

Introduction and Overview

Background

The District Health Barometer (DHB) provides an overview of the delivery of primary health care services in the public health sector across the provinces and districts in South Africa by means of an annual publication. The DHB has been available since 2005 and draws data from the District Health Information System (DHIS), StatsSA, the National Treasury, the National HIV and Syphilis Antenatal Sero-prevalence Survey and the national TB register. It seeks to highlight inequities in health outcomes, health resource allocation and delivery, as well as track the efficiency of health processes across provinces and districts in the country, with particular emphasis on rural, disadvantaged and urban (metropolitan) districts.

An advisory committee to guide the DHB is made up of managers from the Departments of Health at national, provincial and district level, together with health experts and stakeholders from the academic, private and research arenas.

This 2008/09 edition is intended to be an interim product which precedes the more extensive 2009/10 edition. The focus of this edition has been to provide the draft chapters and sections live on the HST website, thus enabling managers and researchers to access the data sooner than if published in hardcopy format. Readers are also able to provide online feedback on the drafts should they wish to do so.

The timeliness of the DHB is inextricably linked to the availability of the resources from which it draws the relevant data. A delay in the release of the StatsSA General Household Survey or in the release of the DHIS data for the year can lead to a delay in the completion of DHB and may even, in extreme cases, result in the information becoming outdated.

The chapters and sections of this report have been released on an ongoing basis since February 2010 as news stories. The full report is available on the Health Systems Trust (HST) website (<http://www.hst.org.za>) and on CD from HST.

Methodology and Data Sources

Indicators used in this DHB¹

Indicators for the DHB are currently sourced from the District Health Information System (DHIS), StatsSA, the National Treasury, the National HIV and Syphilis Antenatal Sero-prevalence Survey and the national TB register. DHIS indicators were selected which linked to measuring the MDGs or some important aspect of health policy such as access to health services, equity in provision or efficiency of provision of health services. Of those selected some had to be dropped due to the quality of available data. Each year the DHB team and advisory group reassess various potential indicators for inclusion in the publication and include any new indicators that add the most value and are of the best available quality.

Sadly, this year there are still no reliable HR data available to district level. In the absence of reliable and complete vital registration data there are also no reliable maternal mortality nor infant mortality data at this level of disaggregation that can be used in the report.

This year, however, two new financial input indicators have been added. These are:

- Total PHC Expenditure per Capita
- PHC (Non-Hospital) Expenditure per Patient Visit

Removed from the narrative and not updated in the tables/graphs for this edition are:

- Rate of Children under 5 not gaining weight
- Incidence of Diarrhoea in Children under 5

In the PMTCT chapter, the two nevirapine indicators have been left out because of concerns over data quality and because the regimen changed during 2008/09 to include AZT - making the nevirapine-only indicator less relevant. Two new indicators have thus been included, namely:

¹ A table with definitions, references and terms for each indicator used in this report is available in the DHB_Datafile on the CD and the HST website.

- PCR Testing Rate of Babies Born to HIV-positive Women (Baby PCR test around 6 weeks uptake)
- CD4 Testing Rate Among Pregnant HIV-positive Women (Antenatal client CD4 1st test rate)

The DHB has served to increase the focus and attention on data quality, data analysis, feedback processes and information use in the country's public health services. In the 2007/08 edition data from the DHIS were extracted for the last eight years up to the period ending March 2007/08 and retroactive changes and corrections were made to the data by DHIS administrators. For the first time, in order to portray trends in a more accurate way, outliers and data with major missing numerators or denominators were removed. For the 2008/09 data, however, no significant retroactive changes were made. Where major data quality problems were noticed they were noted in the accompanying text with the view to providing an explanation and improving the quality in subsequent years.

Most of the health service indicators in this report use facility level (Organisational Unit 5) data from the DHIS. The DHIS data for the 2008/09 financial year were only received in February 2010. Data for the indicators of interest were exported into a MySQL database to facilitate uniform coding of districts and trend analysis across the entire period. As in previous reports, data for selected indicators (Average length of stay, Bed utilisation rate, Caesarean section rate and Cost per PDE) are given for **district hospitals only**.

Gaps in the completeness of the DHIS data affect the general completeness of this report, national averages, interpretation, analysis and trends. Some of the new indicators, such as Baby PCR test around six weeks uptake and Antenatal client CD4 1st test rate, had major data completeness problems. In the case of the PCR Testing Rate of Babies Born to HIV-positive Women indicator, data for the Western Cape were obtained directly from the province. Although these data are complete and without gaps they cannot be compared to the rest of the country as a different collection method (cohort data) was utilised.

The inadequate monitoring of indicator values throughout the system, from facility to national level, continues to result in some districts having indicator values that are clearly implausible.

District health financing indicators

The district level estimates of expenditure on PHC have been updated to include the 2008/09 expenditure and all values for previous years have been adjusted to take the effect of inflation into account and are presented in REAL 2008/09 prices. This means that increases in expenditure over time reflect greater availability of resources rather than just increases to cover the increasing cost of health care due to inflation. Adjusting for inflation does not however take into account that there may be increased demands on the resources, due to increased utilisation or scaling up of services.

Details on the two additional indicators derived from the expenditure data that have been included this year are:

- Total PHC Expenditure per Capita - includes all provincial expenditure within Programme 2: District Health Services, plus net local government expenditure on PHC. The same denominator of the uninsured population is used as for the other per capita indicator.
- PHC (Non-Hospital) Expenditure per Patient Visit - measures the average cost of a patient visit to a primary care facility. In practice it is the average cost to the health service of a patient visit to a community health centre, clinic, satellite clinic or mobile clinic, excluding district hospitals but including the cost of managing the district. The number of visits is obtained from the DHIS.

Data from the Basic Accounting System (BAS) financial database for all provinces except North West were obtained from National Treasury. Summarised data from North West were obtained from the province's chief financial officer. Provincial expenditure was coded according to the programmes and sub-programmes published by National Treasury. Expenditure from sub-programmes 2.1-2.5 (District management, Community health clinics, Community health centres, Community-based services, and Other community services) are included in the non-hospital PHC expenditure under District Health Services.

All expenditure was allocated to districts using information from various fields in the financial database. The DHIS facilities file was used to code all entries linked to individual health facilities. Expenditure which could not be allocated to a specific district was subsequently allocated to all of the districts within the relevant province in proportion to the total population share of each district. Expenditure that was

allocated to a region which included two districts was similarly allocated to each district within that region according to population share. Finally, expenditure for cross-boundary districts was combined and included as one item in the province that the district is located in according to the new demarcation boundaries. This means that, for the purposes of analysis of per capita expenditure at district level, some expenditure which is originally recorded in one province may be shown under a different province.

There were a number of changes to the Standard Chart of Accounts from 2008/09, with the introduction of additional dimensions of encoding expenditure. Although this has allowed for improved analysis of the data there remain a number of inconsistencies in the data for some provinces, where expenditure is still not clearly allocated to districts or the district coding had errors. This suggests that financial management does not focus on district level. It is suggested that cost-centred accounting become standard practice. Difficulty is also experienced in obtaining verifiable information of transfers to local government.

Net local government expenditure on health services² was added to provincial expenditure on non-hospital PHC and this total was divided by the uninsured population to obtain expenditure on non-hospital PHC per capita. Medical scheme coverage from StatsSA General Household Surveys was used to calculate the uninsured population. Since the new district-level medical scheme coverage figures were not yet available, the three year average medical scheme coverage from 2005-2007 was used with the DHIS population estimates for the relevant year to calculate the uninsured population denominator for the 2005/06 to 2008/09 expenditure per capita calculations, to reduce variability due to sampling changes at district level. It is noted from the General Household Survey (GHS) and other sources, however, that there is significant use of the private sector by the uninsured population, as well as some use of the public sector by the insured population. It is also noted that the GHS data for the previous three years has probably underestimated medical scheme coverage.

The indicator 'Cost per patient day equivalent' was calculated for all district hospitals, by dividing the total expenditure attributable to each facility (from the BAS and NW expenditure data) by the number of patient day equivalents³ for each facility (from DHIS). This indicator was then aggregated to district, provincial and national level by weighted averages.

Health facilities and beds

The information on private hospitals has been obtained from the Wilbury and Claymore 2008 database. It does not include state-aided private hospitals or private public partnerships (PPPs). Data on public sector health facilities were extracted from the DHIS data file received in February 2010. It should be noted that with the categorisation there may be some incorrect allocations of facilities. There may also be some duplication where private units or other operational units within public facilities are not coded at the correct level and are counted as facilities. This year the DHB provides the number of usable beds for district hospitals.

District boundaries

Geographic information from the Municipal Demarcation Board is used to define district and province boundaries and is the same as is followed by the DHIS. Relevant changes as stipulated in the Cross-boundary Amendment Act, 2009, have been incorporated into the map as well as any allocation of data. Relevant name changes for districts, as notified by the districts or Department of Developmental Government and Housing, have been applied - i.e. Kgalagadi district to John Taolo Gaetsewe district.

The relocation of Merafong from the North West Province into the Gauteng province (which requires the re-determination of the geographical areas of the provinces of North West and Gauteng as well as the re-demarcation of the boundaries of the Dr Kenneth Kaunda and West Rand District Municipalities) has not yet been finalised and all the data for Merafong for the 2008/09 period are still included in North West Province records.

2 Data on local government expenditure on primary health care from National Treasury. Net expenditure was used, i.e. expenditure less income (which includes transfers from provinces to LG).

3 Patient day equivalents (Inpatient days + ½ day patients + ½ outpatient and emergency room visits).

Averages

It is important to note that all averages (provincial, national, metro and ISRDP) are WEIGHTED AVERAGES, based on the total numerator and denominator for all the sub-areas included, and are thus not averages of the district indicator values. Therefore, 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.

Clinic supervision rate

Although Clinic supervision rate data has been available in the DHB since 2006/07, 2008/09 is the first year for which this indicator's values were calculated by and extracted from the DHIS. Data for the previous two years were calculated manually according to the same definition, with some corrections for duplicate counts and for large areas of missing data. There may thus be anomalies in the comparison of data between 2008/09 and the previous two years. However, for the 2009/10 DHB the historic data will be replaced with the DHIS-calculated values, including any revisions or corrections to the data, thereby improving the time series comparisons.

Antenatal HIV and syphilis sero-prevalence survey

The Antenatal HIV and syphilis sero-prevalence survey has released the results to district level for the third year running in 2008⁴. The DHIS routine data for the HIV prevalence indicator can no longer be directly compared with the HIV prevalence survey results as there are certain methodological differences (although they both generally follow similar trends). The DHIS data are routinely collected data and are not a representative sample. The DHIS data include only those women who have agreed to HIV testing, whereas the national survey includes all women who attend antenatal care. There are other reasons that could account for the difference, for example known HIV positive women may not be retested at antenatal clinics and therefore are not recorded in the DHIS, resulting in the DHIS having a lower rate compared to the national ANC survey. The DHIS indicator is now called 'Antenatal client HIV 1st test positive rate' and is defined as 'Antenatal clients tested HIV positive as a proportion of antenatal clients HIV tested for the first time during current pregnancy'. However, both sets of data are displayed in the district profiles and in the data file and graphs.

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 developed by the Department of Health for 1995-2009 (based on the best available information from the Census 2001 and mid-year estimates) were used in this edition of the DHB. The new estimates from NDoH/HISP (Feb 2010) which provide 2001-2016 population estimates were released too late to be included in this 2008/09 DHB publication. The district totals per age group are official estimates from StatsSA (Nov 2009) whereas the break-down to sub-district level has been done proportionally using Census data. It is noted that there are substantial differences in some areas between the old and new estimates and it is expected that some of the population-based indicator values will change, sometimes notably, once the revised population estimates have been incorporated into the data files, both in the field and in the 2009/10 edition of the DHB.

The Excel data summary tables found in DHB_Data_file that accompanies this e-publication provides the population estimates from the StatsSA Community Survey 2007 as well as those estimated by the Department of Health for 2005, 2006 2007 and 2008 from the old (NDoH 1995-2009) estimates, since these are the values that were used in the DHIS data that has been used for this DHB.

Deprivation Indices and socio-economic data

The deprivation index is a measure of relative deprivation across districts within South Africa. As for any index, the deprivation index is a composite measure derived from a set of variables⁵.

4 National Department of Health. National HIV and Syphilis Antenatal Sero-prevalence Survey 2008. http://data.unaids.org/pub/Report/2008/20080904_southafrica_anc_2008_en.pdf

5 The deprivation index used in the DHB reports is generated using principal components analysis (PCA). PCA identifies the underlying process that has the most influence in determining the outcome of each variable included in the analysis. Each variable is weighted based on its linear association with the underlying process. The weighted variables are then used to construct the deprivation index.

Variables included in the analysis are considered to be indicators of material and social deprivation. The deprivation indices for this report were generated using StatsSA's 2006 General Household Survey (GHS) data and the 2007 Community Survey (CS) data and have been calculated in such a way that the indices are directly comparable to the deprivation indices generated from the 2005 GHS data. This therefore provides three years of deprivation trend data.

To simplify interpretation, the deprivation index was normalised such that the district that is least deprived has a deprivation index of 1. Districts with higher values are relatively more deprived than districts with lower values. The score itself does not have any intrinsic meaning, but the relative scores show which districts are more deprived than others and can be used to rank districts. Each district was thus ranked according to levels of deprivation and categorised into socio-economic quintiles (SEQ). 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 there is no official consensus on a single measure of poverty or deprivation, an additional indicator is included with the deprivation index. This is the percentage of households with access to piped water. (This indicator data is provided from both the General Household Surveys and Community Survey up to 2007.)

The socio-economic indicators for 2008/09, which are sourced from the General Household Survey, are not available in this report as there has been a delay in obtaining these data to district level for 2008. This delay is because StatsSA is revising the entire time series results from the GHS. The data from the GHS 2008 and 2009 and updated demographic (population) data will be provided in the 2009/10 DHB report.

18 Priority sub-districts

Eighteen priority sub-districts were identified, not because of poor performance, but primarily because of the level of deprivation and level of need of the population (as identified by the deprivation index). In order to ensure equity of health delivery, it is important to give priority to these areas and to focus on improving their level of deprivation. This DHB has thus included the sub-districts in the narrative analysis and in the data tables⁶. These 18 priority sub-districts, with their districts, are:

Sub-district	Code	District	Province
Ikwezi	EC103	Cacadu	Eastern Cape
Mbhashe	EC121	Amathole	Eastern Cape
Engcobo	EC137	Chris Hani	Eastern Cape
Senqu	EC142	Ukhahlamba	Eastern Cape
Ntabankulu	EC152	O.R. Tambo	Eastern Cape
Umzimvubu	EC442	Alfred Nzo	Eastern Cape
Maluti a Phofung	FS194	Thabo Mofutsanyane	Free State
Kungwini	GT462	Metsweding	Gauteng
Dannhauser	KZN254	Amajuba	KwaZulu-Natal
Nongoma	KZN265	Zululand	KwaZulu-Natal
Umhlabuyalingana	KZN271	Umkhanyakude	KwaZulu-Natal
Maphumulo	KZN294	iLembe	KwaZulu-Natal
Greater Giyani	LIM331	Mopani	Limpopo
Bushbuckridge	MP325	Ehlanzeni	Mpumalanga
Moshaweng (Kudumane)	NC451	John Taolo Gaetsewe (Kgalagadi)	Northern Cape
Moretele	NW371	Bojanala Platinum	North West
Kagisano (Ganyesa)	NW391	Dr Ruth Segomotsi Mompati (Bophirima)	North West
Khayelitsha	CPT_KH	City of Cape Town	Western Cape

⁶ It is important to remember that, at this level of disaggregation and especially where population-based denominators are used, the data must be viewed as general trends and high variability in indicator values can be expected. There is also a wide range in the facilities at sub-district level, with some having only one or two clinics and no district hospitals, which will affect some indicators more than others.

Data Display

Financial year and calendar year

The indicators from DHIS and the BAS financial system cover the 12 months April to March, which is the Department of Health's financial year. Only the TB data (TB cure rate and smear conversion rate) cover a calendar year. Indicators from StatsSA and the HIV prevalence among ANC clients tested from the national ANC surveys are for the period of the census or survey.

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 nurse clinical workload and Caesarean section rate, being in the number 1 position does not mean best performance – the “best” position is usually in the middle range close to the South African average. In these cases, both extremes are undesirable but for different reasons.

In the district profiles and the data file, a simple colour coding and a rank number have been used to facilitate understanding:

- green 1-17 (best)
- yellow 18-35 (middle)
- orange 36-52 (worst).

In the DHB_data file users of MS Office 2007 will see colour-coding visible with the indicator data values.

The actual rank values have been moved to a separate Rank tab to separate the indicator values and ranks as the volume of data has increased. The Rank_summary tab provides a simple average (where all rankable indicators are weighted equally) of the district ranks for each indicator by category of indicator.

Trends

Examples of the typical trend graphs displayed in this report are illustrated below.

1) Annual trends of an indicator comparing districts and provinces

These graphs are used in Part A: Indicator comparisons by district and help the reader explore how an indicator varies over a number of years across districts and provinces. For instance, Figure A shows that the Caesarean section rates in most of the districts in the Western Cape are higher than those in the Northern Cape and North West. As the scale of the y axis is the same for all the graphs, one can easily notice differences. It also shows variation and change within the districts in a particular province over time. For example, note the difference in the rates between iLembe district and other districts in KwaZulu-Natal. This difference has diminished in the last three years.

2) Annual indicator trends by district within a province.

These graphs can be found in Part B: Province and District Profiles of the District Health Barometer. These graphs compare districts within a province and show variation over a certain time period with respect to a particular indicator. An example of this kind of graph is shown here as Figure B and illustrates for example that the Caesarean section rate (see Caesarean sect rate panel in the Figure B) in Nelson Mandela Metro has been consistently higher than in any of the other Eastern Cape districts since 2000. Similarly, the HIV testing rate (see HIV test ANC rate panel in Figure B) shows a consistently large improvement for all districts in the province since 2002. The graphs also reflect if there are wide fluctuations in the data, such as in the immunisation drop-out rate.

Figure A: A typical single indicator, multi-province trend graph as found in Part A

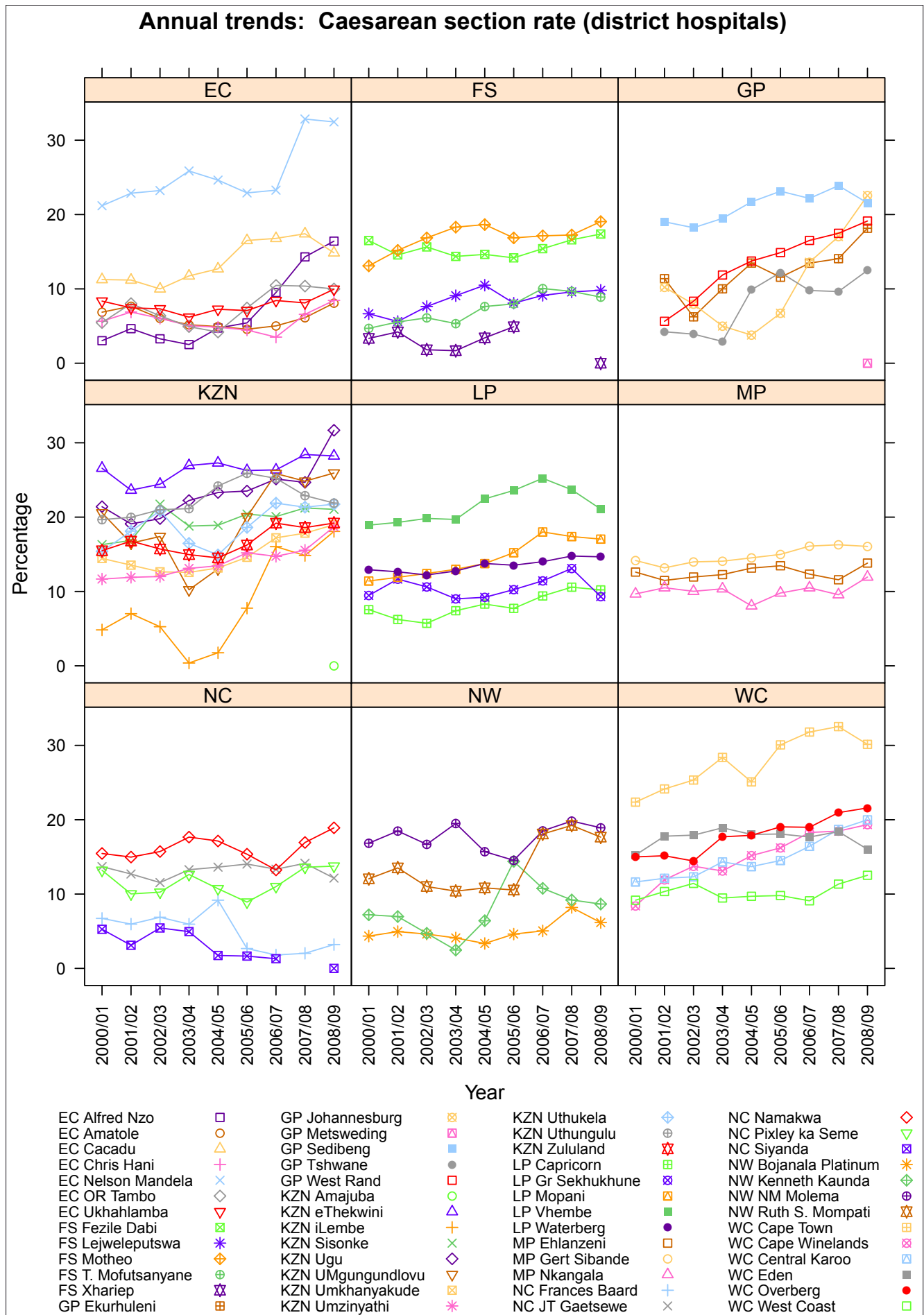


Figure B: A typical multi-indicator, single province trend graph as found in Part B

