

2. Input Indicators

2.1 Per Capita Expenditure on Primary Health Care

Fiorenza Monticelli

Per capita expenditure (PCE) on Primary Health Care (PHC) measures the amount of money spent per year per person without medical aid⁸. This indicator is useful in assessing the extent of equity in the distribution of PHC resources across districts. PCE is an input indicator and can also be compared with output indicators such as the utilisation rate.

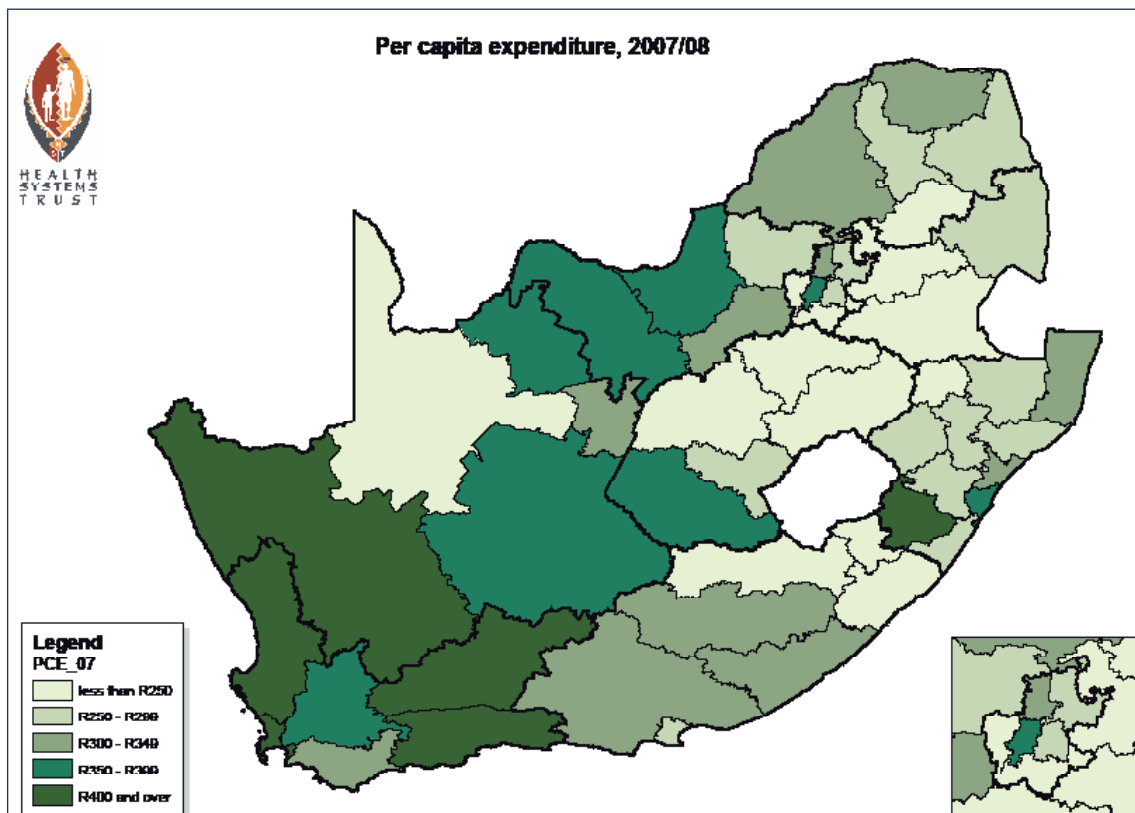
The proportion of people on medical aid for the period 2005-2007 was 14.3%. In 2007/08, the PCE for people receiving primary health care in the public sector, was R302, up from R275 in 2006/07. Between 2001 and 2007 there was a real increase (i.e after taking inflation into account) of R65 in the PCE. The average number of visits per person to PHC facilities per year in South Africa, has however increased only very slightly from 2.1 visits in 2001/02 to 2.2 visits in 2007/08, and is unchanged since 2004/05.

The inequity in the PCE between the provinces has steadily decreased from a ratio of 4.4 between the highest and lowest PCEs in 2001, to 2.2 in 2005/06; 1.9 in 2006/07; and 1.8 in 2007/08. In 2007/08 the Western Cape had the highest PCE of R428 and the Free State the lowest, at R233.

District View

Map 2 and Figure 6 illustrate the PCE in 2007/08 by district. This ranges from the lowest PCE of R191 per capita in Lejweleputswa (FS) to the highest, R633, in Namakwa (NC). Namakwa district has had the highest PCE for the past three years. The 3.3 fold difference between the district with the highest PCE and the district with the lowest PCE in South Africa is unchanged from 2006/07, although there has been a decrease from the 3.5 fold difference in 2005/06 and a large decrease from the nine-fold difference in 2001.

Map 2: Non-hospital PHC expenditure per capita in South Africa, 2007/08



Four of the six districts in the Western Cape were among the ten districts with the highest PCE in South Africa in 2007/08. These same districts are also ranked as the least deprived districts in the country (see section 1.1), but also had amongst the highest PHC utilisation rates in the country, with the Western Cape overall having the highest utilisation rate of all the provinces at an average of 2.7 visits per year, much higher than the South African average of 2.2.

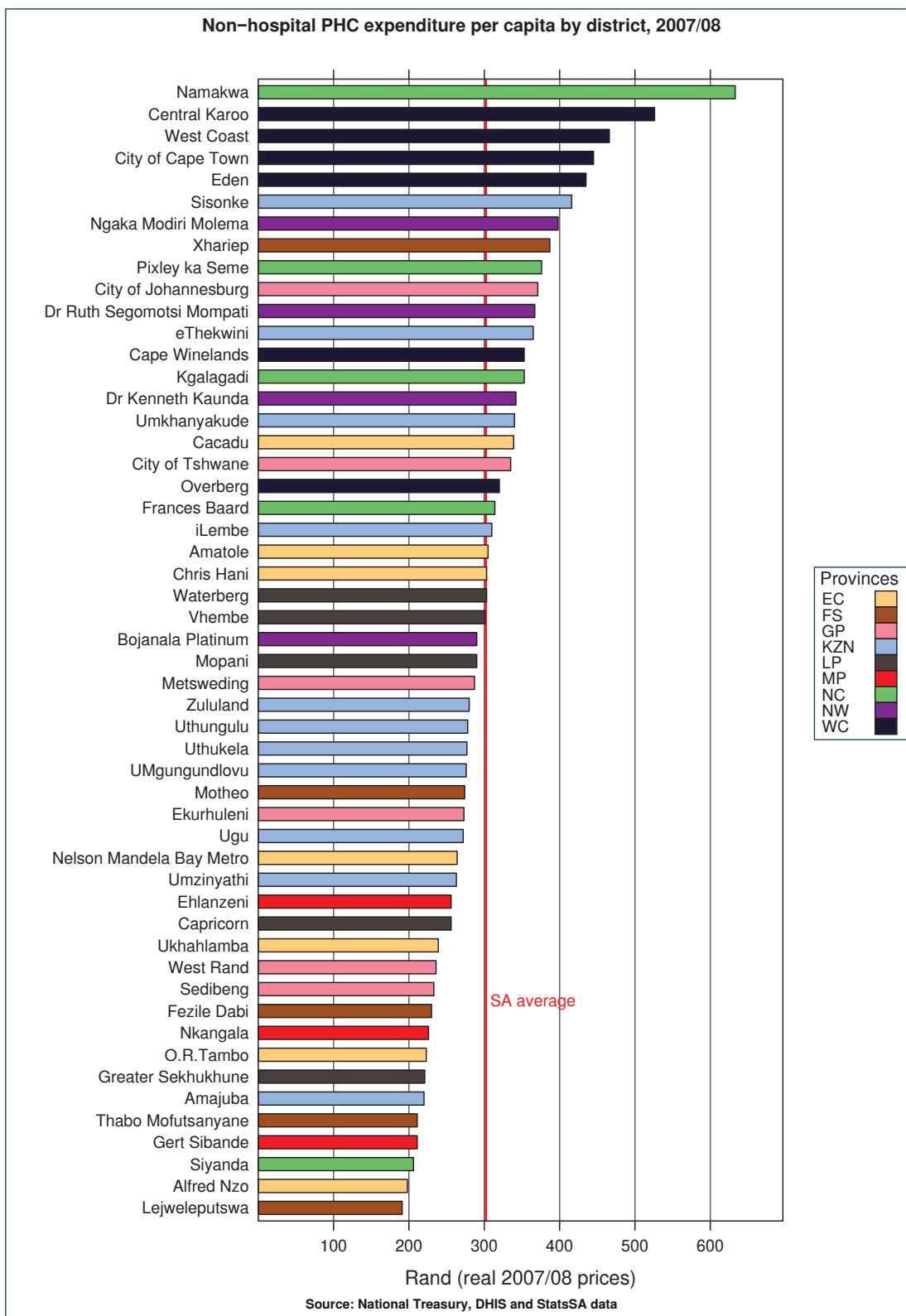
⁸ It includes expenditure on District Management, Community Health Clinics, Community Health Centres, Community based services and Other Community, but excludes expenditure on district hospitals and conditional grants such as those for HIV and nutrition.

Section A: Input Indicators

The Northern Cape had the greatest inequity among its districts, with the PCE in Namakwa district three times higher than in Siyanda district. Most of the other provinces ranged from a 1.5 to a two-fold difference between the highest and the lowest PCE per district. Mpumalanga had the least variation between its districts, a 1.2 fold difference between Ehlanzeni and Gert Sibande districts.

Three of the five districts in the Free State province were ranked among the ten lowest PCEs in the country, and the province had overall a lower PCE in 2007/08 (R233) than it did in 2005/06 (R251). Motheo district in the Free State had the highest overall PCE decrease (R44) among all the districts since 2006/07.

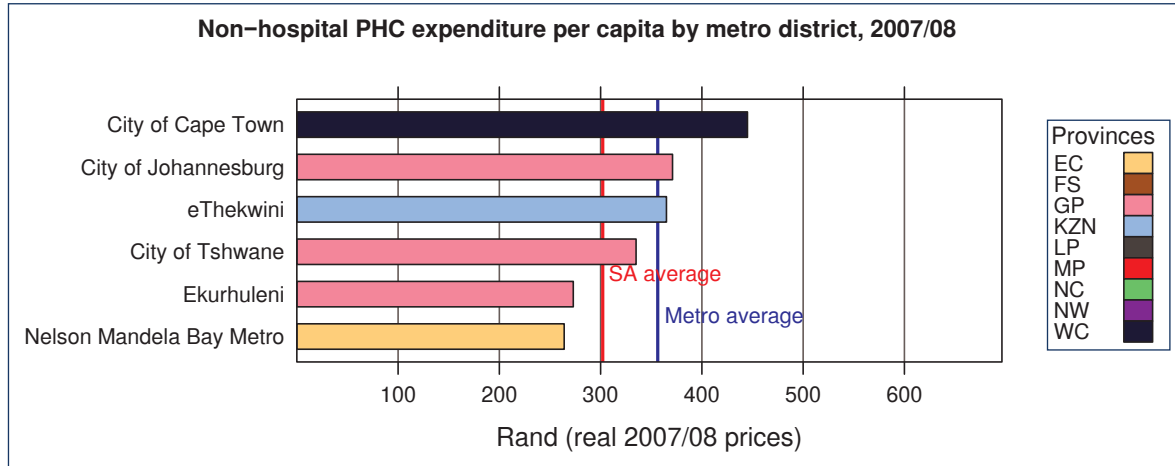
Figure 6: Non-hospital PHC expenditure per capita by district, 2007/08



Metro View

The average PCE for the metro districts in 2007/08 was R356 which was R17 more than in 2006/07 and R54 more than the national average, but R23 less than the 2001 average for the metros. The City of Cape Town had the highest PCE of R454 in 2007/08. Nelson Mandela Bay Metro spent R264 per capita, which placed it among the lower third of districts in SA in 2007/08.

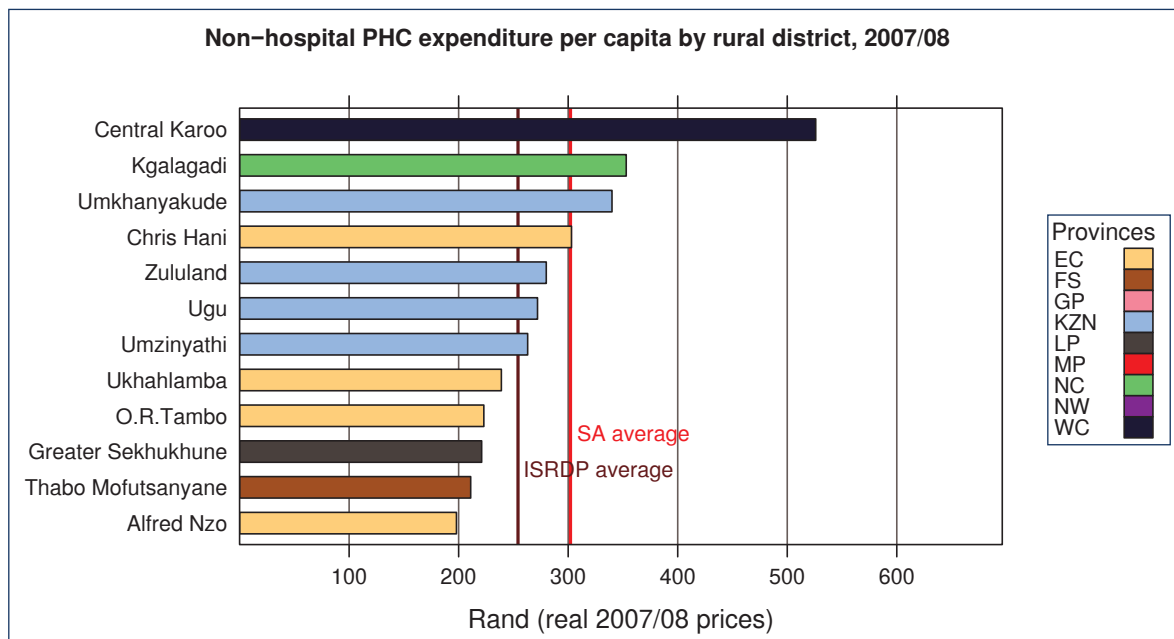
Figure 7: Non-hospital PHC expenditure per capita by metro district, 2007/08



Rural nodes

The PCE in the rural districts in 2007/08 was R254, well below the national average of R302. Eight of the twelve districts fell below the SA average. Central Karoo district had the second highest PCE in the country of R526 per person and is an outlier among the rural nodes. Of concern is that two districts, Thabo Mofutsanyane and Alfred Nzo have lower PCEs in 2007/08 than in 2005/06.

Figure 8: Non-hospital PHC expenditure per capita by rural district, 2007/08



Change and trends in per capita expenditure

Figure 9 shows the changes in the PCE between 2006/07 and 2007/08. These figures are based on "real prices", which ensure that any increase due to inflation is excluded⁹. Nationally there was an average R27 increase (close on 10%) in real 2007/08 prices since 2006/07. The "nominal price changes" which include inflation, reflect a R46 increase, (15.2%) since 2006/07. The rest of this section will reflect and discuss the "real price" changes.

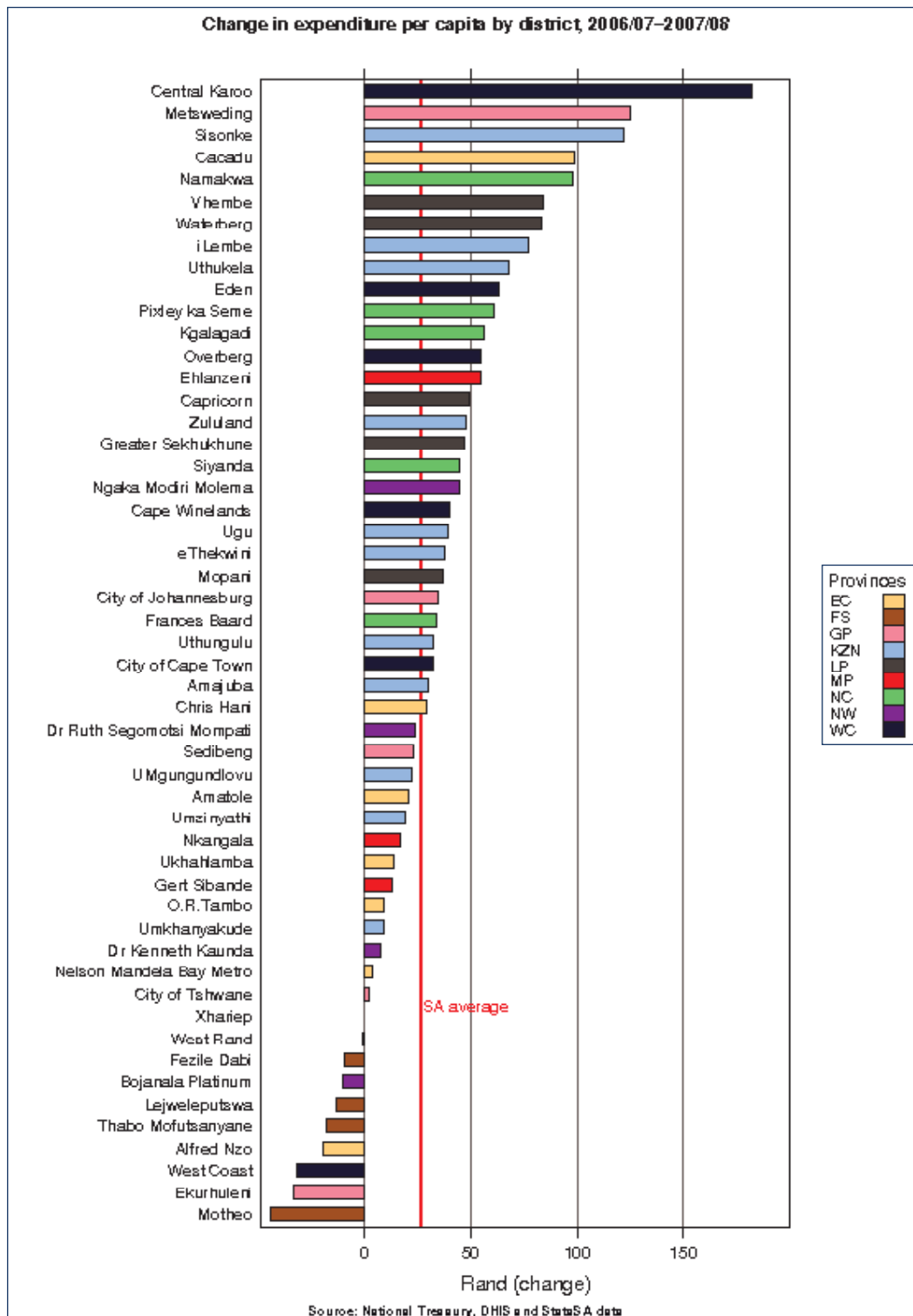
⁹ This means that the 2006/07 values have been multiplied by a factor based on the CPI to convert the values to 2007/08 prices.

Section A: Input Indicators

Nine of the 52 districts showed a decrease in PCE since 2006/07, whilst 42 increased their PCE with one district, Xhariep (FS), reflecting no change. Central Karoo (WC), Metsweding (GP) and Sisonke (KZN) each increased their PCEs by more than R100. Namakwa (NC) with the highest PCE in 2006/07 increased its PCE by R98 in 2007/08 and again is ranked as having the highest PCE among the districts. The district with the lowest PCE, Lejweleputswa (FS), decreased its PCE by R13 from 2006/07. Four of the five districts in the Free State decreased their PCEs in 2007/08 to levels below that of two years ago.

Metsweding district, which had the lowest PCE in Gauteng in 2006/07, increased its PCE by R125 in 2007/08. This resulted in a significant reduction in the inequitable distribution of PCEs in that province. Alfred Nzo was the only district in the Eastern Cape which decreased its PCE in 2007/08 which was R67 below the provincial average. Limpopo had the largest overall increase in PCE since 2006/07 of all the provinces, (R58).

Figure 9: Change in expenditure per capita by district 2006/07 - 2007/08 (real prices)



Metro view

The average change in the PCE since 2006/07 in the metro districts was an increase of R17. This is R10 less than the national average increase. With the exception of Ekurhuleni, all metros increased their PCEs since 2006/07 and eThekweni, City of Johannesburg and City of Cape Town had above average increases. The reduction of R33 per capita expenditure in Ekurhuleni to R273, brought its expenditure to below the metro and national average in 2007/08.

Rural nodes

The PCE in the rural districts increased by R21 in 2007/08. This was R6 less than the change in the national average. Six of the rural districts increased their expenditure by more than the national average. Central Karoo (WC) increased its PCE by R182, which was the largest PCE increase in South Africa. Four of the 12 rural districts had increases below the national average. Thabo Mofutsanyane (FS) and Alfred Nzo (EC) actually decreased their PCEs by R18 and R19 respectively. Given the low socio-economic status of the rural districts, it is important that they have PCE increases which are above average.

Figure 10: Annual trends in non-hospital PHC expenditure per capita

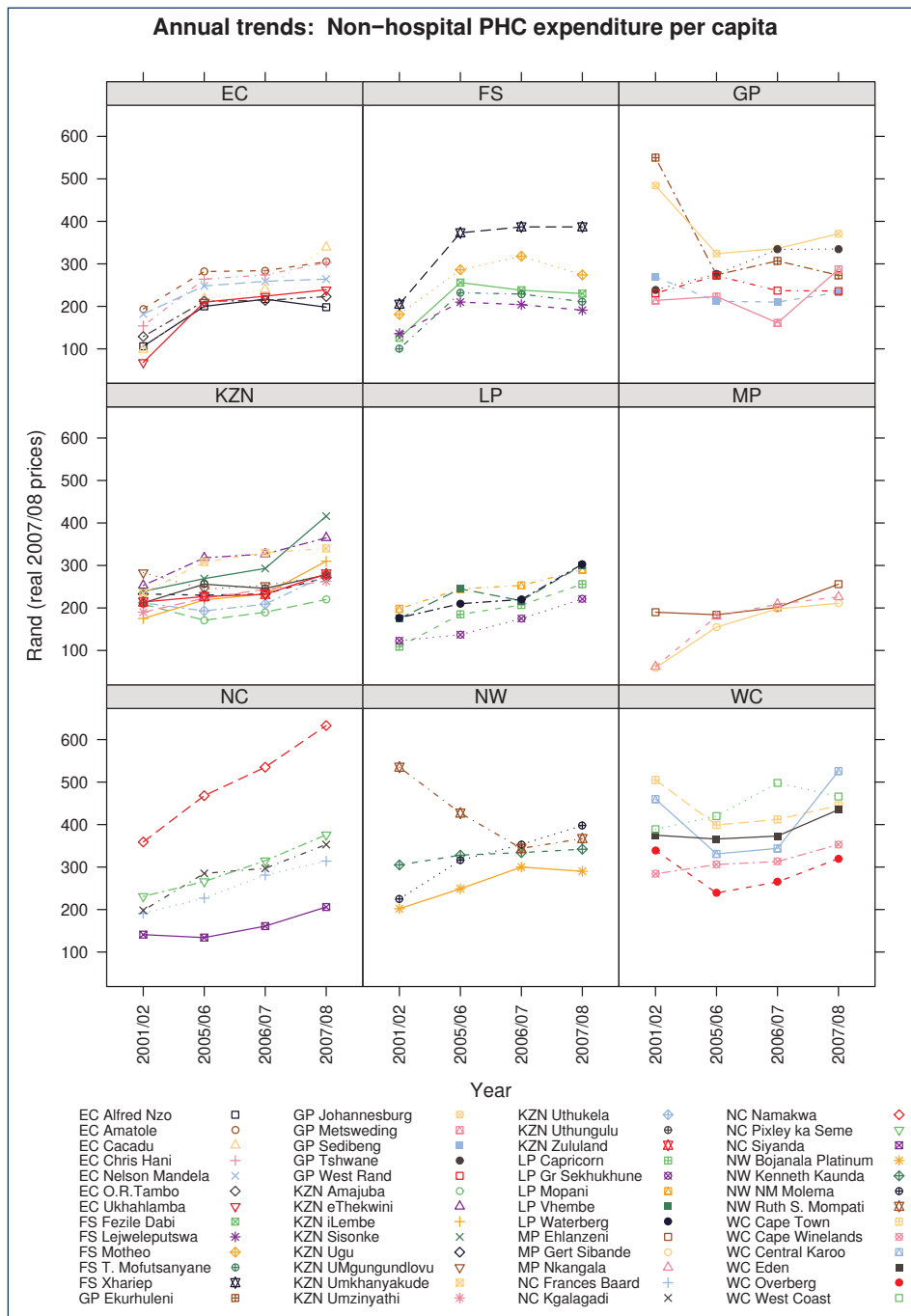


Figure 10 shows each province individually, illustrating the trend over the last few years in the PCE in each of the districts within that province.

Table 3: Non-hospital PHC expenditure per capita by province (2007/08 PCE value)

Non-Hospital PHC expenditure per capita (PCE) (real 2007/08 prices)						
Province	2001/02	2005/06	2006/07	2007/08	Change 2006-7	Change 2001-07
	Rand	Rand	Rand	Rand	Rand	Rand
Western Cape	448	376	392	428	36	-20
Northern Cape	178	249	290	341	51	162
North West	288	309	327	340	13	51
KwaZulu-Natal	233	260	270	312	42	78
Gauteng	403	283	303	312	8	-91
Limpopo	144	204	213	271	58	127
Eastern Cape	151	242	249	265	16	114
Mpumalanga	102	176	204	237	33	135
Free State	140	251	254	233	-21	93
South Africa	238	261	275	302	27	65
ISRDP average	222	222	234	254	21	32
Metro average	379	318	339	356	17	-23

Table 3 shows the trend in PCEs per province. It shows clearly that the higher PCE values in the Western Cape and Gauteng in 2001/02 have evened out to a more equitable distribution in 2007/08. Table 3 also shows that the ISRDP districts have increased their PCE by R32 in since 2001, while during the same time the South African average as a whole has increased by R65.

Association between per capita expenditure and PHC utilisation rate

Figure 11: Per capita expenditure on PHC vs PHC utilisation rate, 2007/08

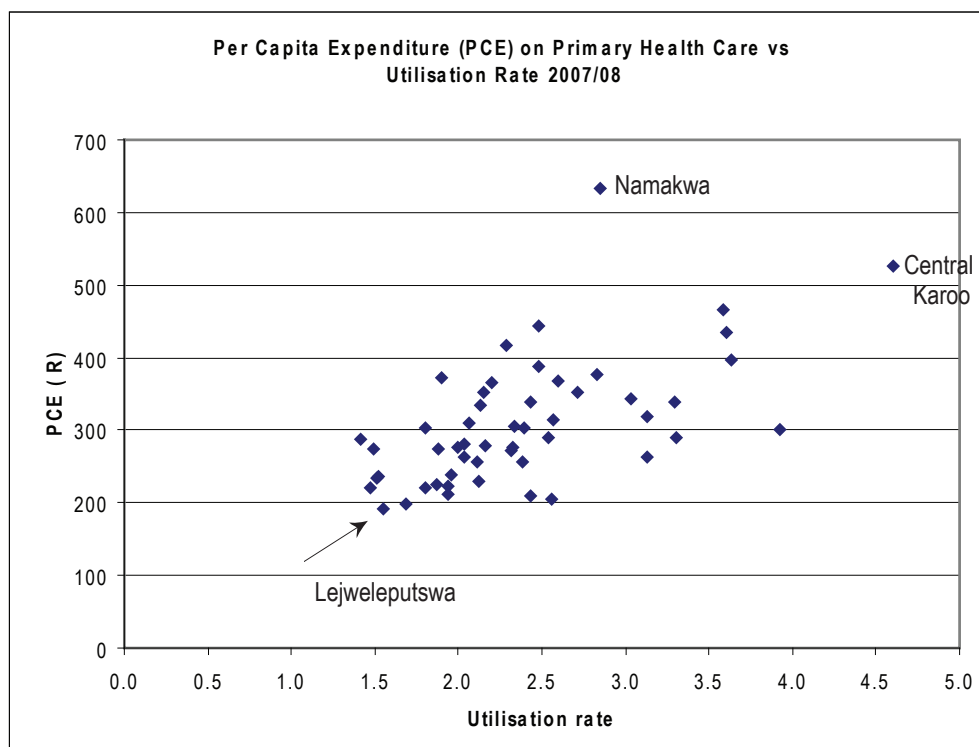


Figure 11 illustrates that plotting the PCE against the utilisation rate, shows that there was generally a correlation¹⁰ between the amount spent and the utilisation rate of PHC facilities in 2007/08. This can be seen for example by Lejweleputswa with a PCE of R191 per person and an average of 1.5 visits per person per year in 2007/08 and Central Karoo with a PCE of R536 with an average of 4.6 visits per person per year.

¹⁰ Correlation coefficient = 0.59.

2.2 Proportion of District Health Services Expenditure on District Management

Fiorenza Monticelli

The proportion of total district expenditure that was spent on management activities, including the management of district hospitals for the 2007/08 financial year in South Africa was 5.1%. This is up from 4.7% in 2006/07, but unchanged from the 2005/06 value.

District View

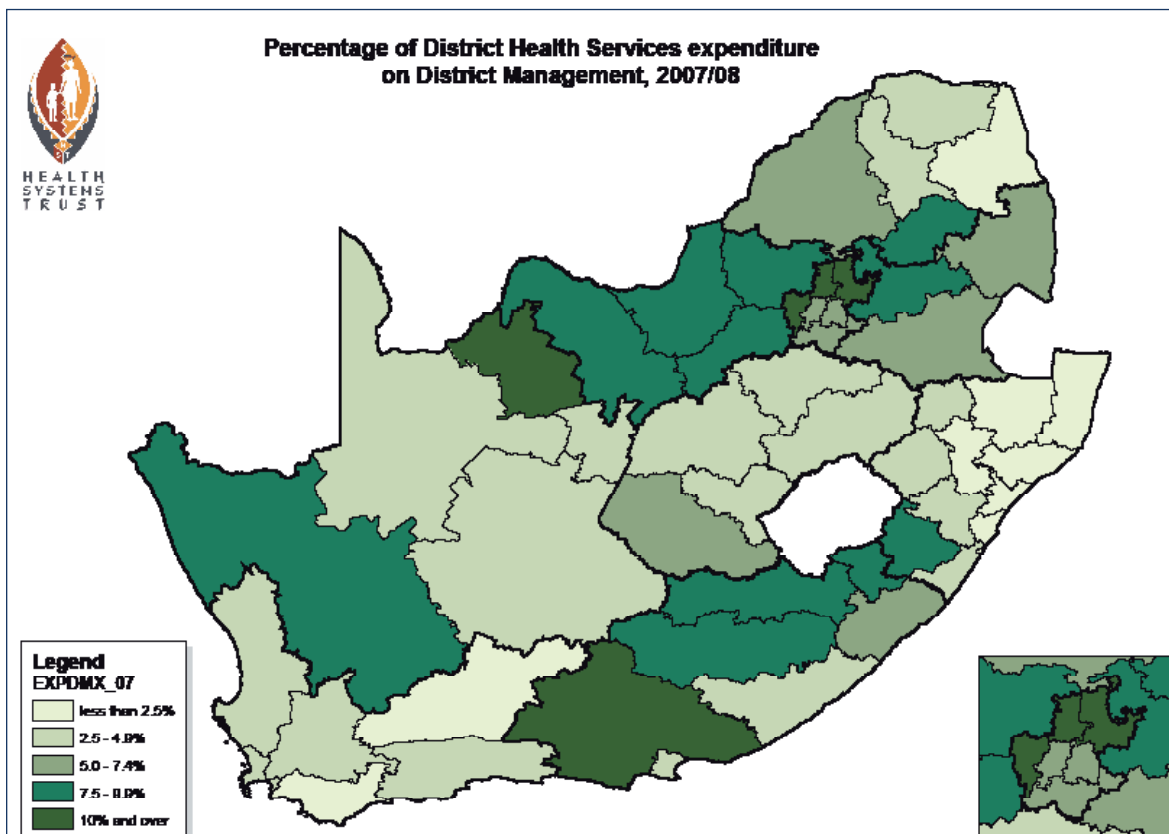
Figure 12 illustrates how widely the proportion that districts spend on management varies. Metsweding (GP), which does not have a district hospital spent the largest proportion (26.8%) on management. Although this is 1.3 percentage points less than 2006/07, it is still more than 5 times higher than the national average of 5.1%. At the other end of the scale, Central Karoo and Overberg (both WC), reflect zero on district management in 2007/08.

It is likely that different financial accounting and coding practices account for some of the variation. However, as all provinces, with the exception of the North West, use the BAS¹¹ system, one would expect that they would all have similar coding practices (and code district management to code 2.1 which is the designated code for this).

As in 2006/07, some provinces showed wide intra-provincial variations, with one or two districts within a province spending significantly more on management than the rest. For instance in the Eastern Cape, the difference between the district spending the highest proportion (Cacadu, 16.7%) and the lowest proportion on management (Nelson Mandela Bay Metro, 2.5%) is close on seven fold. Kgalagadi spent 22.3% of its budget on management as compared to the other districts in Northern Cape, which spent between 2.5% to 8.1%.

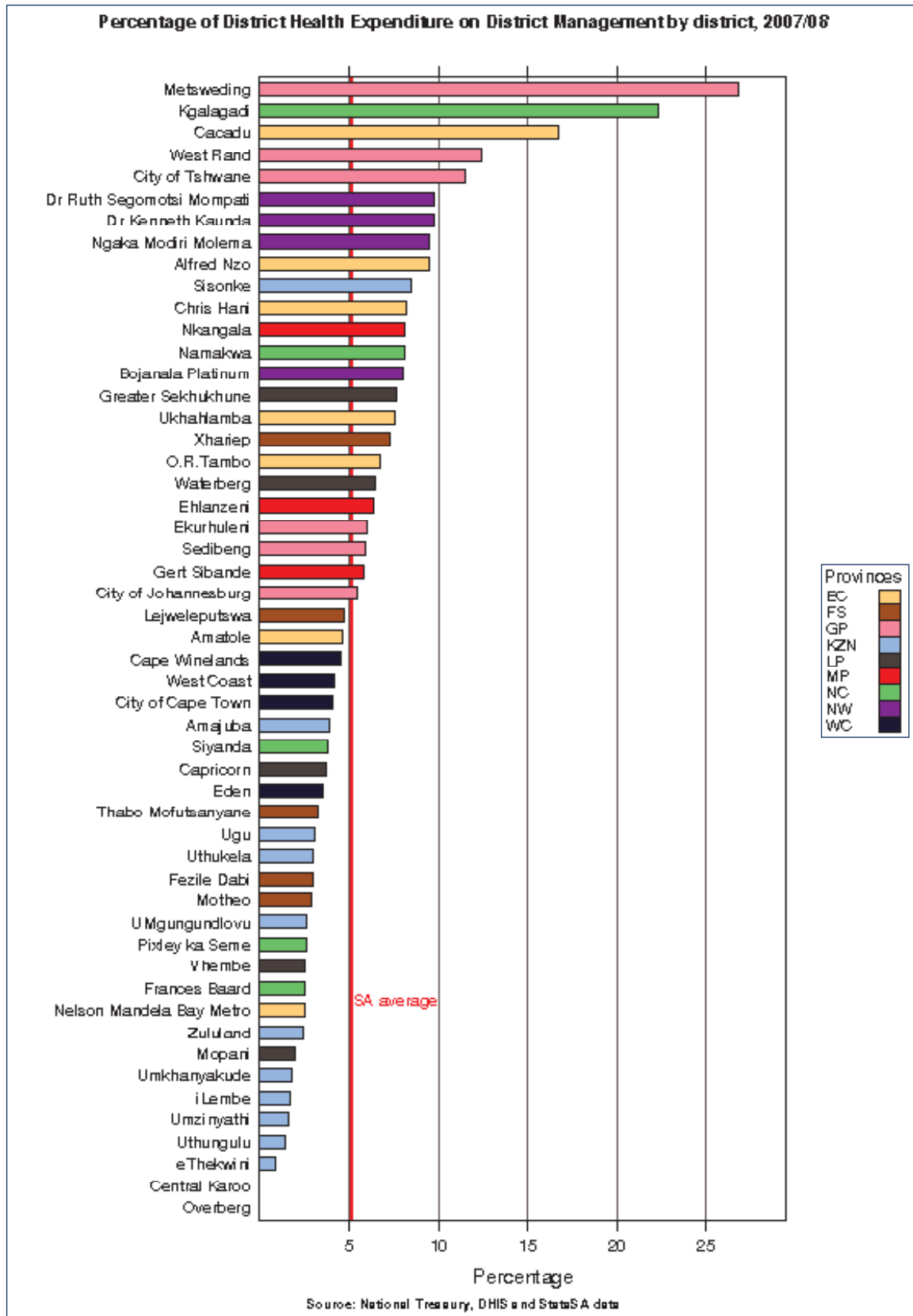
The Western Cape (3.8%) and KwaZulu-Natal (2.3%) spent less on management in 2007/08 than the other provinces, whereas North West spent the most (9.1%), with all four of its districts spending 8% or more on management. Ten out of eleven KwaZulu-Natal districts spent less than 4% and all of the Western Cape districts spent less than 4.5% on management.

Map 3: Percentage of district health services expenditure on management in South Africa, 2007/08



11 Basic Accounting System.

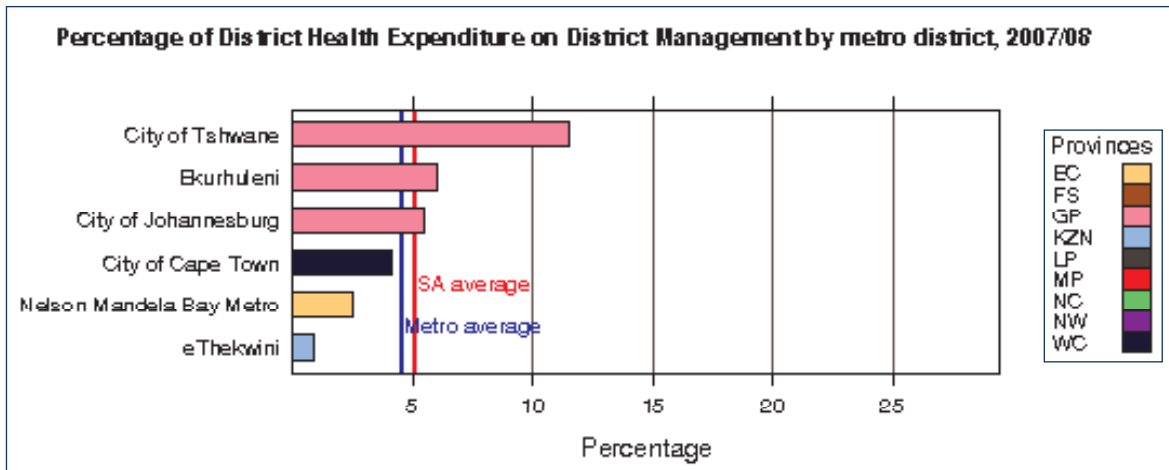
Figure 12: Percentage of district health expenditure on district management by district, 2007/08



Metro View

The average proportion of expenditure on management in 2007/08 for the metro districts was 4.5%, below the national average of 5.1%. eThekweni (0.9%), Nelson Mandela Bay (2.5%) and City of Cape Town (4.1%) all spent below average amounts on management in 2007/08. In contrast, the City of Tshwane (11.5%) spent far above the national average.

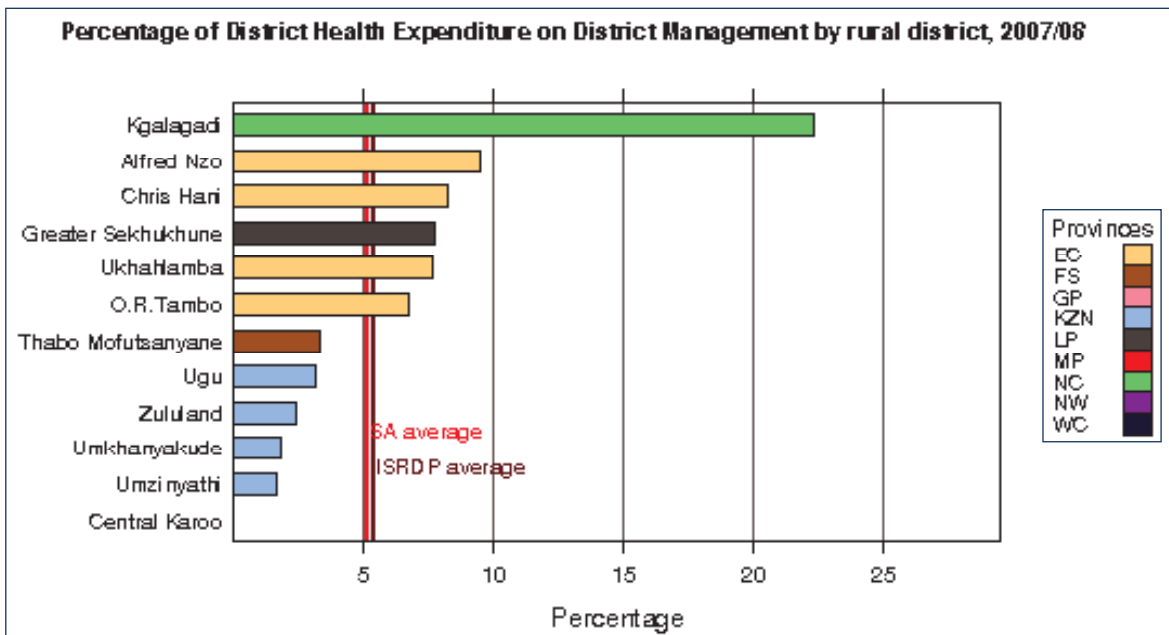
Figure 13: Percentage of district health services expenditure on management by metro district, 2007/08



Rural nodes

The average expenditure on management in the rural districts was 5.3%, close to the national average of 5.1% and constant since 2005/06. As in 2006/07, the rural districts in KwaZulu-Natal spent the lowest proportion on management in 2007/08. The Eastern Cape rural districts remained clustered around 7%. Kgalagadi (NC) more than doubled the proportion spent on management from 9.9% to 22.3%. The Free State district Thabo Mofutsanyane (FS) reduced the proportion from 10.5% to 3.3%. Both these changes seem improbable and are probably due to some inconsistencies in the data.

Figure 14: Percentage of district health services expenditure on management by rural district, 2007/08

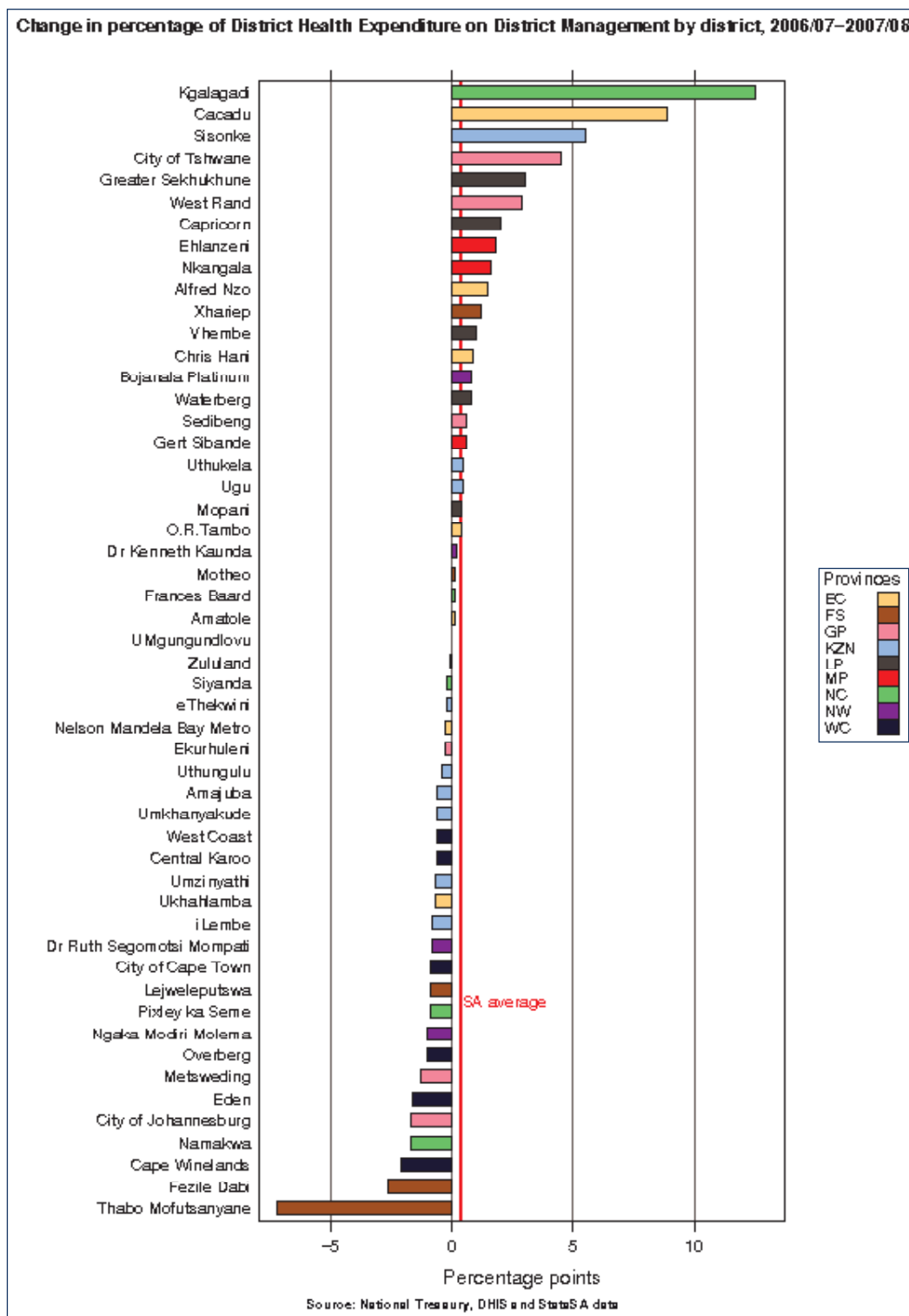


Change in percentage of district health services expenditure on district management.

There was a small increase (0.4 percentage points) in the proportion of spending on district management nationally, from 4.7% in 2006/07 to 5.1% in 2007/08. The change in proportion spent on management was less than one percentage point up or down for close on two thirds of the districts. This is to be expected as this proportion of expenditure should be fairly stable.

It is of concern that a number of districts showed large increases and this implies inconsistencies in the data which should be investigated in each district to understand the reasons for the changes. Increases larger than five percentage points were seen for Kgalagadi (NC) 12.6%, Cacadu (EC) 8.5% and Sisonke (KZN) 5.5%. On the other end of the scale, the largest decreases were seen for two Free State districts, Thabo Mofutsanyane 7.2% and Fezile Dabi 2.6%, with the proportion of spending on district management in Thabo Mofutsanyane five times less in 2007/08 than it was in 2005/06. The districts at both extremes of the change scale are ISRDP districts.

Figure 15: Change in percentage of district health services expenditure on management by district, 2007/08



2.3 Proportion of District Health Services Expenditure on District Hospitals

Fiorenza Monticelli

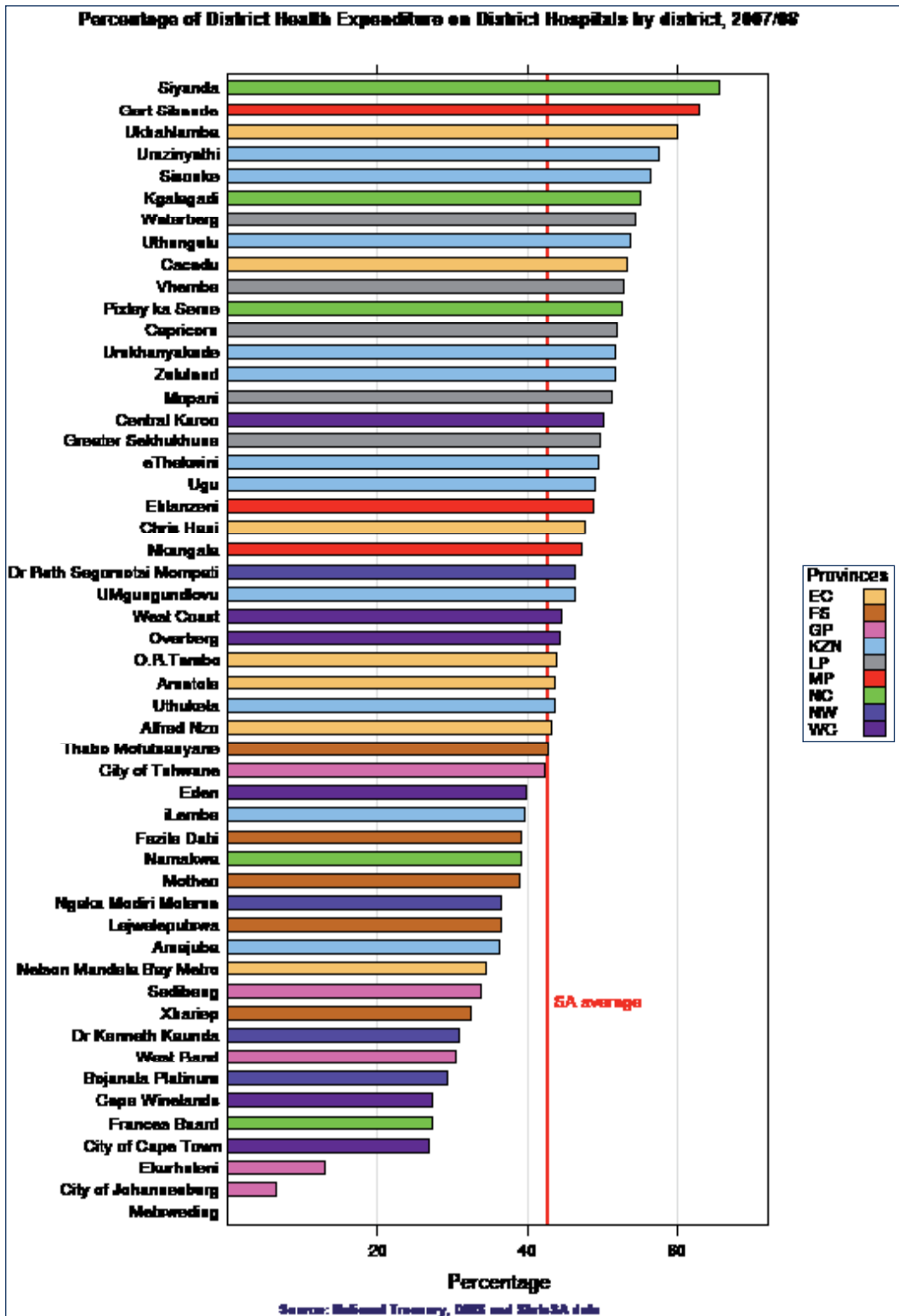
This indicator shows the proportion of total district expenditure that is spent on hospitals, and can be used to assess the focus of service delivery in the district. The average proportion of the total district expenditure that was spent on district hospitals in South Africa in 2007/08 was 42.7%. If this is added to the 5.1% spent on to district management (see section 2.2), it means that the balance of 52.2% of the total district resources was spent on PHC services, which is marginally up from 51.7% in 2006/07.

Figure 16 shows the differences in expenditure on district hospitals in 2007/08. At the low end, excluding Metsweding which has no district hospital, the three metros, City of Johannesburg (GP), City of Cape Town (WC) and Ekurhuleni

(GP), spent the least. This suggests a possible over-reliance and focus on teaching and tertiary hospitals in these areas. The Western Cape is remedying this situation by building district level hospitals in Khayelitsha and Mitchells Plein, sub-districts within the City of Cape Town.

At the other end, Siyanda (NC), with three district hospitals, spent 65.7% and Gert Sibande (MP), with eight district hospitals, spent 63% of their budgets on district hospitals. This high proportion of expenditure has been the case for the last 3 years. It is thus not surprising that both of these districts are ranked 50th and 48th in terms of their total per capita expenditure on non-hospital PHC. Increasing the overall district expenditure in these districts, through increasing the PHC component, would have the effect of getting their per capita expenditure closer to the average and would decrease the proportion spent on district hospitals.

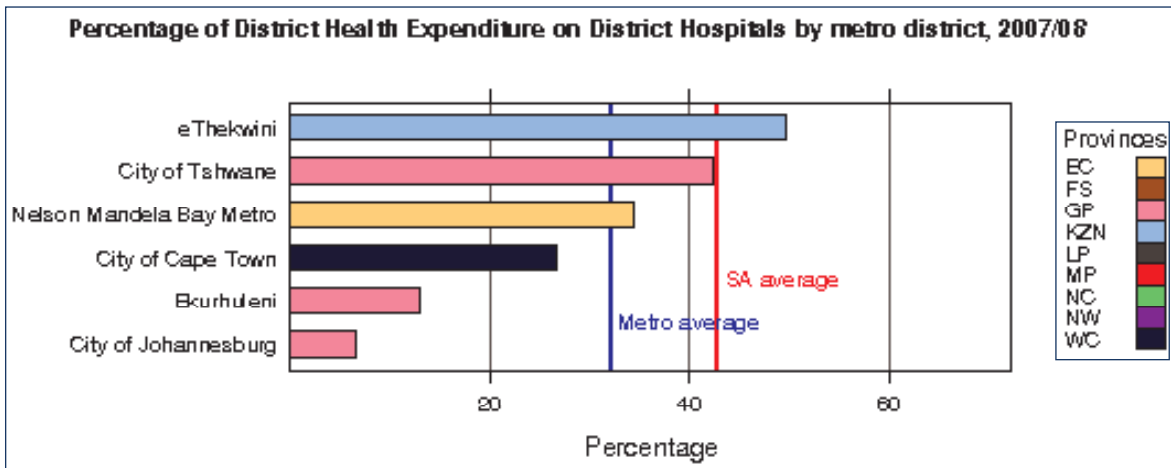
Figure 16: Percentage of district health expenditure on district hospitals by district, 2007/08



Metro View

There is a clear difference in the proportion of spending on district hospitals between metros and rural districts. The average proportion of district expenditure in the metros in 2007/08 was 32.1%, up from 27.5% in 2006/07 which is over 10 percentage points lower than the national average, largely due to the very small proportion spent by the City of Johannesburg (6.5%) and Ekurhuleni (13%). Although the City of Cape Town at 26.8%, spent less than both the metro and national average, this proportion is significantly higher than what was spent in 2006/07 (9.7%). This is probably due to the reclassification of 3 regional hospitals (GF Jooste, Helderberg & Karl Bremer) as district hospitals, thus making more district level beds available in this metro.

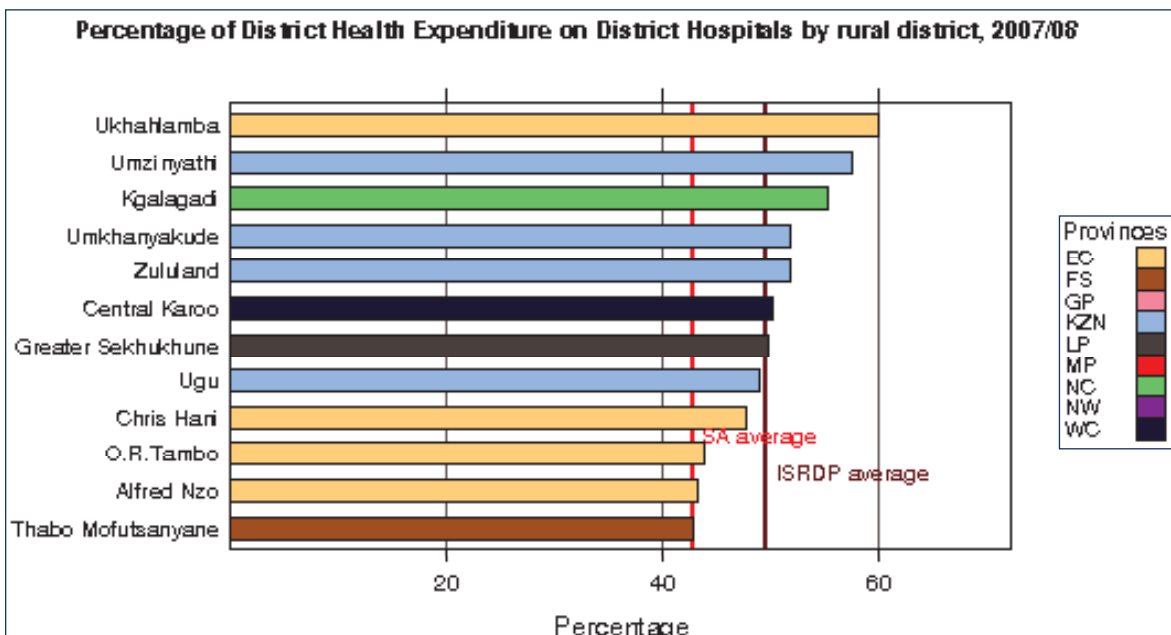
Figure 17: Percentage of district health expenditure on district hospitals by metro district, 2007/08



Rural View

On average the proportion of total district expenditure in the rural districts was 49.4% with all districts spending between 40% and 60% and all spending more than the national average. Ukhahlamba (EC) district spent the greatest proportion (60%) on district hospitals in 2007/08 and more than the other EC rural districts, Chris Hani, O.R. Tambo and Alfred Nzo, which were clustered around 45%.

Figure 18: Percentage of district health expenditure on district hospitals by rural district, 2007/08

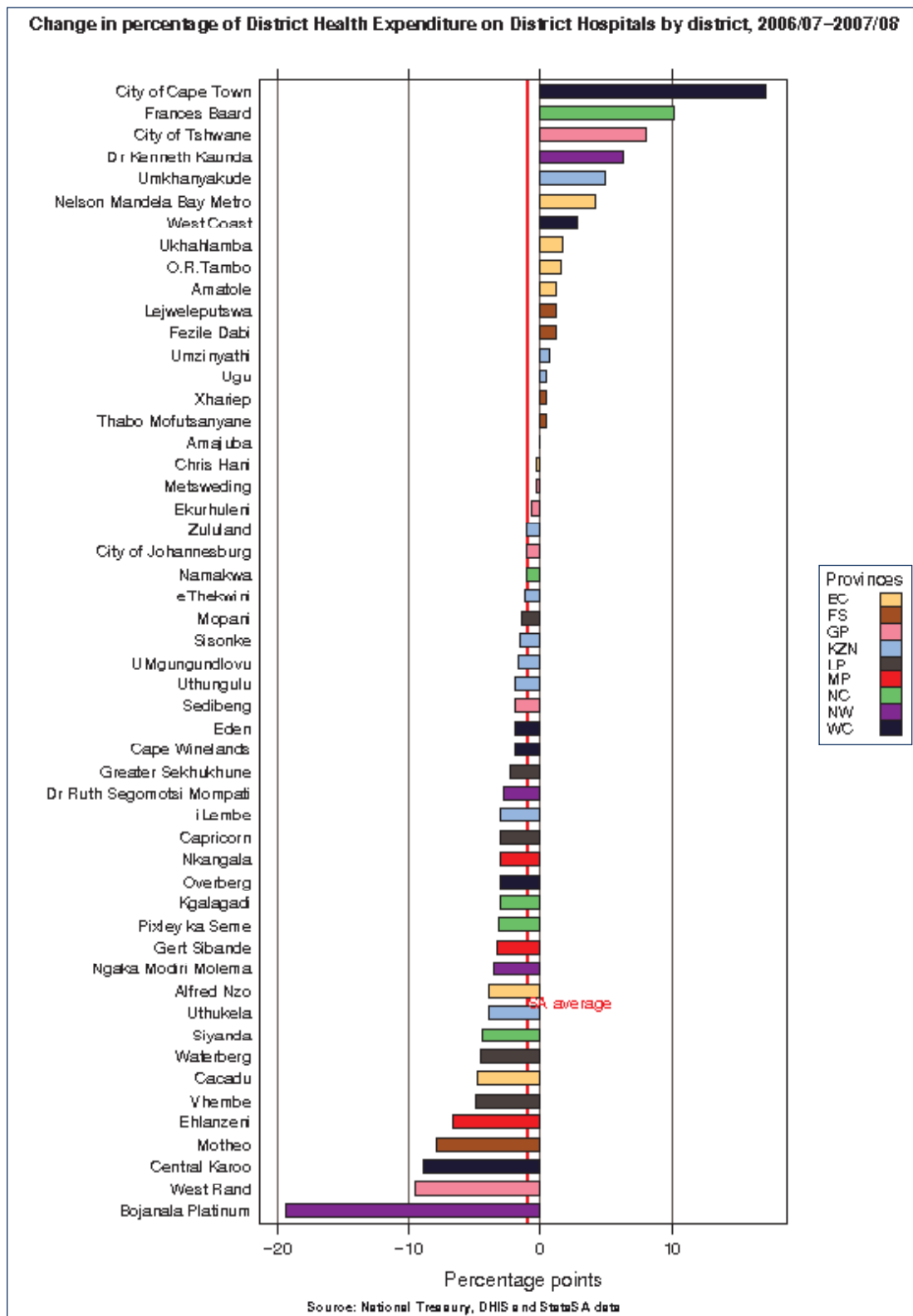


Change in percentage of district health services expenditure in district hospitals

Nationally there was a decrease of one percentage point in the proportion of district expenditure on hospitals since 2006/07 and a 2.2 percentage point drop since 2005/06. In 2007/08, there were five districts with decreases of greater than 5 percentage points, with Bojanala (NW) showing a massive decrease of 19.4 percentage points. This is most probably due to underlying data corrections which have corrected the 18.8 percentage point increase in 2006/07.

Overall close on 70% (36 districts) had decreased the proportion spent on hospitals since 2006/07.

Figure 19: Change in percentage of district health expenditure on district hospitals by district, 2006/07 - 2007/08



2.4 Cost Per Patient Day Equivalent in District Hospitals¹²

Fiorenza Monticelli

The average cost per patient per day seen in a hospital, expressed as Rands per patient day equivalent, is calculated by dividing the total expenditure of the hospital by the patient day equivalent (PDE). The PDE is calculated by the number of inpatients plus 1/2 of day patients plus 1/3 of outpatient and emergency room visits. No norm has been set for this indicator by the national DoH for 2007/08.

This indicator measures how efficiently the resources that are available to the hospital are being spent and if a particular hospital is being optimally managed. It is a composite process indicator that links financial data with service related data taken from the hospital admissions and outpatients. It measures and compares the inputs, total financial resources available to the hospital, with the volume of patients seen and is a means of comparison with similar hospitals in other districts.

District View

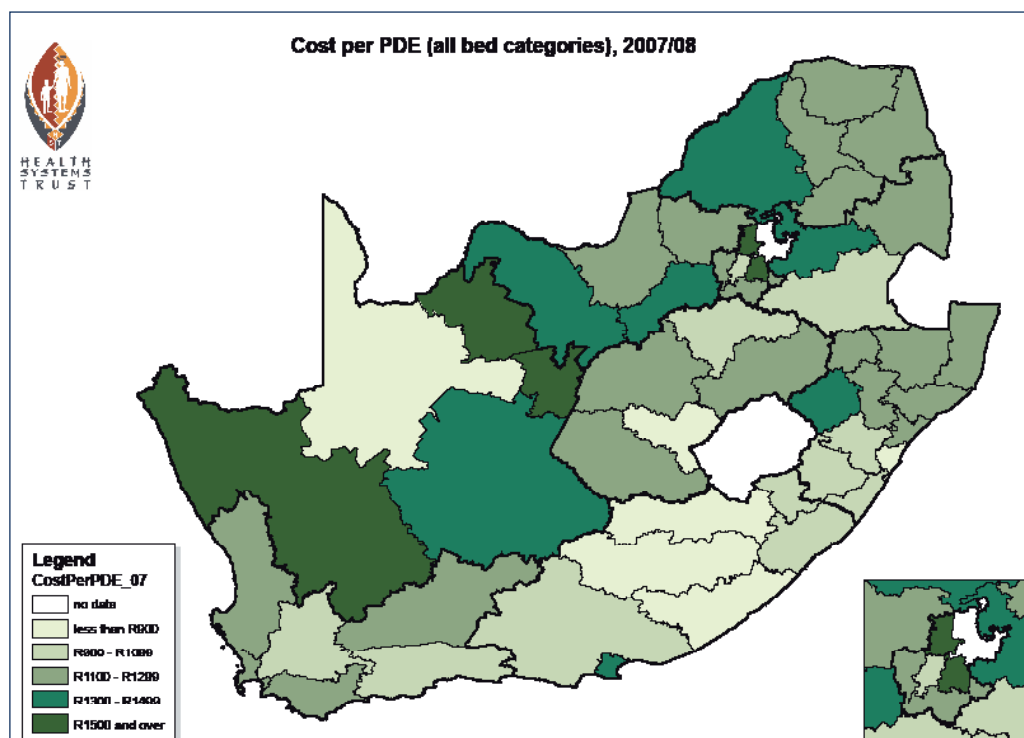
Map 4 and Figure 20 show the distribution of the cost per patient day across the 52 districts in South Africa in 2007/08. Many districts have more than one district hospital and individual hospital differences are aggregated within the districts and thus the variation seen is less than that between individual hospitals.

The average cost per PDE in South Africa in 2007/8 was R1128. This conceals a wide range from a low of R744 in Chris Hani (EC) to a high of R2363 in Frances Baard (NC). Within the ten districts with the highest cost per PDE, four were in the Northern Cape (Frances Baard, Namakwa, Kgalagadi and Pixley ka Seme), two in Gauteng (Ekurhuleni, and City of Tshwane) and the others in Eastern Cape, Mpumalanga and North West. Closer inspection of the data shows that there are gaps in the monthly data for PDEs (the denominator) reported for districts in the North West, Gauteng and Northern Cape resulting in inflated cost per PDE for those districts.

There were wide intra-provincial differences among districts in some provinces. The largest range was in the Northern Cape with nearly a three-fold difference between Frances Baard R2363 and Siyanda, R820. In the Eastern Cape, the cost per PDE in Nelson Mandela Bay metro was twice as high as in Chris Hani.

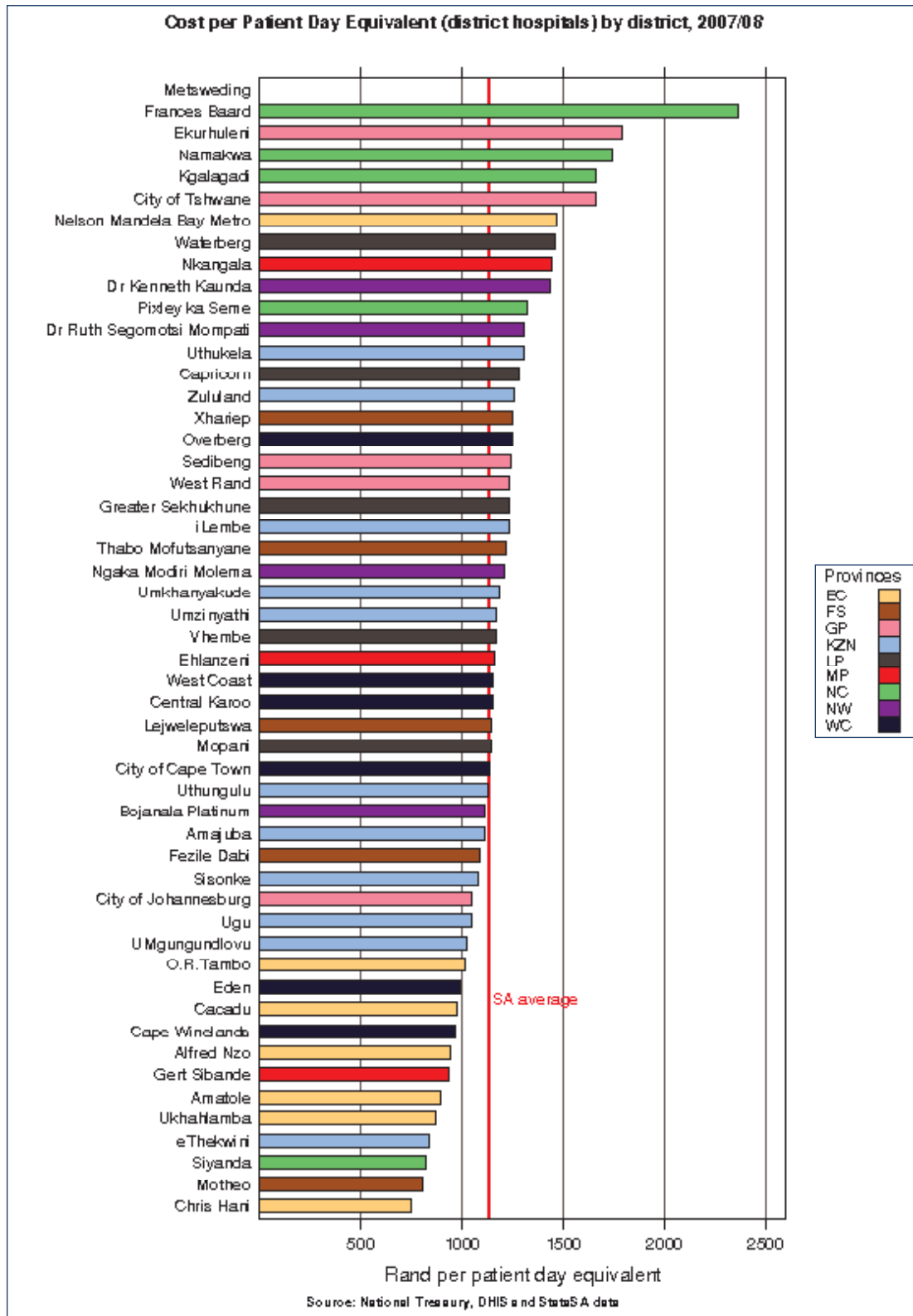
As district hospitals consume over 40% of total district resources the wide ranges in this indicator are of great concern. At the high end, it may indicate lack of efficiency or leakage out of the system, while at the low end it may indicate poor quality of care. Greater monitoring of this indicator in each individual hospital is necessary.

Map 4: Cost per patient day equivalent in district hospitals in South Africa, 2007/08



¹² These figures are nominal – in other words, the cost per PDE values have not been adjusted for inflation.

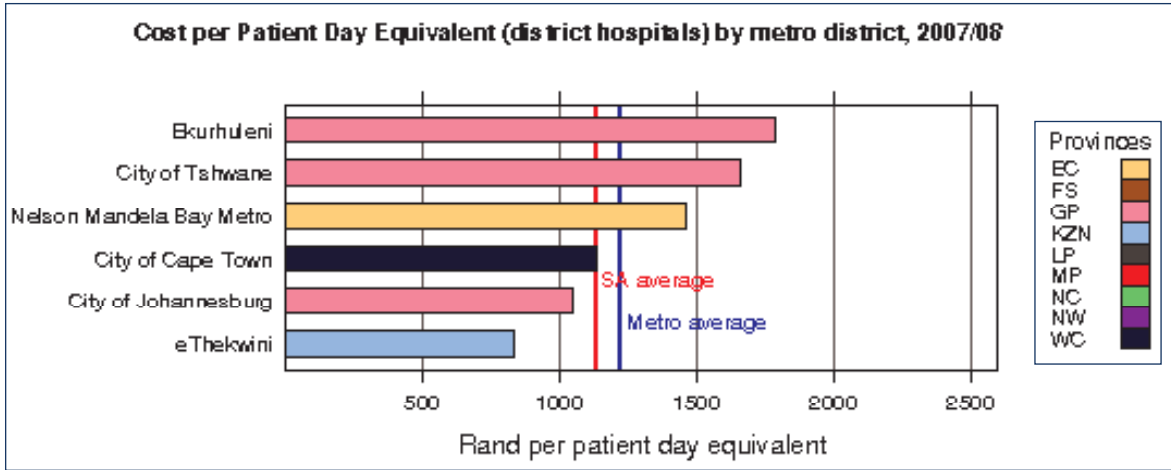
Figure 20: Cost per patient day equivalent in district hospitals by district, 2007/08



Metro View

The average cost per PDE in 2007/08 in the metros was R1222, R94 higher than the national average of R1128. Ekurhuleni and City of Tshwane in Gauteng had the highest costs of R1788 and R1658 per PDE respectively, twice as high as the low of R836 in eThekweni. The expenditure in these districts needs review to determine why they have deviated so far from the average.

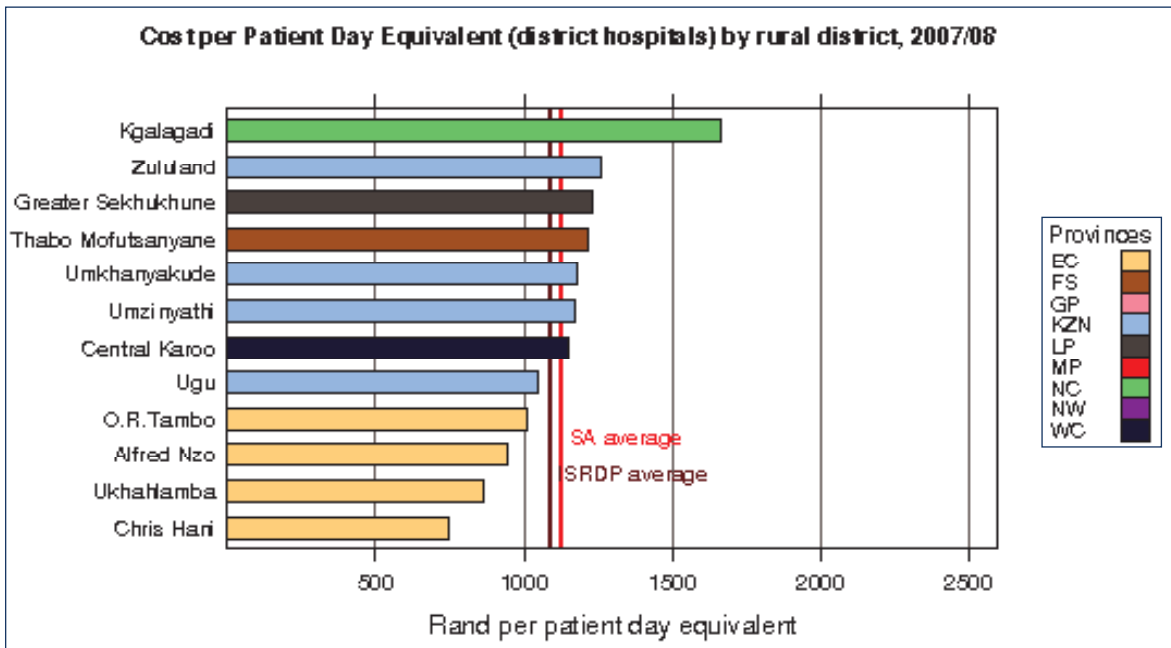
Figure 21: Cost per patient day equivalent in district hospitals by metro district, 2007/08



Rural View

The rural district average cost per PDE was R1089 in 2007/08. There was a more than twofold difference between Kgalagadi (NC) with a cost per PDE of R1664 and Chris Hani (EC) at R744. There are clear provincial differences with all four Eastern Cape districts being lower than the KwaZulu-Natal districts.

Figure 22: Cost per patient day equivalent in district hospitals by rural district, 2007/08

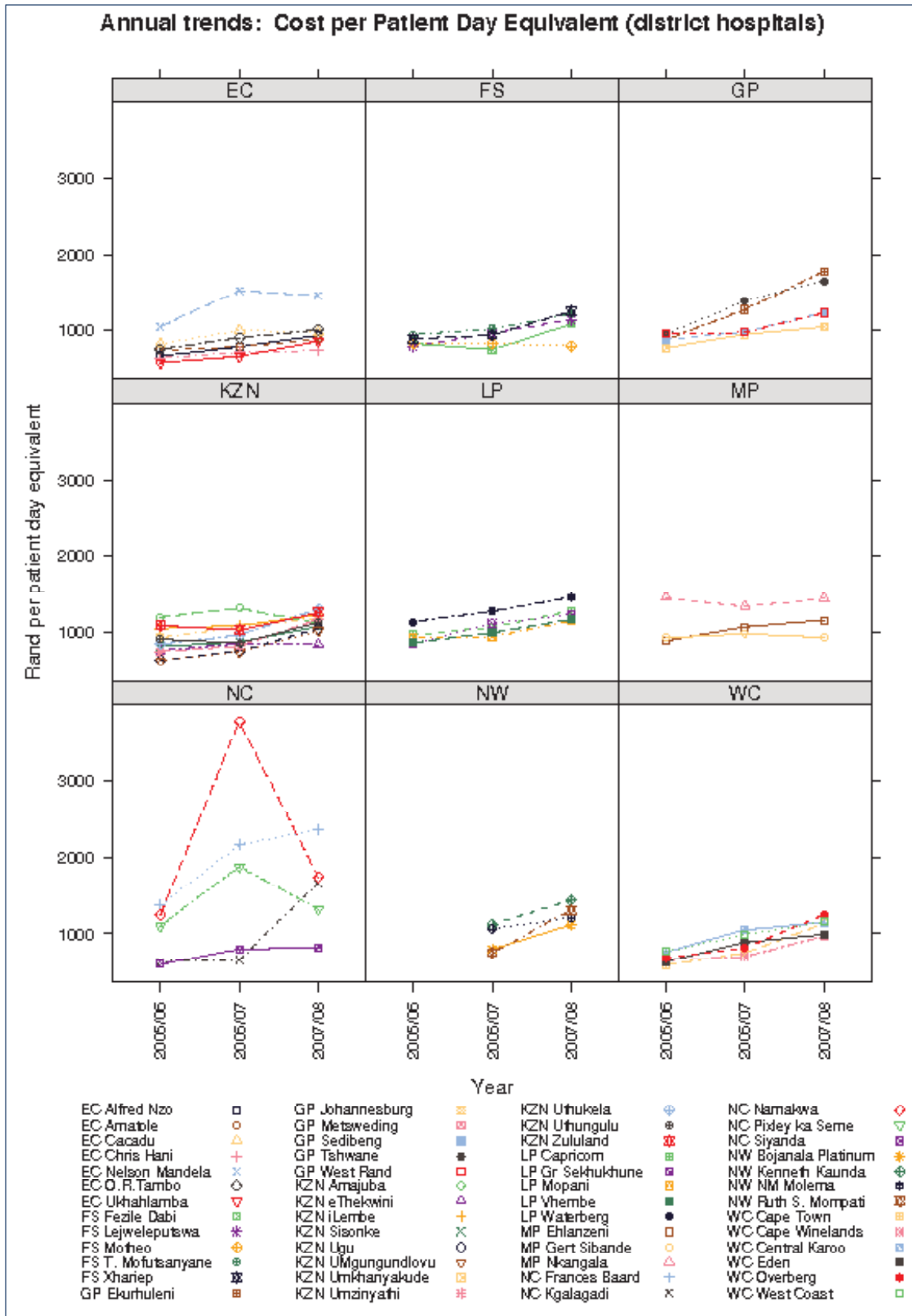


Change and trends in cost per patient day equivalent

There was an overall increase in South Africa in the cost per PDE in district hospitals of R173 from R954 in 2006/07 to R1128 in 2007/08 and a R293 increase since 2005/06. However, taking inflation into account, the 2007/08 figure was R107 higher than in 2006/07 and R185 higher than in 2005/06, resulting in an average annual increase of 10% over the three years. As can be seen in Figure 23, there were extremely large increases and fluctuations in four of the five Northern Cape districts in the last year and since 2005/06. These are due to data quality issues since denominators are missing for the 2006 data in a number of hospitals in these districts. The poor data quality is of concern and requires review.

The next set of large increases in the patient day equivalents were in Ekurhuleni and City of Tshwane (GP) with increased costs per PDE of R901 and R699 respectively since 2005/06. Six districts had moderate decreases in costs per PDE and two districts Motheo (FS) and Amajuba (KZN) had lower costs than in 2005/06.

Figure 23: Trends in cost per patient day equivalent in district hospitals by province and district, 2005/06 - 2007/08



COST PER PATIENT DAY EQUIVALENT

This trend graph shows each province individually, illustrating the trend over the last few years in the cost per PDE for district hospitals in each of the districts within that province. It shows clearly where wide fluctuations in the values occur such as in the Northern Cape and also where values have remained relatively consistent such as in the Western Cape and Limpopo.