

3 Inpatient management

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The indicators in this chapter provide feedback on district hospital performance in order for district and hospital management teams to identify what is needed to improve hospital performance. A district hospital is the fundamental pillar of the primary health care (PHC) system.

This chapter covers the following indicators:

1. Inpatient bed utilisation rate (IBUR)
2. Average length of stay (ALOS)
3. Expenditure per patient day equivalent (PDE)
4. Outpatient department (OPD) new client not referred rate
5. Inpatient crude death rate (all hospitals)

The indicators in this section have been reported individually, but should be viewed as interdependent and therefore interpreted collectively. District hospitals typically admit patients with acute and uncomplicated illnesses. More complicated cases are transferred to regional or tertiary hospitals.

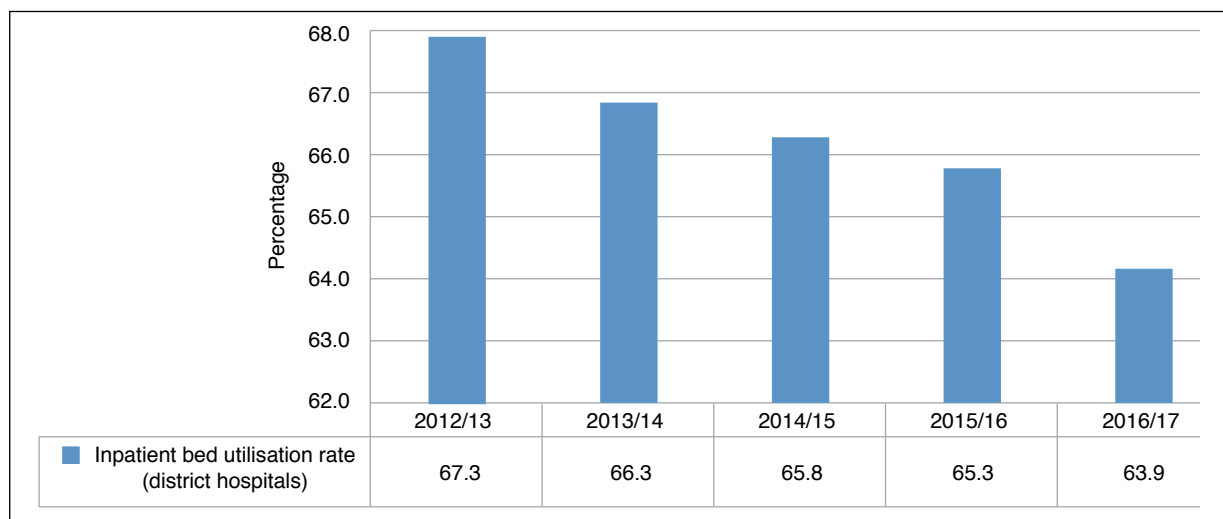
3.1 Inpatient bed utilisation rate (district hospitals)

The IBUR measures the occupancy of available beds and therefore indicates how efficiently a hospital is using its available capacity. It is calculated as follows: number of inpatient days added to half the number of day patients, and divided by usable bed days. Bed utilisation rate is expressed as a percentage.

National overview

Figure 1 shows the national IBUR trends from 2012/13 to 2016/17. The national average IBUR for district hospitals for 2016/17 was 63.9% and has been consistently below 70% for the past five years, indicating that approved beds are not used cost effectively. Possible reasons could be attributable to the implementation of the comprehensive PHC package or indicative of a probable data problem or too many approved beds.

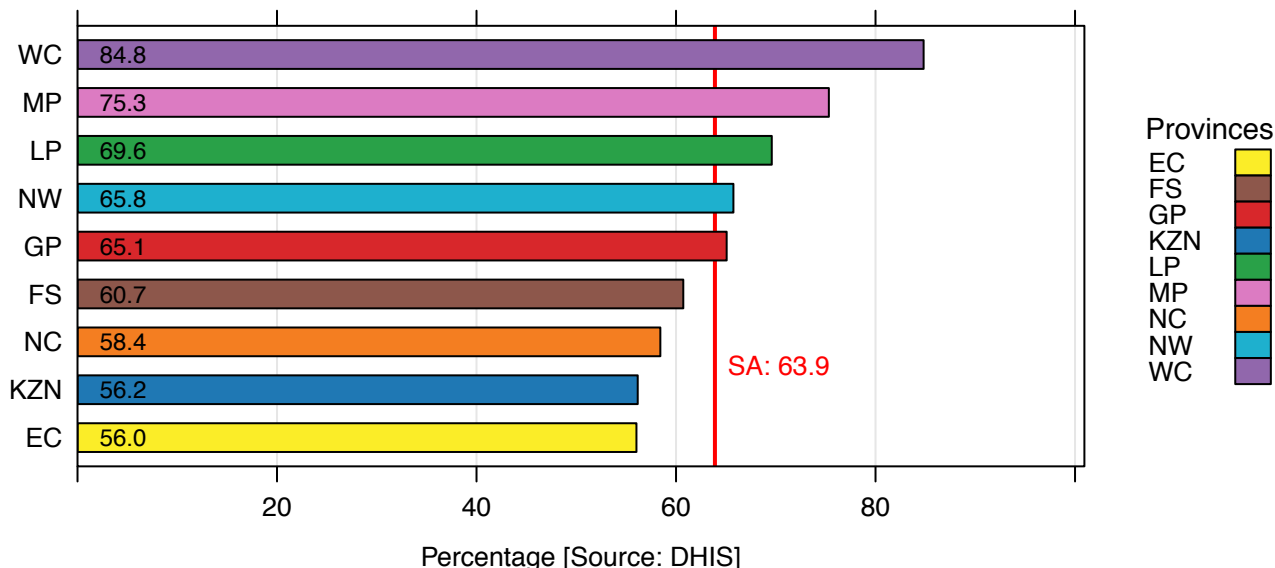
Figure 1: National inpatient bed utilisation rate (district hospitals), 2012/13–2016/17



Provincial overview

Figure 2 displays IBUR for district hospitals per province for 2016/17. Western Cape (WC) reported the highest IBUR (84.8%) followed by Mpumalanga (MP) (75.3%). The remaining provinces have reported an IBUR of less than 70% with Eastern Cape (EC) having the lowest (56%).

Figure 2: Inpatient bed utilisation rate (district hospitals) by province, 2016/17



District overview

Figure 3 and Map 1 show the district hospital IBUR by district for 2016/17. Inpatient bed utilisation rate for districts ranged from 38.3% (Frances Baard in Northern Cape (NC) to 91.8% (Cape Town (WC)).

Map 1: Inpatient bed utilisation rate by district, 2016/17

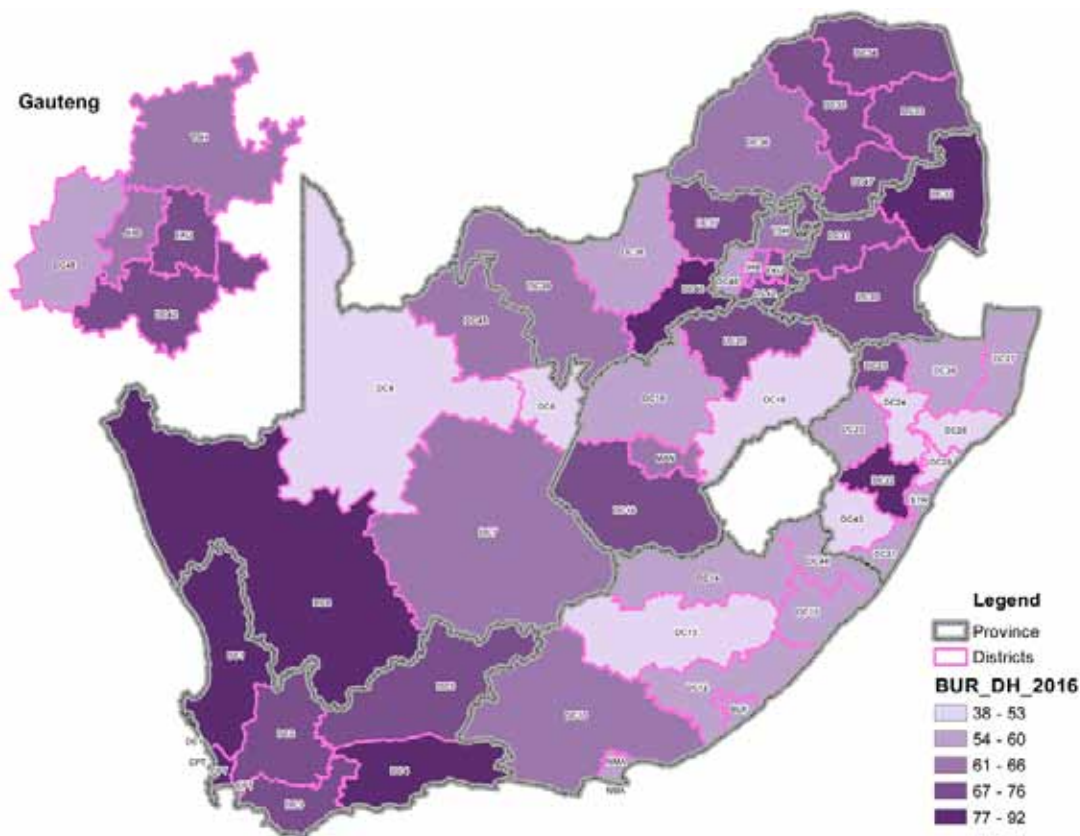


Figure 3: Inpatient bed utilisation rate (district hospitals) by district, 2016/17

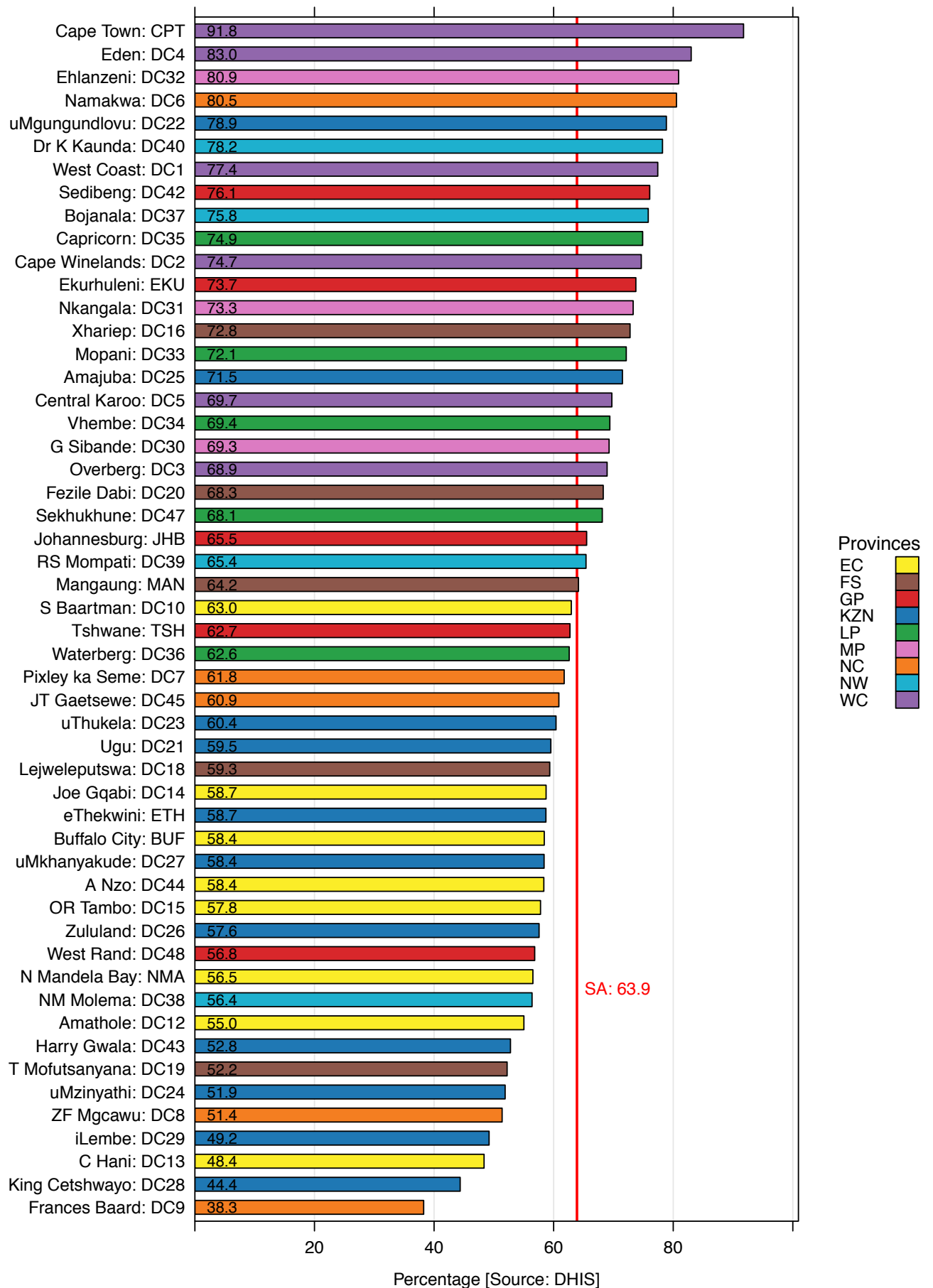
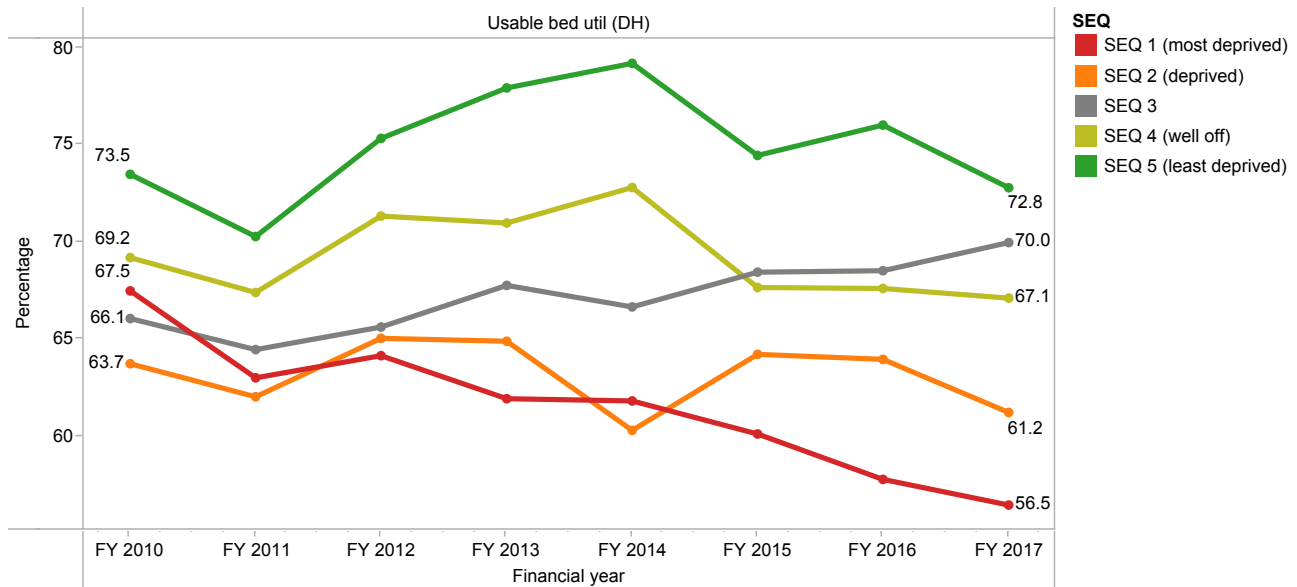


Figure 4 which represents IBUR by socio-economic quintiles (SEQs) for 2009/10 to 2016/17 shows that IBUR for SEQs 1 and 2 is lower when compared to SEQs 3, 4 and 5.

Figure 4: Trends in average district values by SEQ for inpatient bed utilisation rate, 2009/10–2016/17



Key findings

- ◆ There is a 1.3 threshold difference between the most-deprived districts (SEQ1) and the least-deprived districts (SEQ5).
- ◆ An IBUR decline of more than 10 percentage points between 2015/16 and 2016/17 is noticed in three districts, namely Mangaung (Free State (FS)) (10.1), Harry Gwala (KZN) (10.8) and ZF Mgcawu (NC) (21.0).

Recommendations

- ◆ Efforts to improve data quality are essential. Standardised data collection tools should be implemented in provinces that do not use electronic systems.
- ◆ The reasons for the low IBUR especially in the most-deprived districts should be investigated and if the reason is an oversupply of beds, the number of beds should be reduced.

3.2 Average length of stay (district hospitals)

Average length of stay refers to the average number of days that patients spend in hospital. It is generally calculated as follows: total number of inpatient days during a year plus half the number of day patients, divided by the number of separations (deaths, discharges and transfers out).

If the ALOS is persistently high it suggests that patients spend too much time in hospital either because they are not discharged when they should be or are not appropriately treated or transferred timeously resulting in longer recovery times. Admission, treatment and discharge procedures should therefore be reviewed. The denominator for this indicator includes discharges. An undercount of discharges could incorrectly elevate the ALOS. Rural areas have a different disease profile and case mix with high HIV, TB and mental health burdens requiring more time in hospital. This contributes more to a higher ALOS.

If the ALOS is persistently low (less than 1.5 days), it could mean that patients are being discharged earlier than they should due to high IBUR where demand for beds might lead to patients getting discharged too soon. It can also be due to the fact that referral rates to other hospitals are high.

National overview

Figure 5 shows the national district hospital ALOS trends from 2012/13 to 2016/17. The national ALOS for district hospitals for 2016/17 was 4.4 days and has been consistently around 4 days from 2012/13.

Figure 5: National average length of stay trends, 2012/13–2016/17

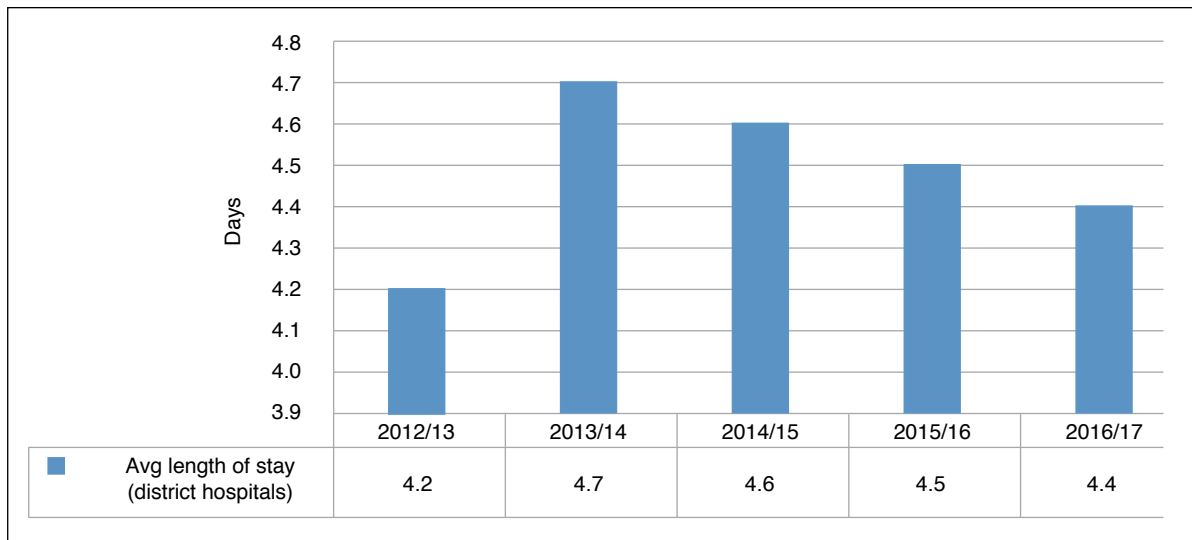
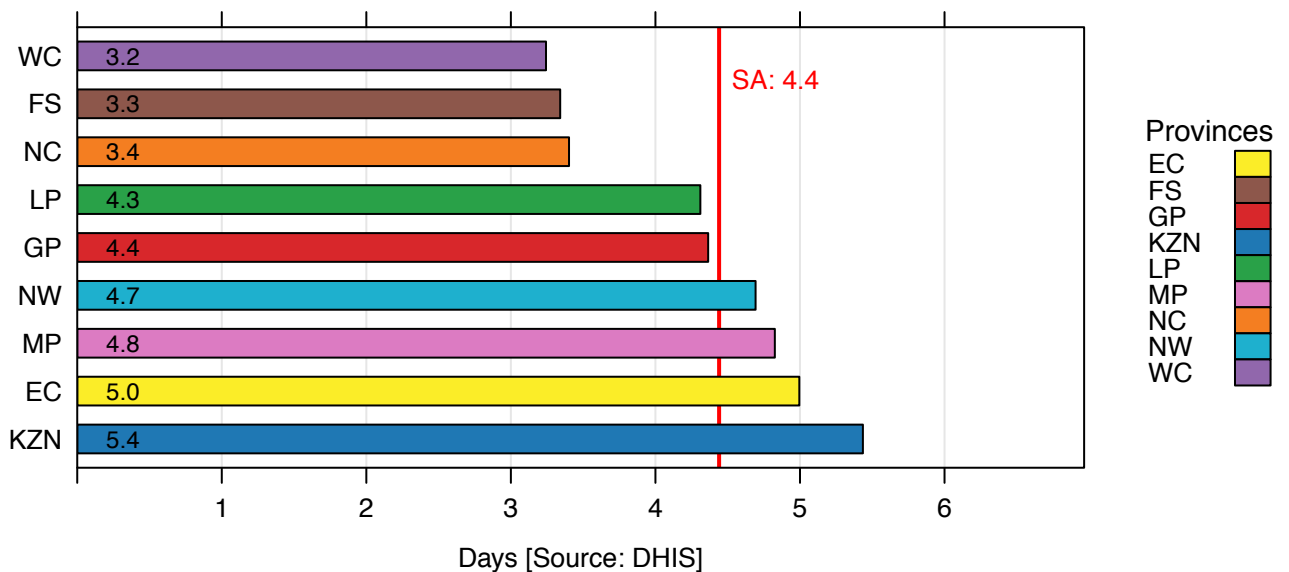


Figure 6 represents ALOS for district hospitals by province for 2016/17. The ALOS for district hospitals per province ranges from 3.2 days in the Western Cape to 5.4 days in KwaZulu-Natal (KZN). Eastern Cape (5.0 days) and KwaZulu-Natal have had the longest ALOS for the fourth successive year and both provinces have a significant number of rural district hospitals.

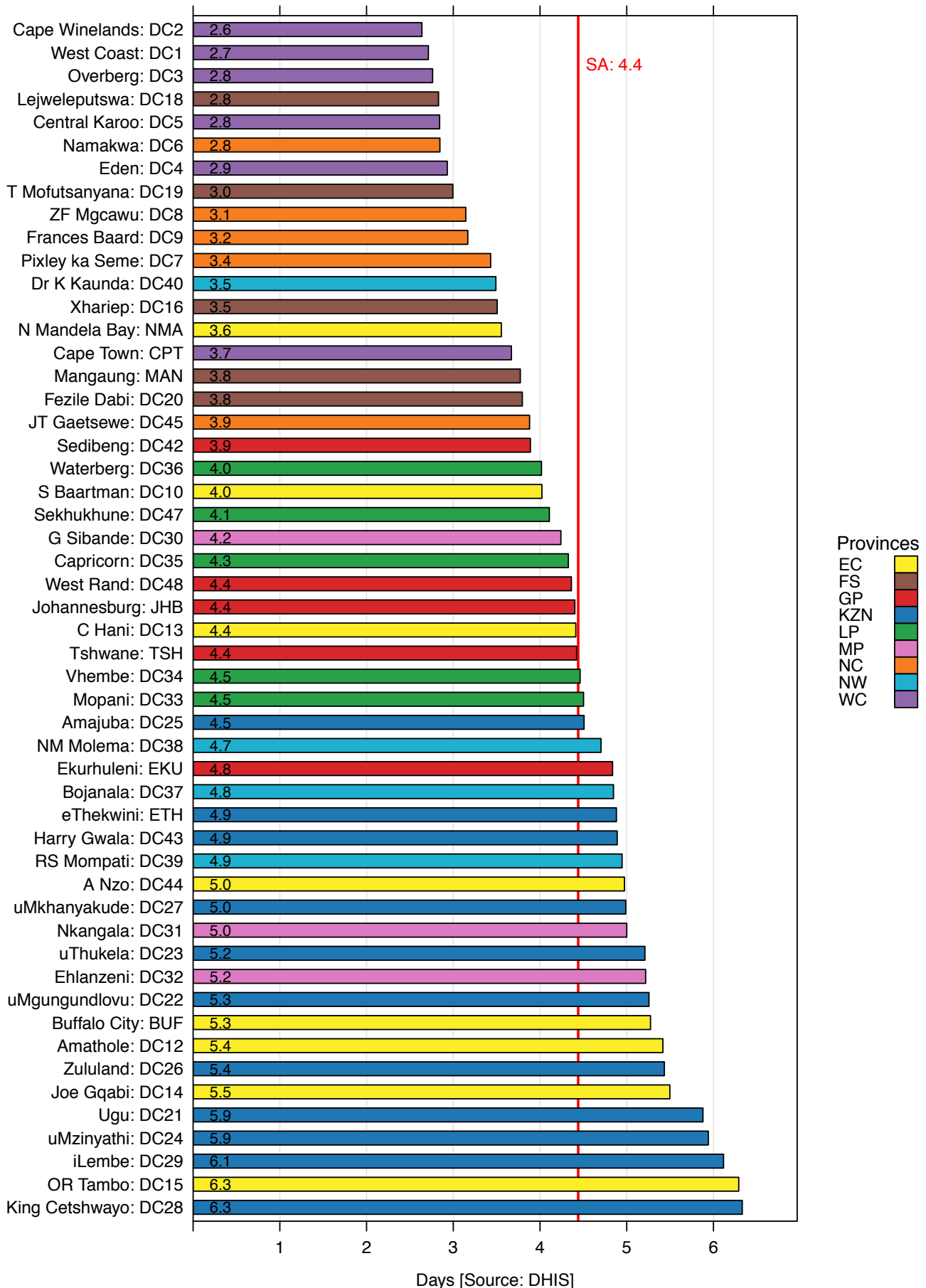
Figure 6: Average length of stay by province, 2016/17



District overview

Figure 7 and Map 2 show the district ALOS for 2016/17. Average length of stay ranges from 2.6 to 6.3 days. Both King Cetshwayo (KZN) and OR Tambo (EC) districts reported ALOS of 6.3 days which is above the national average of 4.4 days. This warrants further investigation in order to apply corrective measures.

Figure 7: Average length of stay by district, 2016/17



Map 2: Average length of stay by district, 2016/17

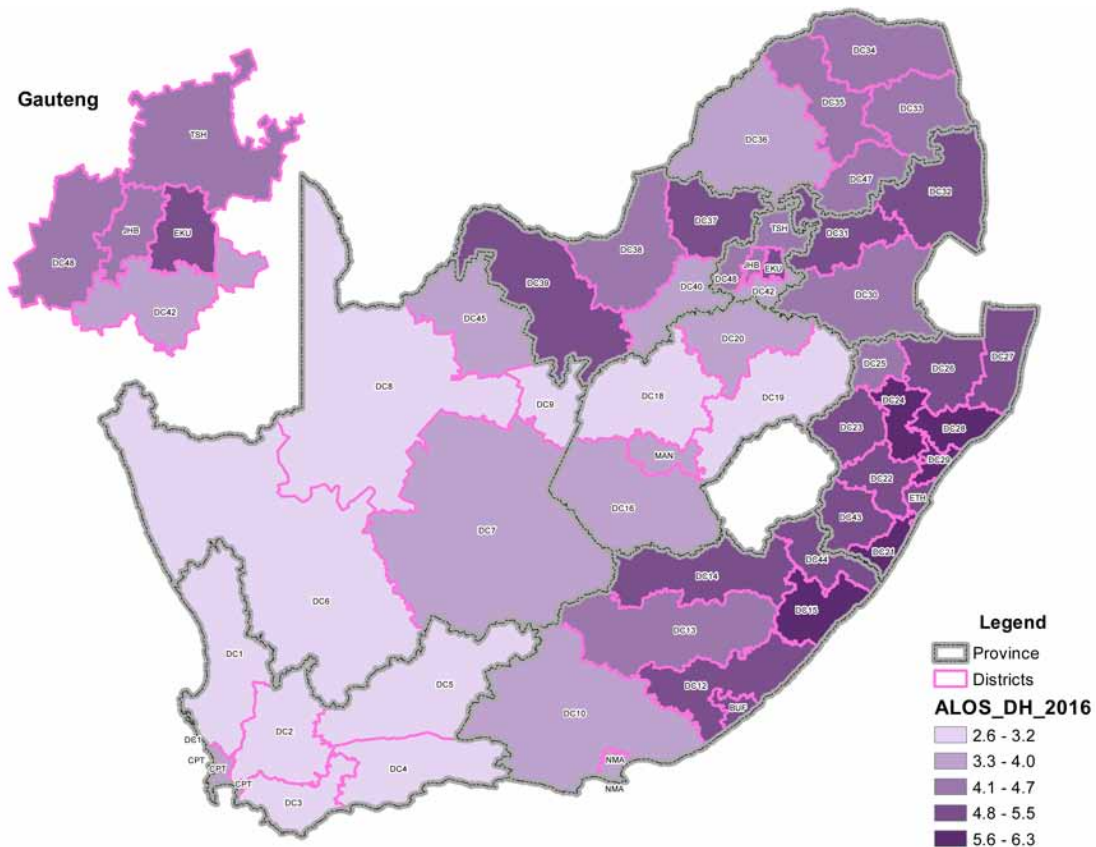
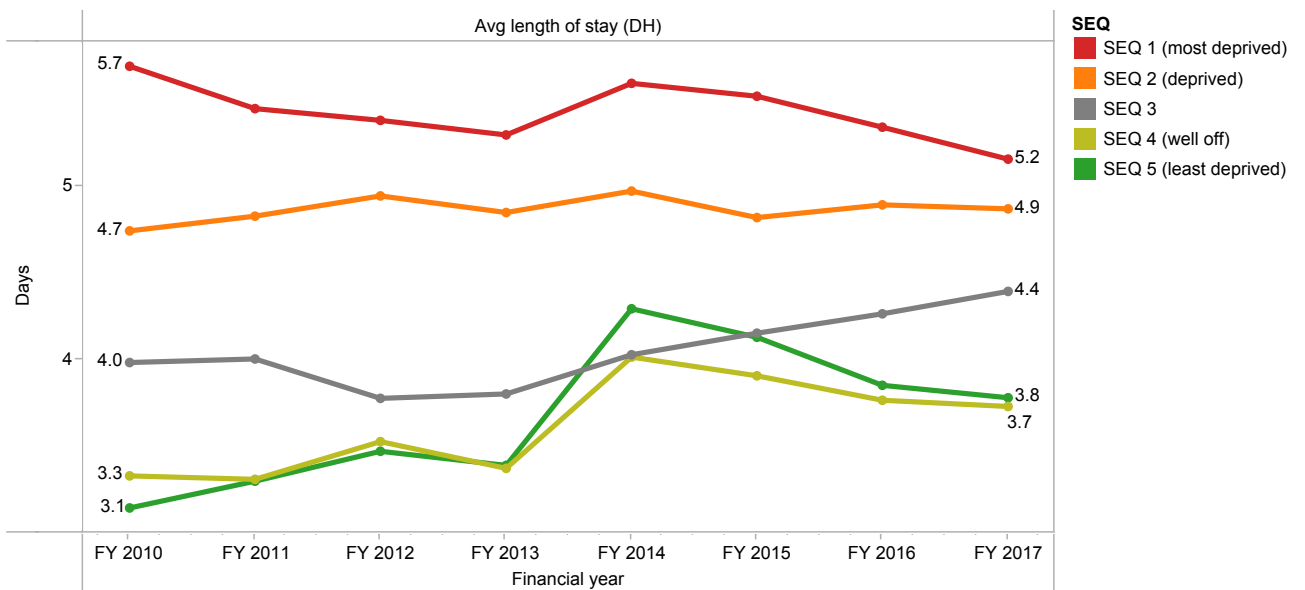


Figure 8 shows ALOS by SEQ from 2009/10 to 2016/17. A long ALOS is generally seen in the most-deprived- and deprived districts (SEQ1 and 2) when compared to SEQ4 and SEQ5.

Figure 8: Trends in average district values by SEQ for average length of stay, 2009/10–2016/17



Key findings

- ◆ Over the past three years the ALOS increased by more than a day in Xhariep (FS) (1.3 days) and decreased by more than a day in Chris Hani (EC) (1.1 days) and eThekweni (KZN) (1.2 days).
- ◆ The difference in ALOS between the least-deprived districts (SEQ5) and most-deprived districts (SEQ1) was 1.5 days in 2016/17. On the other hand, the IBUR was the highest in SEQ5 districts and the lowest in SEQ1 districts.

Recommendations

- ◆ The relationship between a low IBUR and a long ALOS in the SEQ1 districts should be investigated.

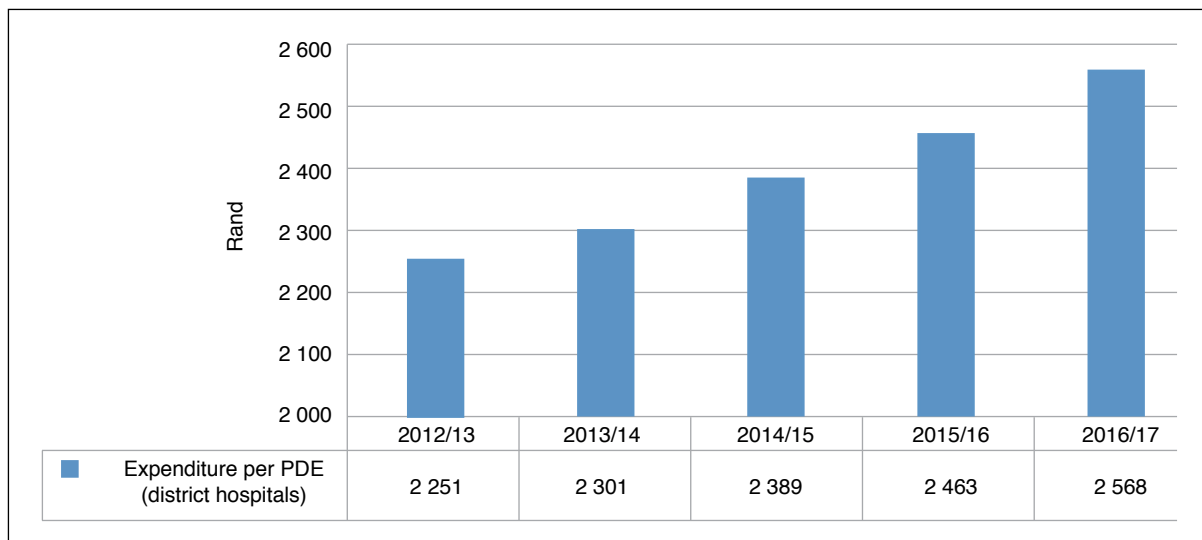
3.3 Expenditure per patient day equivalent (district hospitals)

Expenditure per patient day equivalent is a composite process indicator that connects financial data with service-related data from the hospital admissions and outpatient records. This indicator measures how the resources available to the hospital are being spent, and is a marker of efficiency. The indicator measures the average cost per PDE at a district hospital, and is expressed as Rand per PDE. The indicator value is calculated by dividing the total expenditure of the hospital (within budget programme 2: district health services, as recorded in the Basic Accounting System (BAS)) by the number of PDEs. Patient day equivalent is calculated by adding the number of inpatients, plus half the number of day patients, plus one-third the number of outpatients and emergency room visits as recorded in the District Health Information Software (DHIS). All the expenditure per PDE figures have been adjusted to take the effect of inflation into account and are presented in real 2016/17 prices.

National overview

Figure 9 shows the national expenditure per PDE trends from 2012/13 to 2016/17. As expected, there has been an increase in expenditure per PDE over the years.

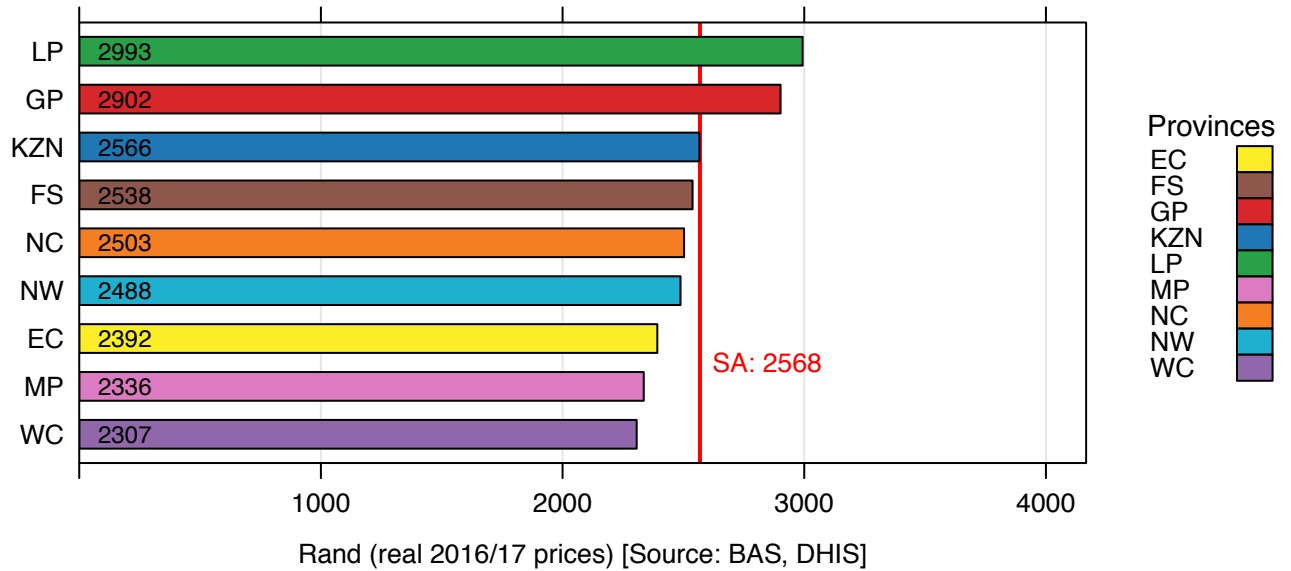
Figure 9: National expenditure per patient day equivalent, 2012/13–2016/17



Provincial overview

Figure 10 shows expenditure per PDE by province for 2016/17. The national average expenditure per PDE for district hospitals was R2 568. Limpopo (LP) had the highest expenditure per PDE of R2 993 followed by Gauteng (GP) at R2 902.

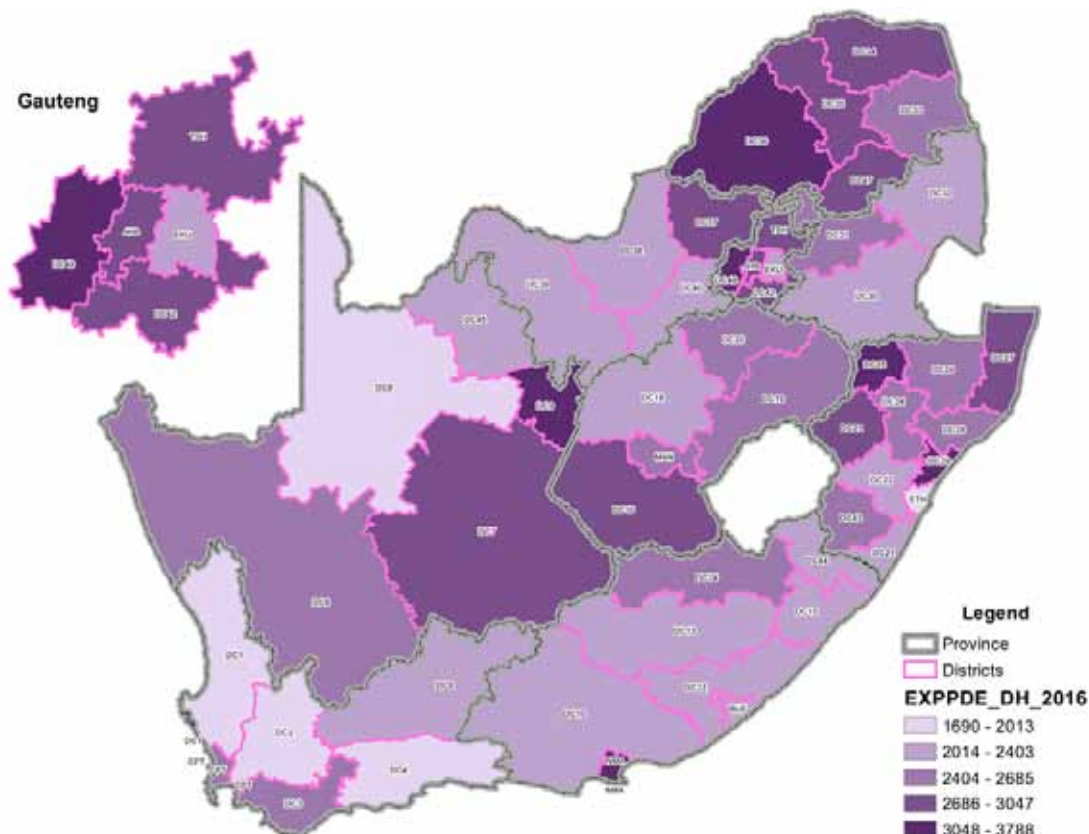
Figure 10: Expenditure per patient day equivalent (district hospitals) by province, 2016/17



District overview

Figure 11 and Map 3, which display expenditure per PDE by district for 2016/17, show that there is over 40% difference between Amajuba (KZN) which had the highest expenditure per PDE at R3 788, and ZF Mgcawu (NC) which had the lowest expenditure per PDE at R1 690. ZF Mgcawu (NC) had the fifth lowest IBUR (59.3%) and the ninth shortest ALOS (3.1 days) and the lowest expenditure per PDE. The IBUR and ALOS in Amajuba (KZN) was in line with the national average but had the highest expenditure per PDE.

Map 3: Expenditure per patient day equivalent, 2016/17



Section A: Inpatient management

Figure 11: Expenditure per patient day equivalent, 2016/17

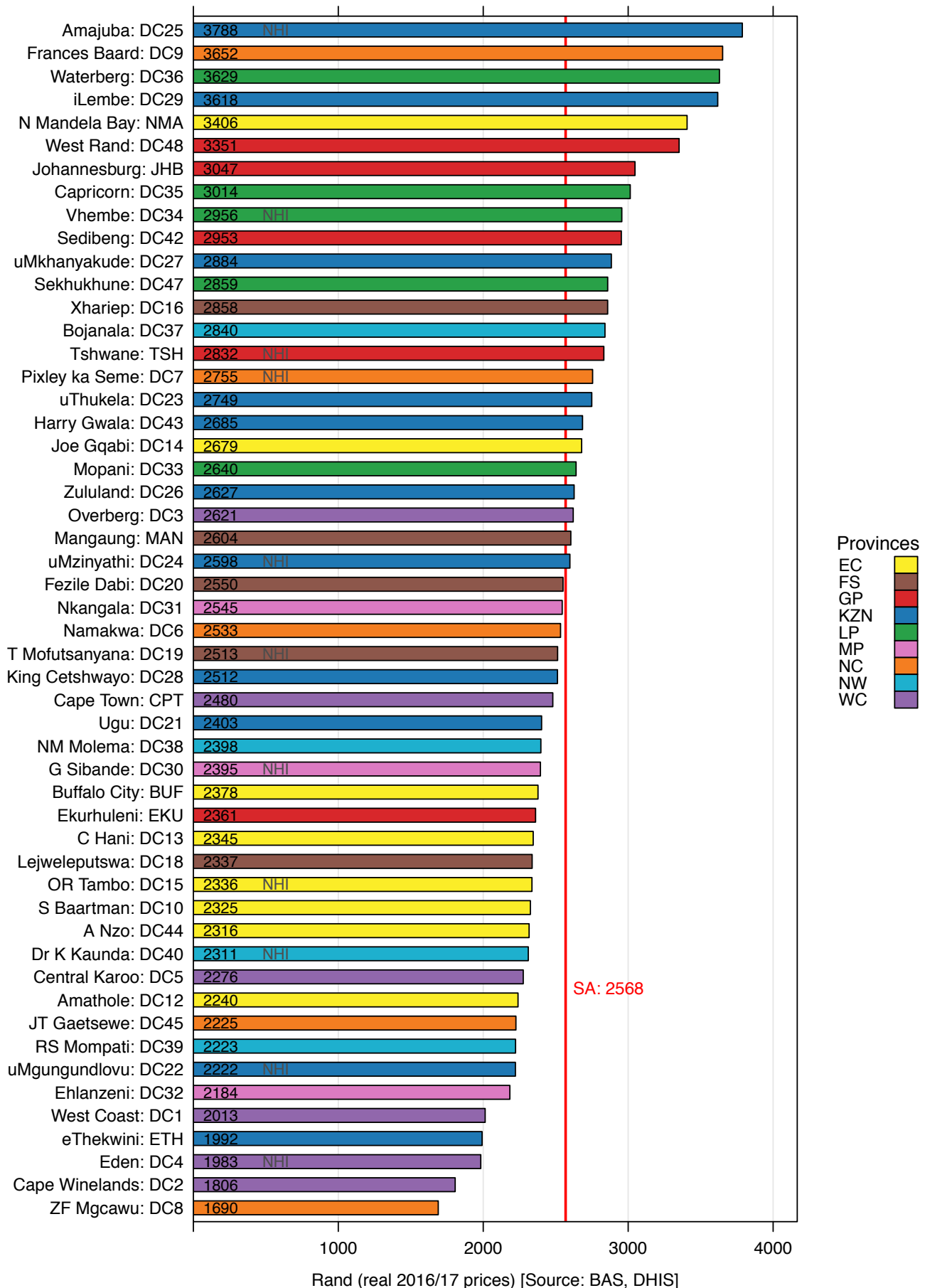
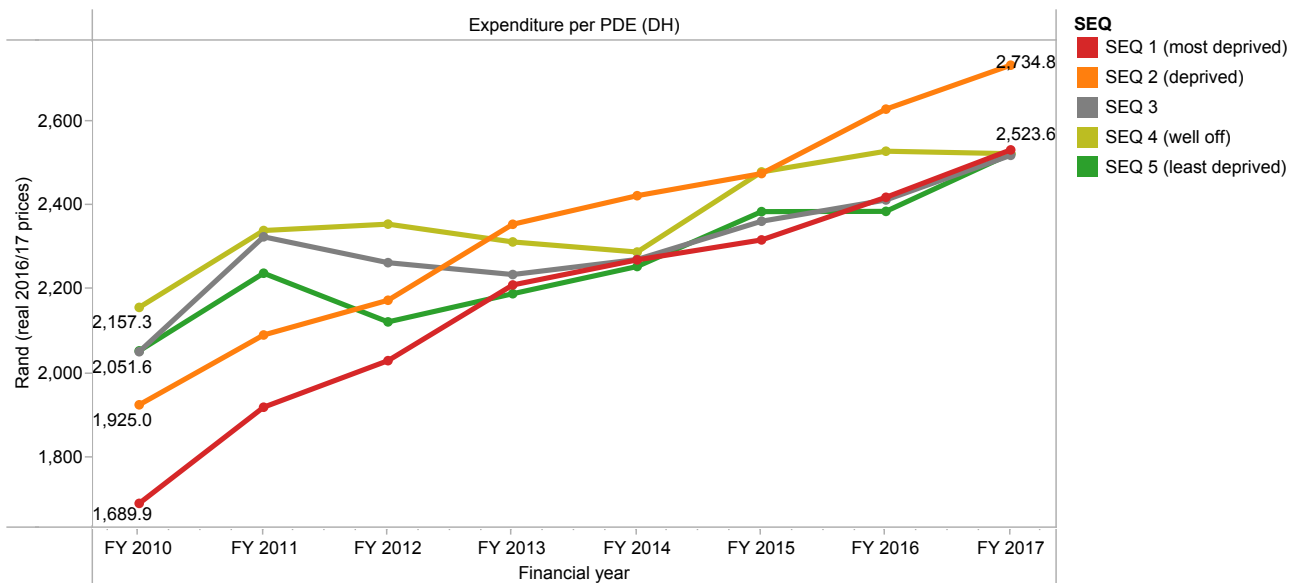


Figure 12 shows an increase in expenditure per PDE for SEQ1 and 2 over the years with SEQ2 having the highest value in 2016/17.

Figure 12: Trends in average district values by SEQ for expenditure per patient day equivalent, 2009/10–2016/17



Key findings

- ◆ Although the expenditure per PDE figures have been adjusted to take the effect of inflation into account and are presented in real 2016/17 prices, an increase in the expenditure per PDE is noticed over the past five years. This means that increases in expenditure over time reflect greater availability of resources rather than merely increases to cover the increasing cost of health care due to inflation.
- ◆ The increase in expenditure per PDE in some districts was much higher than the provincial averages, e.g. Nelson Mandela Bay (EC), Amajuba, iLembe (both in KZN), Waterberg (LP) and Frances Baard (NC).
- ◆ SEQ1 with the lowest IBUR and the longest ALOS had the second lowest expenditure per PDE at R2 533. This warrants investigation.

Recommendations

- ◆ There is a need to investigate rising expenditure per PDE for Nelson Mandela Bay (EC), Amajuba and iLembe (KZN), Waterberg (LP) and Frances Baard (NC) districts.
- ◆ An analysis per budget item is needed to identify the main cost drivers for the increasing expenditure per PDE.
- ◆ There is a need to ascertain whether or not the overall rising expenditure per PDE is translated into better health outcomes.

3.4 OPD new client not referred rate (district hospitals)

Outpatient department new client not referred rate refers to the percentage of new outpatient clients who enter a hospital without a referral letter. The percentage is calculated by dividing new OPD cases that are not referred (numerator) by all new OPD cases (denominator). Outpatient Department follow-up visits and emergency clients are excluded from the denominator. The OPD new client not referred rate monitors the utilisation trends of clients who bypass PHC facilities. There is no target set for this indicator.

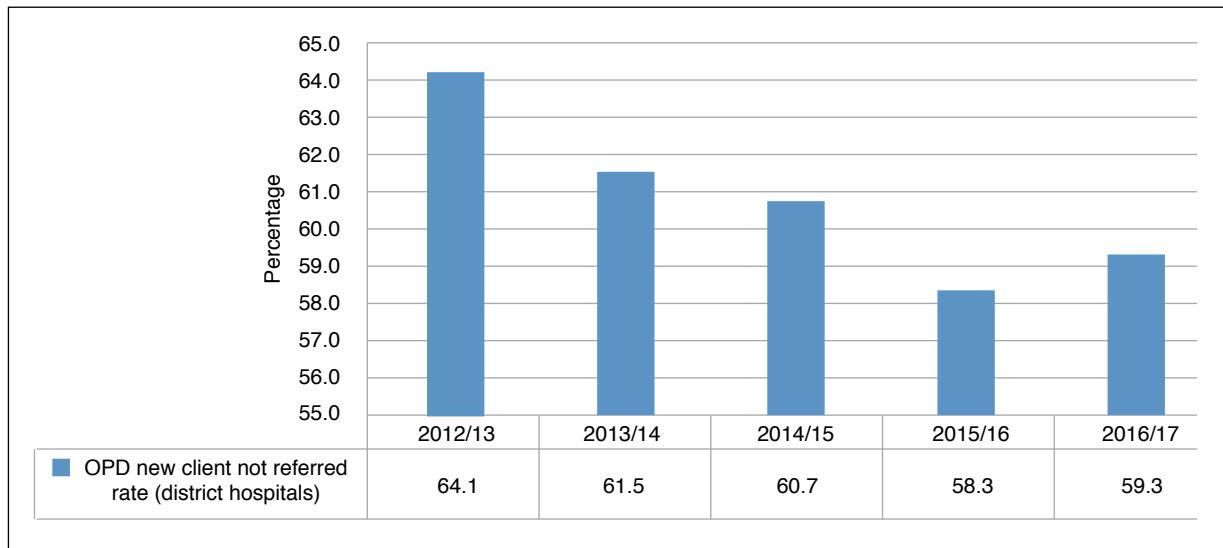
A high OPD new client not referred rate value could indicate overburdened PHC facilities or a lack of referral systems. In light of the National Health Insurance Policy,^a the PHC level is the first point of contact with the health system and therefore key to ensure health system sustainability. If it works well and the referral system is seamless, it is associated with fewer visits to specialists and to emergency rooms.

^a National Department of Health. National Health Act, 2003. National Health Insurance Policy, Towards Universal Health Coverage. National Department of Health. Pretoria. 2017.

National overview

Figure 13 shows that there has been a decline in OPD new client not referred rate for district hospitals from 2012/13 to 2015/16 and then a one percentage point increase in 2016/2017.

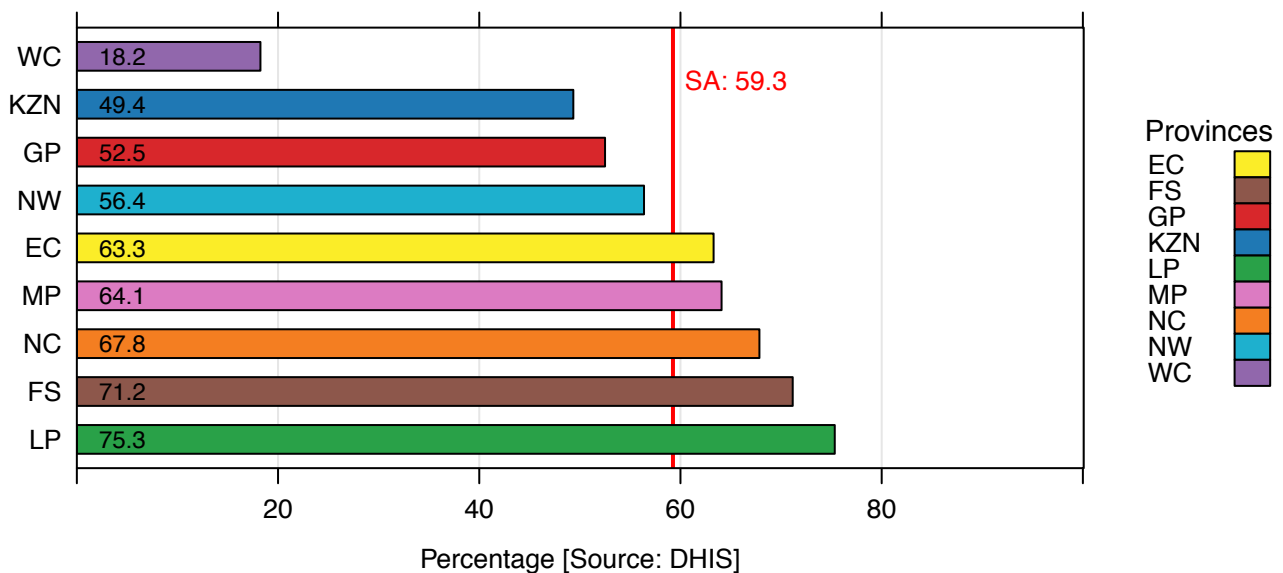
Figure 13: National OPD new client not referred rate, 2012/13–2016/17



Provincial overview

Figure 14 shows the OPD new client not referred rate by province for 2016/17. It ranges from 18.2% (Western Cape) to 75.3% (Limpopo) with a national average of 59.3%.

Figure 14: OPD new client not referred rate (district hospitals) by province, 2016/17



District overview

Figure 15 and Map 4 shows the OPD new client not referred rate by district for 2016/17. In Limpopo the OPD new client not referred rate ranged from 68.3% in Capricorn to 91.0% in Waterberg. Among all the districts the rate ranged from 3.3% in Central Karoo (WC) to 91.0% in Waterberg (LP). In almost 50% of the districts more than 60% of clients bypassed PHC facilities to go straight to the hospitals without referral letters.

Map 4: OPD new client not referred rate by district, 2016/17

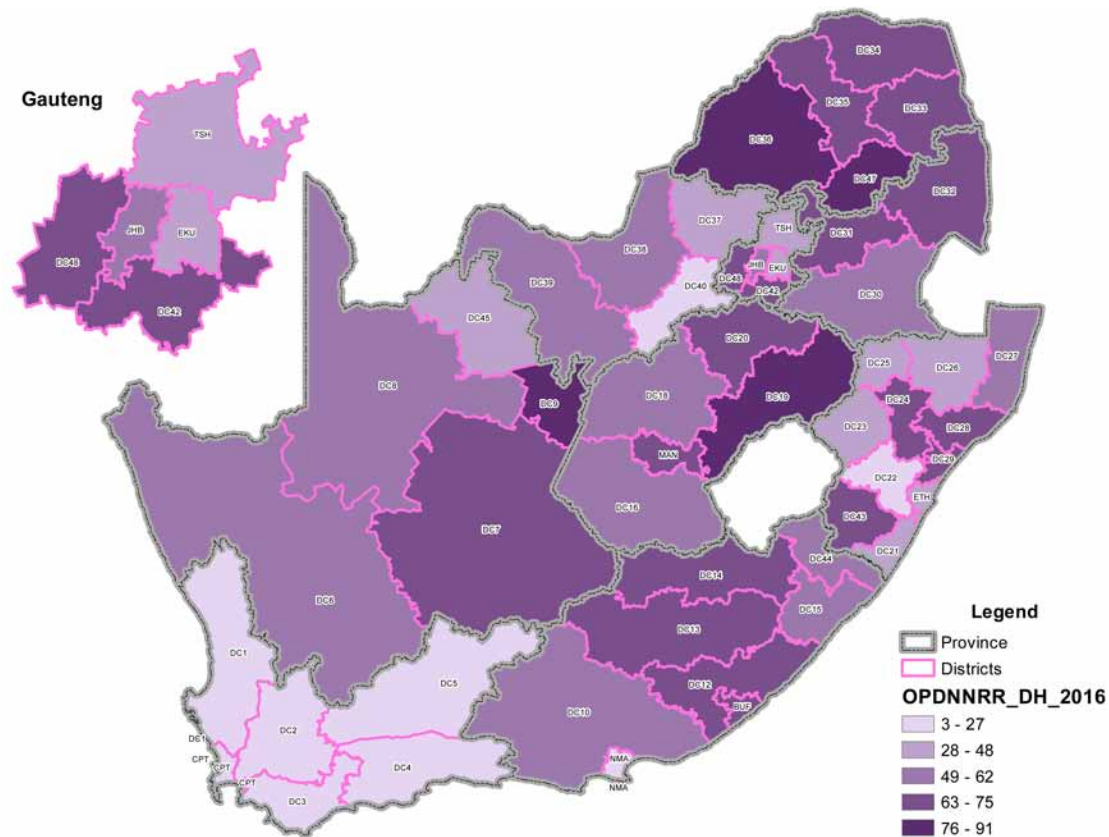


Figure 15: OPD new client not referred rate by district, 2016/17

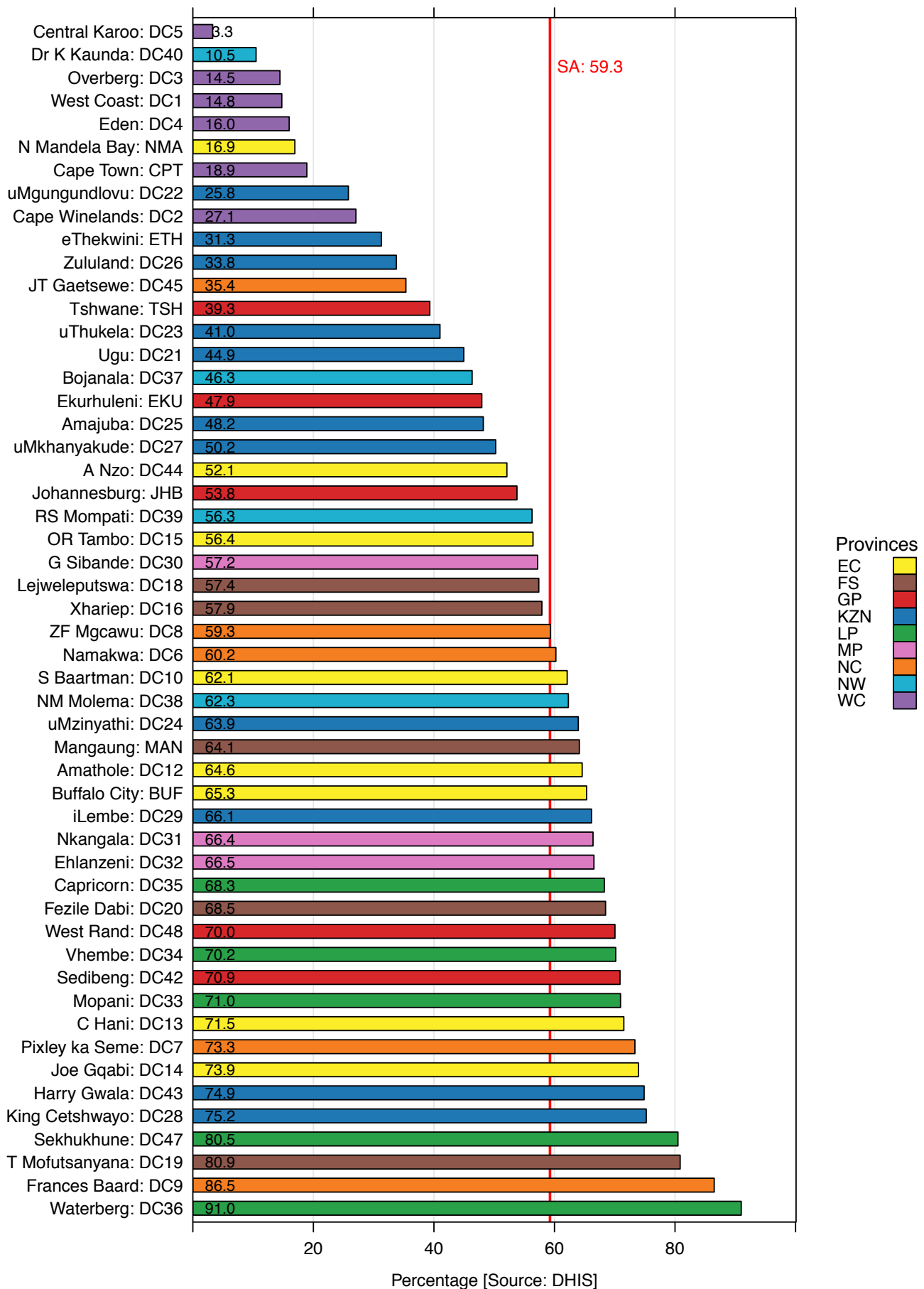
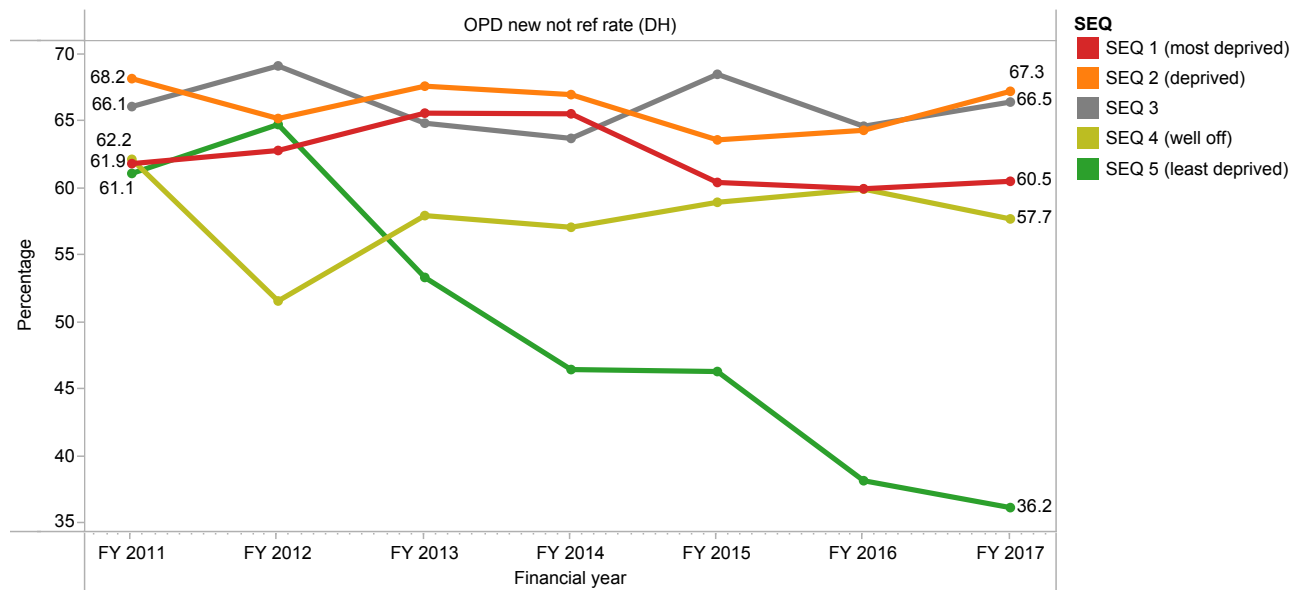


Figure 16 shows that while there is a steep decrease in the OPD new client not referred rate in SEQ5, the OPD new client not referred rate for SEQs 1, 2, 3 and 4 remained at around 60% over the years.

Figure 16: Trends in average district values by SEQ for OPD new client not referred rate, 2009/10–2016/17



Key findings

- ◆ Twenty-five of the 52 districts had an OPD new client not referred rate above the national average of 59.3%.
- ◆ There is a 4.1 threshold difference between best-performing province (Western Cape) and the poorest-performing province (Limpopo) and a threshold difference of 27.6 between the best-performing district (Central Karoo (WC)) and the poorest-performing district (Waterberg (LP)).
- ◆ Sedibeng (GP) and Nkangala (MP) districts showed an increasing trend in the rate over the past years.

Recommendations

- ◆ The relatively high average OPD new client not referred rate of around 60% should be investigated.
- ◆ Reasons for the increasing trend in the rate in Sedibeng (GP) and Nkangala (MP) should be determined and addressed.

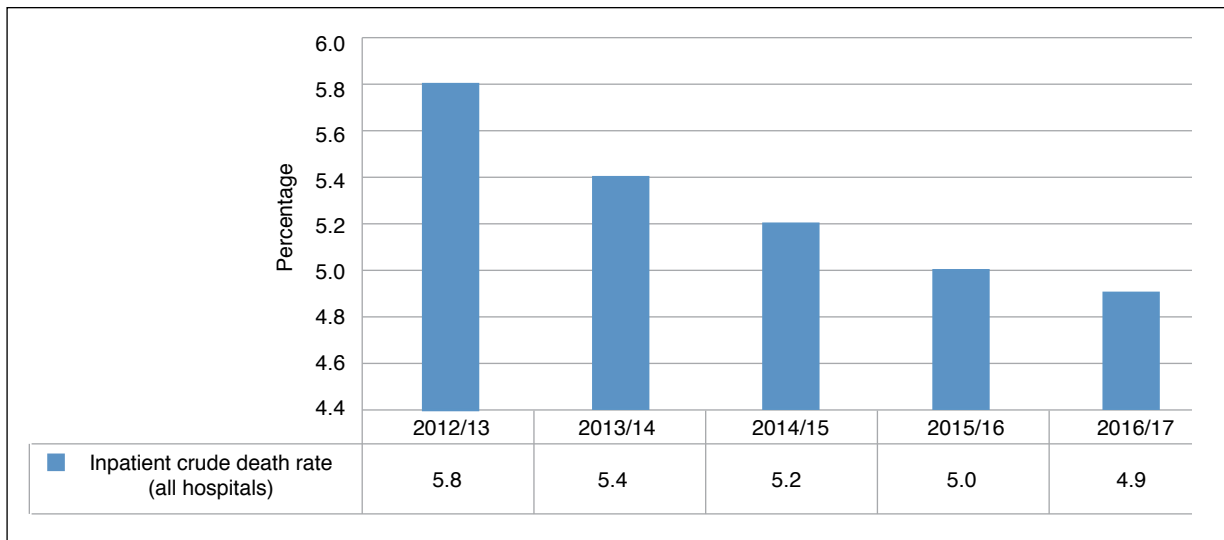
3.5 Inpatient crude death rate (all hospitals)

The inpatient crude death rate (ICDR) is an impact indicator that refers to the proportion of all inpatient separations due to death. Inpatient separations include inpatient transfers out, deaths, and inpatient discharges. The indicator therefore includes deaths from all causes that occur in a health facility.

National overview

Figure 17 shows that there has been a decline of almost one percentage point in the inpatient crude death rate for all hospitals from 2012/13 to 2016/17.

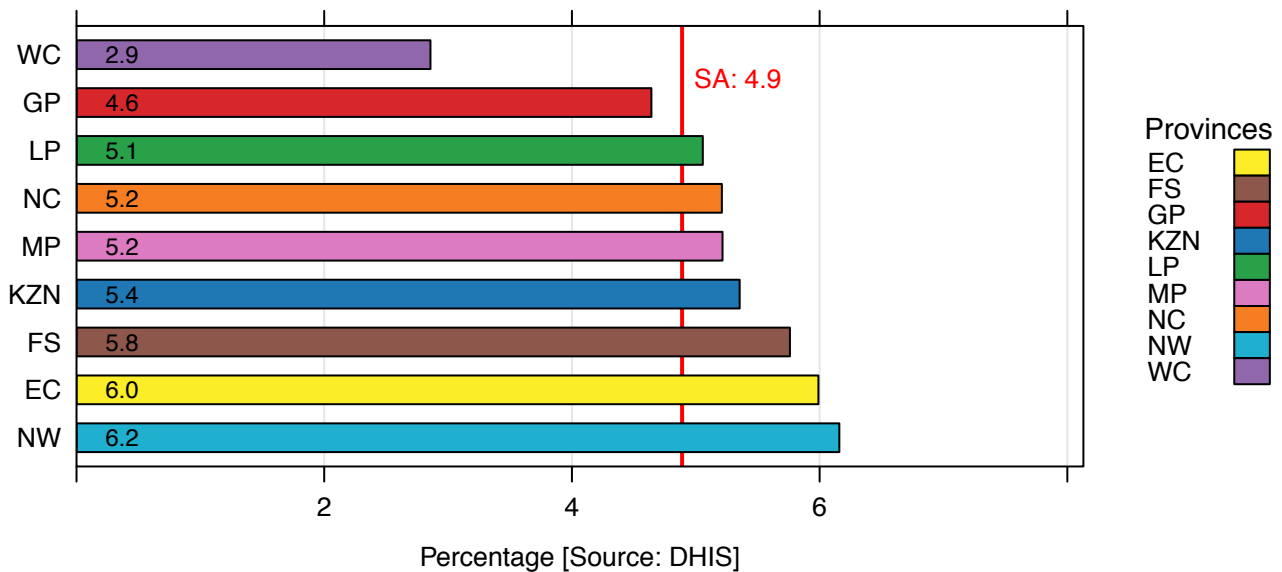
Figure 17: Inpatient crude death rate, 2012/13–2016/17



Provincial overview

Figure 18 represents the inpatient crude death rate for all hospitals by province for 2016/17. It shows that the province with the lowest crude death rate was Western Cape at 2.9%. The other provinces inpatient crude death rate ranges from 4.6% in Gauteng to 6.2% in the North West.

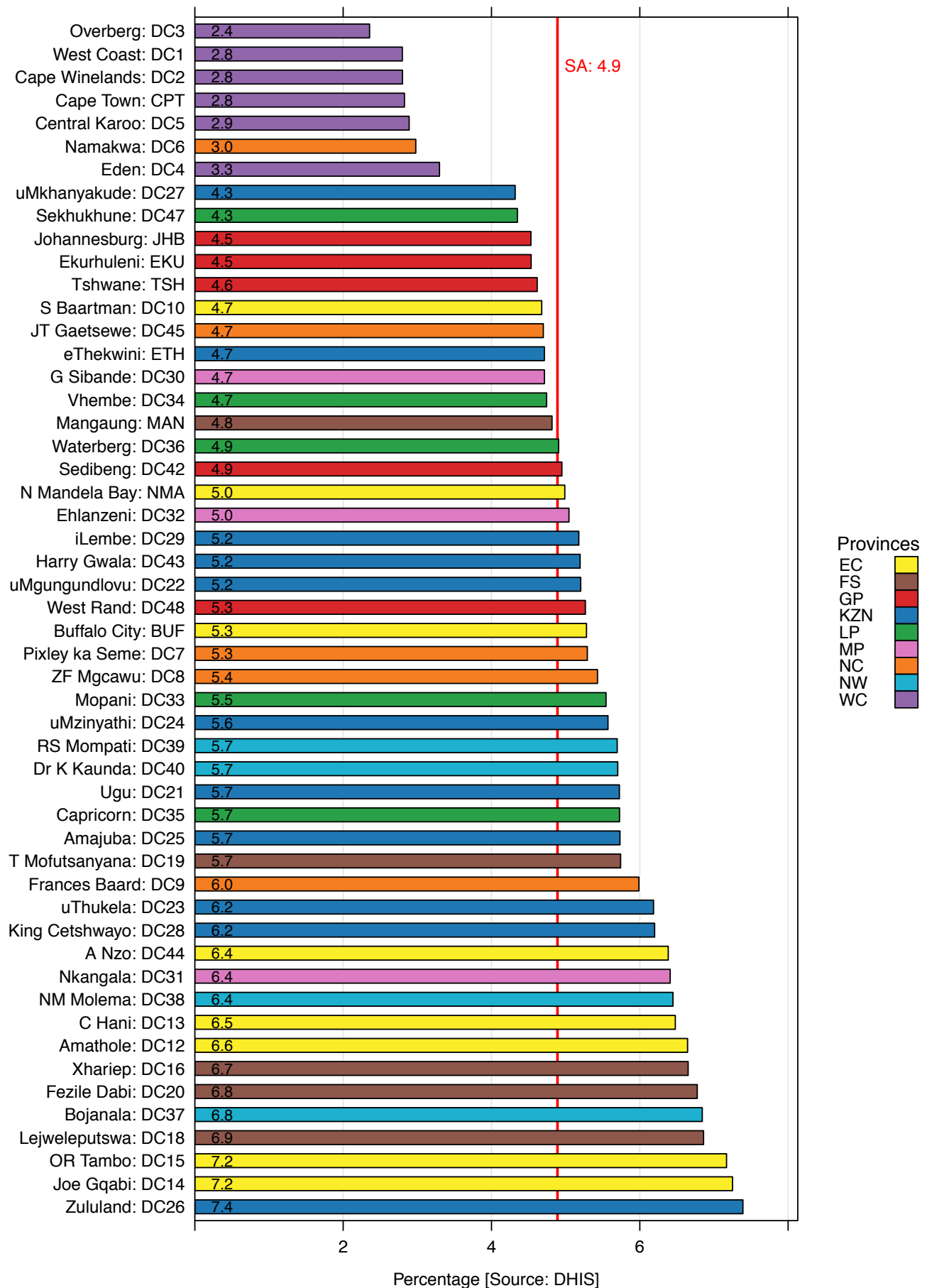
Figure 18: Inpatient crude death rate by province, 2016/17



District overview

Figure 19 and Map 5 show the inpatient crude death rate for all hospitals by district for 2016/17. It ranges from 2.4% in Overberg (WC) to 7.4% in Zululand (KZN).

Figure 19: Inpatient crude death rate by district, 2016/17



Map 5: Inpatient crude death rate by district, 2016/17

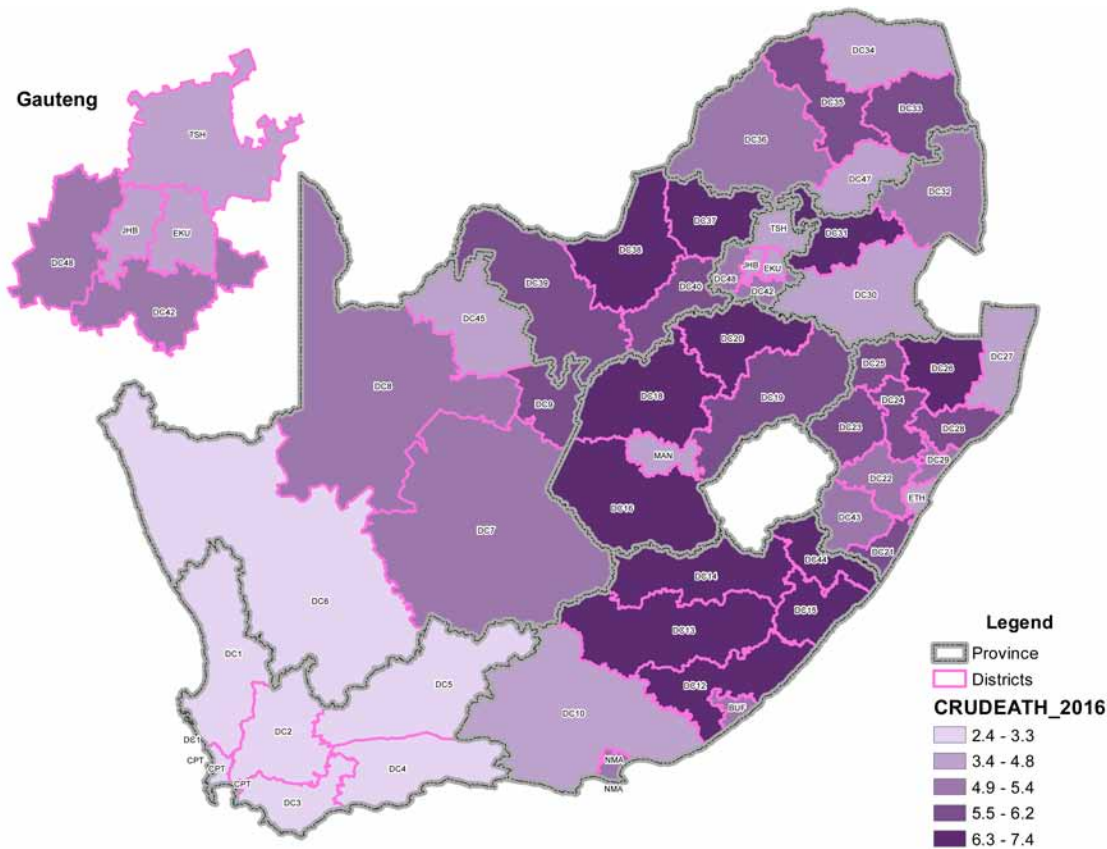
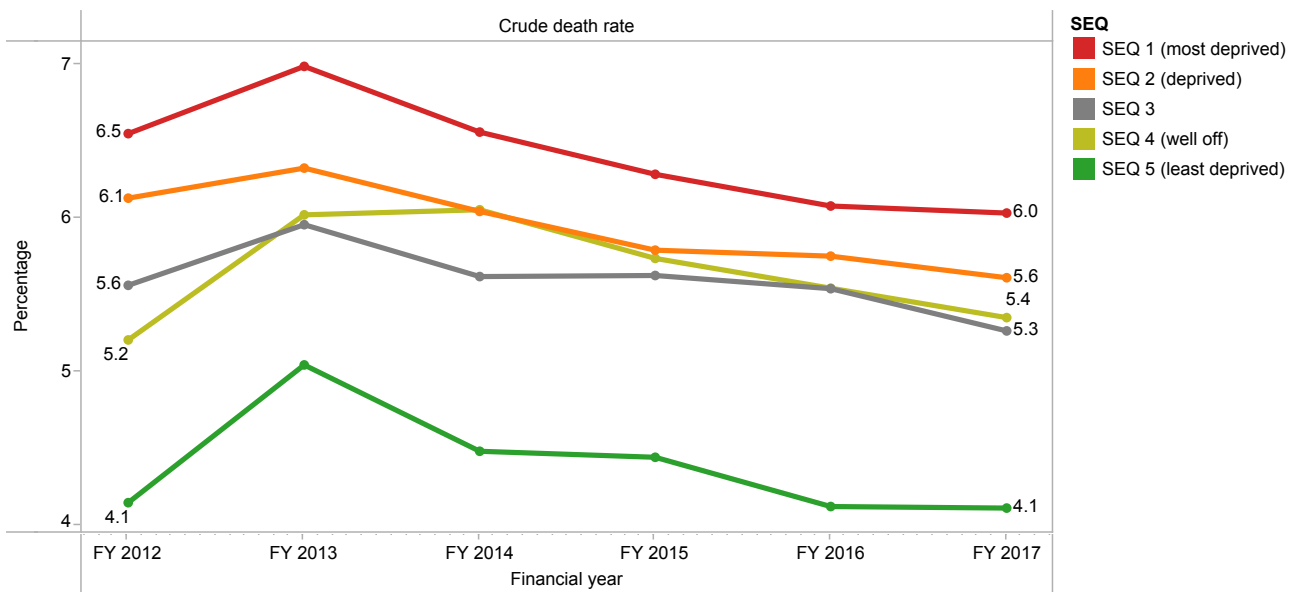


Figure 20 shows that SEQ5 had the lowest inpatient crude death rate between 2011/12 and 2016/17. Despite the fact that there was some reduction in the inpatient crude death rate for SEQ1 and 2 over the years, they still have the highest values.

Figure 20: Trends in average district values by SEQ for inpatient crude death rate, 2011/12–2016/17



Key findings

- ◆ Fifteen districts showed an increase in the inpatient crude death rate between 2015/16 and 2016/17 with the highest increase in Zululand (KZN) of 1.9 percentage points.
- ◆ There is a 2.1 threshold difference between best-performing province (Western Cape) and the poorest-performing district (North West) and a threshold difference of 3.1 between the best-performing district (Overberg (WC)) and the poorest-performing district (Zululand (KZN)).
- ◆ The SQE5 districts have a much lower average (4.1%) inpatient crude death rate than the rest of the SEQs.

Recommendations

- ◆ The sharp increase in the inpatient crude death rate at Zululand district needs to be investigated.
- ◆ Efforts to improve data quality are essential.