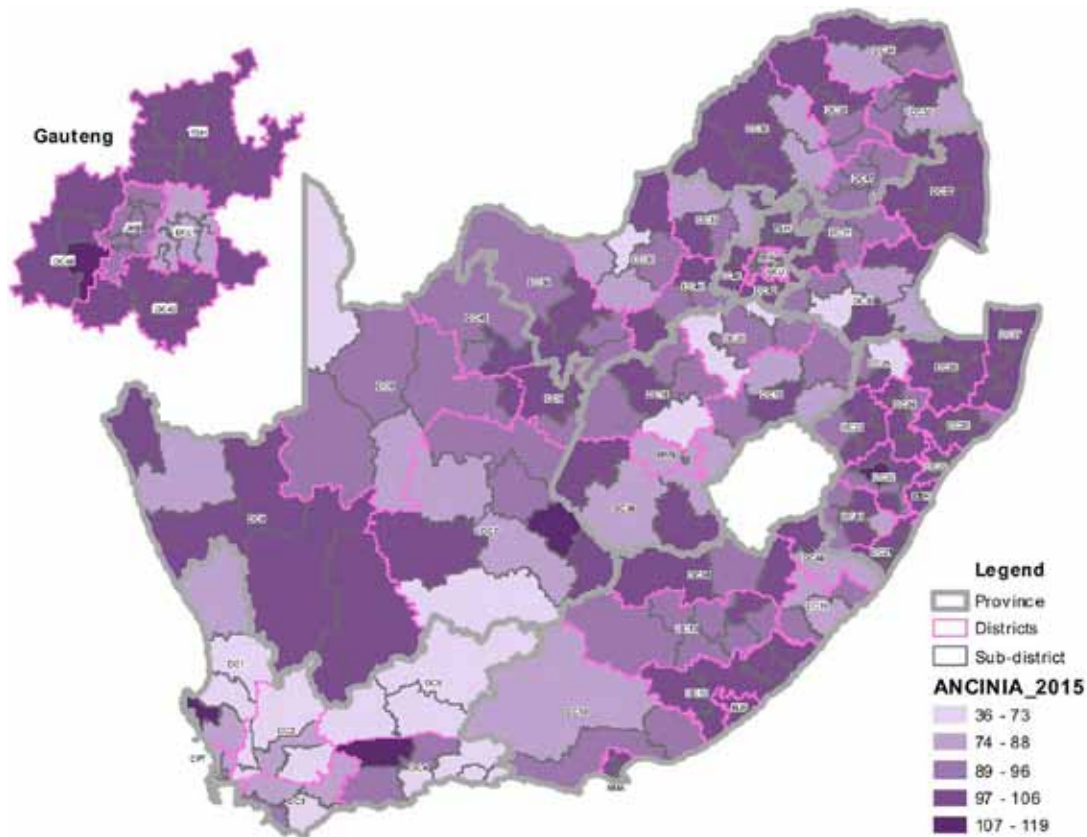
It is important to note that in 2015/16, there were no clear socio-economic differentials in the uptake of ANC ART (Figure 11). If anything, it seems the uptake was marginally lower in the least deprived quintile (91.5%) than in other quintiles which were above 94%.

Figure 11: Trends in average district values by socio-economic quintile for antenatal client initiated on ART rate



Map 2 provides a geographical overview of results for this indicator in 2015/16.

**Map 2: Antenatal client initiated on ART rate by sub-district, 2015/16**



### Key findings

The accuracy of the indicator 'antenatal client initiated on ART rate' is determined by how the numerator and denominators are defined and interpreted. This could account for the low uptake rates in the Free State and North West. In the case of the Western Cape, it seems more likely that data issues, or incorrect importing of data into the DHIS, led to the low indicator values.

Nonetheless, the following conclusions can be drawn:

- ◆ The target for 2015/16 was achieved nationally and by most of the provinces and districts. The value needs to be revisited with a realistic updated target.
- ◆ However, some districts still failed to meet the target. These must be immediate areas of focus to ensure that ART uptake is met across all districts.
- ◆ It is encouraging to note that there are no differences in uptake of ART by socio-economic quintile. This means equity is being achieved.

### Recommendations

- ◆ Focus must be placed on districts that are not meeting the national target, and on districts showing large decreases. It is important for success of the PMTCT programme that every HIV-infected woman is on ART.
- ◆ The low uptake might be real or due to data issues, or differences in calculations and interpretations of the indicator. It is important for provinces and districts to interrogate the indicator at their level and agree on a course of action.

### 5.3 HIV PCR birth testing coverage

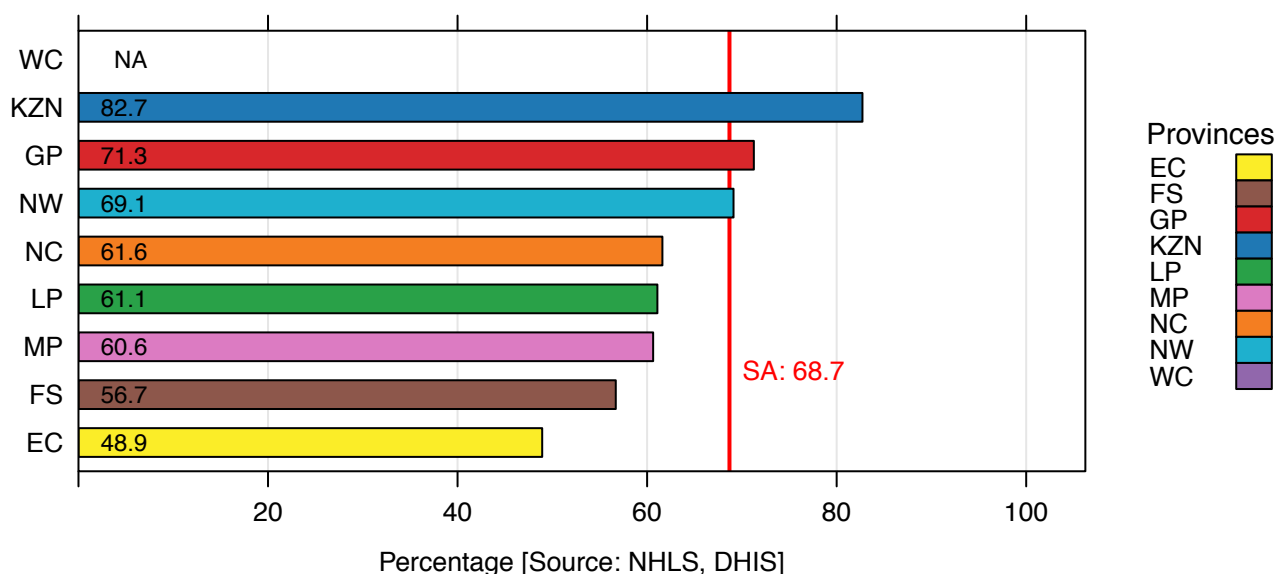
*Ahmad Haeri Mazanderani and Gayle Sherman*

In June 2015, South Africa introduced routine HIV polymerase chain reaction (PCR) testing at birth for all HIV-exposed neonates, and repeat testing at 10 weeks of age for infants who tested negative at birth.<sup>w</sup> The new guidelines also recommend confirmatory testing through a second HIV PCR, instead of a baseline HIV viral load, for infants who test positive. These programmatic changes have resulted in new challenges, namely to capture testing accurately within these age ranges and to de-duplicate repeat tests performed for individual patients. Until these challenges have been addressed successfully, neither DHIS nor NHLS data will be able to accurately determine the coverage and positivity rate of early infant diagnosis (EID) by 10 weeks of age. However, NHLS data can currently provide estimates of birth testing coverage and intrauterine transmission rates as duplicate tests performed within the first week of life are considered infrequent.

Birth testing coverage measures the proportion of HIV-exposed neonates who received an HIV PCR test within the first six days of life. This indicator is calculated by dividing the number of PCR tests performed on neonates within the first six days of life (numerator) by the number of HIV-exposed neonates (denominator). The denominator, HIV-exposed neonates who require a PCR test, was obtained from the DHIS indicator 'Live births to HIV-positive women'.

In 2015/16, the national PCR birth testing coverage rate was 68.7% using NHLS PCR data and calculated HIV-exposed births. Rates ranged from 48.9% in the Eastern Cape to 82.7% in KwaZulu-Natal (Figure 12). It is important to note that routine birth testing was only introduced into the national testing programme in June 2015. However, KwaZulu-Natal, the province with the highest birth testing coverage, introduced birth testing in April 2015, two months earlier than the other provinces. Gauteng had the second-highest birth testing coverage at 71.3%. The Western Cape only performed targeted birth testing on neonates at high risk of transmission.

**Figure 12: HIV PCR birth testing coverage by province, 2015/16**



At a district level, birth testing coverage ranged from 24.5% in OR Tambo (EC) to 96.6% in uMgungundlovu (KZN) (Figure 13). Birth testing coverage ranged widely within individual provinces, with coverage in the Eastern Cape ranging from 24.5% in OR Tambo to 81.4% in S Baartman, and in the Free State from 32.2% in Lejweleputswa to 84.4% in Xhariep. Four Eastern Cape districts had birth testing coverage below 60%, indicating the need for increased testing of HIV-exposed neonates in this province. All districts in the Western Cape are excluded. The only NHI district to have a birth testing coverage below 50% was OR Tambo in the Eastern Cape (Figure 14).

As the EID programme was in transition during 2015/16, trends in the implementation of birth testing can only be determined in the next financial year (2016/17). However, data obtained to date suggest that South Africa is transitioning towards successfully implementing routine birth testing for all HIV-exposed neonates. Certain districts within the Eastern Cape and Free State have a disproportionately lower uptake of birth testing than other districts within the same province; this should prompt further emphasis on birth testing in order to improve early identification of intrauterine infections.

<sup>w</sup> South African National Department of Health. National Consolidated Guidelines for the Prevention of Mother-to-child Transmission of HIV (PMTCT) and the Management of HIV in Children, Adolescents and Adults. Pretoria: NDoH; April 2015.

The impact of birth testing on ART uptake and infant mortality remains to be determined and is a research priority within the EID programme.

Figure 13: HIV PCR birth testing coverage by district, 2015/16

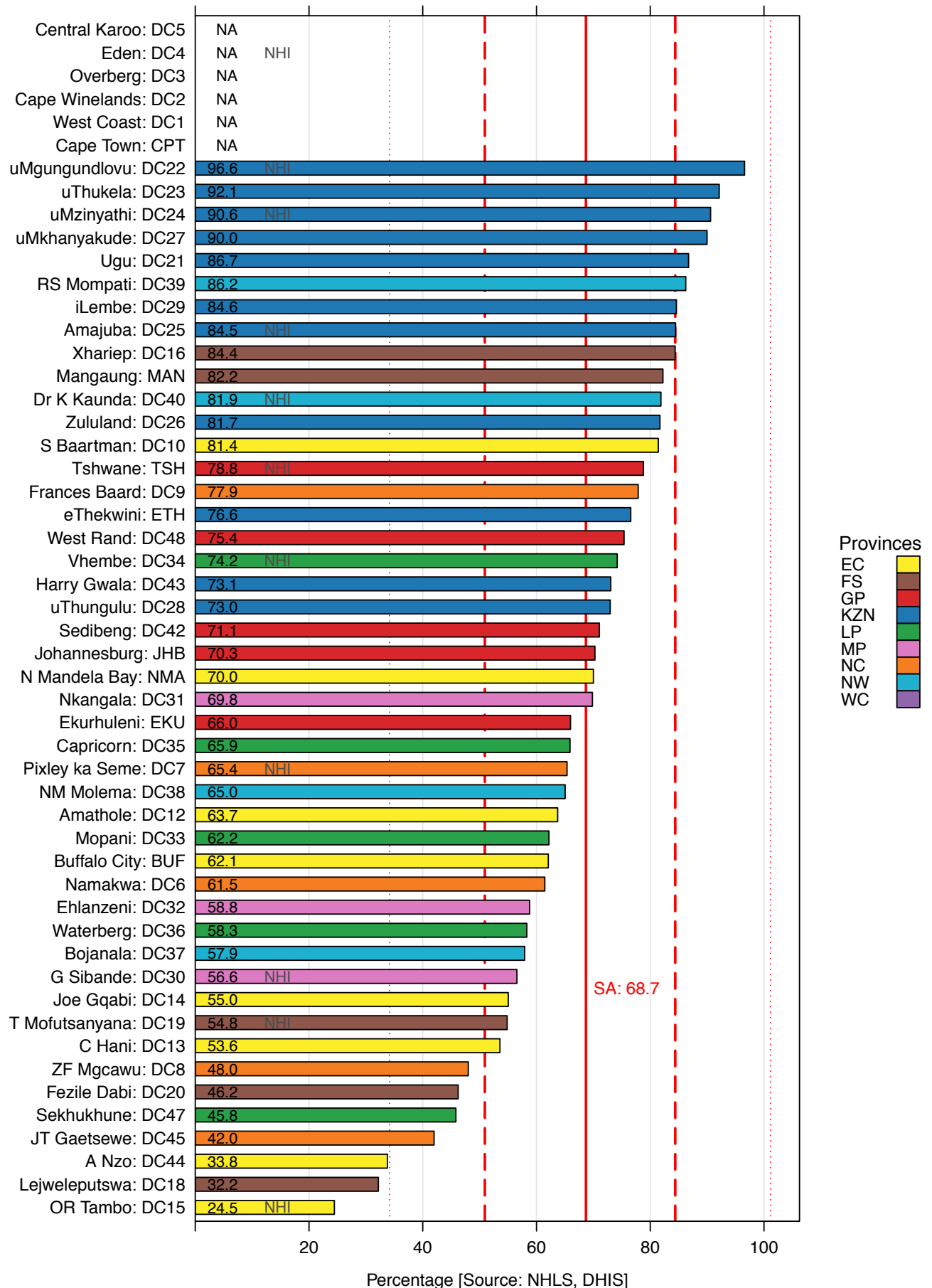
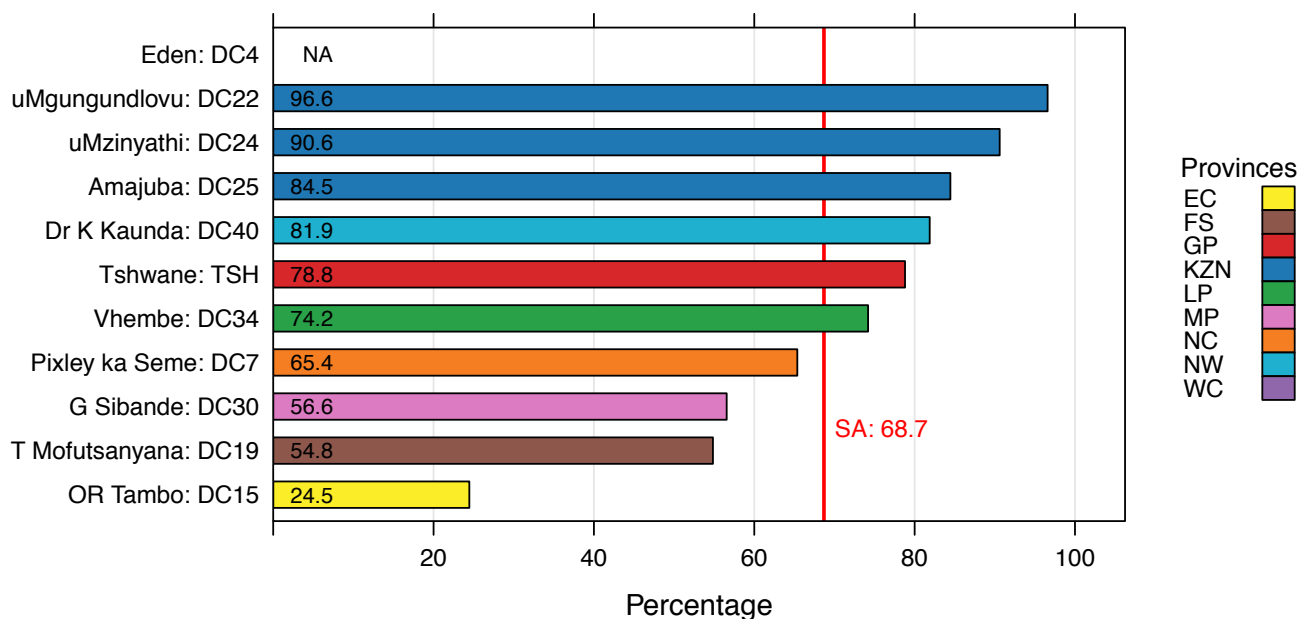




Figure 14: HIV PCR birth testing coverage by National Health Insurance district, 2015/16



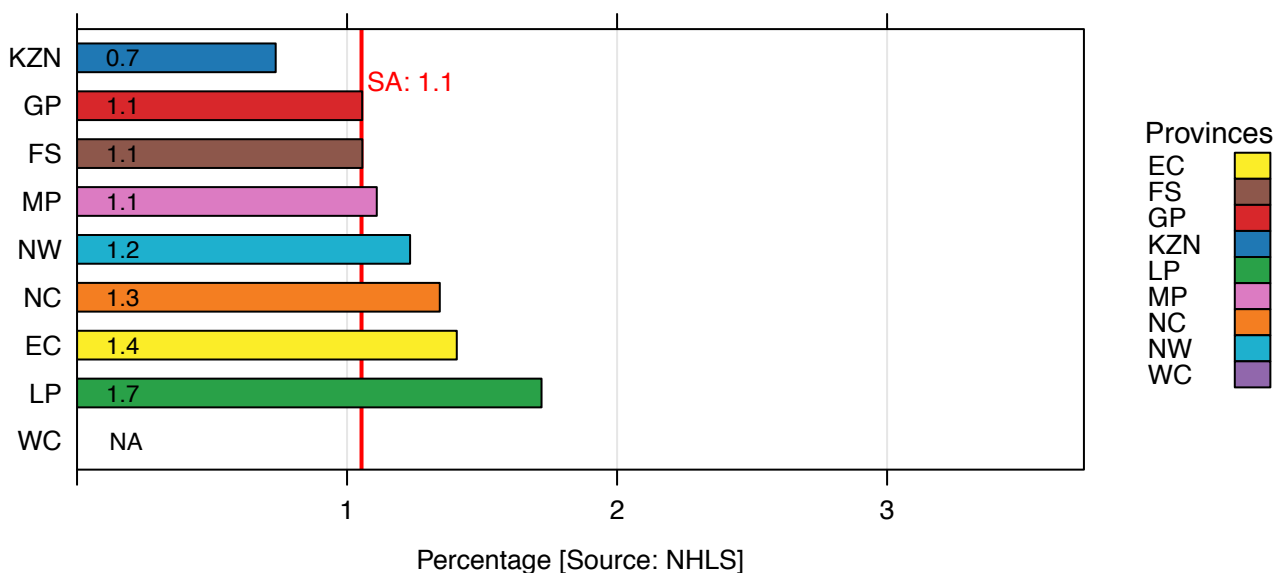
### 5.4 HIV intrauterine transmission rate

*Ahmad Haeri Mazanderani and Gayle Sherman*

Once South Africa implements a national unique patient identifier from birth, it is hoped that the new infant testing guidelines will not only provide the opportunity for earlier detection and treatment, but also facilitate surveillance efforts to determine both the intrauterine and early intrapartum transmission rates. Currently, the estimated intrauterine transmission rate is calculated from NHLS data as the proportion of HIV PCR tests performed within six days of delivery that have a positive result.

According to NHLS data for 2015/16, the national intrauterine transmission rate approximates 1.1%. As the national ‘infant 1st PCR test positive around 6 weeks rate’ was 1.5% for 2014/15, this suggests that most early infections will be identifiable at birth, providing the opportunity for early initiation of ART once routine HIV PCR testing at birth has been successfully implemented. The percentage of PCR tests within the first six days that were positive ranged from 0.74% in KwaZulu-Natal to 1.7% in Limpopo (Figure 15). The Western Cape performed targeted birth testing among high-risk cases during 2015/16 and implemented routine birth testing only in April 2016.

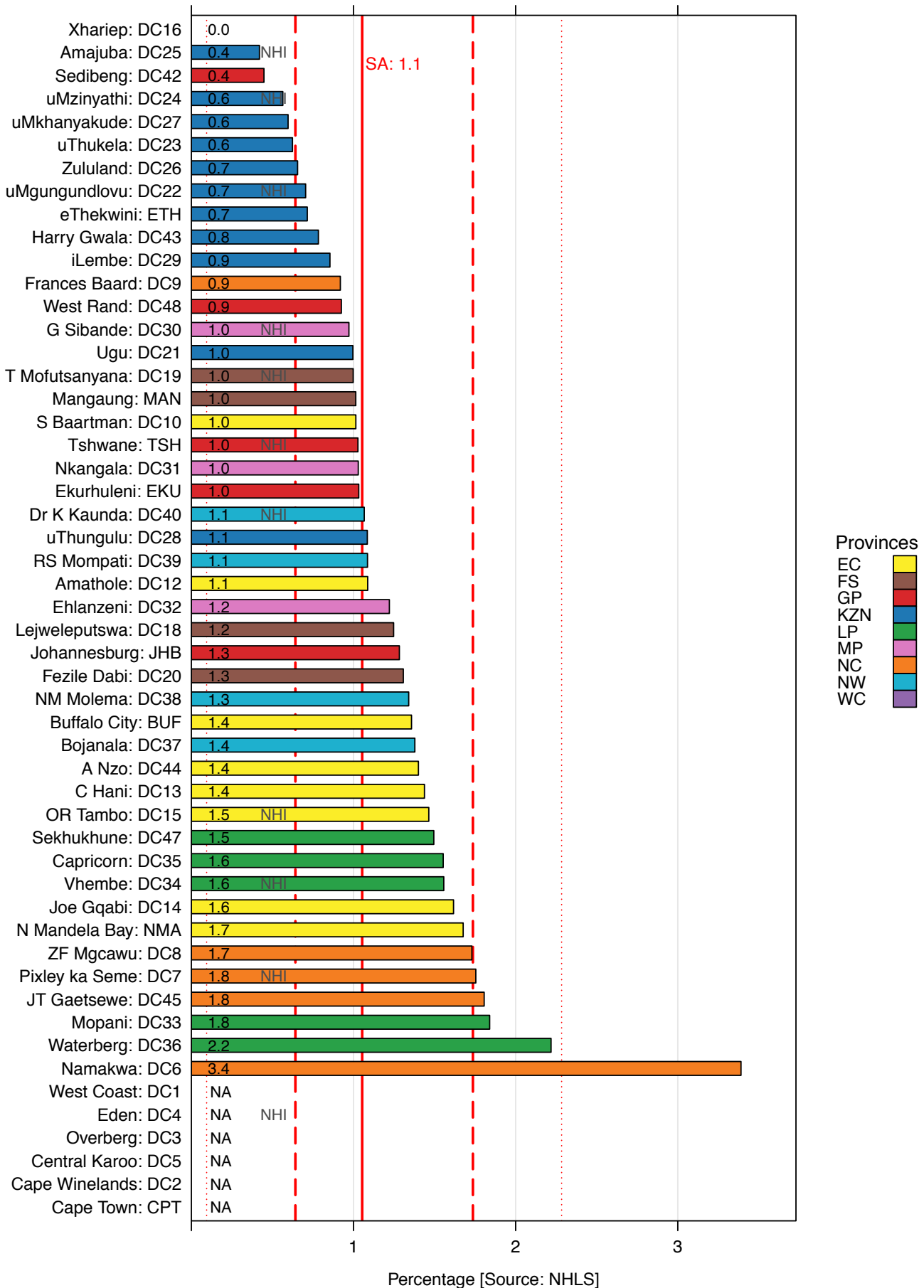
Figure 15: Percentage PCR tests positive within the first six days by province, 2015/16



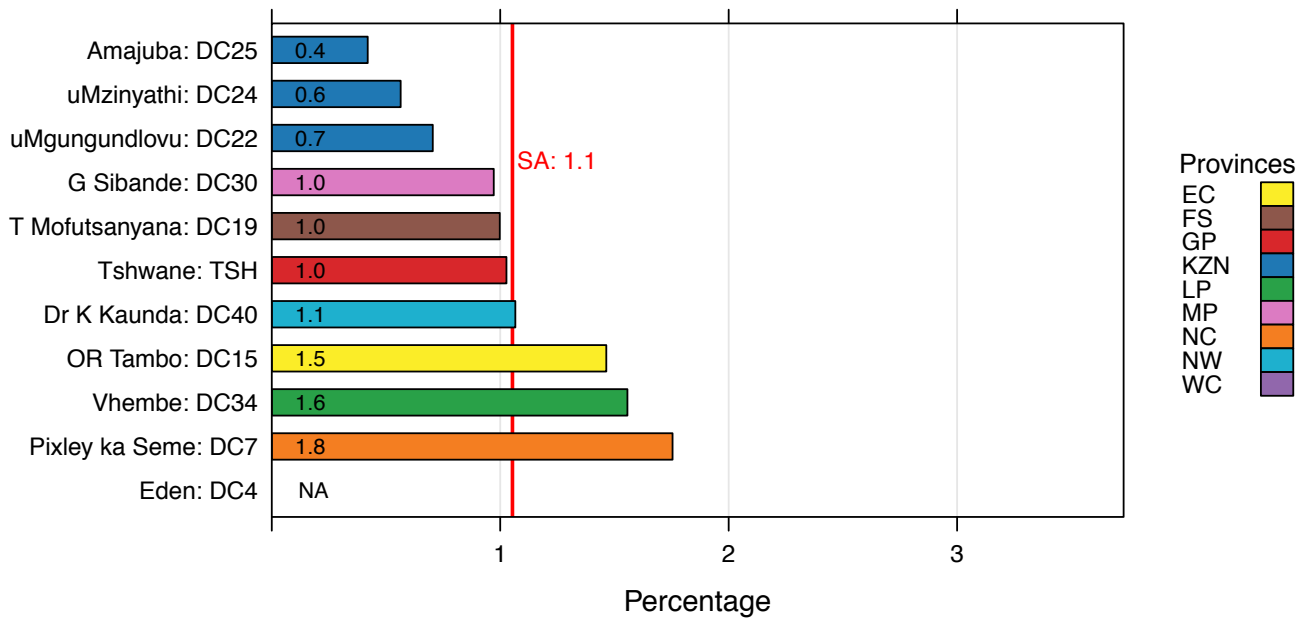
At district level, the rate of PCR positivity within the first six days ranged from 0.0% in Xhariep (FS) to 3.4% in Namakwa (NC) (Figure 16). In some provinces the percentage positivity varied widely between districts, with rates in the Northern Cape ranging from 0.9% in Francis Baard to 3.4% in Namakwa. The high rate of intrauterine transmission in Namakwa is in keeping with the high EID rates previously reported for this district. Among NHI districts, three districts (excluding Eden in the Western Cape) had intrauterine transmission rates above the national average. These districts were OR Tambo (EC) (1.5%), Vhembe (LP) (1.6%), and Pixley ka Seme (NC) (1.8%) (Figure 17).

Since the introduction of routine HIV PCR testing at birth a much greater number of neonates are being detected soon after delivery. This provides the opportunity for earlier linkage into care than with the previous testing guidelines. Increased effort must be made to ensure that neonates who test positive have confirmatory HIV PCR testing and are initiated on ART timeously.

Figure 16: Percentage PCR tests positive within the first six days by district, 2015/16



**Figure 17: Percentage PCR tests positive within the first six days by National Health Insurance district, 2015/16**



### Key findings

- ◆ Data obtained to date suggest that South Africa is transitioning towards successful implementation of routine birth testing for all HIV-exposed neonates.
- ◆ The new guidelines recommend confirmatory testing through a second HIV PCR, instead of a baseline HIV viral load, for infants who test positive. These programmatic changes have resulted in new challenges, namely to capture testing accurately within these age ranges and to de-duplicate repeat tests performed for individual patients. Until these challenges have been addressed successfully, neither DHIS nor NHLS data will be able to accurately determine the coverage and positivity rate of EID by 10 weeks of age.
- ◆ Since the introduction of routine HIV PCR testing at birth a much greater number of neonates are being detected soon after delivery. This provides the opportunity for earlier linkage into care than with previous testing guidelines.

### Recommendations

- ◆ The impact of birth testing on ART uptake and infant mortality remains to be determined and is a research priority within the EID programme.