

3. Process Indicators

3.1 Nurse Clinical Workload

Jackie Smith

The nurse clinical workload is defined as the average daily number of patients attended to by a professional nurse in PHC facilities. However, the data in the DHIS shows that in some provinces the indicator (denominator) appears to include all three categories of nurse viz. Professional Nurse, Enrolled Nurse and Enrolled Nursing Assistant. In some cases, the administrative 'paperwork' duties, as well as the days away from the clinical situation (e.g. training, meetings) of the professional nurse are also included in the workdays used to calculate this indicator. This also gives a false impression of the actual professional nurse hours available to the clients. Given the severe shortage of human resources, particularly in some rural districts, it is not surprising that all three categories of nurse may be involved in clinical PHC work. However, this is not consistent across the provinces and districts and the data contain many irregularities. This makes analysis and interpretation of this indicator difficult and therefore difficult to conclusively determine what the true situation is.

The work done by nurses at the district level is probably the single most important factor in the delivery of primary care. Therefore the establishment of a sound monitoring system needs urgent attention. This indicator is a measure of efficiency and very low values indicate that scarce skills (i.e. professional nurse time) are not being optimally utilised. Very high values indicate that either the data are incorrect or that nurses are seeing too many patients per day resulting in a compromise in the quality of care to the patient or burn-out of the nurse, or both.

District View

The average nurse clinical workload of 23.7 patients per nurse per day in South Africa in 2007/08 has dropped by four patients per day since 2004/05. Figure 24 shows the range of values across the districts from a low of 12.5 patients per day in Waterberg (LP) to 44.2 in Fezile Dabi (FS). The data have stabilised over the last four years to reflect more realistic values.

Capricorn, Greater Sekhukhune and Waterberg districts in Limpopo remain responsible for three of the lowest workload indicators of 15 or less patients a day for four consecutive years. This being an average result for the district, requires investigation as it implies that many professional nurses are seeing less than 10 patients a day.

The range of nurse workload has reduced over the last three years with a reducing difference between the districts with the greatest and lowest workload. However, paradoxically there is a trend of increasing workload in the least deprived districts and a declining workload in the most deprived districts.

Map 5: Nurse clinical workload in South Africa, 2007/08

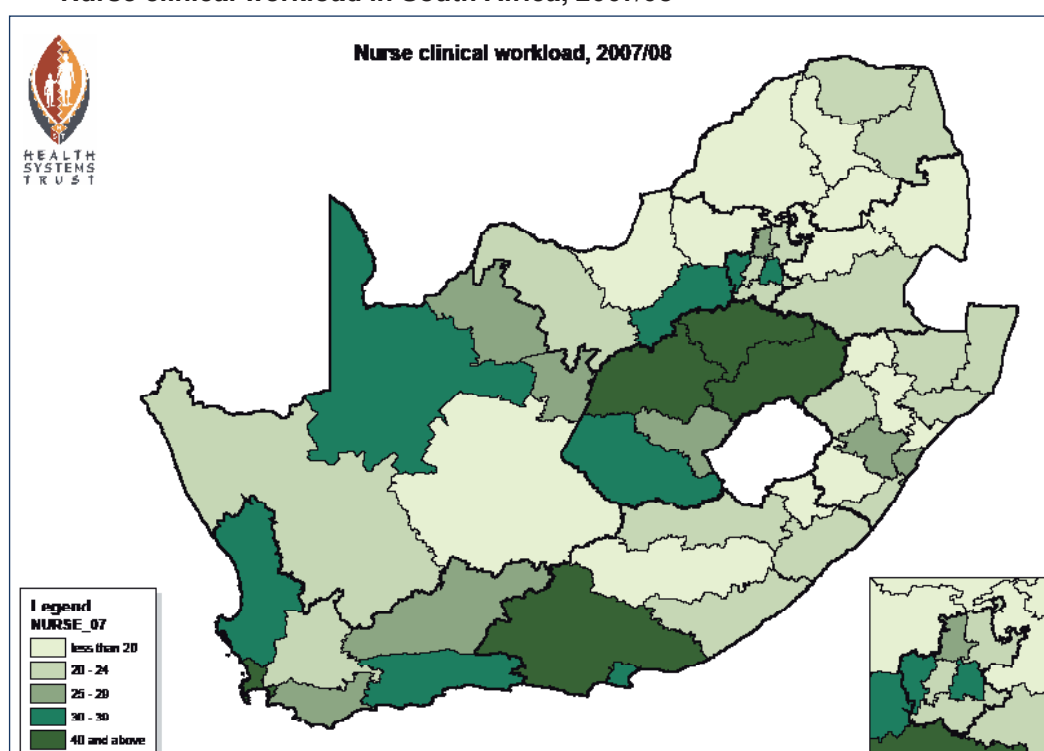
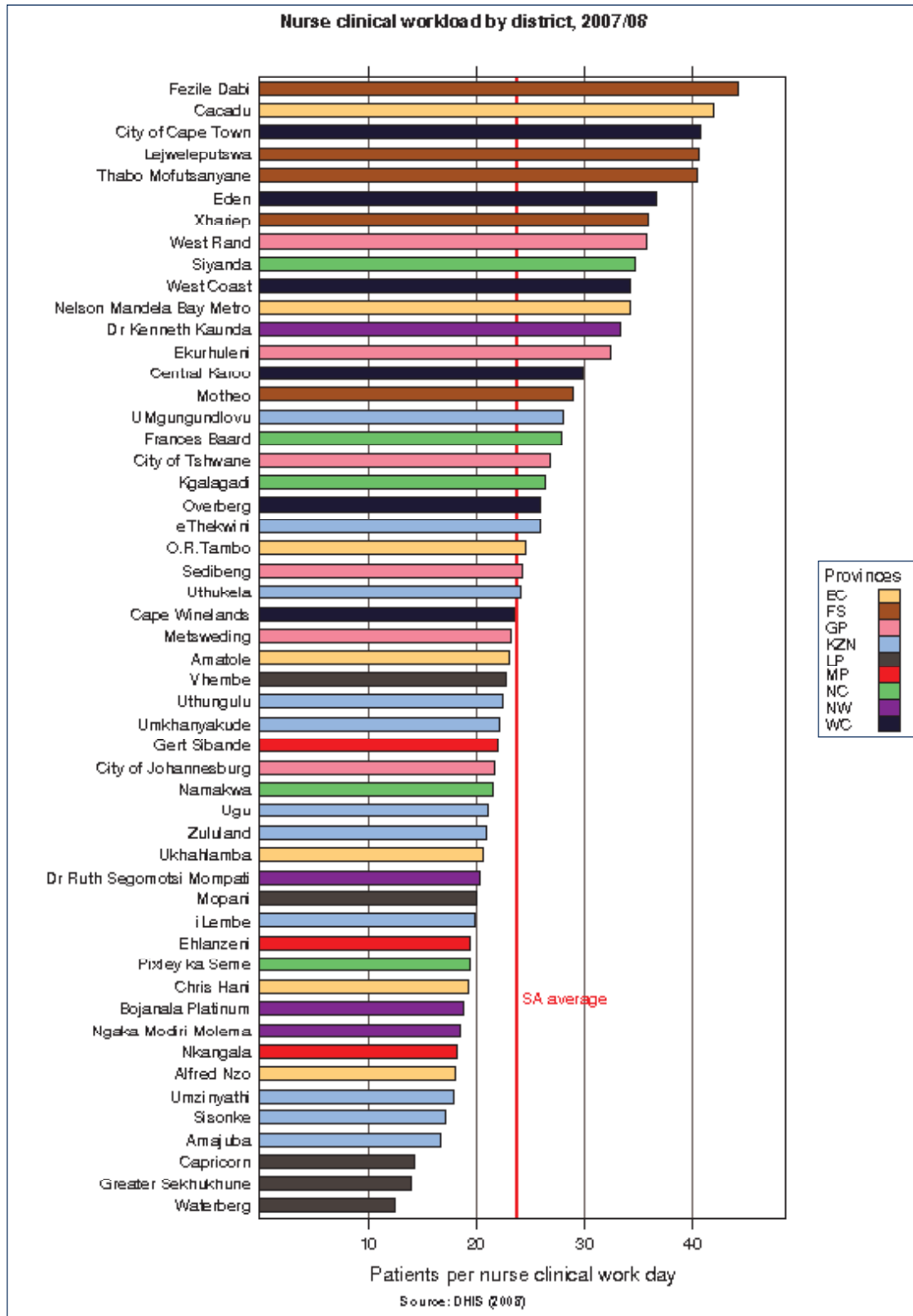


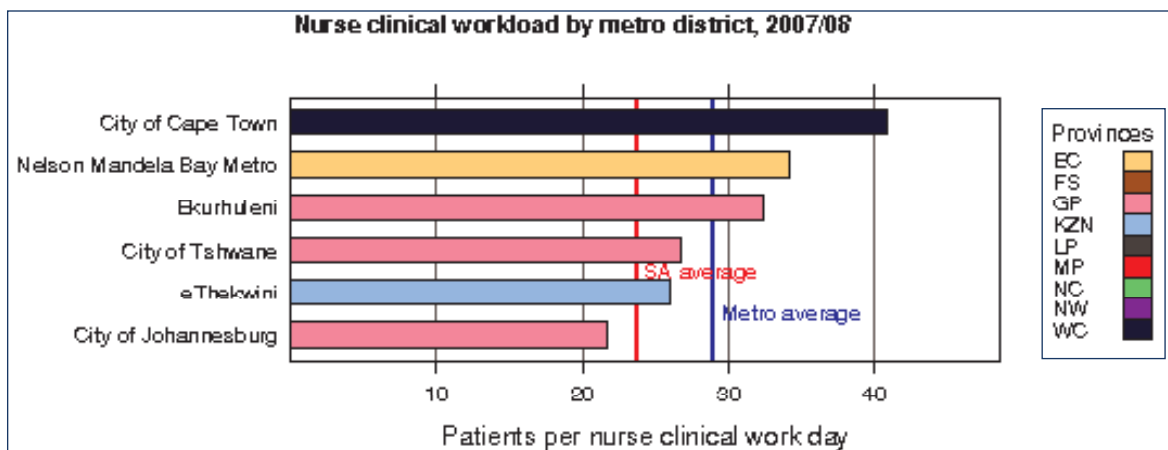
Figure 24: Nurse clinical workload by district, 2007/08



Metro View

In 2007/08 the metros had an average clinical nurse workload of 28.9 patients per nurse, a slight decrease from 29.6 in 2006/07, and higher than the SA average of 23.7 patients per day. Workloads varied from a low of 21.7 patients per nurse in the City of Johannesburg to 40.8 patients per day in the City of Cape Town.

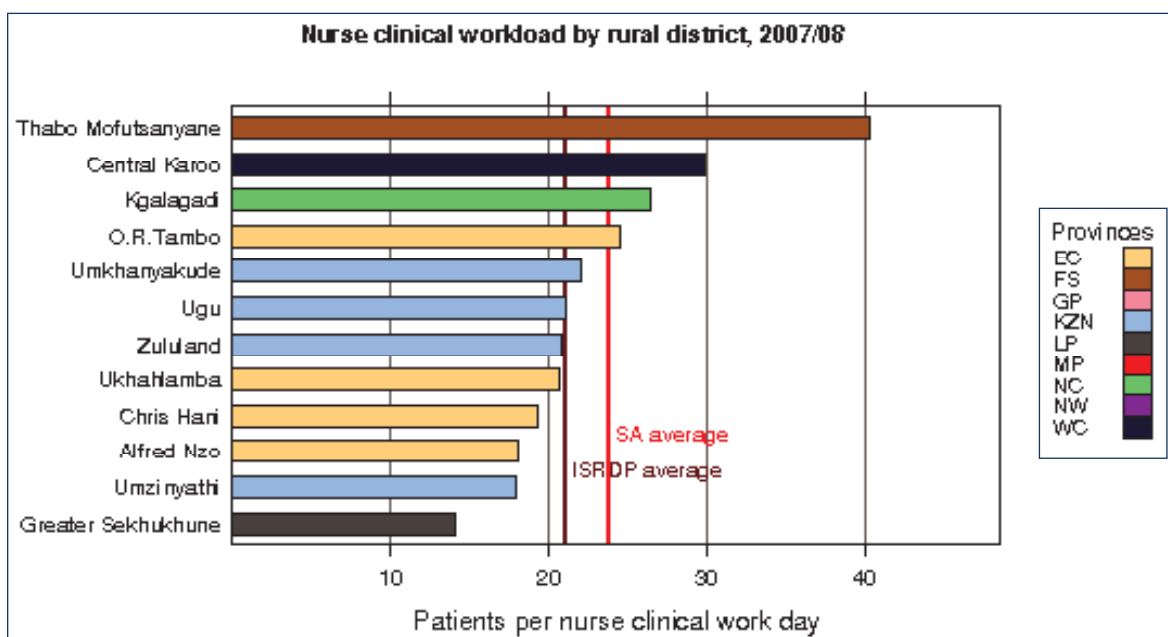
Figure 25: Nurse clinical workload by metro district, 2007/08



Rural Nodes

The ISRDP average has dropped steadily from 24.6 patients per nurse per day in 2004/05 to 21.0 patients per day in 2007/08. Four of the twelve rural node districts reported a nurse clinical workload above the South African average in 2007/08. The workload ranged from the highest in Thabo Mofutsanyane in the Free State of 40.3 patients per day to an average of 14 patients per day in Greater Sekhukhune (LP).

Figure 26: Nurse clinical workload by rural district, 2007/08



Change and trends in nurse clinical workload

Figure 27 illustrates the change in the Nurse Clinical Workload between 2006/07 and 2007/08. During this period the average workload for nurses in South Africa decreased by 1.4 patients per day with the majority of districts having decreased workloads.

If one looks at the annual trend graphs, as depicted in Figure 28, it may be noted that the trend in the majority of the districts in KwaZulu-Natal, Northern Cape, North West, Gauteng, Mpumalanga and Eastern Cape provinces is downward since 2004/05. Limpopo appears to have the most stable trends, indicating the possibility that they are using a standard definition within the province. The data surrounding this indicator requires more investigation so as to ensure that the change and trend reflected is a true reflection of the circumstances in the PHC clinics. The wide intra-provincial differences among districts highlight the perspective that not enough attention is being given to reducing inequities in human resource allocation.

Figure 27: Change in nurse clinical workload by district, 2006/07 - 2007/08

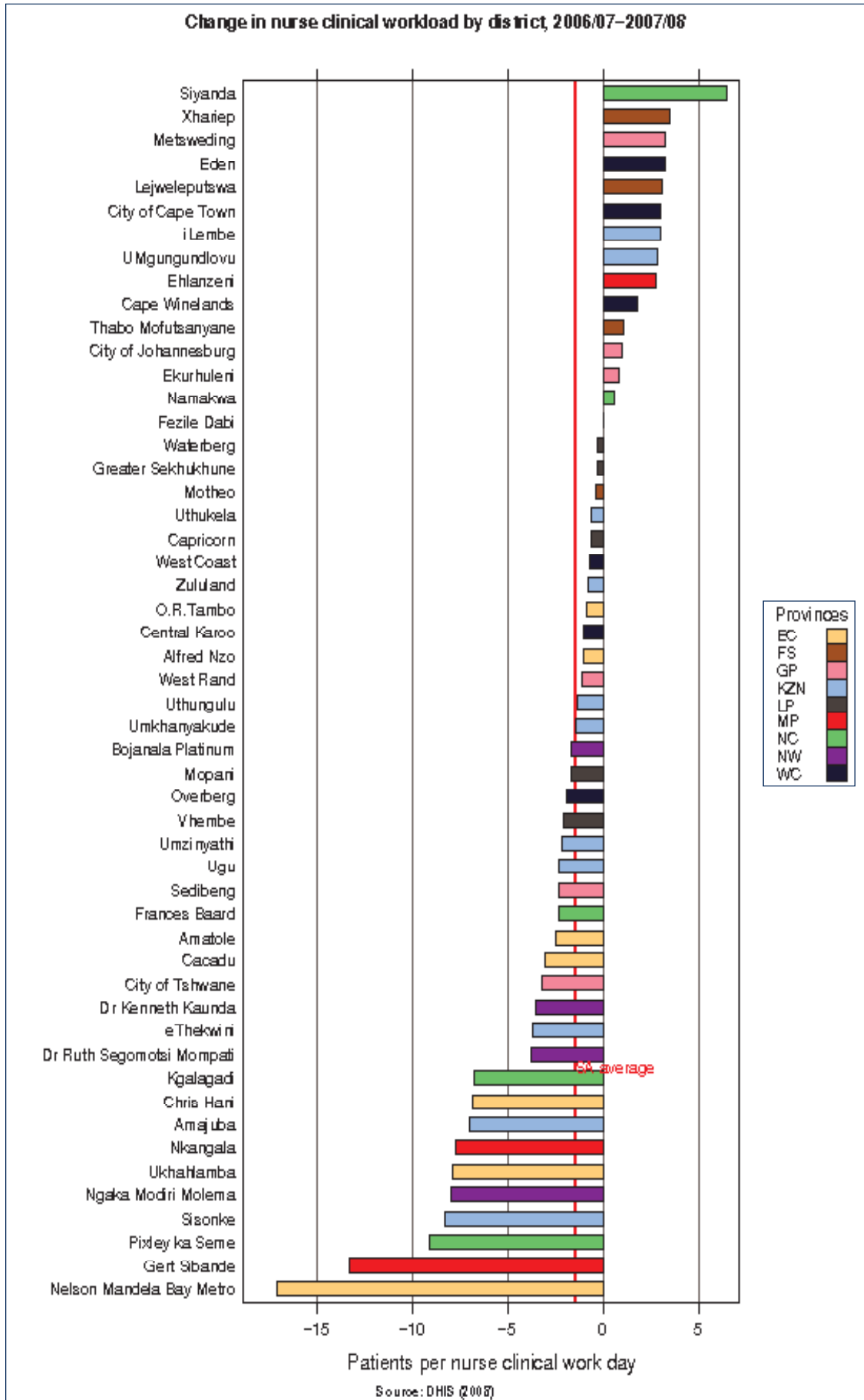
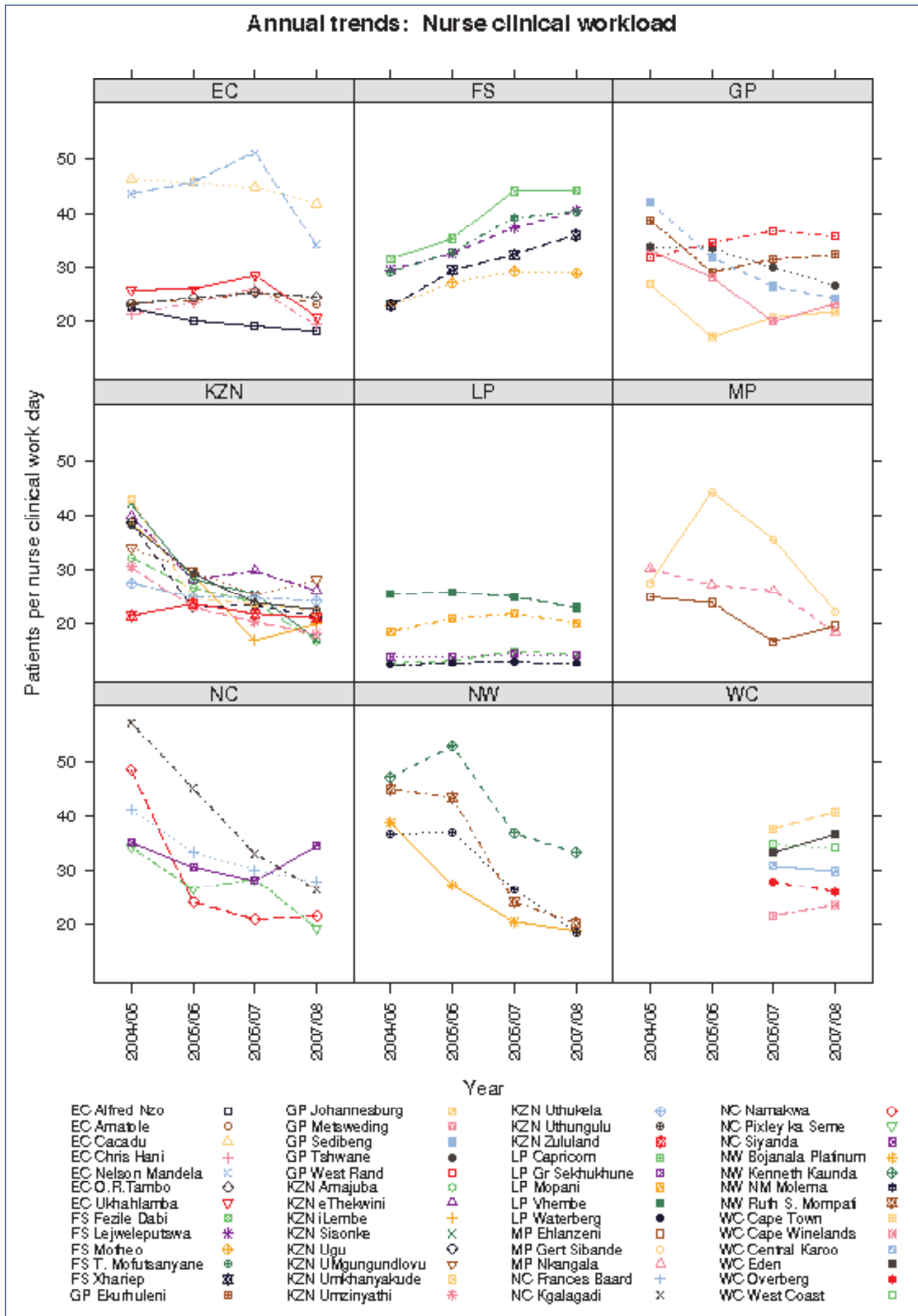


Figure 28: Annual trends in nurse clinical workload by province and district, 2004/05 - 2007/08



3.2 Bed Utilisation Rate

Jackie Smith

The bed utilisation (occupancy) rate is a measure of the occupancy of the beds available for use. It is calculated by dividing the number of patient days by the bed days available, over a specific time period (usually a year), and expressing this as a percentage. It is generally a measure of efficiency and expresses how well the hospital is using its available capacity. The target for district hospitals set by the national DoH for 2006/07 was 72%.

The bed days available in the numerator of the calculation need to be calculated correctly to accurately reflect the number of beds available. South African hospitals classify beds as 'authorised' (this number reflecting the number of beds that "should" be in use), and 'actual', those that are really being used. When the actual numbers of beds in use changes, this needs to be reflected in the number of bed days calculation.

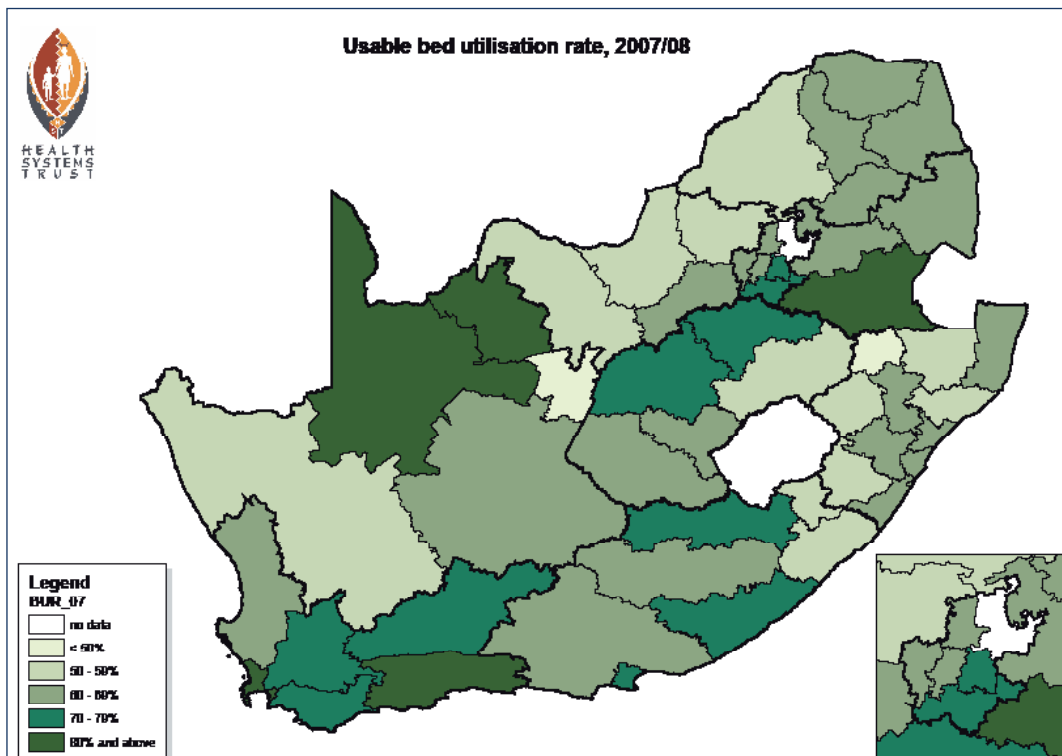
District View

In map 6 and figure 29 the variation in the bed utilisation rate (BUR) for 2007/08 can be seen. The average BUR for South Africa in 2007/08 was 65.3% and the rate has been between 60 and 65 since 2000/01. The range of BURs is extensive (37.6 % in Frances Baard (NC) to 119% Kgalagadi (NC). The figure for Kgalagadi is of doubtful accuracy, as it is an outlier to the trend from previous years and data for one of the largest district hospitals is missing from 2007. Because many of the districts contain more than one district hospital, the district averages seen in this graph conceal greater individual hospital variations. There were no data from Metsweding (GP) as this district does not have district hospitals.

There were significant differences between provinces in 2007/08, ranging from an average BUR of 58% in North West province to a BUR of 81% in the Western Cape. Intra-provincially the BUR varied in most provinces except in North West and Limpopo provinces where the BURs were clustered more closely. The ideal management strategy is to get the districts in a particular province to have similar utilisation patterns.

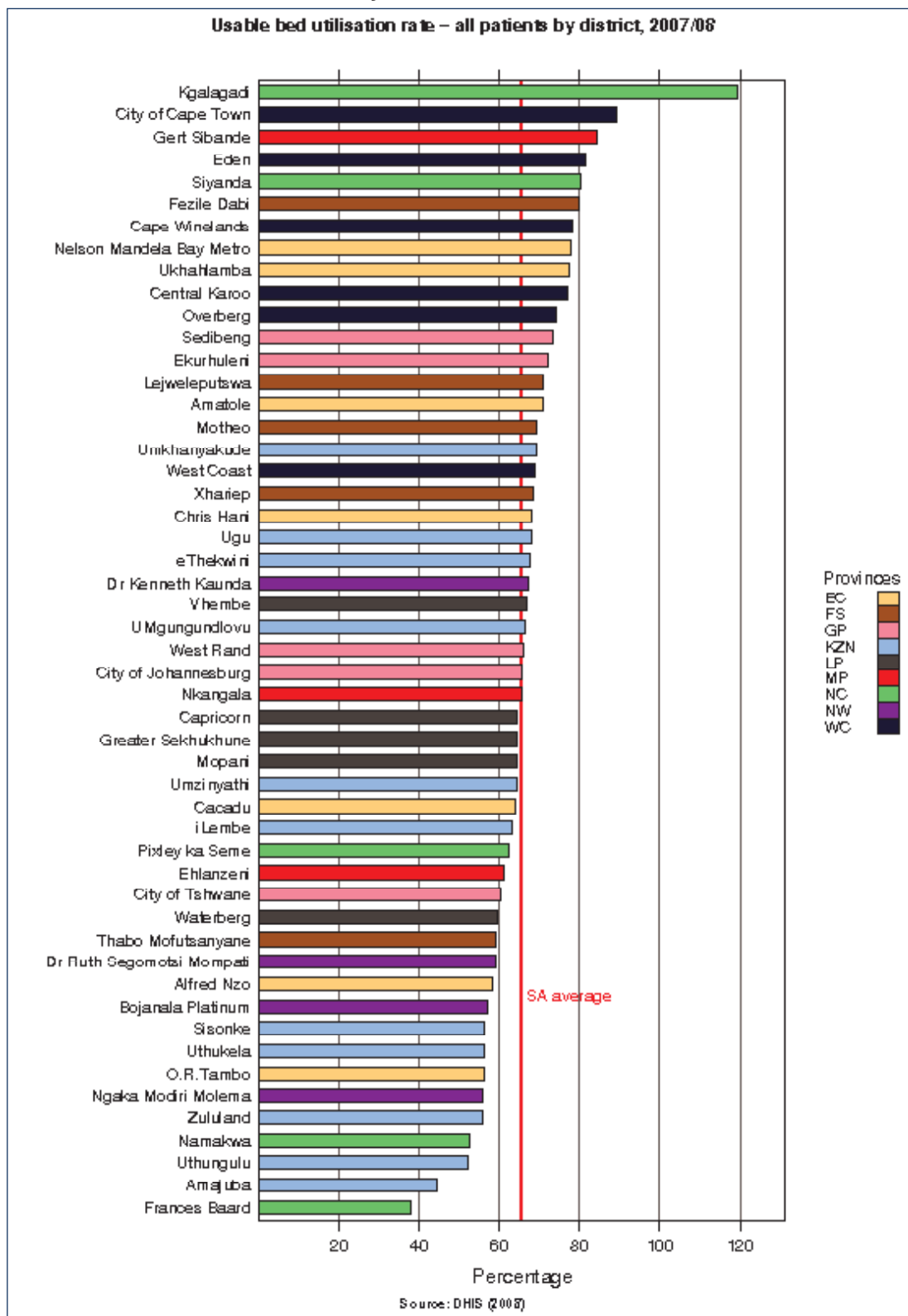
There were two districts with a BUR of less than 50% and fourteen districts where the BUR was below 60% in 2007/08. This is of concern as it has increased from the ten districts which had BURs of less than 60% in the previous year. This points to large scale inefficiencies in the district hospital system and suggests that provinces should ensure that their service transformation plans include changing under-utilised hospitals into community health centres¹³.

Map 6: Bed utilisation rate in South Africa, 2007/08



13 NDoH. 2007. Health District Development & Performance Assessment Tools.

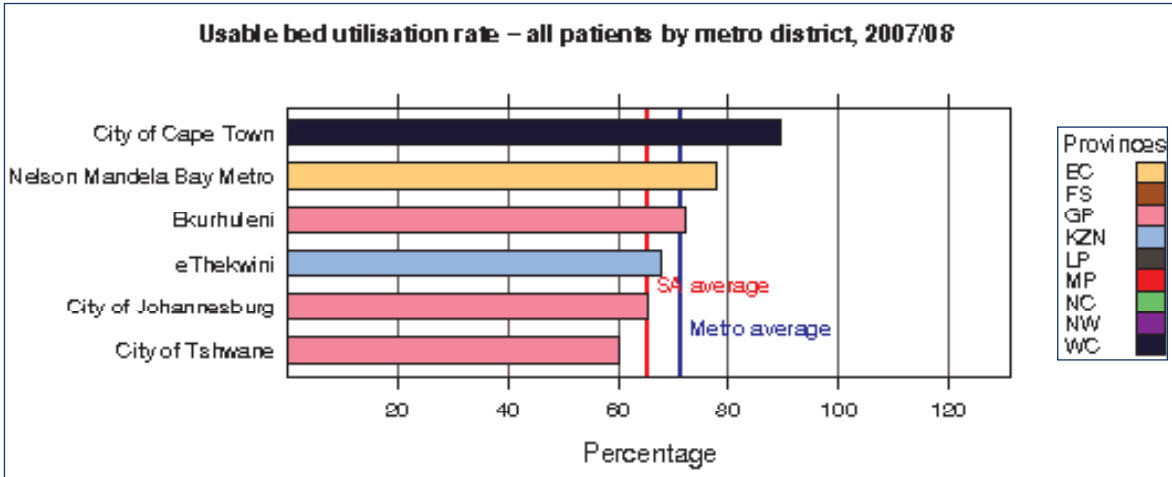
Figure 29: Usable bed utilisation rate by district, 2007/2008



Metro View

As one would expect, with lesser availability generally of district hospital beds in the metro areas compared to the rural districts, the metro average BUR of 71.3% was much greater than the national average. Tshwane, with a BUR of 60.1%, was the only metro below the South African average. The BUR of over 89.3% for the City of Cape Town continues to be indicative of the shortage of district beds in this metro and is a message to the management to fast track the building of additional district hospitals so as to take the pressure off the much more expensive secondary and tertiary hospital beds. Although Nelson Mandela Bay Metro has shown an encouraging increase to above the metro and national averages, it should be noted, however, that in both 2003 and 2007, the data from this district showed some discrepancies, and therefore should be investigated.

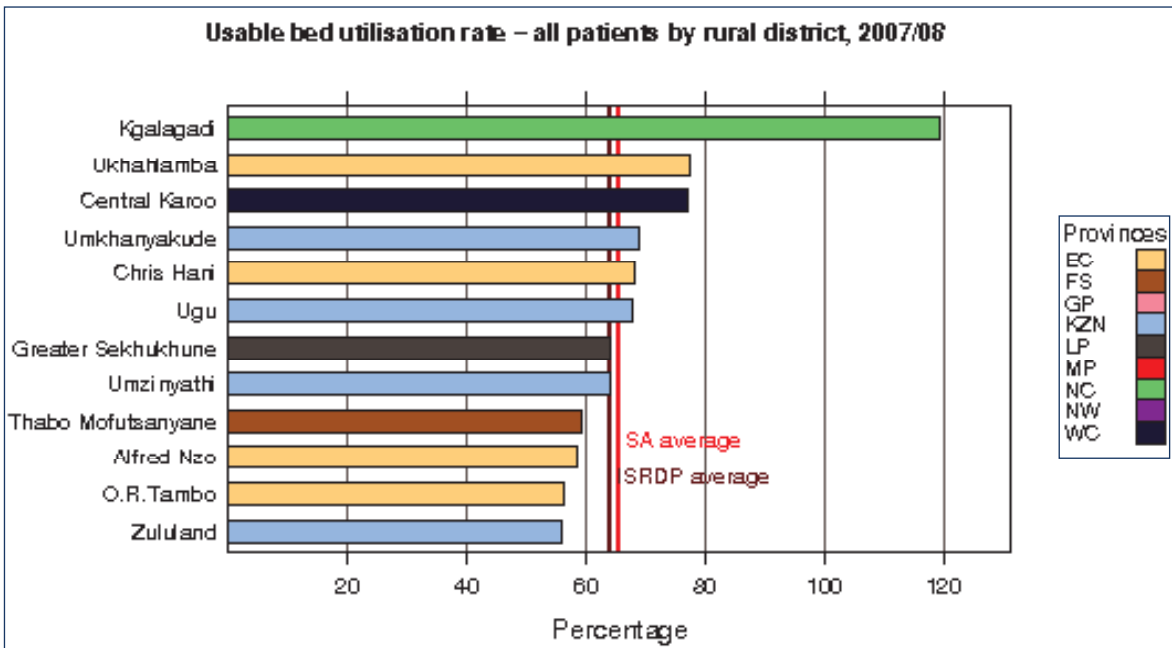
Figure 30: Usable bed utilisation rate by metro district, 2007/08



Rural nodes

The BUR for the rural districts increased slightly to 63.8% in 2007/08. There was a very wide range from a high BUR in Kgalagadi of 119%¹⁴ to a low of 55.8% in Zululand (KZN). It is to be noted that in 2006/07, O.R. Tambo district in the EC was the lowest of the rural nodes at 47.6% and this has improved to 56.1% in 2007/08. Only Kgalagadi district had a BUR of over 80% while four rural districts had a BUR of less than 60%.

Figure 31: Usable bed utilisation rate by rural district, 2007/08



Change and trends in bed utilisation rate

The overall BUR for South Africa has been fairly constant since 2000/01, ranging from 59.8% to 65.3%. The greatest increase in the past year was shown by Kgalagadi district (NC) which increased by 45.8 percentage points, however the accuracy of the data is in question, since data for the largest district hospital is missing from 2007. The greatest decrease of 24.9 percentage points occurred in Namakwa district (NC), however there were many missing denominators in 2006-2007, suggesting that the high value in 2006/07 was due to data errors. However, the BUR in Frances Baard has declined to very low levels over the past years, with no apparent data errors. It is of some concern that the widest variations in the data came from districts in the same province (NC). It is recommended that the provincial information units investigate further, as this indicator has budgetary implications for the district.

In total, 27 districts showed a decrease in BUR, while a further sixteen showed no change or less than 5 percentage point increase in BUR. Clearly this former statistic points to data quality issues or dysfunctional district hospitals. Managerial investigation is urgently required to establish whether this is indicative of poor data quality or institutions in need of reclassification.

14 Data unreliable.

Section A: Process Indicators

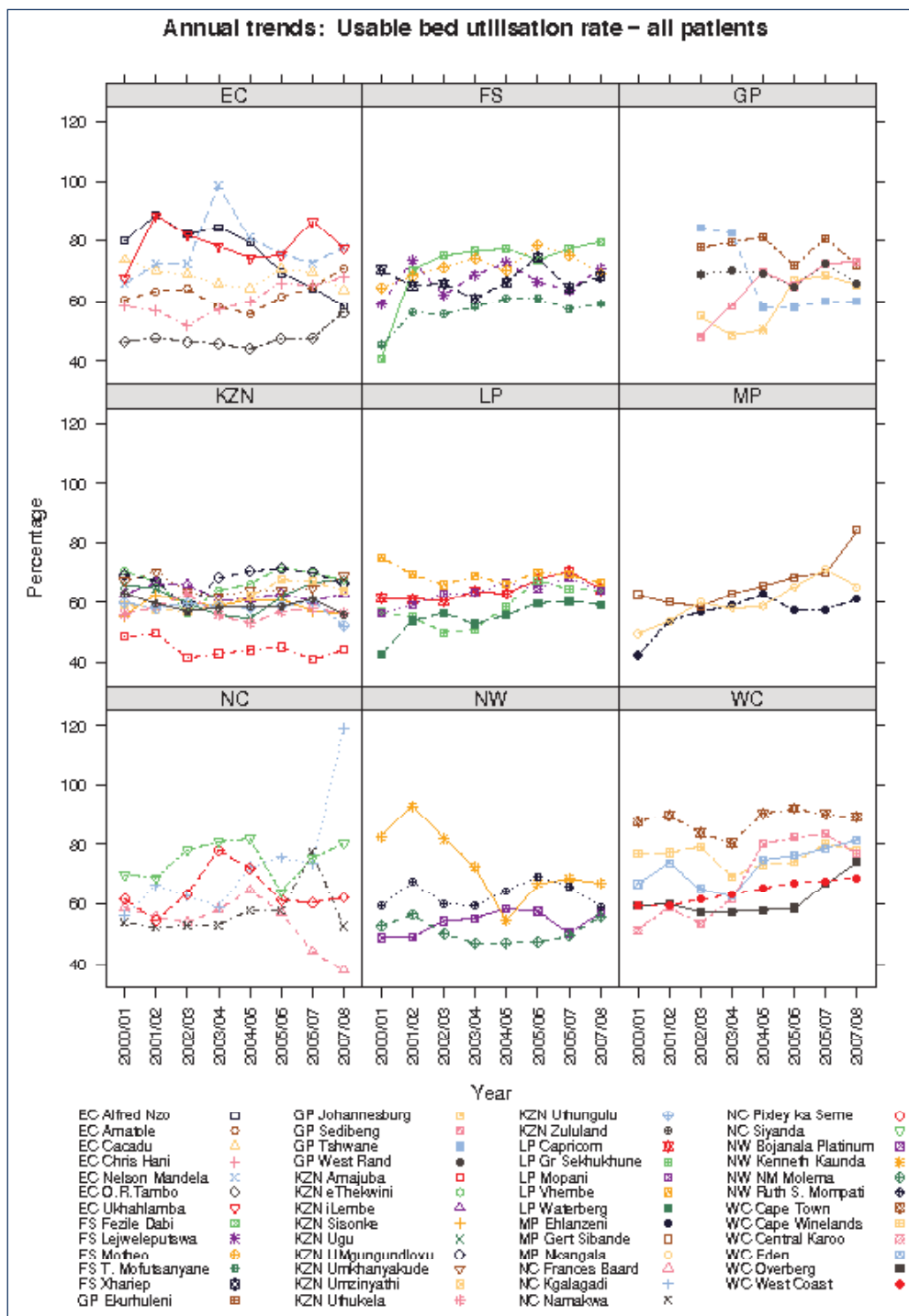
Six of the rural districts showed a decrease in BUR from 2006/07 to 2007/08. There is a spike in Ukhahlamba (EC) in 2006/07 pointing to the possibility of inaccuracies in the data.

Five of the six metro districts decreased their BUR in 2007/08 with the greatest decrease among the metro districts being in Ekurhuleni (8.6 percentage points), which had variable data for the past 4 years. There was a lot of missing data for Nelson Mandela Bay Metro from the end of 2007. Although the BUR remained relatively stable, data quality needs to be investigated.

The annual trends in BUR in district hospitals from 2000/01 to 2007/08 by province and district can be viewed in figure 32.

It is clear from figure 32, that over the last seven years, this data has fluctuated in varying amounts in some districts particularly in the Northern Cape, North West, Eastern Cape and Gauteng. This could be indicative of poor quality data and needs attention.

Figure 32: Trends in usable bed utilisation rate in district hospitals by province and district, 2000/01 - 2007/08



3.3 Average Length of Stay

Jackie Smith

The average length of stay (ALOS) measures how much time patients spend in district hospitals. It is calculated by dividing the number of patient days by the number of separations, which include transfers, discharges and deaths. District hospitals generally admit acute, relatively uncomplicated patients and the idea is to treat and discharge them as soon as is possible.

The ALOS is a proxy measure for the quality of care received as well as of the efficiency of the hospital. It is one of the best markers for what is happening in a hospital and a persistently high ALOS means that patients are being kept in hospital for too long. A very low ALOS means that the quality of care is likely to have been compromised.

District View

As can be seen in Map 7 and Figure 33, there was a wide variation in the ALOS in South Africa in 2007/08 with an average value for the country of 4.4 days. This has been constant for three years. The ALOS in 2007/08 ranged from 1.4 days in Kgalagadi (NC) to 8.0 days in O.R. Tambo (EC). Because many of the districts contain more than one district hospital the district averages conceal greater individual hospital variations. There were no data from Metsweding (GP) as this district does not have district hospitals. Similar to the two previous years, the majority of the 10 districts with the highest ALOS were rural districts in the Eastern Cape and KwaZulu-Natal provinces and seven were rural nodes. The ALOS is highest in the most deprived districts (SEQ 1) and declines to the lowest levels in the least deprived districts (SEQ 5).

There were distinct provincial differences. All the Northern Cape and Free State districts had an ALOS of four days and less. On the other hand, four of the seven Eastern Cape districts and seven of the 11 KwaZulu-Natal districts had an ALOS of greater than five days. The remaining provinces were clustered in the middle around four days.

There were large intra-provincial variations in the Eastern Cape and KwaZulu-Natal with a wide range between the district with the lowest and the district with the highest ALOS. The rest of the provinces had relatively narrow ranges.

Map 7: Average length of stay in district hospitals in South Africa, 2007/08

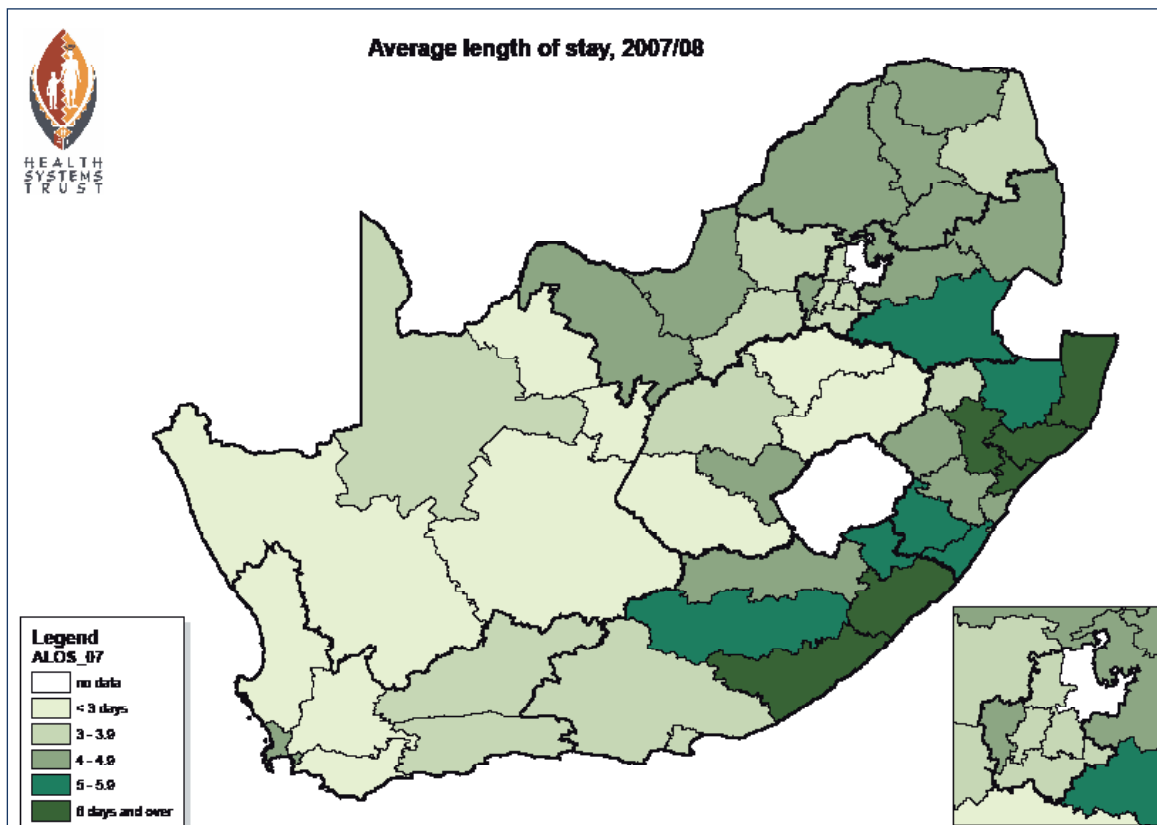
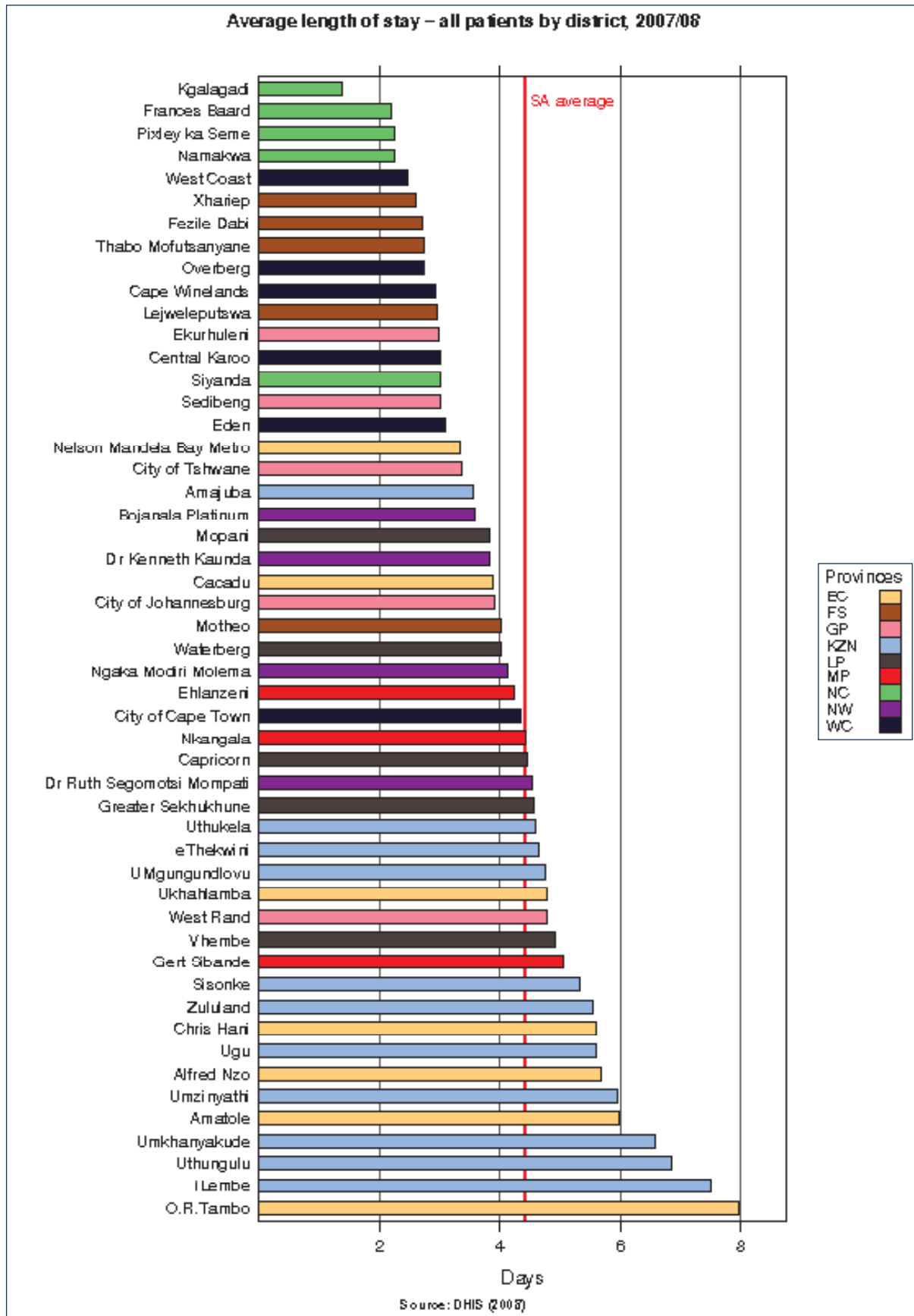


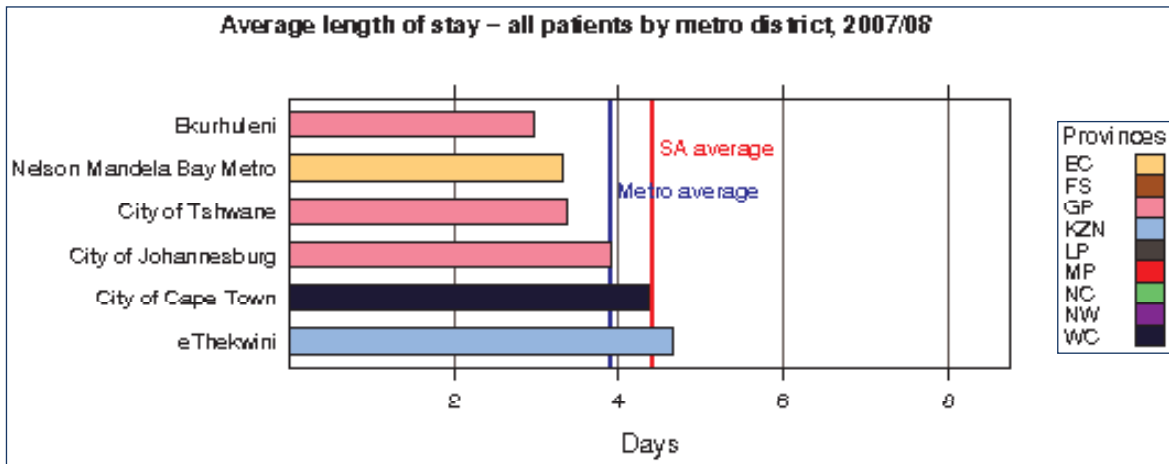
Figure 33: Average length of stay in district hospitals, by district, 2007/08



Metro View

As can be seen in Figure 34, the ALOS for the metros of 3.9 days ranged from 3.0 days in the Ekurhuleni to 4.7 days in eThekweni, which was the only metro with an ALOS greater than the national average.

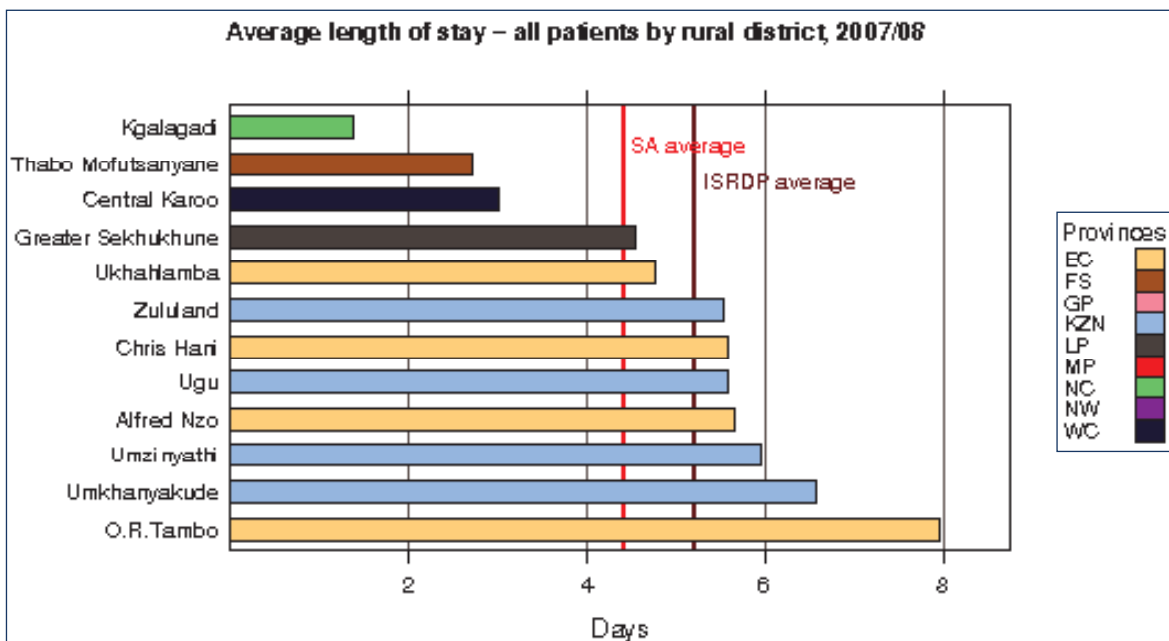
Figure 34: Average length of stay in district hospitals by metro district, 2007/08



Rural View

The ALOS in the rural nodes of 5.2 days was longer than the national average of 4.4 days. Included among this group are the districts with the highest and lowest value in the country (8.days in O.R. Tambo (EC), and 1.4 days in Kgalagadi (NC)). The districts in the Eastern Cape and KwaZulu-Natal tended to have a longer ALOS in district hospitals than the other rural districts. The very long ALOS in O.R. Tambo needs to be investigated to find out why patients are spending such long periods in the individual hospitals of this district. One possible explanation for the long ALOS in the rural hospitals may be due to the shortage of doctors who can discharge or transfer patients timeously. O.R. Tambo also had a very low bed utilisation rate in 2007/08, which may also be indicative of problems with hospital utilisation and efficiency.

Figure 35: Average length of stay in district hospitals by rural district, 2007/08

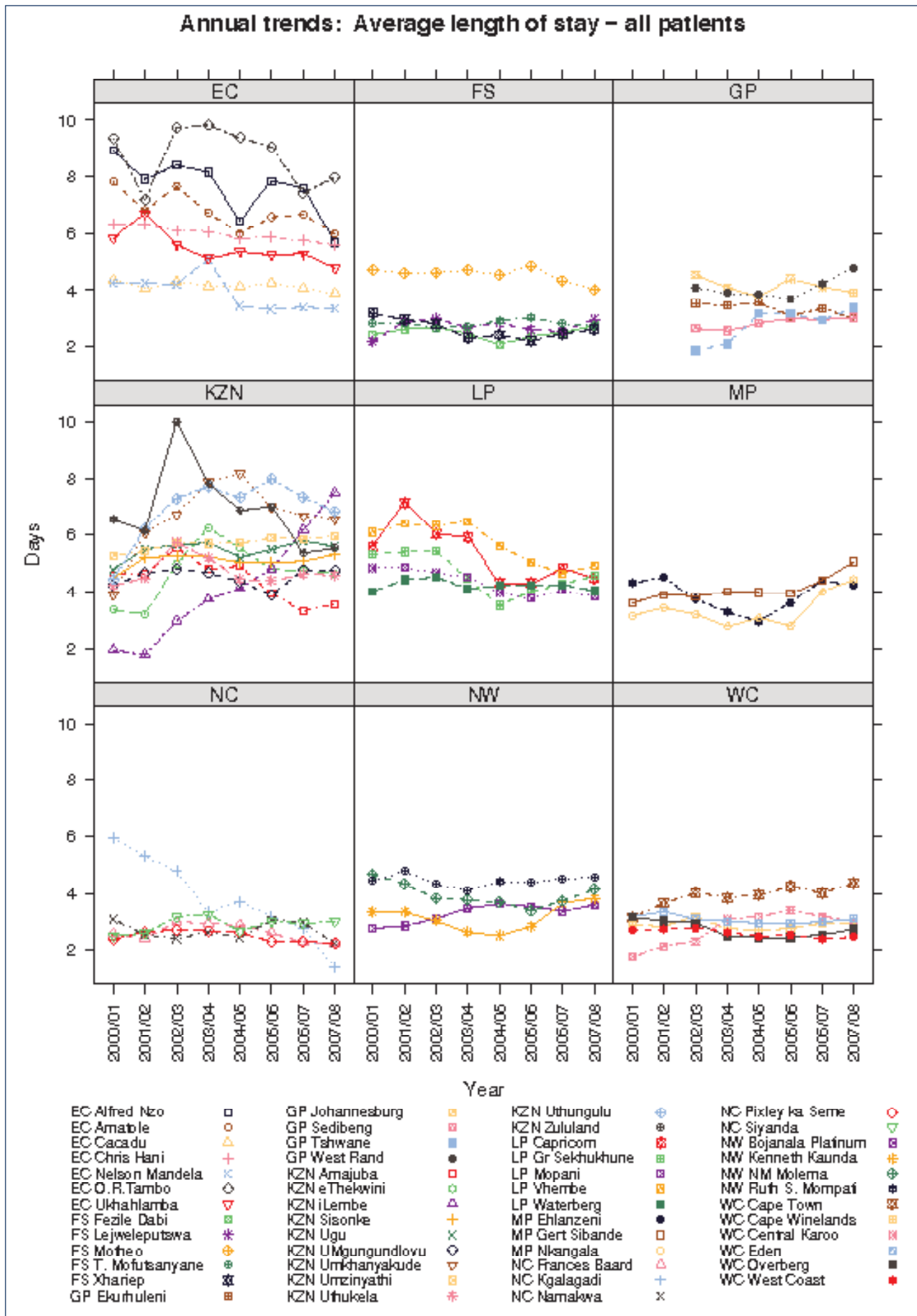


Change and trends in average length of stay in a district hospital

In South Africa as a whole there was little change in the average length of stay from 2004/05 to 2007/08. Twenty four of the 52 districts showed no change or change of less than 1 day in the past year. One district however, Alfred Nzo (EC) showed a decrease of over two days in the last year, and iLembe has increased from 1.9 in 2000/01 to 7.5 days in 2007/08, while Kgalagadi decreased from 5.9 to 1.4 days over the same period.

Figure 36 illustrates trends in various districts from 2001/02 to 2007/08. For instance, Motheo district has a consistently longer ALOS compared to other districts in the Free State. The consistently wide differences in ALOS of districts in KwaZulu-Natal and Eastern Cape provinces are also clearly illustrated.

Figure 36: Trends in the average length of stay in district hospitals by province and district, 2001/02 - 2007/08



3.4 Clinic Supervision Rate

Jackie Smith

The Clinic supervision rate is defined as the percentage of PHC clinics and CHCs visited by a supervisor at least once a month. Implicit in such a visit is a written visit report and feedback to facility staff. It is one of the most important determinants of quality of care as these supervisory visits are meant to highlight problem areas which the supervisor is expected to assist clinic staff to help resolve. The indicator excludes multiple visits where the supervisor visits the clinic more than once during the month.

District view

Map 8 and Figure 37 show the supervision rates for 2007/08. The national average for 2007/08 was 48%. This indicates an increase of four percent from 2006/07. Despite this increase, the supervision rate remains extremely low and is partly due to data quality issues. The values ranged from an improbably low rate of 7.4% in Namakwa to a high of 94.4% in Ekurhuleni. The Northern Cape and Mpumalanga provinces showed the lowest supervision rates in 2006/07 where less than a third of all clinics were regularly supervised. Twenty seven of the 52 districts had supervision rates above 50%. KwaZulu-Natal had the highest supervision rate of all the provinces with six out of eleven districts above a 60% supervision rate.

Four out of the six districts in the Western Cape were below the national average, ranking the province as the third lowest in the country. The very low values for Namakwa, Pixley ka Seme and Siyanda in the Northern Cape and City of Johannesburg (GP) are probably due to poor recording and incomplete data; for example other sources have suggested that Johannesburg has a very high supervision rate, however the data are not reflected in the national DHIS database.

It is encouraging to see that there are data available for the Eastern Cape in 2007/08. This indicator should approach 100% and it is clear that across the country there is no prioritisation given to ensure that supervision takes place.

Map 8: Clinic supervision rate in South Africa, 2007/08

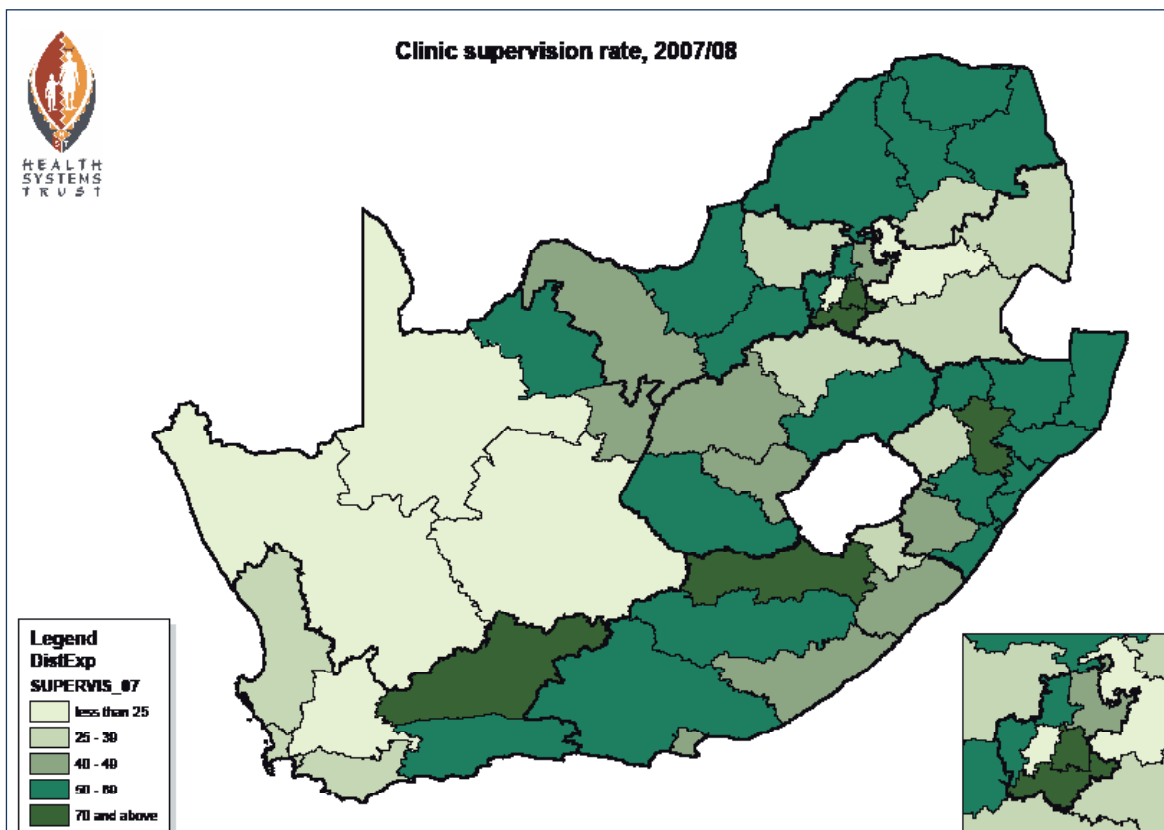
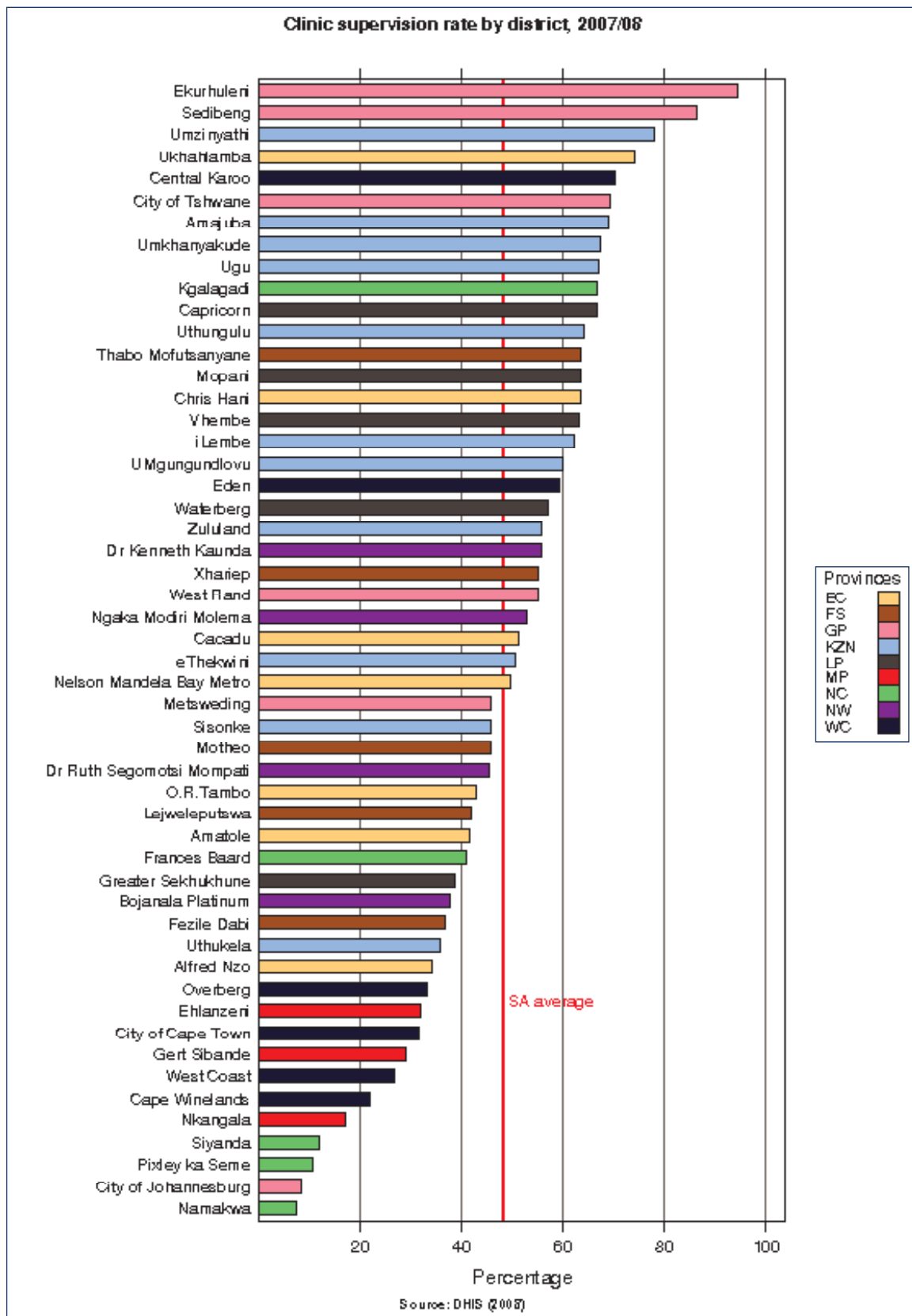


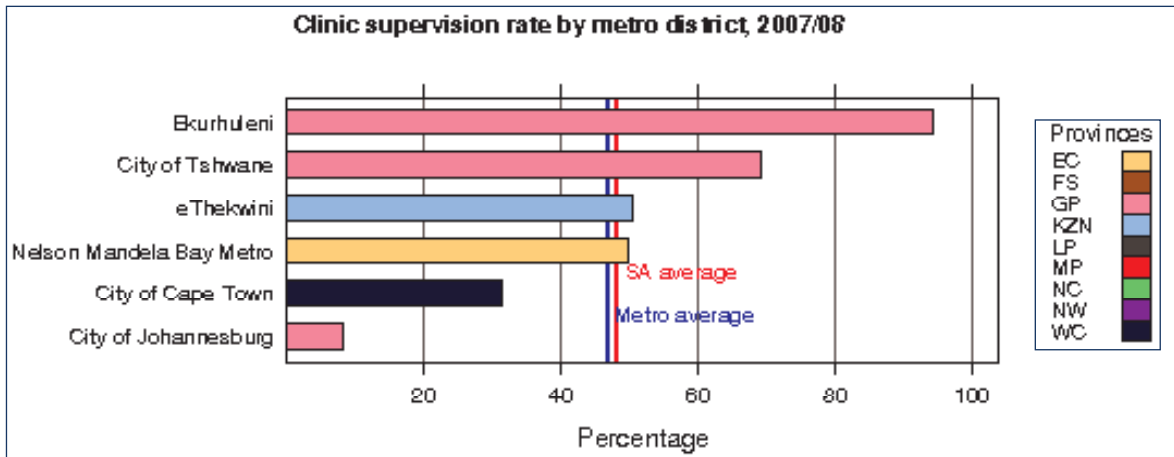
Figure 37: Clinic supervision rate by district, 2007/08



Metro view

The supervision rate within the metro areas varied from 94% in Ekurhuleni (GP) to 8% in City of Johannesburg (GP). As previously mentioned the City of Johannesburg rate is due to lack of accurate data.

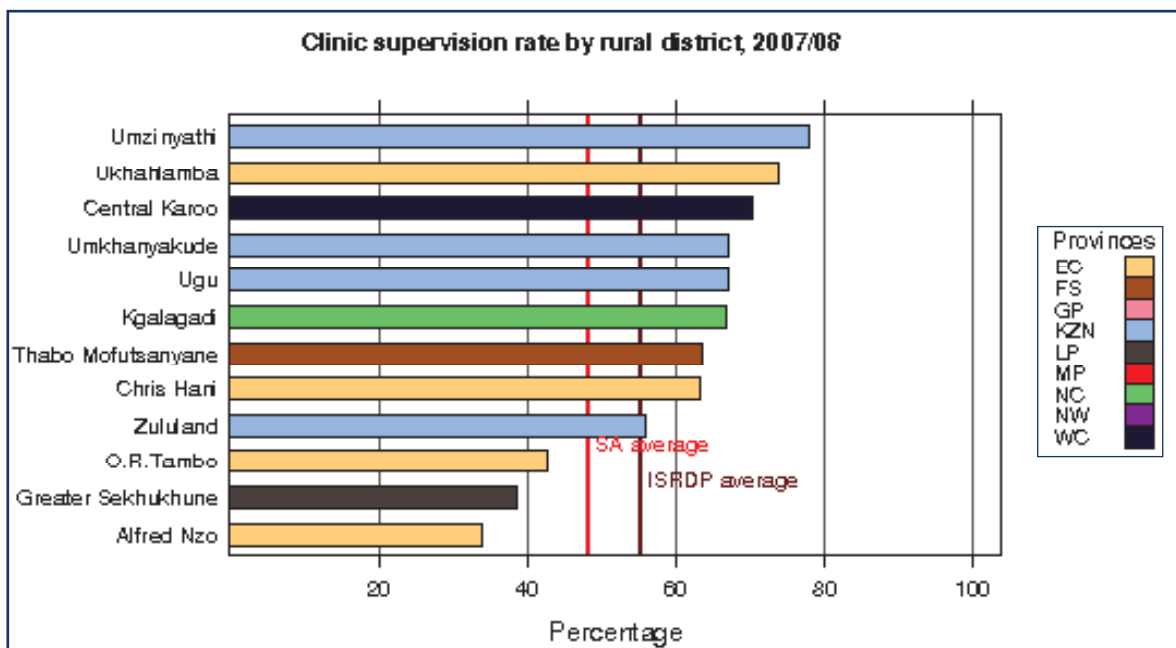
Figure 38: Clinic supervision rate by metro district, 2007/08



Rural nodes

In the ISRDP nodes, nine of the districts had supervision rates higher than the national average. This is an improvement from four districts in 2006/07. All of the rural nodes in KwaZulu-Natal were above the national average. The ISRDP average was 55% which was higher than the national average.

Figure 39: Clinic supervision rate by rural district, 2007/08



Change in clinic supervision rate

As this is the second year of recording this data, it is possible to compare change over the two years except for the Eastern Cape which did not reflect any data for 2006/07. Although 63% of the districts showed an increase in the clinic supervision rate, the rate did not increase significantly year on year (4.1 percentage points). This could be as a result of insufficient management interest in this indicator or inadequate data quality, and more needs to be done to improve the situation.

The greatest increase was shown by Central Karoo (WC), which increased by 48 percentage points. The greatest decrease was shown by West Rand (GP). It is possible that this is a more accurate reflection, as the previous year's figure of 106% was probably inaccurate.

Figure 40: Change in clinic supervision rate, 2006/07 - 2007/08

