12 Non-communicable diseases

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Non-communicable diseases (NCDs) are the leading cause of death globally and in South Africa.[a,b] The costs of NCDs to economies, individuals, societies and the health system are substantial, hence the importance of national and locally appropriate strategies to limit their impact.[c] Together with HIV/AIDS and tuberculosis, violence and injuries, maternal and child health, NCDs form the 'quadruple burden of diseases', a term used to describe the contemporary South African health challenges.[d] The co-morbidity of NCDs and major infectious diseases in the same individual is also increasingly common, with many people living with HIV infection and also having NCDs or their common risk factors.[e]

This chapter focuses on two specific NCD indicators: (1) incidence of new diagnoses of hypertension in public health facilities and (2) incidence of new diagnoses of diabetes mellitus in public health facilities.

12.1 Hypertension incidence

Hypertension or high blood pressure is the most common risk factor for cardiovascular disease (CVD) which is the leading NCD worldwide. The timely diagnosis of people with hypertension, followed by lifestyle changes and adherence to treatment regimens, substantially reduces the risk of complications associated with hypertension. The true incidence of hypertension would refer to the number of new cases of hypertension in the population in a community-based setting.

The 2016 South Africa Demographic and Health Survey[f] indicates that in South Africa 46% of women and 44% of men age 15 years and older have hypertension. The prevalence of hypertension is particularly high in the Western Cape (52% of women and 59% of men), Northern Cape (53% of women and 52% of men), and Free State (54% of women and 48% of men); it is lowest in Limpopo (34% of women and 29% of men).

The incidence of hypertension as defined by the National Indicator Data Set (NIDS) of the National Department of Health measures the number of people newly diagnosed and started on treatment for hypertension in public health facilities per 1 000 population aged 40 years and above. Therefore, the numerator indicates the number of new cases of hypertension started on treatment, regardless of the age of the patient, while the denominator includes everyone aged 40 years and above in the population. As such the resulting incidence rate will be overestimated to some extent, because some people (likely a small number) would be diagnosed and treated for hypertension before the age of 40 years.

National overview

The incidence of new hypertension diagnosis at the national level in 2016/17 was 18.9 cases per 1 000 population aged 40 years and above, reflecting sustained increases since 2014/2015 (Figure 1).

a Pillay-van Wyk V, Msemburi W, Laubscher R, et al. (2016). Mortality trends and differentials in South Africa from 1997 to 2012: Second National Burden of Disease Study. Lancet Glob Health, 4(9):e642–53.

b Statistics South Africa. Mortality and Causes of Death in South Africa, 2015: Findings from Death Notification. 2017, 27–28.

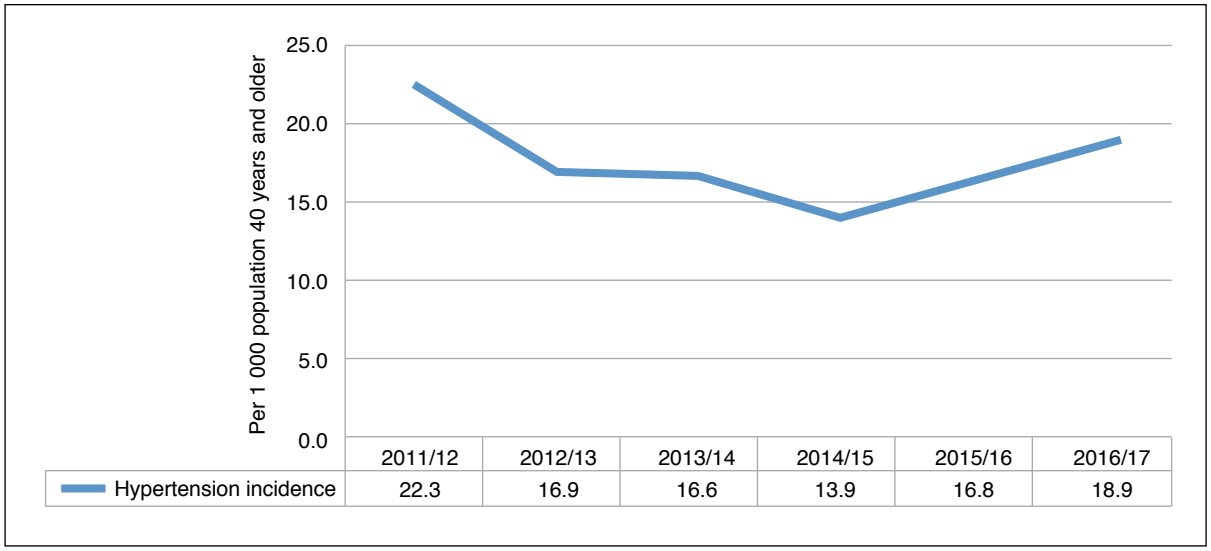
c Kengne AP, June-Rose McHiza Z, Amoah AG, Mbanya JC. (2013). Cardiovascular diseases and diabetes as economic and developmental challenges in Africa. Prog Cardiovasc Dis. 56(3):302–13.

d Kleinert S, Horton R. (2009). South Africa's health: Departing for a better future? Lancet, 374(9692): 759–60.

e Nguyen KA, Peer N, Mills EJ, Kengne AP. (2015). Burden, determinants, and pharmacological management of hypertension in HIV-positive patients and populations: A systematic narrative review. AIDS Rev. Apr-Jun,17 (2):83–95.

f National Department of Health. South Africa Demographic and Health Survey, 2016. Key Indicators Report. National Department of Health. Pretoria, 2016. http://www.statssa.gov.za/publications/Report%2003-00-09/Report%2003-00-092016.pdf [Accessed 30 July 2017].

Figure 1: National hypertension incidence, 2011/12–2016/17



	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Hypertension incidence	22.3	16.9	16.6	13.9	16.8	18.9

Provincial overview

Across provinces, the incidence of new hypertension diagnosis per 1 000 population aged 40 years and older ranged from 7.6 cases in Western Cape (WC) to 26.4 cases in Free State (FS) in 2016/17 (Figure 2). Compared with 2015/16, there were slight decreases in the incidence in Limpopo (LP) and North West (NW) provinces; Northern Cape (NC) remained unchanged; KwaZulu-Natal (KZN) and Western Cape (WC) showed minor increases, whilst the incidence increased by variable magnitude in the remaining provinces (Figure 3). The overall pattern of change in incidence since 2011/12 was in favour of increasing trends in Eastern Cape (EC), Free State, Gauteng (GP) and Mpumalanga (MP), and mostly a flattening trend in other provinces.

Figure 2: Hypertension incidence by province, 2016/17

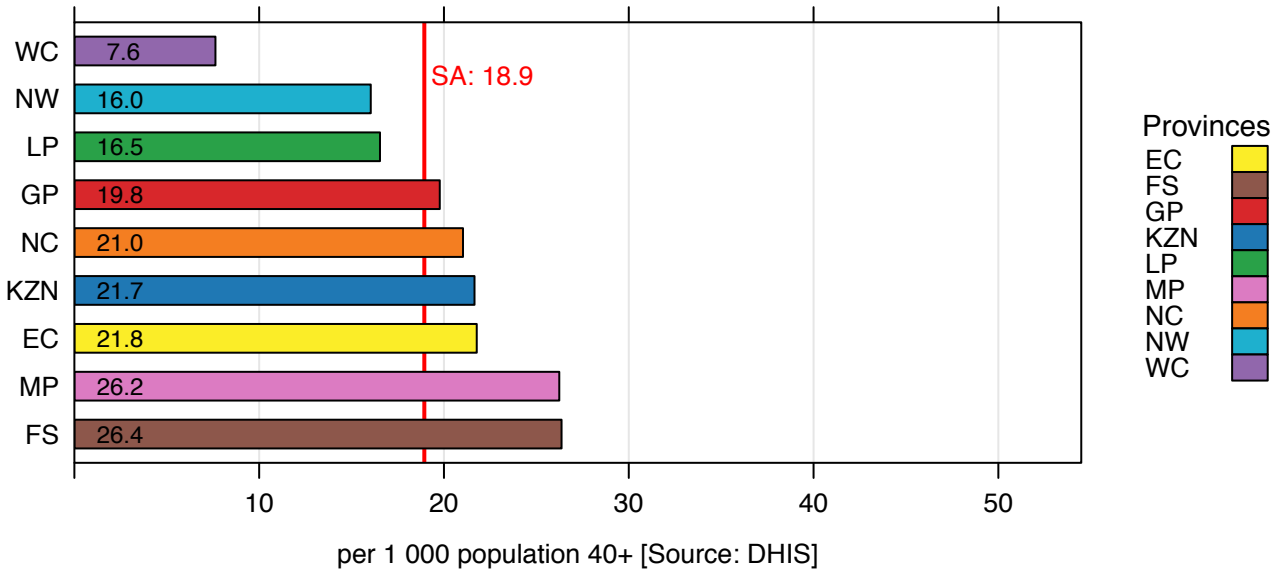
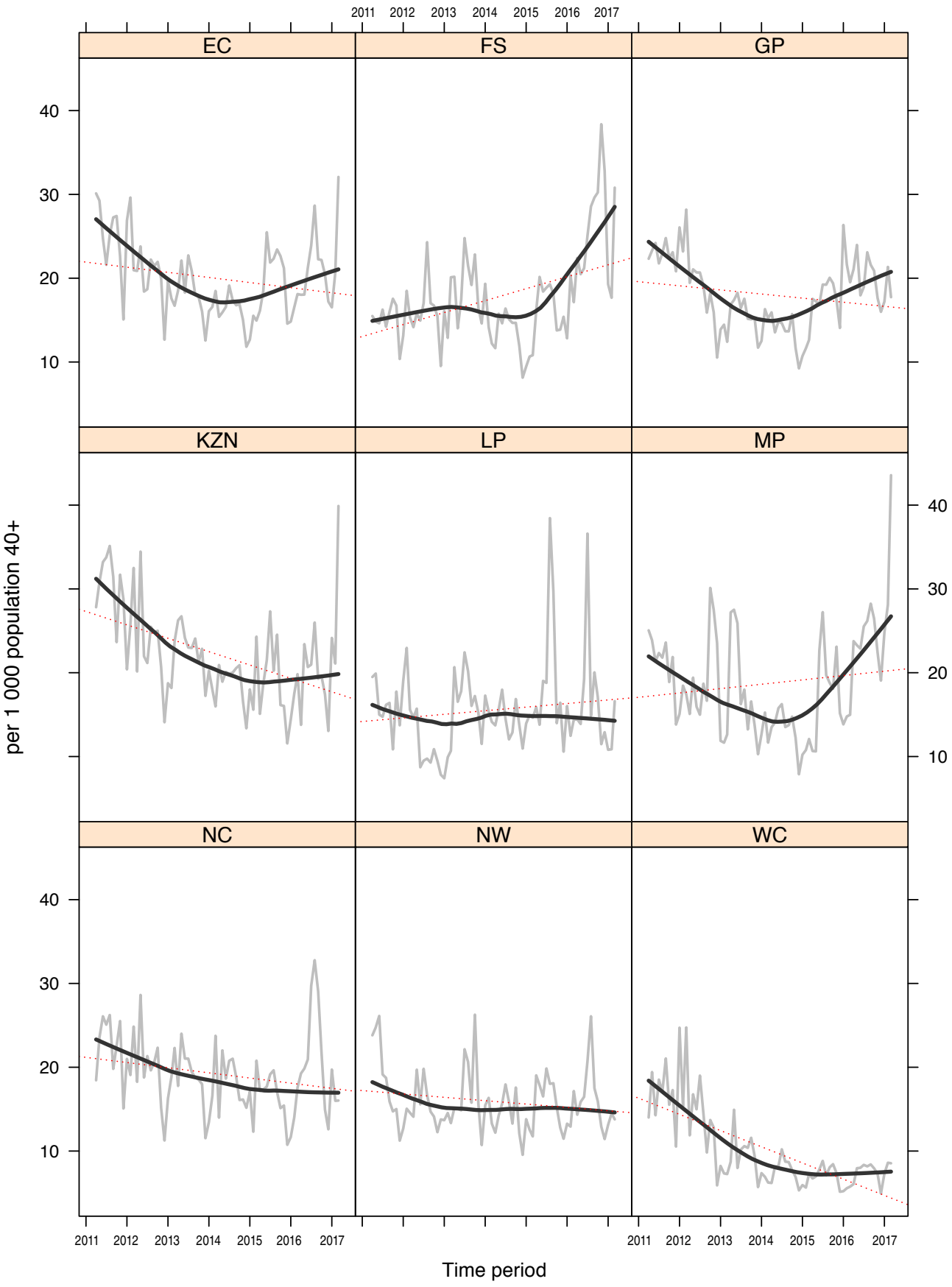


Figure 3: Annual trends in hypertension incidence by province, 2011/12- 2016/17



District overview

The incidence of new hypertension diagnosis per 1 000 population aged 40 years and above in 2016/17, across districts nationwide, ranged from 6.1 cases in Cape Town (WC) to 49.5 cases in Harry Gwala (KZN) as shown in Figure 4 and Map 1.

Incidence varied across districts within provinces, particularly in KwaZulu-Natal, but less so in Northern Cape and Western Cape (Figure 5). Compared with 2015/16, incidences varied by districts across provinces with consistent increases observed only in Mpumalanga and Northern Cape. Hypertension incidence was in general similar across metro and non-metro districts, and varied in similar ways over time by socio-economic status, however with the most deprived districts always having the highest incidence (Figure 6).

Map 1: Hypertension incidence by sub-district, 2016/17

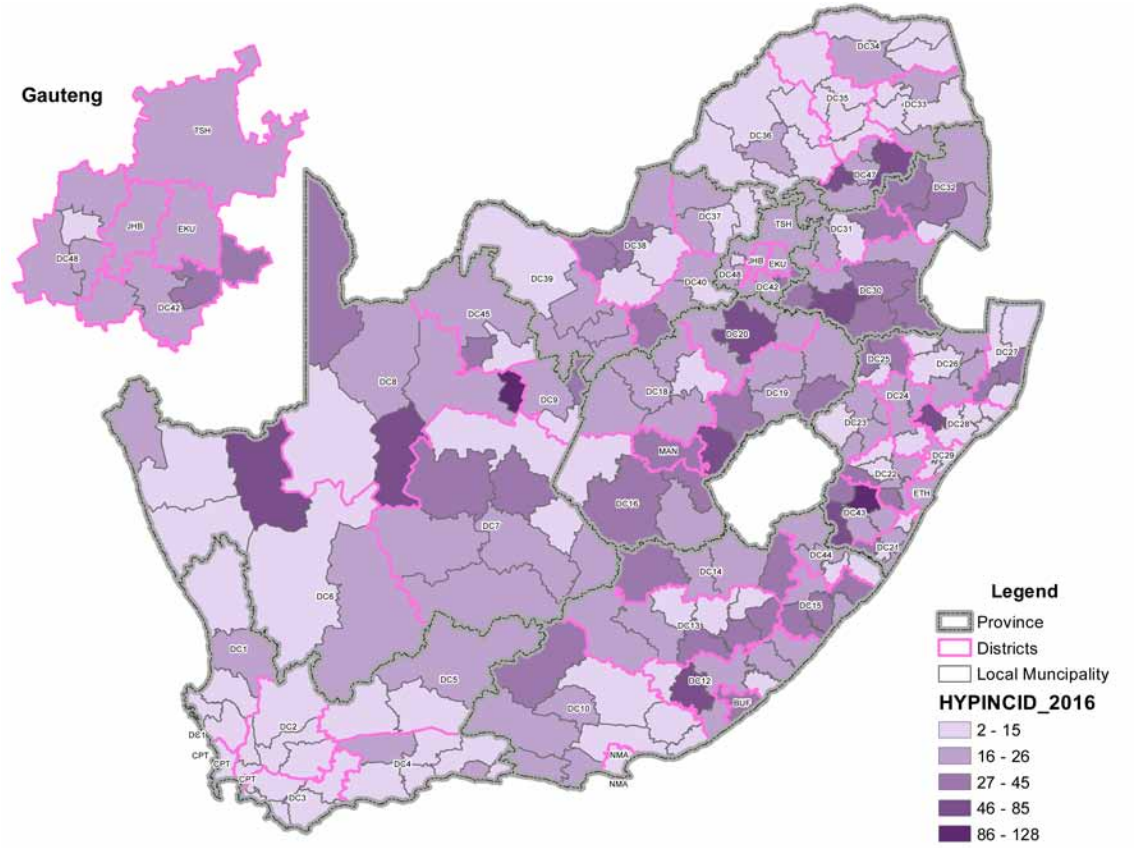


Figure 4: Hypertension incidence by district, 2016/2017

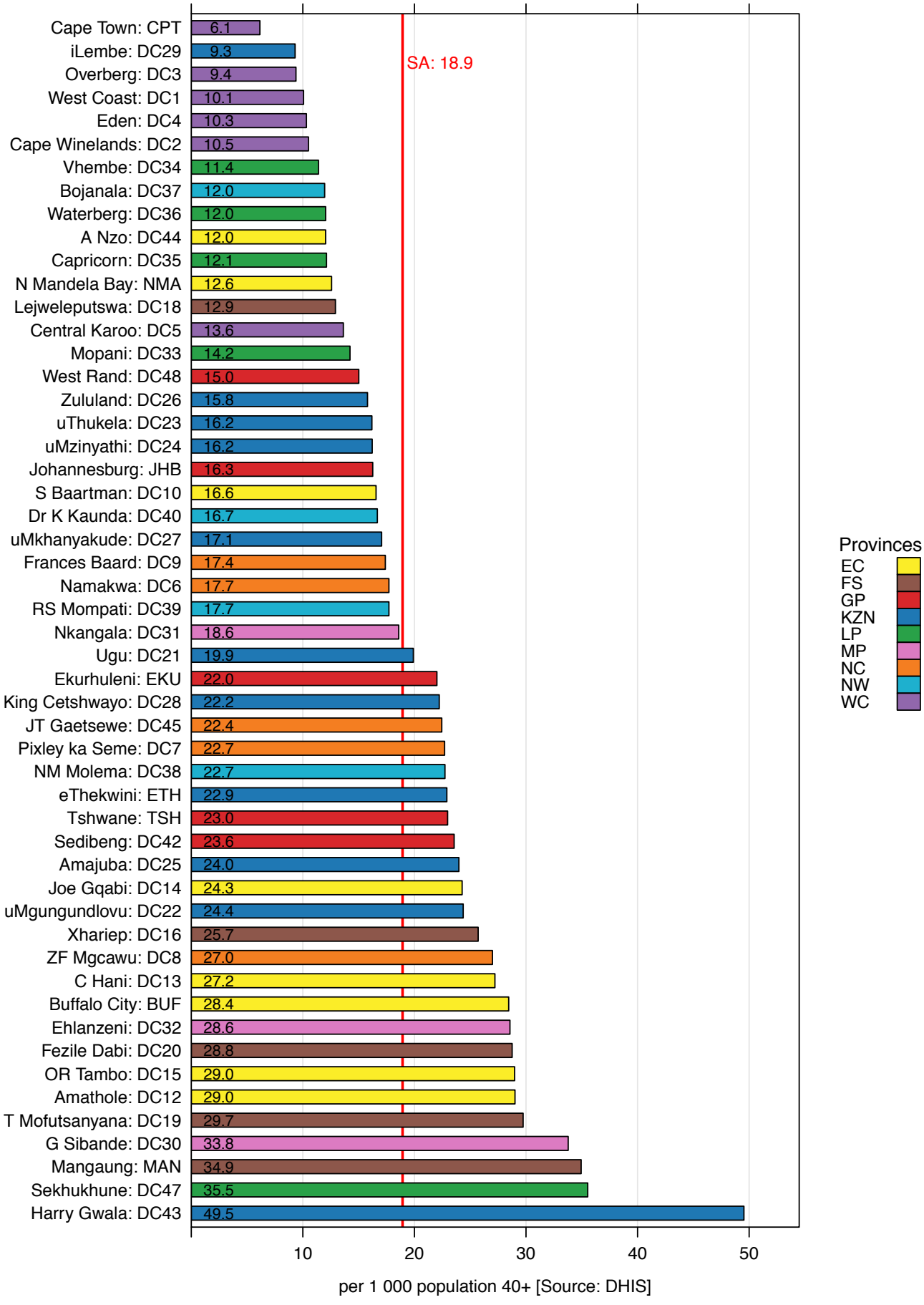


Figure 5: Annual trends for hypertension incidence by province, 2011/12–2016/2017

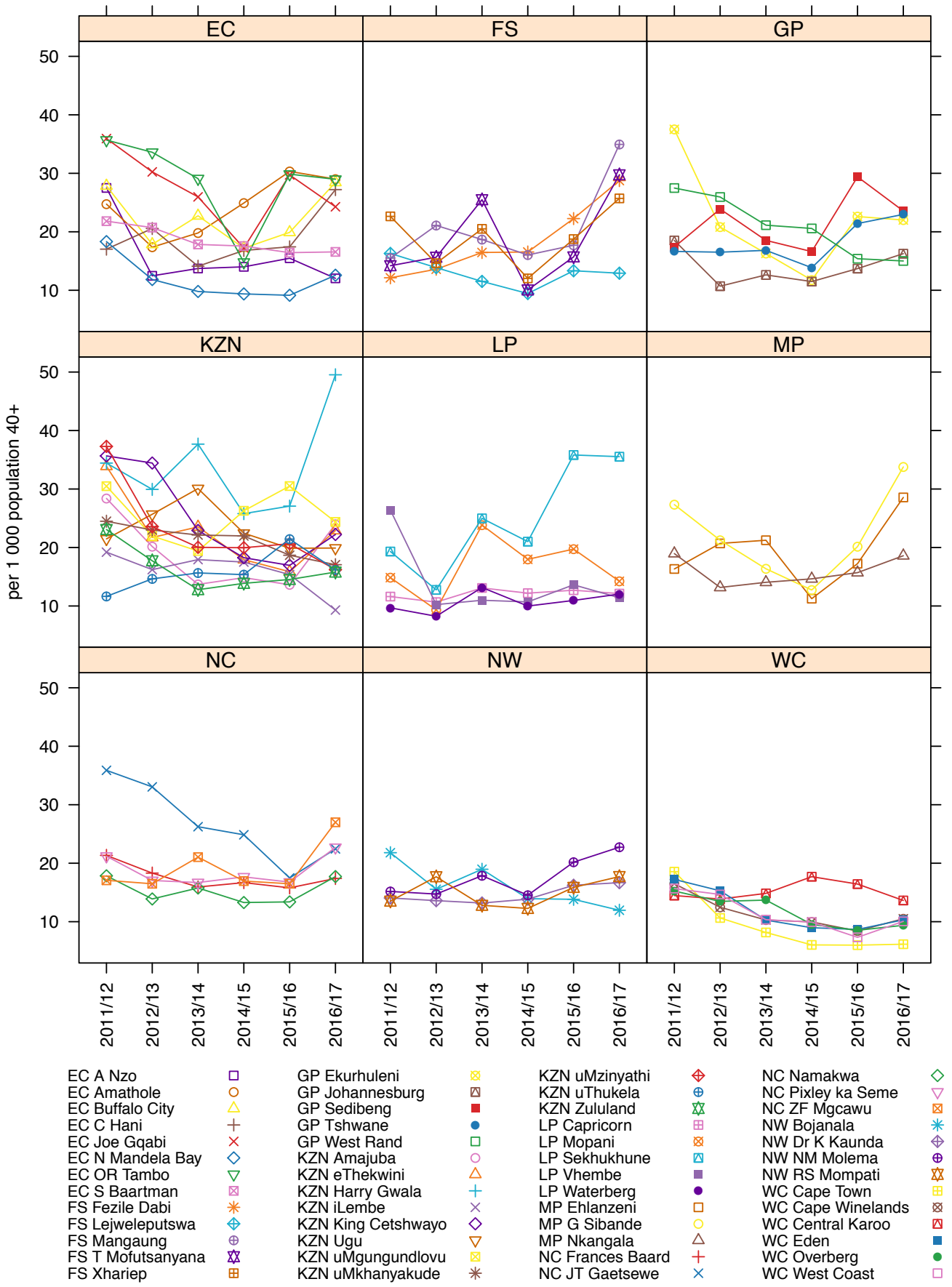
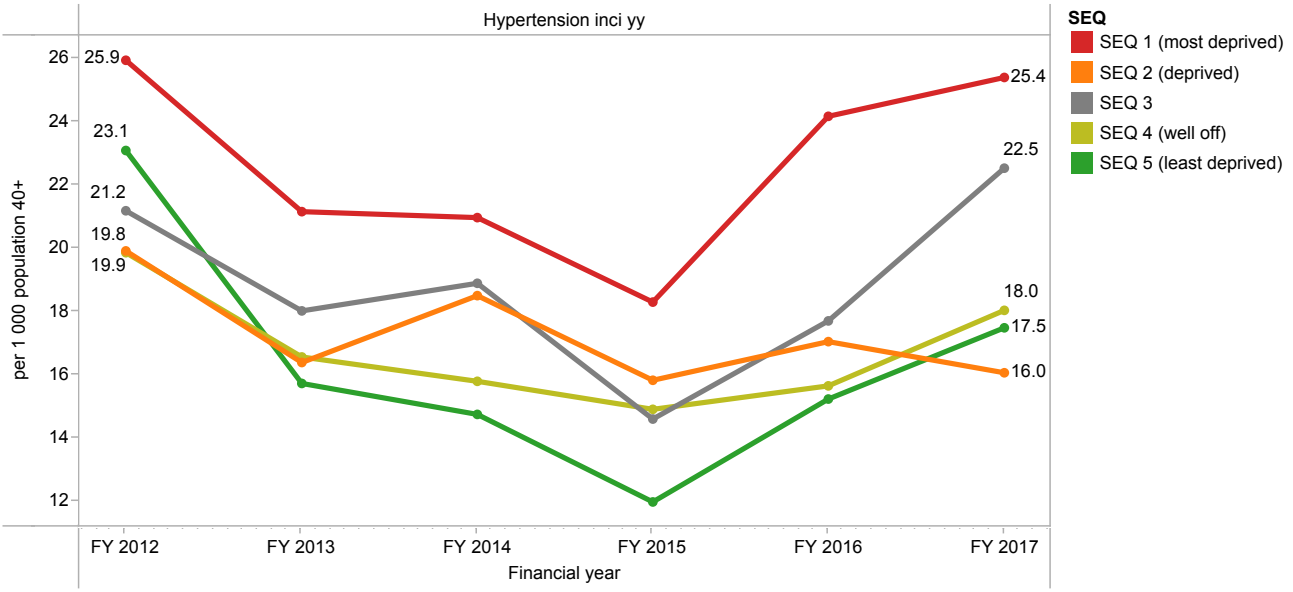


Figure 6: Trends in average district values by socio-economic quintile for hypertension incidence, 2011/12–2016/17



Sub-district overview

Across sub-districts the incidence of diagnosed hypertension per 1 000 population aged 40 years and above in 2016/17 ranged from 2.3 cases in Mookgophong (Waterberg (LP)) to 127.8 in Ingwe (Harry Gwala (KZN)) as shown in Table 1. Incidences varied by a lesser magnitude (less than 10 per 1 000 population aged 40 years and above) across approximately 42 sub-districts within their respective districts.

Table 1: Sub-districts with the lowest and the highest hypertension incidence, by district and province, 2016/17

Province	District	Hypertension incidence per 1 000 population aged +40 years		
		Average	Lowest (sub-district)	Highest (sub-district)
Eastern Cape	Alfred Nzo	12.0	5.4 (Mbizana)	17.7 (Matatiele)
	Amathole	29.9	7.8 (Nxuba)	76.3 (Nkonkobe)
	Buffalo City	28.4	28.4 (Buffalo City)	28.4 (Buffalo City)
	Chris Hani	27.7	9.7 (Sakhisizwe)	44.8 (Engcobo)
	Joe Gqabi	24.3	16.5 (Maletswai)	31.6 (Elundini)
	Nelson Mandela Bay	12.6	12.6 (N Mandela Bay)	12.6 (N Mandela Bay)
	OR Tambo	20.9	17.7 (Port St Johns)	33.9 (King Sabata Dalindyebo)
	Sarah Baartman	16.6	9.5 (Makana)	35.7 (Camdeboo)
Free State	Fezile Dabi	28.8	17.3 (Mafube)	55.5 (Ngwathe)
	Lejweleputswa	12.9	10.5 (Matjhabeng)	20.2 (Tswelopele)
	Mangaung	34.9	34.9 (Mangaung)	34.9 (Mangaung)
	Thabo Mofutsanyana	29.7	15.4 (Phumelela)	60.6 (Mantsopa)
	Xhariep	25.7	8.0 (Letsemeng)	44.6 (Naledi)
Gauteng	Ekurhuleni	22.0	22.0 (Ekurhuleni)	22.0 (Ekurhuleni)
	Johannesburg	16.3	16.3 (Johannesburg)	16.3 (Johannesburg)
	Sedibeng	23.6	22.7 (Emfuleni)	29.2 (Lesedi)
	Tshwane	23.0	23.0 (Tshwane)	23.0 (Tshwane)
	West Rand	15.0	12.7 (Randfontein)	16.5 (Westonaria)
KwaZulu-Natal	Amajuba	24.0	7.0 (Dannhauser)	31.0 (Emadlangeni)
	eThekwini	22.9	22.9 (eThekwini)	22.9 (eThekwini)
	iLembe	9.3	6.5 (KwaDukuza)	15.5 (Maphumulo)
	Ugu	19.9	8.1 (Vulamehlo)	37.0 (uMuziwabantu)
	uMgungundlovu	24.4	11.7 (uMngeni)	44.5 (Impendle)
	uMkhanyakude	17.1	13.4 (Umhlabuyalingana)	37.4 (The Big 5)
	uMzinyathi	16.2	12.6 (Umvoti)	19.1 (Nquthu)
	uThukela	16.2	9.0 (Okhahlamba)	22.1 (Umtshezi)
	Zululand	15.8	7.2 (eDumbe)	23.6 (Nongoma)
	Harry Gwala	49.5	17.2 (Ubuhlebezwe)	127.8 (Ingwe)
	King Cetshwayo	22.2	7.4 (Mbonambi)	85.5 (Nkandla)

Province	District	Hypertension incidence per 1 000 population aged +40 years		
		Average	Lowest (sub-district)	Highest (sub-district)
Limpopo	Capricorn	12.1	8.3 (Aganang)	13.8 (Polokwane)
	Mopani	14.2	10.5 (Greater Letaba)	22.2 (Greater Giyani)
	Sekhukhune	35.5	15.4 (Fetakgomo)	60.2 (Ephraim Mogale)
	Vhembe	11.4	4.0 (Mutale)	15.5 (Makhado)
	Waterberg	12.0	2.3 (Mookgophong)	25.2 (Modimolle)
Mpumalanga	Ehlanzeni	28.6	12.4 (Umjindi)	42.0 (Mbombela)
	Gert Sibande	33.8	24.5 (Govan Mbeki)	56.1 (Lekwa)
	Nkangala	18.6	13.4 (Steve Tshwete)	33.4 (Emakhazeni)
Northern Cape	Frances Baard	17.4	11.4 (Sol Plaatjie)	34.7 (Magareng)
	JT Gaetsewe	22.4	13.1 (Ga-Segonyana)	39.6 (Gamagara)
	Namakwa	17.7	8.2 (Nama Khoi)	70.1 (Khâi-Ma)
	Pixley Ka Seme	22.7	13.7 (Renosterberg)	44.8 (Thembelihle)
	ZF Mgcawu	27.0	9.6 (Kai !Garib)	125.9 (Kgatelopele)
North West	Bojanala	12.0	9.6 (Madibeng)	17.0 (Moses Kotane)
	Dr K Kaunda	16.7	13.7 (Tlokwe)	31.6 (Maquassi Hills)
	NM Molema	22.7	13.1 (Tswaing)	13.1 (Mahikeng)
	RS Mompati	17.7	14.3 (Kagisano-Molopo)	19.7 (Greater Taung)
Western Cape	Cape Town	6.1	6.1 (Cape Town)	6.1 (Cape Town)
	Cape Winelands	10.5	9.2 (Stellenbosch)	13.1 (Witzenberg)
	Central Karoo	13.6	3.8 (Laingsburg)	15.7 (Beaufort West)
	Eden	10.3	4.0 (Hessequa)	15.6 (Kannaland)
	Overberg	9.4	7.9 (Theewaterskloof)	11.6 (Cape Agulhas)
	West Coast	10.1	4.5 (Bergrivier)	(Cederberg)

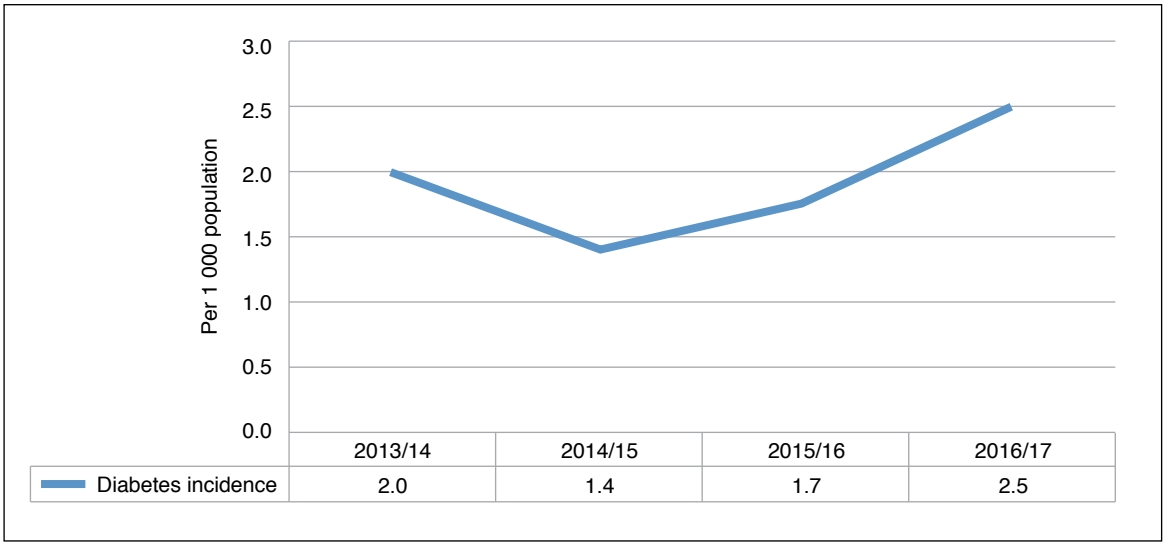
12.2 Diabetes incidence

Diabetes mellitus (here referred to as 'diabetes') is a major condition of growing concern worldwide and in South Africa. It is associated with many complications, which can be prevented or have a delayed onset with timely diagnosis and appropriate treatment, management and control. Similar to the hypertension indicators, the diabetes incidence indicator as determined by the NIDS used here is not the true population incidence of diabetes in the population. It estimates the number of people newly diagnosed with diabetes and started on treatment in the public health sector, per 1 000 population, per year. The numerator is 'diabetes client treatment new' and the denominator 'total population'.

National overview

The national diabetes incidence in 2016/17 was 2.5 cases per 1 000 total population (Figure 7). Between 2013/14 and 2014/15, diabetes incidence declined from 2.0 to 1.4 cases per 1 000 population, and sustainably increased thereafter.

Figure 7: National diabetes incidence, 2013/14–2016/17



Provincial overview

The diabetes incidence per 1 000 total population ranged from 1.1 cases in Western Cape to 3.2 in Gauteng (Figure 8). Compared with 2015/16, the incidence decreased in Limpopo, showed a slight increase in North West and Western Cape and larger increases in the remaining provinces, with a doubling in Gauteng from 1.5 cases in 2015/16 to 3.2 cases per 1 000 total population in 2016/17. The pattern of changes in incidence from 2013/14 to 2016/17 by province is depicted in Figure 9.

Figure 8: Diabetes incidence by province, 2016/17

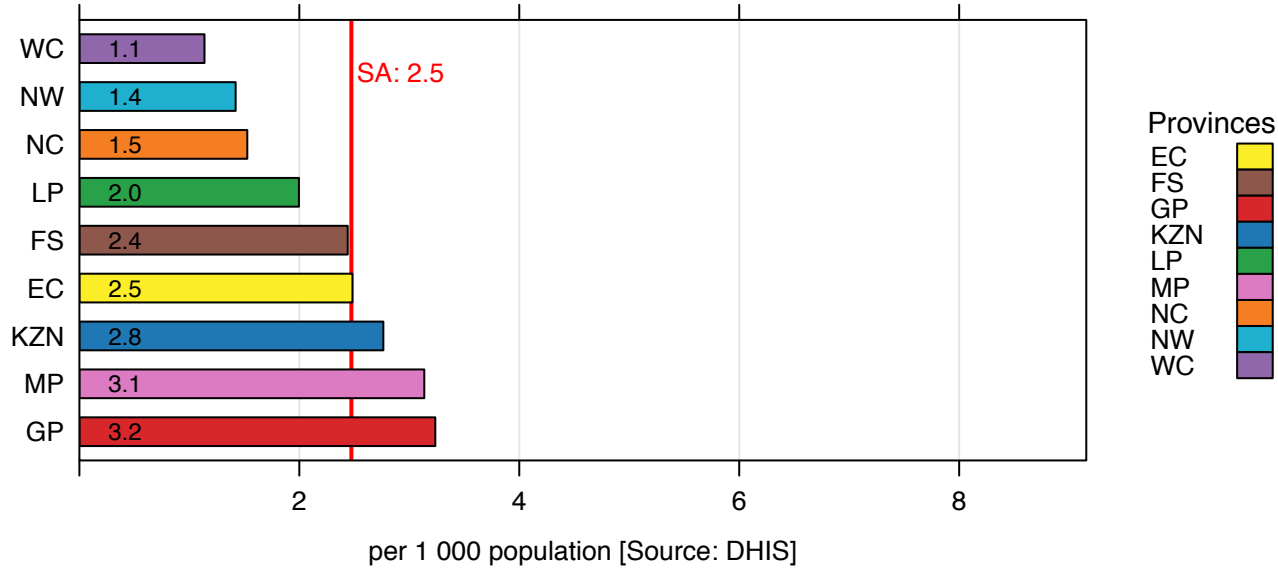
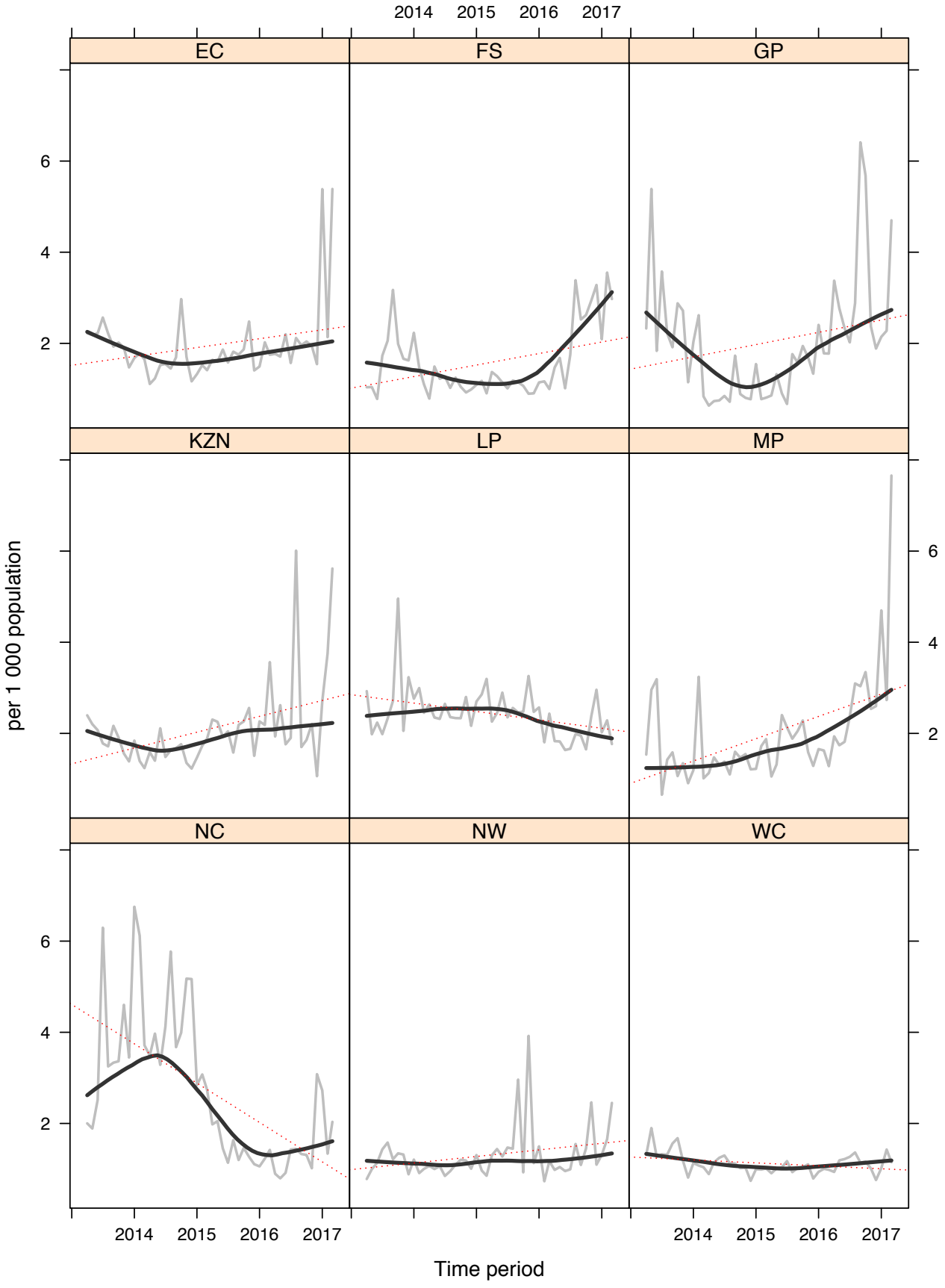


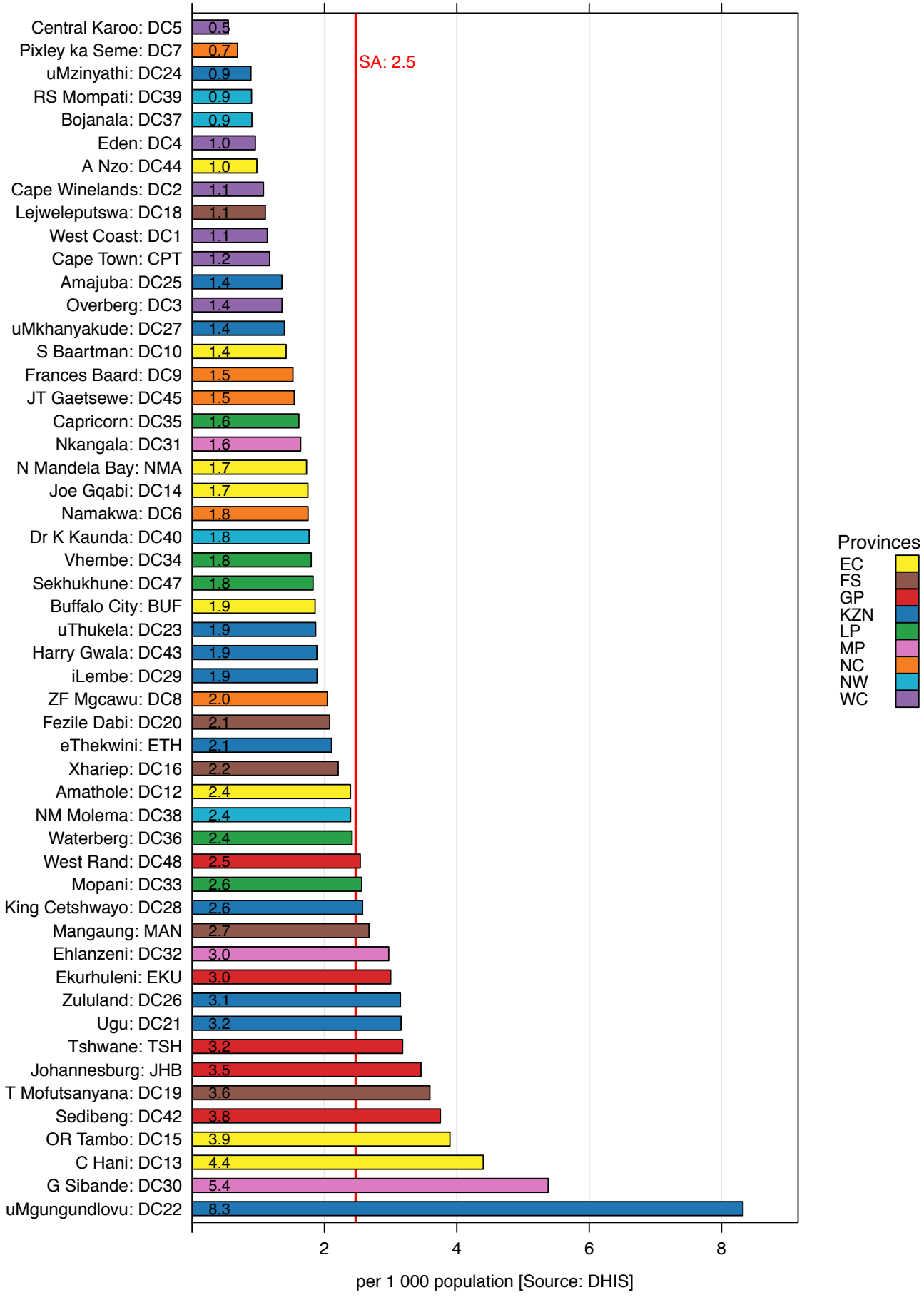
Figure 9: Annual trends for diabetes incidence by province, 2013/14-2016/17



District overview

Across districts, the diabetes incidence per 1 000 total population ranged from 0.5 cases in Central Karoo (WC) to 8.3 cases in uMgungundlovu (KZN), as shown in Figure 10 and Map 2. The incidence was mostly similar in metro and non-metro districts between 2013/14 and 2016/17, and similarly varied across years by socio-economic status (Figure 11).

Figure 10: Diabetes incidence by district, 2016/2017



Map 2: Diabetes incidence by sub-district, 2016/17

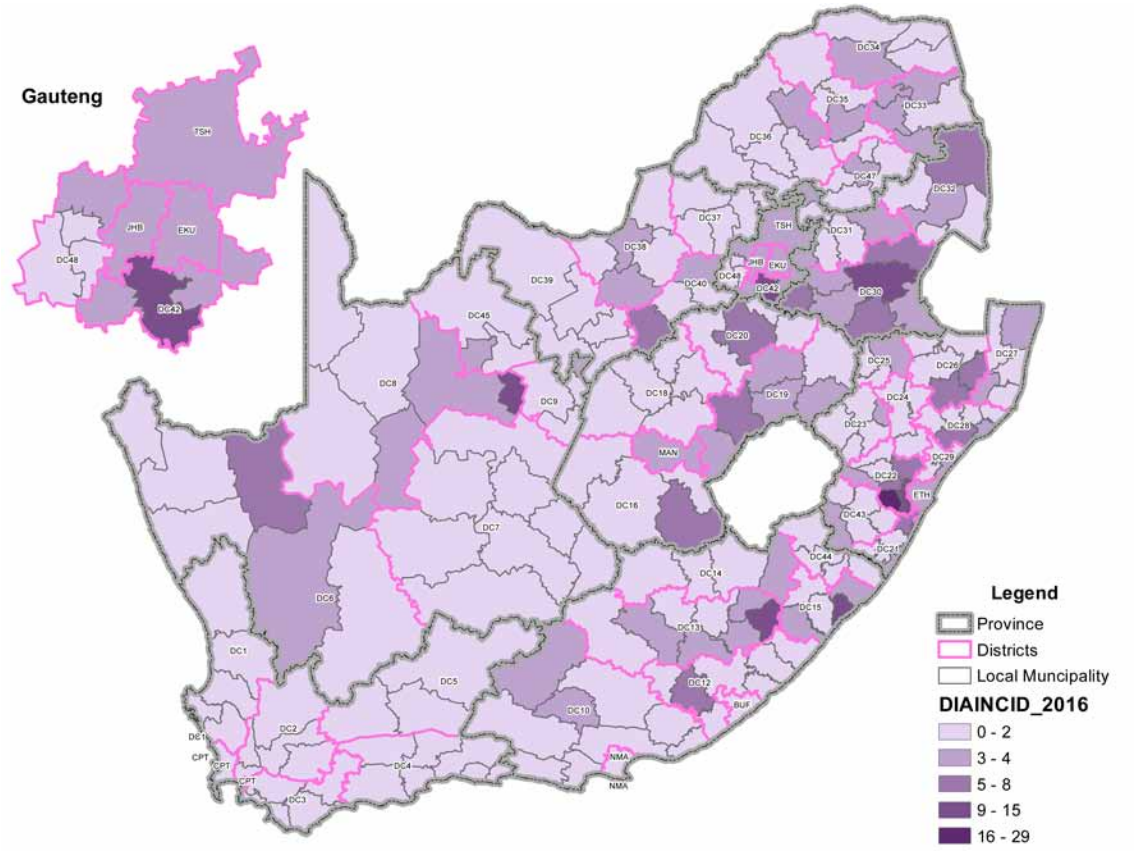
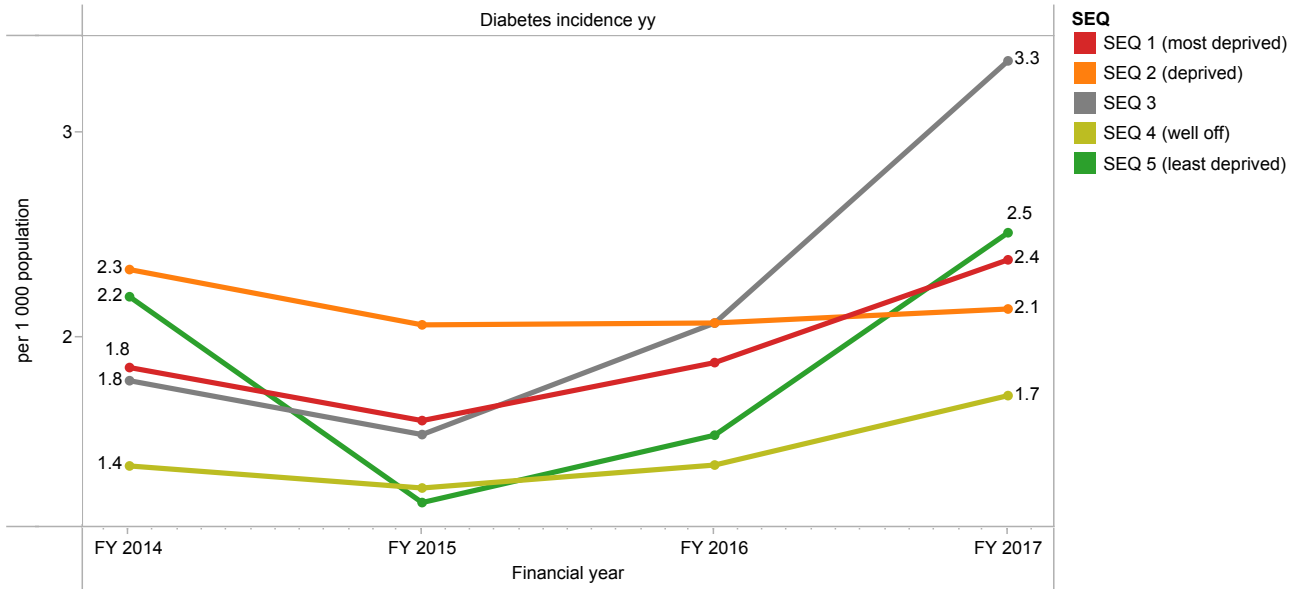


Figure 11: Trends in average district values by socio-economic quintile for diabetes incidence, 2013/14–2016/17



Sub-district overview

Diabetes incidence per 1 000 total population across sub-districts ranged from 0.1 cases in Mookgophong (Waterberg (LP)) to 29.2 case in Richmond (uMgungundlovu (KZN)). Variations within districts in certain provinces such as Gauteng and Limpopo are less pronounced than variations within districts in other provinces such as KwaZulu-Natal and Mpumalanga.

Table 2: Sub-districts with the lowest and the highest diabetes incidences by district and by province, 2016/17

Province	District	Diabetes incidence per 1 000 total population		
		Average	Lowest (sub-district)	Highest (sub-district)
Eastern Cape	Alfred Nzo	1.0	0.4 (Mbizana)	1.5 (Umzimvubu)
	Amathole	2.4	0.5 (Great Kei)	8.1 (Nkonkobe)
	Buffalo City	1.9	1.9 (Buffalo City)	1.9 (Buffalo City)
	Chris Hani	4.4	1.1 (Inxuba Yethemba)	12.3 (Engcobo)
	Joe Gqabi	1.7	1.0 (Senqu)	2.7 (Elundini)
	Nelson Mandela Bay	1.7	1.7 (N Mandela Bay)	1.7 (N Mandela Bay)
	OR Tambo	3.9	1.5 (Nyandeni)	11.1 (Port St Johns)
	Sarah Baartman	1.4	0.8 (Makana)	3.6 (Ikwezi)
Free State	Fezile Dabi	2.1	0.8 (Mafube)	4.7 (Ngwathe)
	Lejweleputswa	1.1	0.2 (Tokologo)	1.2 (Matjhabeng)
	Mangaung	2.7	2.7 (Mangaung)	2.7 (Mangaung)
	Thabo Mofutsanyana	3.6	1.6 (Phumelela)	5.0 (Setsoto)
	Xhariep	2.2	1.3 (Naledi)	4.6 (Mohokare)
Gauteng	Ekurhuleni	3.0	3.0 (Ekurhuleni)	3.0 (Ekurhuleni)
	Johannesburg	3.5	3.5 (Johannesburg)	3.5 (Johannesburg)
	Sedibeng	3.8	2.2 (Lesedi)	12.0 (Midvaal)
	Tshwane	3.2	3.2 (Tshwane)	3.2 (Tshwane)
	West Rand	2.5	1.2 (Merafong)	4.0 (Mogale City)
KwaZulu-Natal	Amajuba	1.4	0.7 (Dannhauser)	3.5 (Emadlangeni)
	eThekwini	2.1	2.1 (eThekwini)	2.1 (eThekwini)
	iLembe	1.9	0.7 (Ndwedwe)	3.6 (KwaDukuza)
	Ugu	3.2	0.8 (Ezinqoleni)	5.4 (Vulamehlo)
	uMgungundlovu	8.3	0.6 (uMngeni)	29.2 (Richmond)
	uMkhanyakude	1.4	0.4 (Jozini)	3.5 (Hlabisa)
	uMzinyathi	0.9	0.8 (Nquthu/ Msinga)	1.2 (Endumeni)
	uThukela	1.9	0.9 (Imbabazane)	3.6 (Indaka)
	Zululand	3.1	0.5 (Abaqulusi)	6.5 (Nongoma)
	Harry Gwala	1.9	1.0 (Kwa Sani)	4.1 (Gr Kokstad)
	King Cetshwayo	2.6	0.2 (Mthonjaneni)	5.9 (uMlalazi)
Limpopo	Capricorn	1.6	0.6 (Blouberg)	2.1 (Polokwane)
	Mopani	2.6	1.8 (Ba-Phalaborwa)	3.5 (Greater Giyani)
	Vhembe	1.8	0.4 (Mutale)	2.1 (Makhado)
	Waterberg	2.4	0.1 (Mookgophong)	4.1 (Mogalakwena)
	Sekhukhune	1.8	0.7 (Fetakgomo)	2.6 (Makhuduthamaga)
Mpumalanga	Ehlanzeni	3.0	1.1 (Umjindi/ Nkomazi)	5.3 (Bushbuckridge)
	Gert Sibande	5.4	2.2 (Lekwa)	14.8 (Msukaligwa)
	Nkangala	1.6	1.1 (Steve Tshwete)	3.2 (Emakhazeni)
Northern Cape	Frances Baard	1.5	0.8 (Sol Plaatjie)	4.1 (Phokwane)
	JT Gaetsewe	1.5	0.9 (Ga-Segonyana)	3.7 (Gamagara)
	Namakwa	1.8	0.8 (Kamiesberg)	4.7 (Khâi-Ma)
	Pixley Ka Seme	0.7	0.4 (Siyancuma)	1.3 (Kareeberg)
	ZF Mgcawu	2.0	0.5 (Kai !Garib)	10.5 (Kgatelopele)
North West	Bojanala	0.9	0.6 (Rustenburg)	1.4 (Kgetleng Rivier)
	Dr K Kaunda	1.8	1.1 (Matlosana)	5.3 (Maquassi Hills)
	NM Molema	2.4	1.5 (Ratlou/ Ditsobotla)	4.1 (Tswaing)
	RS Mompati	0.9	0.3 (Naledi/ Lekwa-Teemane)	1.4 (Mamusa / Greater Taung)
Western Cape	Cape Town	1.2	1.2 (Cape Town)	1.2 (Cape Town)
	Cape Winelands	1.1	0.8 (Witzenberg)	1.2 (Drakenstein)
	Central Karoo	0.5	0.3 (Laingsburg)	1.0 (Prince Albert)
	Eden	1.0	0.6 (Hessequa)	1.3 (Mossel Bay)
	Overberg	1.4	1.1 (Overstrand/ Swellendam)	2.0 (Cape Agulhas)
	West Coast	1.1	0.6 (Bergrivier)	1.7 (Cederberg)

Key findings

- The incidences of diagnosed hypertension and diabetes are increasing at the national level, reflecting the combination of heterogeneous patterns at provincial and district levels.
- The incidences tend to vary less across sub-districts within the same district, suggesting possible district-specific effects to be harnessed for future improvement.
- The observed incidences suggest that the detection efforts for hypertension and diabetes are not enough to close the detection gaps previously reported in community-based surveys.

Recommendations

- Data from the recently completed South Africa Demographic Health Survey[f] should be analysed to provide contemporary population-level data to assist in understanding the factors driving the increase of hypertension at the population level.
- High-risk screening for diabetes should be implemented at all facilities to ensure early detection, diagnosis, appropriate management and control of patients to avoid primary and secondary complications.