

Introduction and Overview

Background

The 2014/15 District Health Barometer (DHB) provides an overview of the delivery of primary health care (PHC) in the public health sector across the provinces and districts in South Africa. The DHB has been issued every year since 2005, and draws data from the District Health Information Software (DHIS), Statistics South Africa (Stats SA), the National Treasury (BAS data), the National Health Laboratory Service (NHLS) and the national Electronic Tuberculosis (TB) Register (ETR.Net). The publication seeks to highlight inequities in health outcomes, health-resource allocation and delivery, and to track the efficiency of health processes across all provinces and districts.

Compilation of the DHB is guided by an advisory committee made up of managers from the National Department of Health (NDoH), as well as health experts.

Timely publication of the DHB is inextricably linked to availability of the data sources from which it draws.

The DHB is available at <http://www.hst.org.za> and on CD from Health Systems Trust.

Methodology and data sources

Indicators used in the 2014/15 DHB

The indicators^a in this DHB have been approved by the NDoH. The chosen indicators are those linked to measuring the Millennium Development Goals, the NDoH's Annual Performance Plan (APP), the provincial APPs, the District Health Plans of the health districts and those indicators that measure important aspects of the burden of disease. All the indicators in this publication are categorised according to the 2013 National Indicator Data Set (NIDS); where applicable, the indicator names are also replicated from the NIDS.

This year, 12 new indicators have been added. These are:

- ◆ Inpatient crude death rate
- ◆ Mother postnatal visit within 6 days rate
- ◆ Infant 1st PCR test around 6 weeks uptake rate (replaced Early infant HIV diagnosis coverage)
- ◆ Infant 1st PCR test positive around 6 weeks rate (replaced Percentage of PCR tests HIV-positive for infants under two months of age)
- ◆ School Grade 1 screening coverage
- ◆ Measles 2nd dose coverage
- ◆ TB death rate (all TB)
- ◆ Hypertension prevalence
- ◆ Hypertension incidence
- ◆ Mental health admission rate
- ◆ PHC professional nurse clinical workload
- ◆ PHC doctor clinical workload

The following indicators reported on in previous years have been dropped, namely:

- ◆ Percentage of district health services expenditure spent on district management
- ◆ Percentage of district health services expenditure spent on district hospitals
- ◆ Percentage of district health services expenditure spent on PHC
- ◆ HIV prevalence among antenatal clients tested (survey)
- ◆ DTaP-IPV/Hib 3 – Measles 1st dose drop-out rate
- ◆ Child under 5 years diarrhoea with dehydration incidence
- ◆ Child under 5 years pneumonia incidence
- ◆ Child under 5 years severe acute malnutrition incidence

a A table with definitions, references and terms for each indicator used in this report is available in Appendix 1.

- ◆ TB case finding
- ◆ TB (pulmonary) case finding index
- ◆ Incidence of new pulmonary smear-positive TB
- ◆ Smear conversion rate at 2 months (new pulmonary smear-positive)

In keeping with recent editions of the DHB, the chapter on the burden of disease has been included again.

Most of the indicators in this report, excluding the socio-economic, financial and TB indicators, were updated from the DHIS data files at facility level (NDoH5) for the financial years ending March, up to 2014/15, and received in May 2015. Data for the selected indicators were exported into a single MySQL database to facilitate uniform coding of districts and trend analysis for the last 10 years. As in previous reports, data for selected indicators are given for district hospitals only. These are average length of stay, bed utilisation rate, delivery by Caesarean section rate, OPD new client not referred rate, and expenditure per patient day equivalent.

District health expenditure indicators

Provincial health expenditure up to 2014/15 was extracted from the National Treasury Basic Accounting System (BAS) database. All expenditure allocated to specific health facilities was coded to the latest DHIS facility information, and based on this, coded to districts. All other expenditure that could not be clearly allocated to a specific district was allocated to each district in proportion to the population share of the areas involved. For example, provincial-level expenditure was allocated to each of the districts in the province.

Provincial expenditure was coded according to the programmes and sub-programmes published by the National Treasury. Expenditure from sub-programmes 2.2–2.7 (community health clinics, community health centres, community-based services, other community services, and HIV and nutrition) constitutes the non-hospital PHC expenditure under District Health Services. Total District Health Services expenditure includes all sub-programmes under Programme 2: District Health Services, except sub-programme 2.8 (Coroner services).

Additional data sources used include:

- ◆ Data on local government expenditure on PHC from the National Treasury. Net expenditure was used, i.e. expenditure less revenue (which includes transfers from provinces to local government).
- ◆ Factors for inflation adjustments based on CPIX (Stats SA) to convert expenditure for all years to real 2013/14 prices.
- ◆ Medical scheme coverage from the Stats SA General Household Surveys (GHS) was used to calculate the uninsured population. The GHS is the only source of district-level estimates of medical scheme coverage, but these estimates were available for 2005 to 2007 only, and there were some anomalies in the data during that period. Over time, reliable extrapolation of coverage at district level, in addition to adjusting for the change in boundaries, has therefore become difficult. Looking retrospectively to 2001, it is clear that overall the GHS and the Council for Medical Schemes (CMS) data correlate, although in some years the GHS deviates substantially. Overall, the level has also remained remarkably static at around 16% ± 1%. Therefore, for the purpose of this analysis, it was considered adequate to apply a single-year estimate of medical scheme coverage to the time series population, since the variation in coverage between districts is more relevant than changes in coverage over time. The year 2009 was chosen as the most recent year when the overall rate in GHS was comparable with CMS and historical trends. This estimate uses the pooled 2005 to 2007 district-level estimates, adjusted according to the change in provincial coverage between the two periods (for example, where Gauteng Province (GP) and the Western Cape (WC) were clearly under-reported from 2005 to 2007). Estimates for districts affected by boundary changes were made by distributing beneficiaries within each province according to expected patterns for metro/non-metro districts and the socio-economic quintile of the districts and constituent local municipalities.
- ◆ Data on health facilities, population, patient day equivalents and PHC headcount from the DHIS.

Per capita expenditure indicators use public sector expenditure divided by the uninsured population. However, the GHS and other sources indicate that there is significant use of the private sector by the uninsured population, and also some use of the public sector by the insured population. As such, it is acknowledged that there is a wide range of uncertainty surrounding the true size of the population that is dependent on the public sector, which affects the accuracy of the per capita expenditure indicators. The indicators have also been calculated using the total population for comparison.

The indicator net local government expenditure on health services was added to provincial expenditure on district health services in the Finance chapter.

All the figures have been adjusted to take the effect of inflation into account and are presented in real 2014/15 prices. 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.

Population data

Indicators that require population denominators use the mid-year population estimates for the relevant year that were available at the time of calculation. The district population estimates (five-year age groups) developed by Stats SA for 2002 to 2018 (based on the best available information from the Census 2011 and other sources of demographic information) were modified by the NDoH to single-year age groups. These are the same population estimates currently included in the DHIS. Data for population-denominated indicators were therefore updated retrospectively from the latest data file back to 2011/12 in most cases; denominators for immunisation coverage were revised according to the new population estimates for all the years presented in this DHB.

Deprivation index and socio-economic quintiles

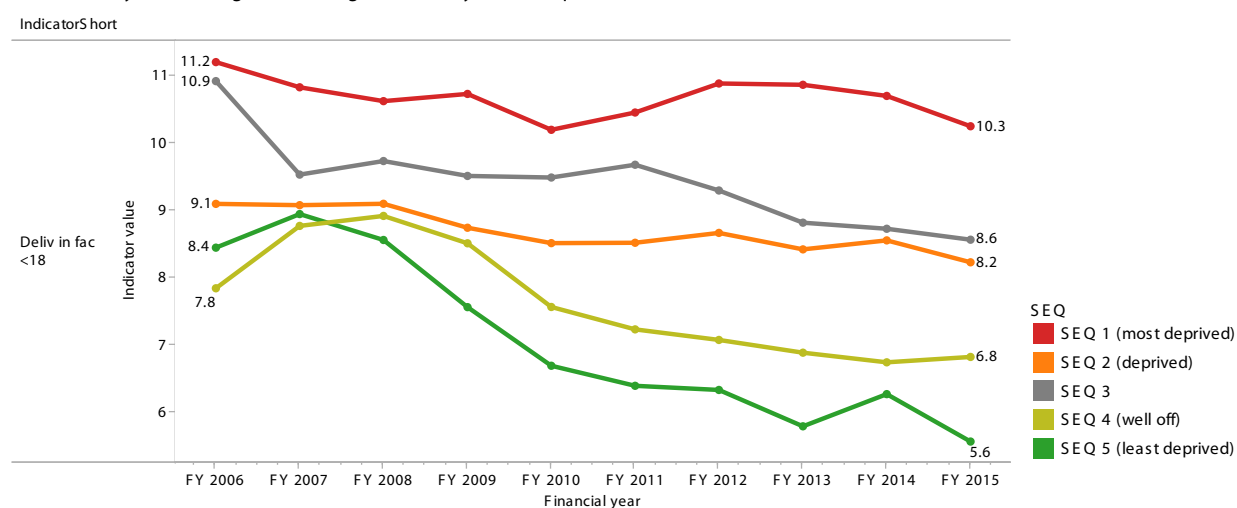
The composite indicator of deprivation was replaced in the 2013/14 year with a new index of multiple deprivation developed by Noble et al,^b based on a basket of variables from the Census 2011. This South African Index of Multiple Deprivation (SAIMD) includes indicators from four domains: income and material deprivation, employment deprivation, education deprivation and living environment deprivation measured at either the individual or household level according to the indicator. The overall SAIMD combines each of these individual domains of deprivation using equal weights. The results were produced at the ward level, with the most deprived ward given a rank of 1 and the least deprived a rank of 4 277. The population-weighted average rank of the wards was then calculated at local municipality, district municipality and provincial levels.

The SAIMD therefore provides a measure of relative deprivation across districts within South Africa. Each district was ranked according to levels of deprivation and categorised into socio-economic quintiles (SEQs). Districts that fall into Quintile 1 (lowest quintile) are the most deprived districts. Those that fall into Quintile 5 are the least deprived (best-off). Since the SAIMD had not been calculated for the 2001 Census or the 2007 Community Survey according to the current boundaries and using the latest methodology at the time of compiling this DHB, the 2011 deprivation ranks have been assumed to remain constant over the time period included in the DHB. Although not ideal, comparison of the latest findings with those from the previous analyses suggests that although there have been reductions in the level of deprivation, there has been little change in the relative amount of deprivation (i.e. the spatial distribution of deprivation has remained quite similar).

The DHB indicators have been calculated by SEQ (at district level) to assess trends in inequities. This year the values have been calculated as the weighted average of all data within each SEQ (Figure 1).^c

Figure 1: Example of indicators by SEQ trends

Indicator value by SEQ (weighted average of data by district quintile)



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

^c In previous editions the values were calculated as the median of the district values within each SEQ.

TB indicators

TB indicators based on the drug-susceptible electronic register (ETR.Net) were calculated from the individual records in the registers after coding all the facilities to the current districts by mapping the ETR facility names to DHIS facility names.

The indicator TB rifampicin resistance confirmed client rate, which gives an indication of what proportion of TB cases are drug resistant, was calculated from NHLS data on GeneXpert tests. The data were coded to districts where the facility names could be linked to DHIS organisational units, although several apparent discrepancies were noted in the district assignments in the NHLS data. These data do not represent all tests for drug susceptibility, although the scale-up of this diagnostic tool was rapid and the number of monthly tests appears to be reaching a plateau.

District boundaries and maps

Geographical information from the Municipal Demarcation Board was used to define district and provincial boundaries; the same boundaries are used in the DHIS. Sub-district boundaries, which aggregate selected local municipalities in the Eastern Cape and break some of the metros into smaller management units, are used in the DHIS and were obtained from the NDoH. Indicators in this DHB have been aggregated and presented according to the boundaries that came into effect in May 2011.

Averages

All averages (provincial and national) are **weighted averages**, based on the total numerator and denominator for all the sub-areas included, and are, therefore, not averages of the district indicator values. These averages may appear 'skewed' for any indicator in any province where there are districts of very different sizes or workloads, and where a bigger district has a very different value from the other smaller districts in a province.

Data display

Financial year and calendar year

Indicators from the DHIS and the BAS financial system cover the 12 months from April to March, which is the financial year of the NDoH. Indicators for financial years are annotated as 2014/15 or FY 2015. Other sources, such as the TB data from ETR.Net, and the burden of disease (death) data cover a calendar year. Data from the Stats SA surveys correspond to the period of the survey. In the Excel file produced with the DHB, the single year indicated for summary purposes is the one including the majority of the data.

Indicator ranking – is first always best?

The districts are ranked from 1 to 52 (for the various indicators in the league table graphs where number 1 represents the best performance and number 52 the worst performance). However, with some indicators such as Caesarean section rate, average length of stay, workload and expenditure, an indicator in the number 1 position does not mean best performance; 'best' is usually in the middle range close to the South African average. For these indicators, order from top to bottom should therefore not necessarily be considered as best to worst. Individual indicators are therefore ranked as either ascending (low values are best, for example maternal mortality ratios), descending (high values are best, for example immunisation coverage), or central (neither low nor high values are good and the optimal values are approximately central, approximated by the South African average for the indicator).

In the DHB data file, the indicator ranks for all districts are coloured from green to orange to red. It must be noted that this is only a crude indication of performance and is based on the position of a district relative to the other 51 districts and not to a target or fixed standard. Therefore, it is possible that an indicator may improve in a district, but it could drop in rank (i.e. go from green to red) if other districts have improved to a greater extent.

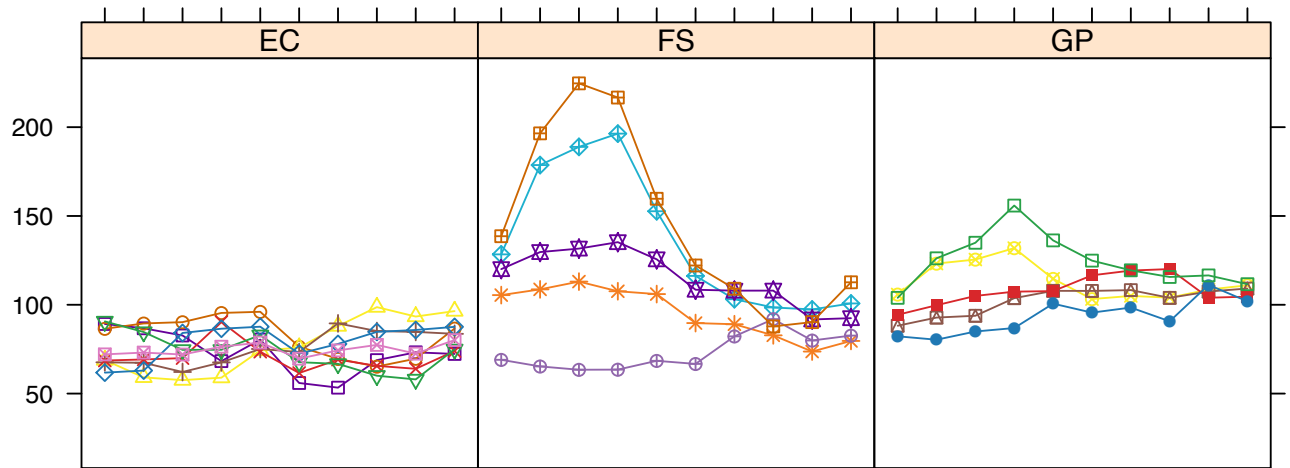
ArcView was used to generate the thematic or choropleth maps of indicator values by district and sub-district. Most of the maps were created using 'natural breaks',^d with five categories as the default. In some cases the distribution was heavily skewed at the sub-district level and manual breaks were chosen to better illustrate area of public health importance. For all indicators, low indicator values are represented by light shades and high indicator values by darker shades, regardless of whether high values are 'best' or 'worst'. Therefore, dark shades are not always best, and each indicator map should be interpreted in terms of the desired target range for that indicator.

^d This is the default classification method in ArcView, using the Jenks Optimisation algorithm to group values within a class, resulting in classes of similar values separated by breakpoints. This method works well with data that are not evenly distributed and not heavily skewed towards one end of the distribution.

Trends

Annual trends of an indicator comparing districts and provinces are included in some chapters in section A (Figure 2). Indicator comparisons by district help the reader to explore how an indicator varies over a number of years across districts and provinces. As the scale of the y-axis is the same for all the graphs, one can notice differences easily. This also shows variation and change within the districts in a particular province over time.

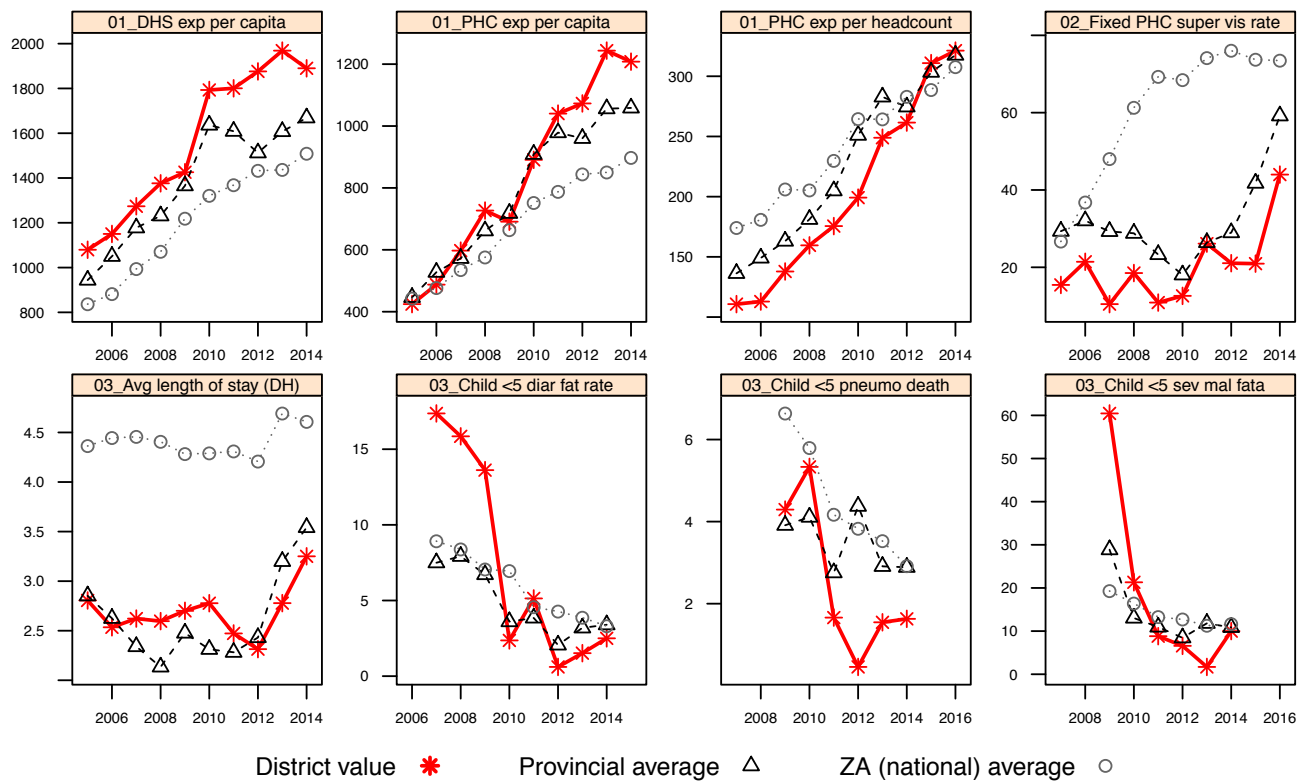
Figure 2: Example of annual trends over a number of years across districts and provinces.



In section B of the report, composite graphs show annual trends for all districts for all the indicators included in the DHB. The district indicator value (IndValue) is shown together with the relevant provincial (Prov_av) and national averages (ZA av) (Figure 3).

Figure 3: Example of annual trends for districts

Annual indicators for district: Pixley ka Seme: DC7



Burden of disease profiles

New graphs have been developed this year to provide a snapshot of each district's burden of disease profile and are discussed in the district chapters (Figure 4).

Figure 4: Example of burden of disease profile

Percentage of deaths by broad cause and leading causes, 2008-2013

Prov, District
KZN, Harry Gwala: DC43
 Show History

Broadcause
■ Injury
■ NCD
■ HIV and TB
■ Comm_mat_peri_nut

KZN, Harry Gwala: DC43

