

11 Progress toward equity

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An important focus of tracking the development of the District Health System is the degree to which greater equity has been achieved, specifically tracking the progress toward the progressive realisation of the health rights entrenched in the Constitution. Assessing equity entails measuring not only horizontal equity (where equality of resource allocation has been achieved) but also vertical equity, where populations with greater needs receive greater attention and allocation of resources than populations with fewer needs.

Measuring equity – methodological issues

The South African Multiple Deprivation Index (SAMDI) developed by Noble et al. is used to measure equity.^a Since the initial formulation of the SAMDI was developed in 2001, the methodology and the set of indicators were refined based on further analysis of the data as well as the availability of current data, particularly from the 2011 Census dataset. The SAMDI from 2001 and 2011 are therefore not strictly comparable.

For the purpose of this chapter, the distribution of deprivation as described by the SAMDI 2011 analysis was applied to data generated from the DHIS from 2001 onwards and has not been corrected for the way that deprivation has changed over time. While this is not ideal, it allows for longitudinal comparison of the health data to be stratified and compared.

Distribution of deprivation

The inequalities within the health care sector before the advent of a democratic government in South Africa have been well documented.^b There was much shifting of resources to reduce inequities in the first five years of post-apartheid government, yet the current distribution of deprivation needs to be seen in a historical context, rather than appraised in isolation.

In the current distribution of deprivation, a striking rural-urban pattern is evident in the levels of deprivation. Yet not all rural districts are equally deprived and the geo-spatial representation and analysis by Noble et al. demonstrates the limited change in the pattern of deprivation over time. Areas historically located in the former homelands have remained comparatively deprived even if poverty has decreased.^a

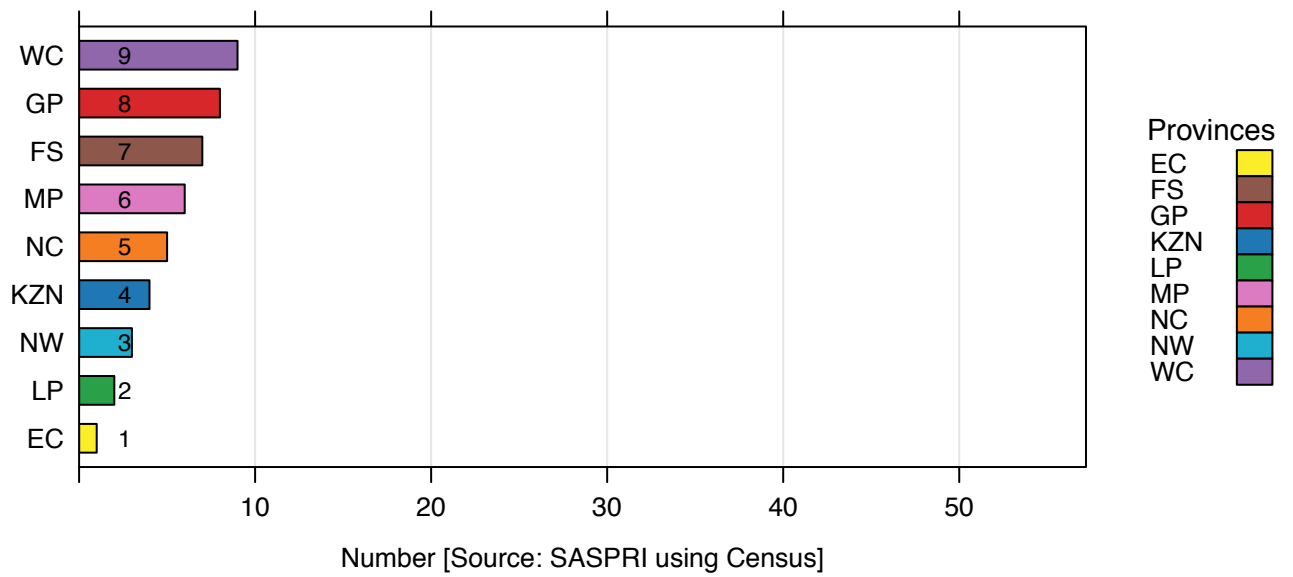
The SAMDI data at ward level show considerable differentials in deprivation even in small local areas (sub-districts). However, peri-urban and informal settings are not as deprived as ex-homeland rural areas. This pattern is further supported from the analysis of income and livelihoods of households in rural, informal and urban settings, where household income in informal and peri-urban areas was on average better than in rural areas.

The 2011 SAMDI report shows that the ranking of the provinces has not changed and unsurprisingly, those that were most economically active showed the lowest levels of deprivation. (See Figure 1)

a Noble M, Zembe W, Wright G, Avenell D. Multiple Deprivation and Income Poverty at Small Area Level in South Africa in 2011. Cape Town: Southern African Social Policy Research Institute and Southern African Social Policy Research Insights (SASPRI); 2013.

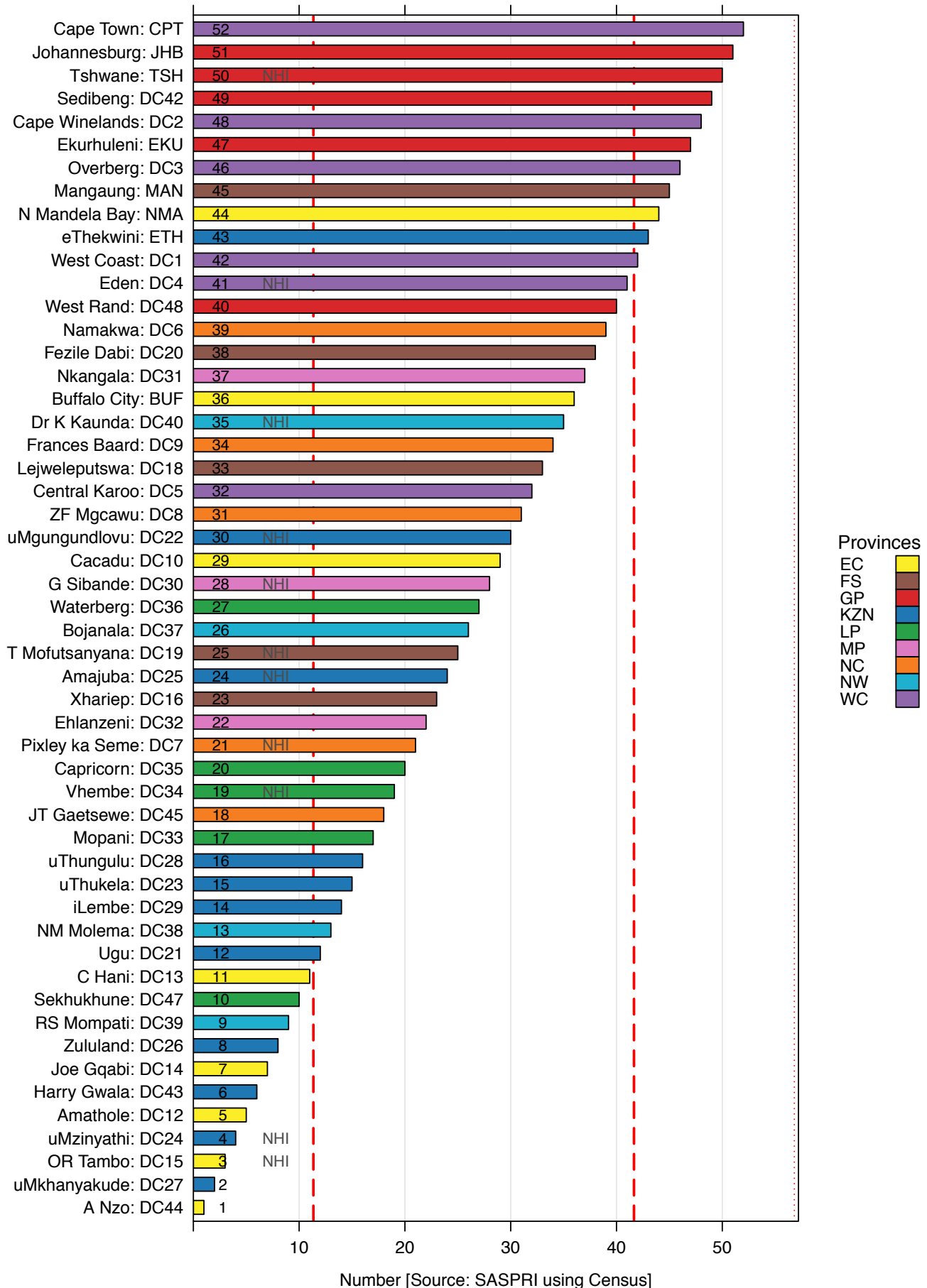
b Rispel L, Molomo B, Dumela S. South African Case Study on Social Exclusion. Cape Town: HSRC Press; 2008.

Figure 1: SA index of multiple deprivation rank (1=most deprived) by province, 2011



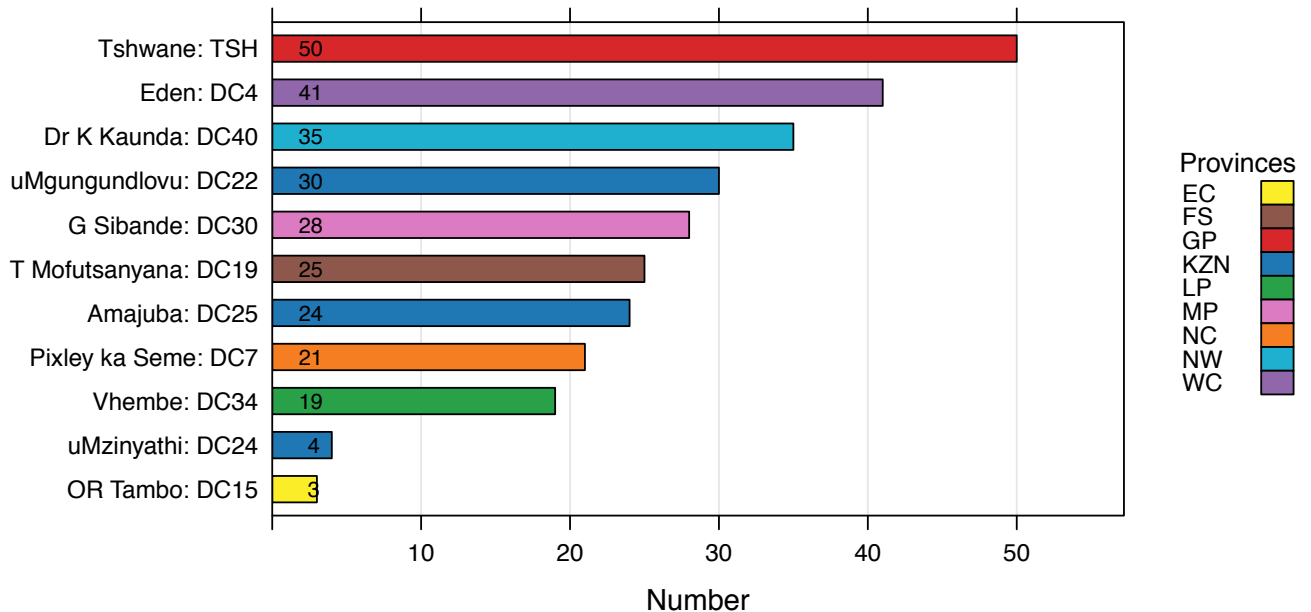
At the level of districts, the intra-provincial differences become more evident – particularly for the Eastern Cape and KwaZulu-Natal, which each have four of the 10 most deprived districts (out of 52) (Figure 2). All of the districts of the Western Cape and Gauteng are represented in the 20 least-deprived districts and the metro-municipalities are strongly represented in the 10 least-deprived districts of the country.

Figure 2: SA index of multiple deprivation rank (1=most deprived) by district, 2011



The distribution of the NHI sites when analysed by deprivation index (Figure 3) shows a spread of deprivation levels in the districts that have been chosen as NHI sites. This reflects a commitment that the NHI process has to succeed in both well-resourced and poorly resourced districts and needs to reach people living in deprived and less-deprived areas equally. It will be important to track the outcomes and impacts of these districts and how far they are able to reverse the impact of historical inequities and associated social determinants of health on health processes and outcomes, as measured in this Barometer.

Figure 3: SA index of multiple deprivation rank (1=most deprived) by NHI district, 2011



Moving to a lower level of aggregation, the pattern deprivation is sharpened even further, with the 10 most deprived sub-districts being situated in only two provinces – the Eastern Cape and KwaZulu-Natal. These sub-districts are all situated in rural areas. This has resulted at large intra-provincial differences in these provinces.

Table 1: Population weighted average rank of the SAIMD 2011 for the most deprived 10 local municipalities in South Africa

Province	District	Local Municipality	Population weighted average rank of wards in the local municipality (where 1=most deprived)	National rank (where 1=most deprived)
KwaZulu-Natal	uMzinyathi	Msinga	176	1
Eastern Cape	Alfred Nzo	Ntabankulu	280	2
Eastern Cape	OR Tambo	Port St Johns	304	3
KwaZulu-Natal	Ugu	Vulamehlo	383	4
KwaZulu-Natal	iLembe	Maphumulo	388	5
Eastern Cape	Alfred Nzo	Mbizana	395	6
Eastern Cape	OR Tambo	Ngquza Hill	399	7
KwaZulu-Natal	uMkhanyakude	uMhlabuyalingana	400	8
Eastern Cape	Chris Hani	Engcobo	449	9
KwaZulu-Natal	Uthungulu	Nkandla	453	10

Deprivation and health

Socio-economic indicators

Access to water

According to Census 2011 data, the percentage of people without access to piped water within 200 metres of their homes in South Africa was 16.9%. The district with the most people without access to piped water was OR Tambo (67.9%). The district with the fewest people without access was Namakwa (1.8%). Nine of the 10 districts with the least access to piped water are among the 10 most deprived districts in South Africa.

Table 2: Percentage of households with access to piped water by province: Census 2011

	No access to pipe waters (%)	Piped water outside yard (%)	Piped water inside dwelling/yard (%)
Western Cape	0.9	10.7	88.4
Eastern Cape	22.2	28.4	49.4
Northern Cape	2.6	19.3	78.0
Free State	2.2	8.7	89.1
KZN	14.1	22.4	63.6
North West	8.4	22.3	69.3
Gauteng	1.8	8.8	89.4
Mpumalanga	12.6	15.8	71.7
Limpopo	14.0	33.7	52.3
South Africa	8.8	17.9	73.4

Source: Stats SA

Table 3: Percentage of households with no piped water in 200 metres

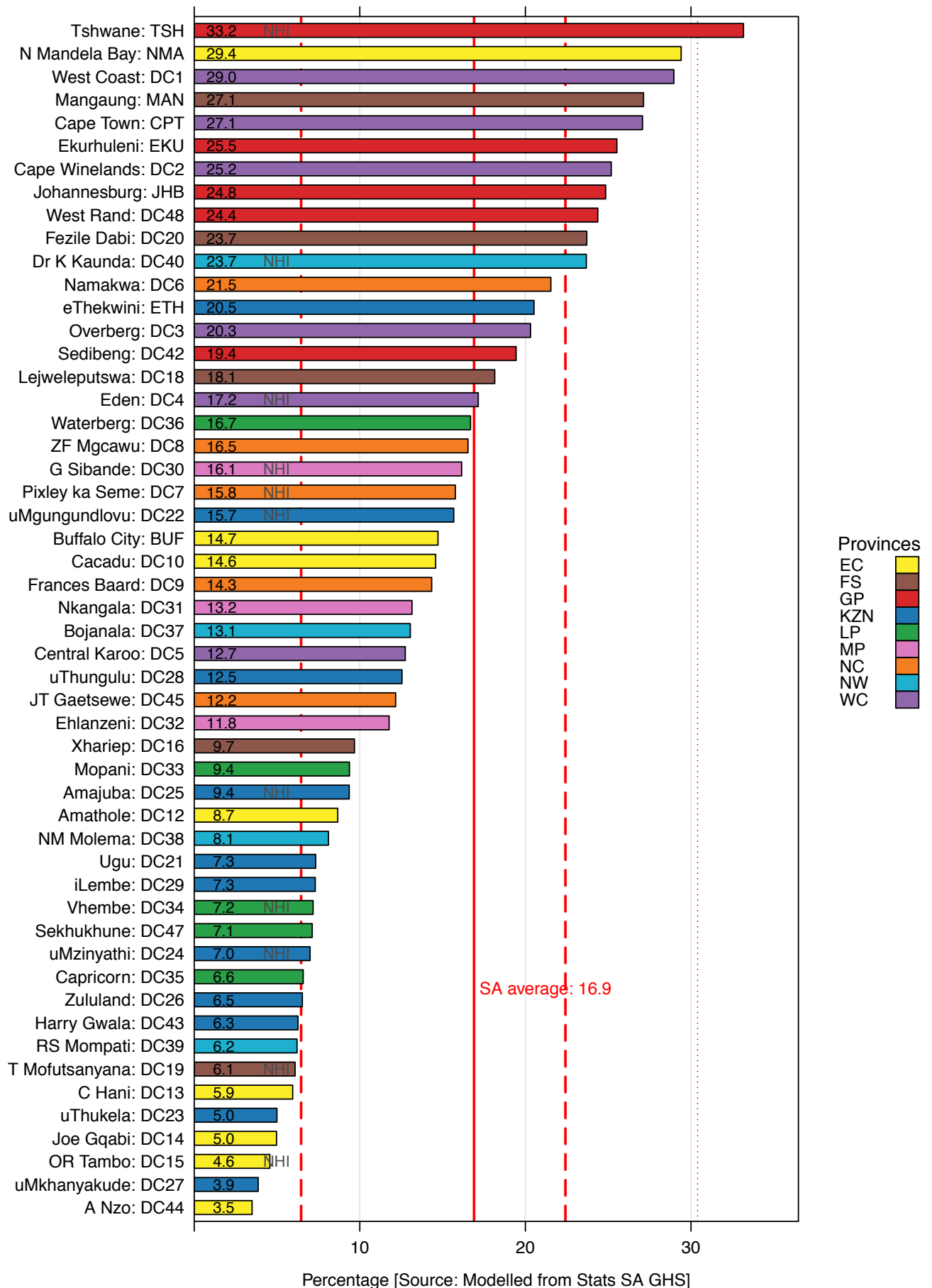
District	%	District	%
A Nzo: DC44 (1)	66.6	N Mandela Bay: NMA	3.3
Amajuba: DC25	13.4	Namakwa: DC6	1.8
Amathole: DC12 (5)	48.0	Nkangala: DC31	10.0
Bojanala: DC37	15.9	NM Molema: DC38	26.4
Buffalo City: BUF	9.6	OR Tambo: DC15 (3)	67.9
C Hani: DC13	29.5	Overberg: DC3	2.7
Cacadu: DC10	6.5	Pixley ka Seme: DC7	4.3
Cape Town: CPT	2.7	RS Mompoti: DC39 (9)	21.0
Cape Winelands: DC2	2.3	Sedibeng: DC42	2.8
Capricorn: DC35	20.2	Tshwane: TSH	4.9
Central Karoo: DC5	1.9	Ugu: DC21	37.9
Dr K Kaunda: DC40	3.6	uMgungundlovu: DC22	14.3
Eden: DC4	4.5	uMkhanyakude: DC27 (2)	52.8
Ehlanzeni: DC32	29.4	uMzinyathi: DC24 (4)	49.3
Ekurhuleni: EKU	4.1	uThukela: DC23	36.7
eThekweni: ETH	6.4	uThungulu: DC28	27.8
Fezile Dabi: DC20	3.7	Vhembe: DC34	30.1
Frances Baard: DC9	4.4	Waterberg: DC36	13.9
G Sibande: DC30	15.8	West Coast: DC1	2.7
iLembe: DC29	34.9	West Rand: DC48	6.4
Joe Gqabi: DC14 (7)	39.3	Xhariep: DC16	4.0
Johannesburg: JHB	3.0	Zululand: DC26 (8)	43.1
JT Gaetsewe: DC45	24.7	ZF Mgcawu: DC8	6.4
Lejweleputswa: DC18	4.1	Harry Gwala: DC43 (6)	51.0
Mangaung: MAN	4.2	T Mofutsanyana: DC19	5.9
Mopani: DC33	30.8	Sekhukhune: DC47 (10)	39.8

Source: Stats SA

Access to medical aid

This indicator refers to the percentage of the population within a district that has access to private medical insurance. In 2009/10, 16.9% of South Africans had access to medical aid. There was wide variation among districts. In 2009/10, the district with the most access to medical insurance was Tshwane with 33.2% of the population insured. The district with the least access was Alfred Nzo with only 3.2% of the population insured (Figure 4).

Figure 4: Medical scheme coverage (average) by district, 2009/10



Input Indicators

PHC utilisation rate

This indicator measures the average number of primary health care (PHC) visits per person per year in the population.

The PHC utilisation rate, on average, remained stable over the last four years around 2.4 visits. There were, however, substantial differences between districts, with the lowest utilisation rate in Tshwane (GP) (1.7 visits) and the highest utilisation rate in Namakwa (NC) (3.7 visits). In 2013/14, Sekhukhune (LP) (2.1 visits) and Alfred Nzo (EC) (2.3 visits) were the only two of the 10 most deprived districts below the national average utilisation rate of 2.4 visits. uMkhanyakude (KZN) had the highest rate of 3.6 visits (Table 4).

Table 4: PHC utilisation rate per district, 2013/14

District	Visits	District	Visits
Tshwane MM	1.7	OR Tambo DM (3)	2.6
Johannesburg MM	1.8	Uthukela DM	2.6
Nkangala DM	1.8	Buffalo City MM	2.7
Bojanala Platinum DM	1.9	Ehlanzeni DM	2.7
Ekurhuleni MM	1.9	Ngaka Modiri Molema DM	2.7
Dr K Kaunda DM	2.0	C Hani DM	2.8
Fezile Dabi DM	2.0	Cacadu DM	2.8
G Sibande DM	2.0	Capricorn DM	2.8
Waterberg DM	2.0	Central Karoo DM	2.8
West Coast DM	2.0	Frances Baard DM	2.8
Cape Winelands DM	2.1	Harry Gwala DM (6)	2.8
Sekhukhune DM (10)	2.1	uMgungundlovu DM	2.8
West Rand DM	2.2	Vhembe DM	2.8
Mangaung MM	2.3	ZF Mgcawu DM	2.8
A Nzo DM (1)	2.3	Mopani DM	2.9
Sedibeng DM	2.3	Ruth Segomotsi Mompati DM (9)	2.9
Amajuba DM	2.4	Uthungulu DM	2.9
Joe Gqabi DM (7)	2.4	Umzinyathi DM (4)	3.0
Overberg DM	2.4	T Mofutsanyane DM	3.1
Cape Town MM	2.5	iLembe DM	3.2
Eden DM	2.5	eThekwini MM	3.3
Zululand DM (8)	2.5	Ugu DM	3.3
Amathole DM (5)	2.6	Pixley ka Seme DM	3.4
JT Gaetsewe DM	2.6	Xhariep DM	3.4
Lejweleputswa DM	2.6	Umkhanyakude DM (2)	3.6
N Mandela Bay MM	2.6	Namakwa DM	3.7

District Health Services expenditure per capita

Much more was spent on DHS per capita uninsured in deprived areas (median R1 783 in SEQ 1 compared to R1 281 in SEQ 5). When considering the total population, the difference is even greater, since a lower proportion of the population in less deprived areas made use of the public sector (Figure 5). As such, there has been increased equity in resource allocation over the past 10 years and more spending was going to those districts that were most deprived. However, these averages conceal some districts in the most deprived socio-economic quintile (e.g. Alfred Nzo and OR Tambo both in the Eastern Cape) which had per capita expenditure below the average for South Africa (Figure 6).

Figure 5: DHS expenditure trends by socio-economic quintile of district

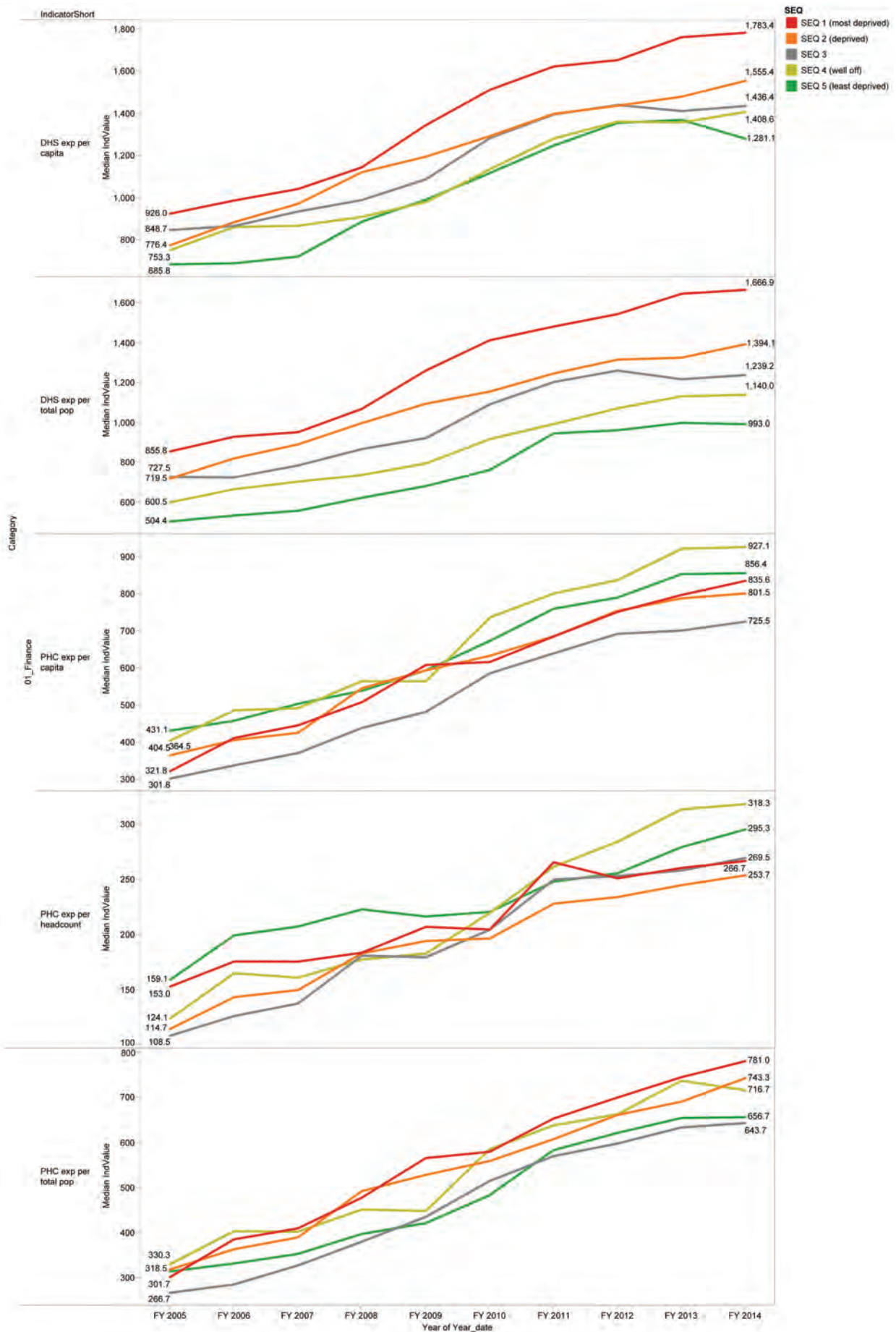
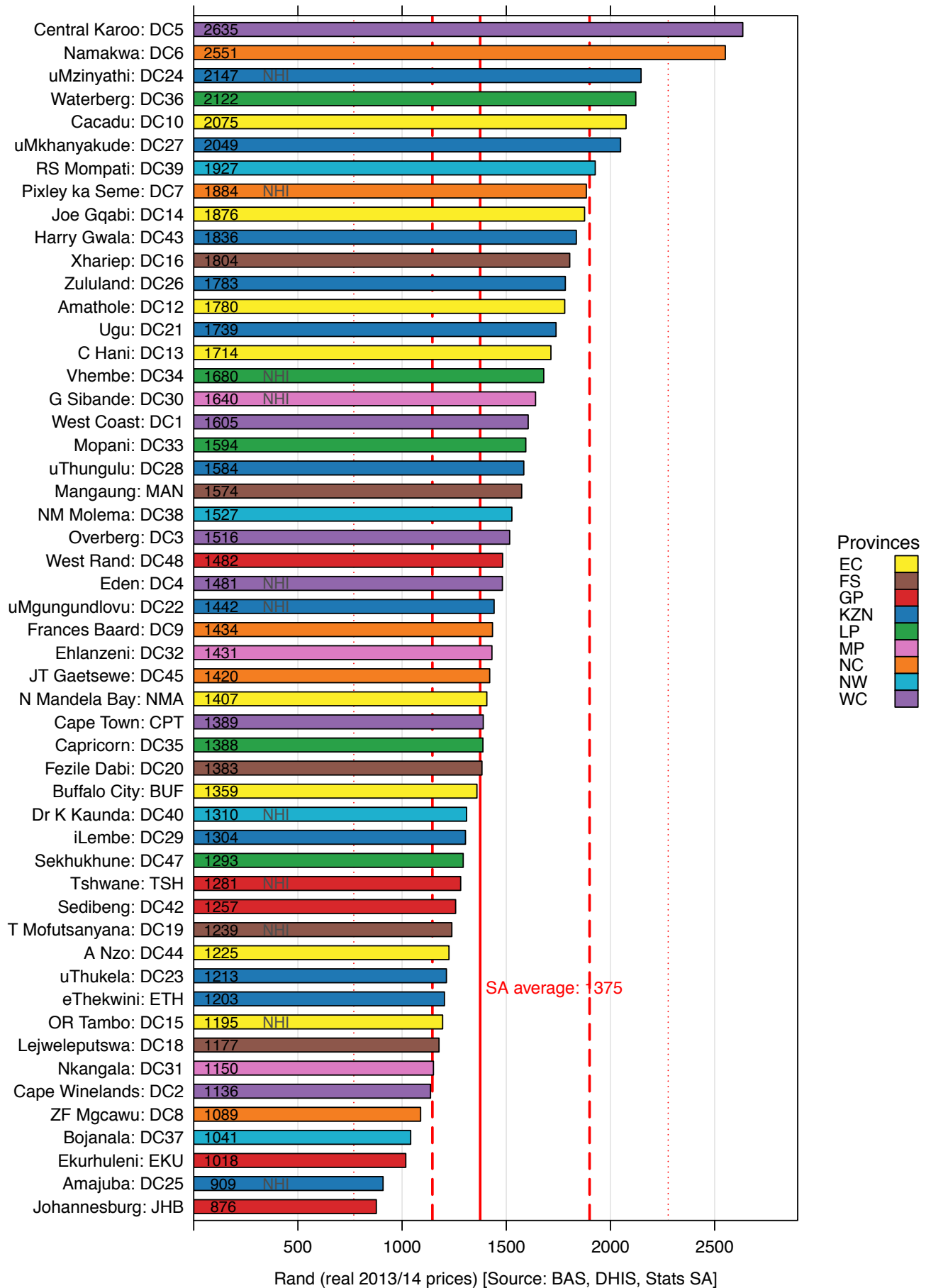


Figure 6: District Health Services expenditure per capita (uninsured) by district, 2013/14



Process Indicators

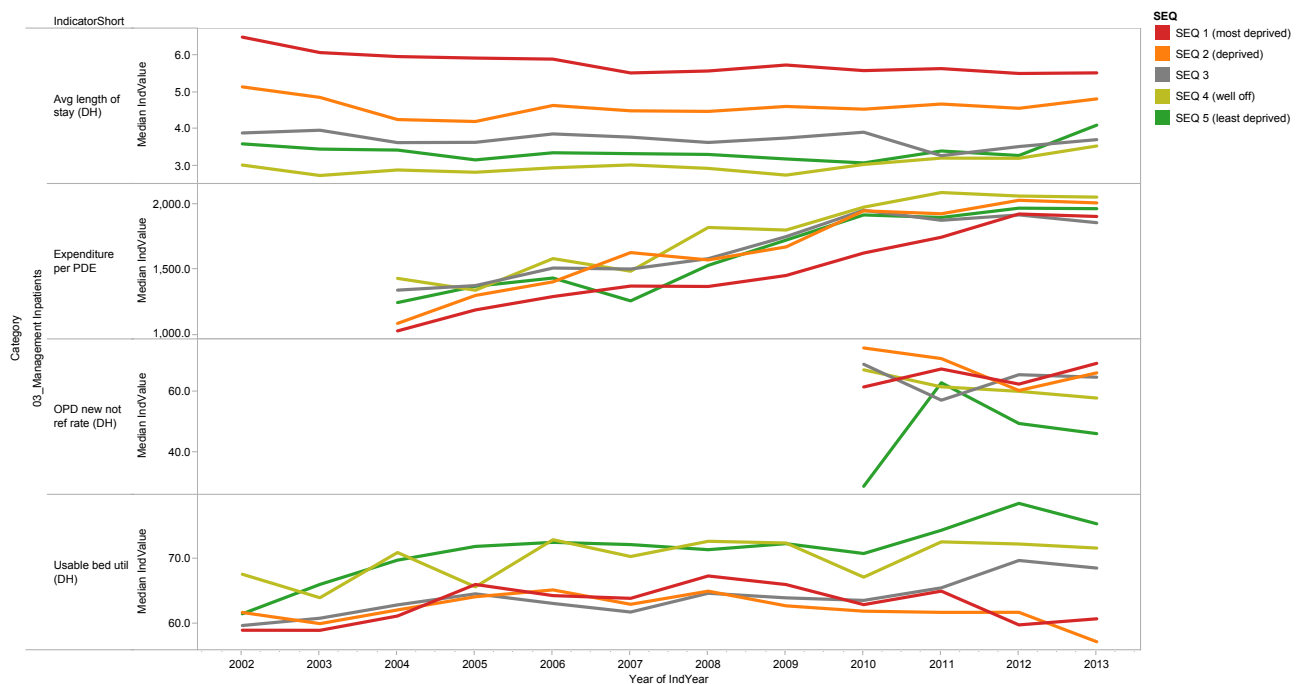
Inpatient bed utilisation rate (BUR) (district hospitals)

This indicator measures the number of patient days during the reporting period, expressed as a percentage of the sum of the daily number of useable beds. This is generally considered an indicator of efficiency, with higher utilisation indicating greater efficiency in the use of hospital resources. Bed utilisation rates have, on average, increased marginally over the last decade from 62.2% in 2004/05 to 66.3% in 2013/14. There were, however, substantial differences between districts, with the highest utilisation rate in Cape Town (97.6%) and the lowest utilisation rate in Amajuba (44.3%). In 2013/14, the median BUR for the most deprived districts was 61%, whereas the median for the least deprived districts was 75% (Figure 7). This would suggest that district hospitals in deprived districts had lower levels of efficiency than those in the least deprived districts.

Average length of stay (ALOS)

This indicator measures the average number of patient days that an admitted patient spends in hospital before separation. ALOS is both a proxy measure of efficiency and quality of care at district hospitals. Like BUR, the average ALOS for South Africa has increased only marginally from 4.3 days in 2004/05 to 4.7 in 2013/14. The median ALOS in the most deprived districts has, however, been declining slowly from 6.1 days in 2003/04 to 5.5 days in 2013/14. This was still higher than the median ALOS of 4.1 days for the least deprived districts (Figure 7).

Figure 7: Trends in median district values by socio-economic quintile for ALOS and BUR (district hospitals)



Output Indicators

Immunisation coverage under 1 year

Immunisation is one of the most important and cost-effective health interventions available. The average immunisation coverage under 1 year in South Africa increased from 74.8% in 2004/05 to a high of 87.0% in 2008/09 but, worryingly, declined again to 84.4% in 2013/14. A feature of this indicator in South Africa is the significant differences in coverage between districts. In 2013/14, coverage ranged from a low of 54.0% (Waterberg in Limpopo) to a high of 116.5% (West Rand in Gauteng). Coverage was highest in the least deprived districts with an median of 81% in Quintile 4 and 89% in Quintile 5. Coverage was lowest in Quintile 3 districts where the median was 73% and only marginally higher in Quintile 1 districts at 74%.

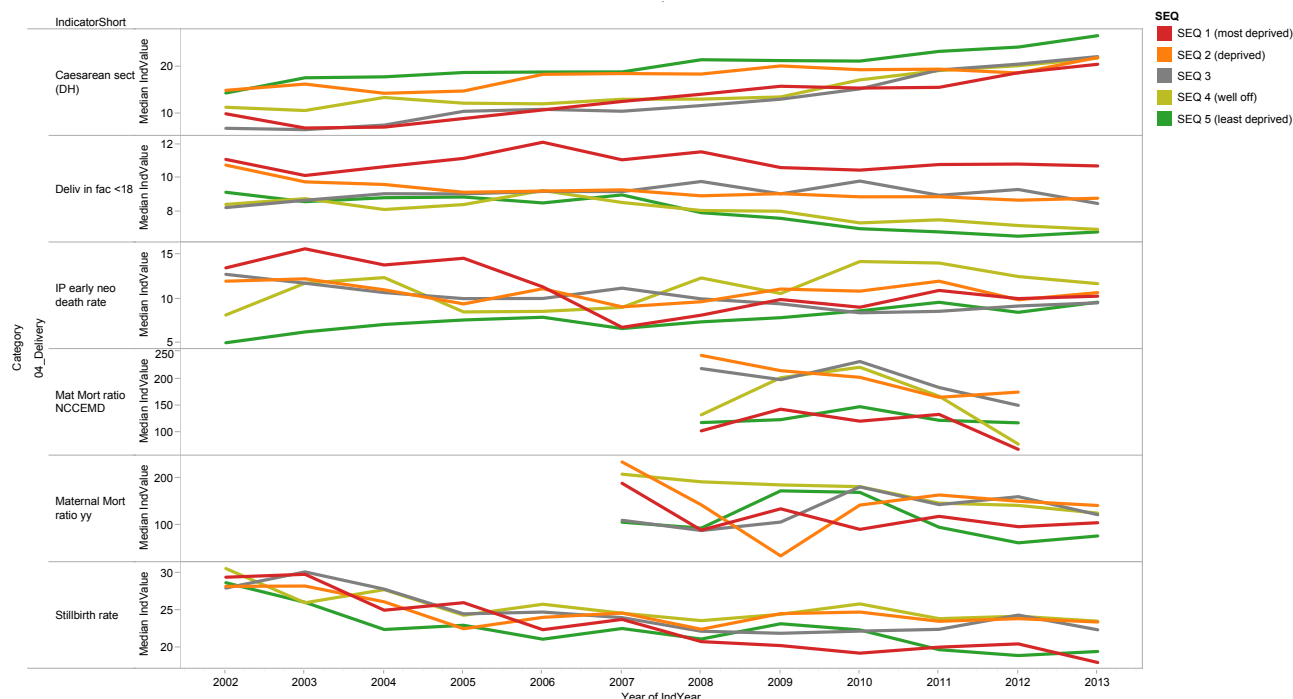
Delivery by Caesarean section rate (district hospitals)

This indicator measures the delivery by Caesarean section as a proportion of total deliveries in health facilities. This is an important indicator of access to obstetric care, which in turn means that it is an important indicator of access to maternal health care. Over the last decade, the average delivery by Caesarean section rate at district hospitals in South Africa has increased substantially from 13.3% in 2003/4 to 21.8% in 2013/14. There was a large difference between the highest rate of 41.1% in Nelson Mandela Bay and the lowest rate of 2.0% in Xhariep. Very low Caesarean section rates in many of the more remote districts raise a serious concern regarding access to services – and particularly for emergency obstetric care, for which rapid access to operative care is vital.

When viewed in relation to deprivation quintiles, the differences in median rates between Quintiles 1 (21%), 2(22%), 3 (22%), 4 (22%) and 5 (26%) were essentially the same except for SEQ5 and suggest a more equal distribution of care than many other key service-provisioning indicators (Figure 8).

Metros like Nelson Mandela Bay (41.1%), eThekweni (40.6%), Johannesburg (36.6%) and Cape Town (32.5%) all had Caesarean section rates that were between 10 and 19 percentage points higher than the national average. The location of many of the tertiary and central hospitals – which have higher Caesarean section rates due to the higher degree of complicated pregnancies – contributes to this trend.

Figure 8: Trends in median district values by socio-economic quintile for delivery indicators (district hospitals)



Outcome Indicators

Prevention of Mother-to-Child Transmission (PMCT) (vertical transmission)

PMCT is one of the National Department of Health's priority programmes and has continued to receive a great deal of attention in both policy and the resourcing of the health system. According to the Antenatal Sentinel HIV Sero-prevalence Survey, antenatal (ANC) HIV prevalence has increased from 26% in 2002 to 29.5% in 2012. While this trend may in fact indicate that testing had improved over this period, prevalence was extremely high nonetheless.

PMCT output indicators have shown some improvements in coverage across all quintiles over the last few years. Early Infant Diagnosis (EID) coverage in South Africa has increased from an average of 56.2% in 2010/11 to 88.3% in 2013/14. Over this period, there has also been significant convergence in coverage between quintiles with rates of increase in Quintiles 1 and 2 exceeding increases in coverage in the least deprived quintiles. EID coverage in Quintile 1 (93%), 2 (95%) and 3 (89%) now exceeds that in Quintiles 4 (87%) and 5 (86%) (Figure 8).

The trend for the initiation of Antenatal Clients (ANC) on ART has been less positive, however. The average for the initiation of eligible ANC on ART in South Africa has declined by more than 10 percentage points, from 86.7% in 2010/11 to 76.3% in 2013/14.

Inpatient early neonatal mortality rate

The inpatient early neonatal mortality rate is an indicator of the number of inpatient deaths within the first seven days of life per 1 000 live births in a health facility. It reflects prenatal, intrapartum (IP) and neonatal care and is an indicator of access to and quality of maternal and neonatal care. The average IP early neonatal mortality rate in South Africa has fluctuated between 8.7 and 10.5 deaths per 1 000 live births over the last decade. In 2013/14, there was little difference in this indicator between deprivation quintiles, with the rate in the most deprived districts (10.3) only marginally higher than the rate in the least deprived districts.

Maternal mortality ratio in facility

This is an indicator that measures the number of women who died in hospital as a result of childbearing, during pregnancy or within 42 days of delivery or termination of pregnancy, per 100 000 live births in facility. It is an important indicator of access to maternal care and its quality in districts. The maternal mortality ratio in facility in South Africa has declined marginally since 2011/12 (144.9 per 100 000 live births) and was 133.3 per 100 000 live births in 2013/14.

This indicator does not appear to align with socio-economic status in any neat way. While the median ratio for this indicator was lowest in the least deprived districts (79 per 100 000 live births), the districts with second lowest median ratio were in the most deprived quintile. Quintile 4 districts had the highest ratio (142 per 100 000 live births), followed by Quintiles 3 (122.3 per 100 000 live births) and 2 (125.6 per 100 000 live births) (Figure 9). Because this is an in-facility measure, this pattern may be indicative of poor access to emergency obstetric care for at-risk pregnancies in the most deprived districts.

The impact that access to emergency obstetric care, or a lack thereof, had in deprived districts was clearly demonstrated in the Free State. In 2011/12, the Free State had the highest average maternal mortality ratio in facility in the country of 199.1 per 100 000 live births. By 2013/14, the province had managed to reduce mortality to 143.4 per 100 000 live births. The most significant change occurred in the Thabo Mofutsanyana (Quintile 3) District where mortality declined by more than half in those three years from 263.5 deaths per 100 000 live births in 2011/12 to 123.3 deaths per 100 000 live births in 2013/14.

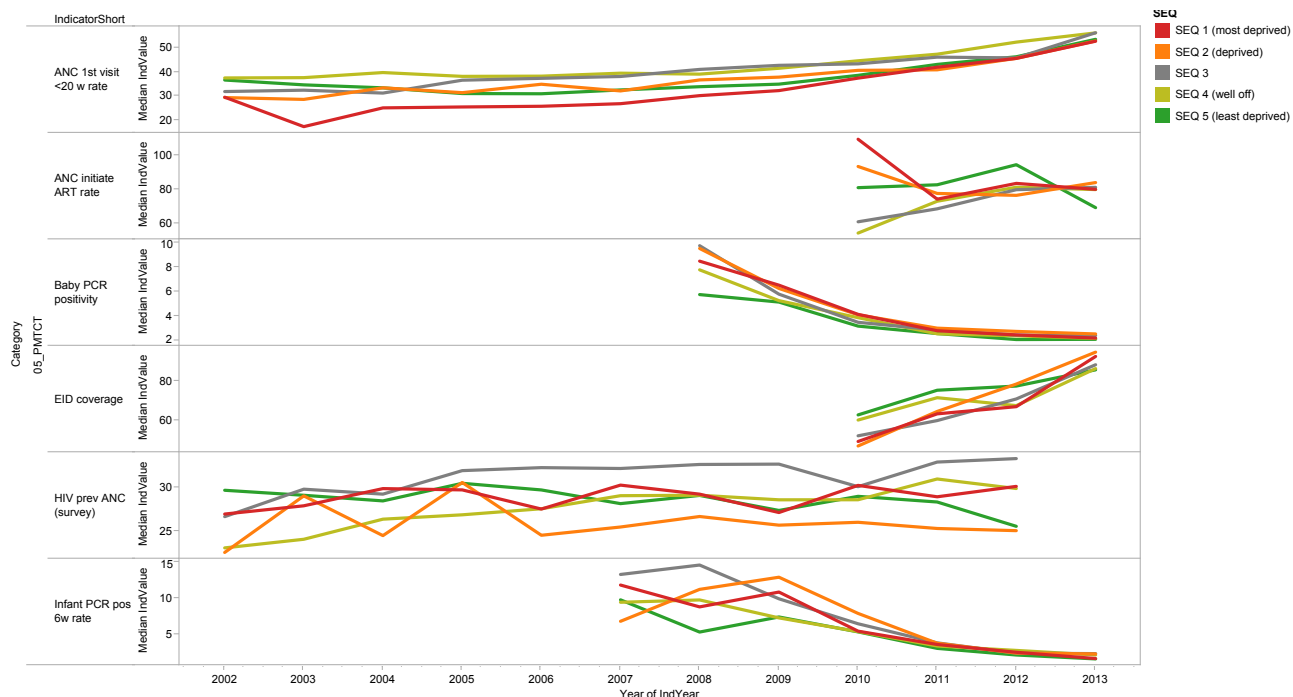
Percentage of PCR tests HIV positive for infants under two months of age (NHLS data)

This is the best indicator of how well the government's PMTCT programme is working. This indicator measures the percentage of PCR tests that are positive for HIV (in infants under two months). If the PMTCT programme was functioning well, this rate should have continued to decline over time. Then, if the programme was being implemented equitably, we should see a convergence of this indicator across all quintiles. In both scenarios, the programme has proved to be extremely successful, particularly since the introduction of a more effective regime and earlier initiation of pregnant women onto ART.

In 2008/09, the percentage of PCR tests HIV positive for infants under two months of age for South Africa was 8.4% with a range ratio between the districts with the highest (18.0% – Ugu in KZN) and lowest rates (3.2% – Namakwa in NC) of nearly 15 percentage points. By 2013/14, the rate had declined by nearly three quarters to 2.2%, with a range between the districts with the highest (3.5% – Xhariep in the FS) and lowest (0.7% – Overberg in WC) declining to 2.8 percentage points. The average rates for Quintile 5 (2.2%) and Quintile 1 (2.1%) districts are now virtually the same.

The impact that well-managed and resourced interventions can have on outcomes in rural districts that have traditionally had the highest rates, is evidenced by the dramatic improvements in this indicator over the last five years. In 2009/10, Namakwa (11.4%) (NC), Zululand (7.9%) (KZN), Sekhukhune (7.8%) (LP), Alfred Nzo (7.1%) (EC) and OR Tambo (7%) (EC) – all rural districts – had the highest rates in the country. By 2013/14, rates in these districts had declined to 3.3%, 2.5%, 2.7%, 2.2% and 2.6% respectively.

Figure 9: Trends in median district values by socio-economic quintile for PMTCT indicators

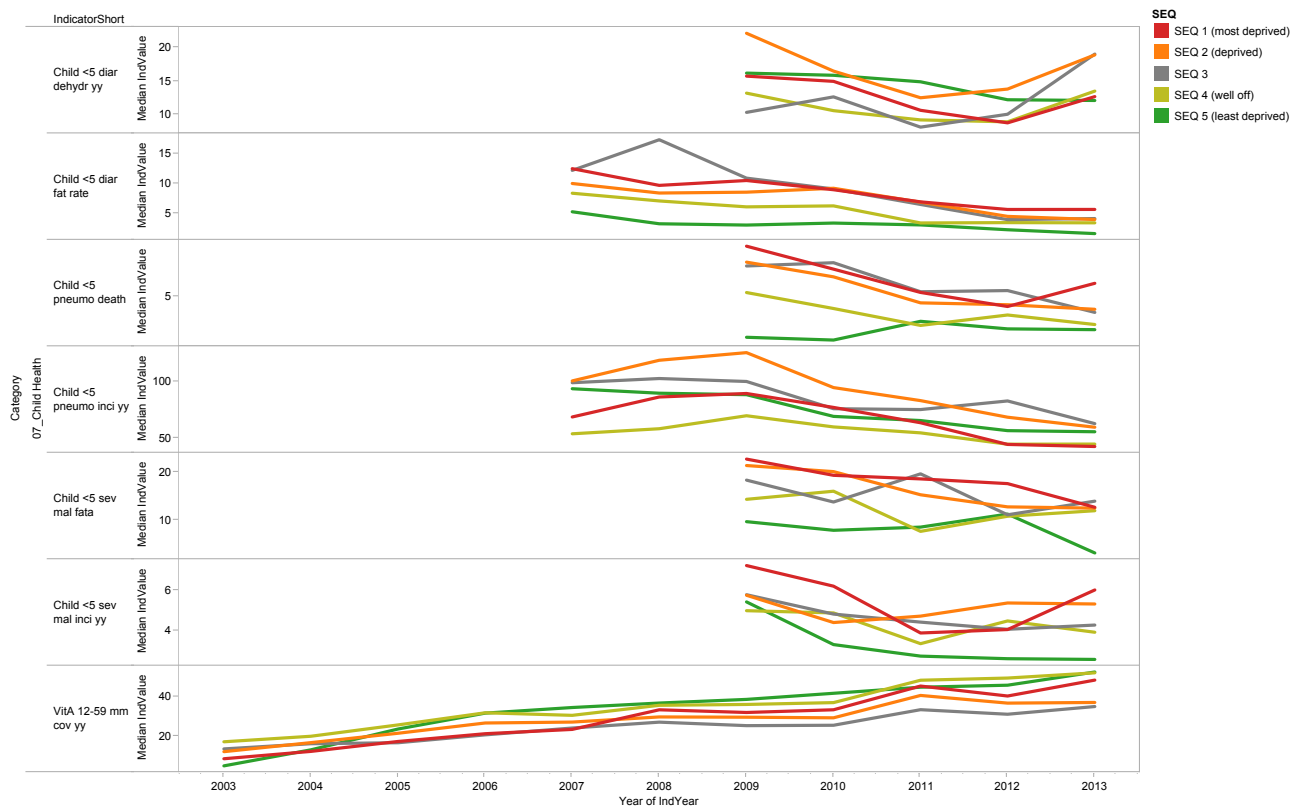


Impact Indicators

Child under 5 years pneumonia case fatality rate

This indicator measures the proportion of children under five years admitted with pneumonia who died. It is an indicator of health system functioning and the quality of care delivered at facilities. While the child under 5 years pneumonia case fatality rate in South Africa has declined from 6.6% in 2009/10 to 3.5% in 2013/14, improvements have not been even across all deprivation quintiles (Figure 10). In 2013/14, the most deprived districts had a death rate (6.1%) that was more than double the median rate in the least deprived district (2.6%).

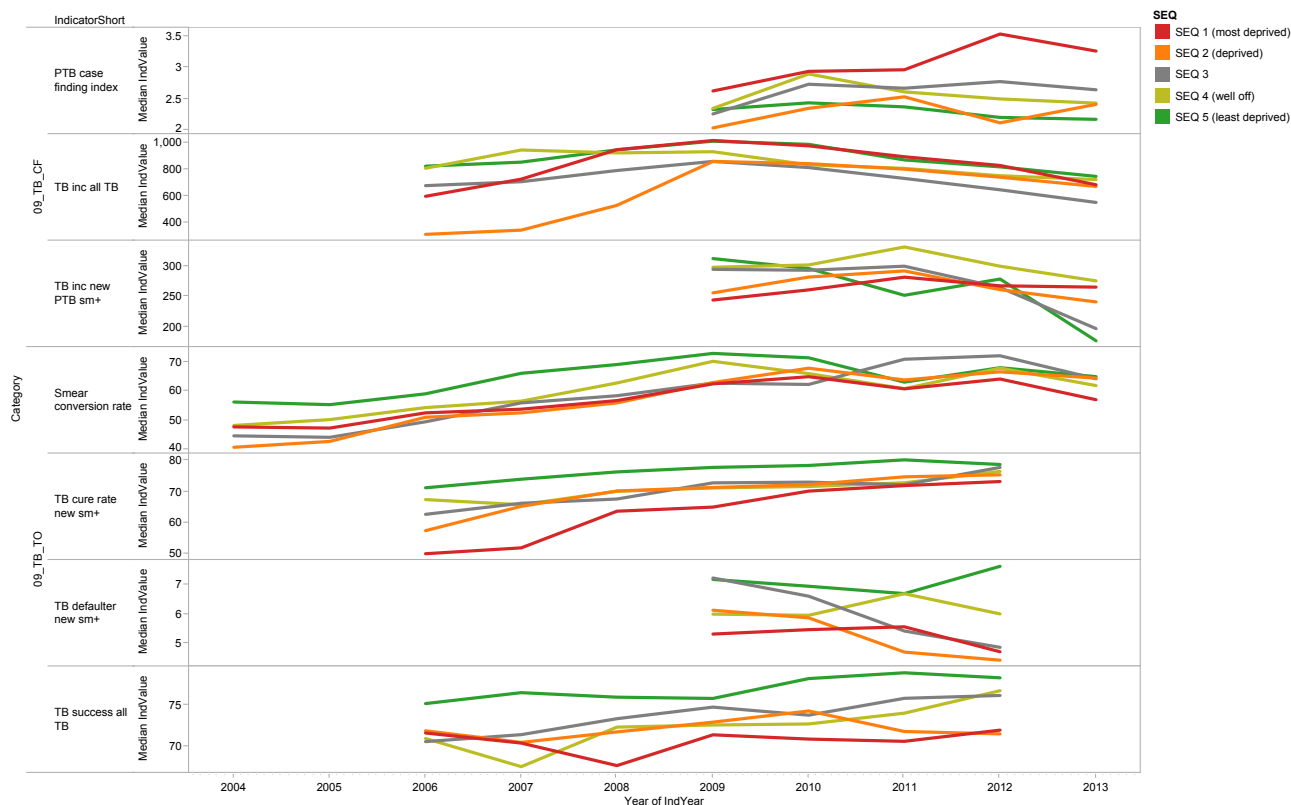
Figure 10: Trends in median district values by socio-economic quintile for child health indicators



TB treatment success (all cases)

This indicator measures the proportion of TB clients (all types of TB) cured plus those who completed treatment. It is an important indicator of the success of the government's response to TB and HIV because of the synergy between the two diseases. Despite TB being identified as a top priority, this indicator suggests that improvement in treatment success over the last few years has been slow. Between 2006 and 2012, the TB treatment success rate for South Africa has increased from 70.0% to 76.1%. Improvements have not been even across deprivation quintiles. Improvement has been most significant in Quintiles 3 and 4, with median treatment success rates increasing from 70.5% and 70.9% in 2006 to 76.1% and 76.7% respectively in 2012 (Figure 11). In 2012, the median treatment success rate for Quintile 5 was 78.3%, the highest among all quintiles, but the increase from 2006 was smaller than that reported for Quintiles 3 and 4. The lowest median success rate was in Quintile 1, the most deprived quintile, which has remained virtually unchanged since 2006 (71.6%) at 71.9%.

Figure 11: Trends in median district values by socio-economic quintile for TB indicators



Discussion

Deprivation is a major issue at population level. The lack of change in the distribution of deprivation, as well as the very high gradients between least and most deprived areas point to wider societal inequities that persist. In order to achieve greater equity, health care services are required to respond to communities and individuals according to their needs, rather than to aim for uniformity. The provisioning of the service also needs to take into consideration the difficulty in accessing the services, particularly for the more deprived communities, which may have significant cost implications for remote communities. The measurements of efficiencies therefore should not be the only determination of the viability of a particular service. In cities access may well be compromised by other factors such as congestion of services and inability of the service to cope with demand.

From the perspective of health care, the coverage of services has improved for the more deprived communities and a number of indicators have shown consistent change for the better. These achievements in reaching wide populations and success at aggregated data level are important in moving the health of the nation forward. In particular, the financing of services in deprived areas is moving toward equality in resources. The improved PHC utilisation rates are important in signifying improved equity in the service provisioning and improving access to care.

Significant lessons need to be learnt from the capacity to reach coverage of whole population to make a significant shift in outcomes. This is most evident in the coverage of PMTCT services, where – regardless of levels of deprivation – very high coverage has been reached. This has a direct impact on the prevalence of HIV in children and therefore on the mortality of children. Reasons for this success needs to be understood better to achieve similar success in other services.

The divergence of outcomes according to deprivation quintiles (e.g. pneumonia and malnutrition fatality rates) indicates that not all the services have been able to follow a similar trajectory as PMTCT and may require more complex or intersectoral interventions. Similarly, some of the indicators of input, process and output do not follow desired trends of improved equity when analysed against the deprivation quintiles. This suggests variability in terms of capacity, agency and management to improve services. It is clear that deprivation is not the only driver of health status as seen by the variable outcomes across deprivation quintiles.

The local specific differences in quality of care – or provincial-level differences in managing the healthcare services (e.g. cost-containment in one province or lack of delivery of drugs in another) are not reflected in the analysis across deprivation quintiles. The variable capacity of service delivery and patterns of financing go beyond simplistic dichotomies of rural-

urban relationship to deprivation. The relationships between resource allocation and service delivery are clearly also not linear and so the equity focus on output, outcomes and impact becomes more pressing. Additional analyses that include multiple locally specific systemic reasons for differences in healthcare provisioning and outcomes are warranted.

While most of this chapter has focused on deprivation, other populations need to be considered in equity analyses. They include people with disabilities, prisoners, immigrants, farm workers, gender minorities, and mobile and migrant populations. A significant limitation of this chapter therefore is the lack of engagement in peripheral populations that are not captured by the 'basket' of deprivation, who nonetheless have specific issues around access, service provisioning and outcomes in terms of health care provisioning.

Conclusions

The improvements in addressing inequities that are captured in a number of indicators are important pointers in the trajectory of improvement within the healthcare system. In particular, the improvement of access to primary healthcare services, as demonstrated by the PHC utilisation rates, is of importance in recognising the efforts made by the provincial departments of health to transform the healthcare system. Similarly, from an equity outcome perspective, the success of the PMTCT services is noteworthy. As outlined, the service provisioning and healthcare outcomes do not always follow the patterns of deprivation and some indicators are not yet moving toward greater equity.