

Introduction

Why a District Health Barometer?

The District Health Barometer provides a snapshot of the overall performance of the health sector across the 53 districts in South Africa. It supports and improves M&E and data quality within the health system and is therefore a useful management tool.

The purpose of the DHB is to function firstly as a tool to monitor progress and support improvement of equitable provision of primary health care by:

- ◆ Illustrating important aspects of the health system at district level through analysis of indicators.
- ◆ Ranking, classifying and analysing health districts (in various groupings e.g. metropolitan districts, rural development districts, provinces), on the basis of these indicators.
- ◆ Comparing these indicators over time.

Secondly, by demonstrating the data in the above mentioned way, poor quality data is highlighted. Managers are recommended to focus and improve on these data, so that the DHB can function more effectively as a good quality information and management tool.

“Basic health system monitoring focuses on the inputs, processes and outputs of the health system.¹ These inputs and processes include human resources, finances, governance and leadership, information, infrastructure, procurement, logistics and supplies, which influence the outputs: service delivery, including availability and quality of services. These outputs affect the utilization of the services by those who need it (coverage) which, if the interventions are effective, should lead to improvements in health outcomes.”²

Background

It is a requirement of the National Health Act, 2004 that district managers prepare annual plans which are in line with national and provincial policies and goals. In terms of the Public Finance Management Act, 1999 national and provincial health departments are required to produce annual reports.

However, both planning and monitoring and evaluation require good information. Currently the South African public health sector has an abundance of data which has not been converted into useful management information. Managers, at all levels of the system, need better information that can detect changes in performance, monitor progress and which supports decision making.

In order to meet this need, HST successfully piloted the 2004 (Year 1) District Health Barometer (DHB) report in 2005, in collaboration with the National Department of Health and other stakeholders. The aim of the DHB is to highlight measurable components of performance throughout the health districts. This report features a comparison of the performance of all 53 districts in South Africa across a selection of indicators, drawn from a variety of information sources.

These information sources include:

- ◆ the District Health Information System (DHIS), a database comprising mainly routine data collected at facility level, from which the majority of indicators are drawn,
- ◆ the National TB register,
- ◆ population & socioeconomic data using Statistics South Africa’s Census 2001 data,
- ◆ financial data (health expenditure) from the National Treasury.

The District Health Barometer 2005/06 report uses similar concepts, methodology and sources as were used for the 2004 report, but includes additional features in order to be a more useful tool and also to better highlight areas of inequity and change across the districts.

1 The health system is concerned with personal and non-personal health services.

2 Health Metrics Network, Health System Metrics. Report of a Technical Meeting, Glion, Switzerland 28-29 September 2006. URL: http://www.who.int/healthinfo/health_system_metrics_glion_report.pdf

Overview

In order to monitor the effectiveness of the health system and its components, inputs into the health system, processes and outputs need to be measured. These measurements in turn need to be related to changes in health outcomes as well as an assessment of their impact.

The indicators used in the DHB are grouped into the following types or classes of indicator:

Socio-economic, input, process, output, outcome and impact indicators.

When these indicators are presented in an easy to understand way, such as in the DHB, they can be readily understood by non-health workers, the public, politicians and policy makers.

The DHB focuses on a core set of indicators which can be used to regularly report on the health status of the districts in South Africa.

Indicators³ used in this DHB

Similarly to the 2004 District Health Barometer, the indicators chosen have to a large degree been determined by the range and quality of data available. Out of those available, the indicators chosen generally have been the ones that are linked to measuring the Millennium Development Goals, an international commitment to improve poverty and health by 2015;⁴ and those which measure some important aspect of health policy such as access to health services, equity in provision and efficiency of provision of health services. Below follows the list of indicators used in this 2005/06 report which features the same 15 indicators that were available in the 2004 DHB, with 11 additions.

This year's barometer has two sections.

In section A, each indicator is individually analysed with comparisons made among the 53 health districts in SA. In addition, for those indicators where there is longitudinal data over time, the changes in the indicators among the 53 districts are analysed.

Section B is a new addition to the DHB and consists of a profile of each of the 53 districts and 9 provinces. These profiles show all the indicators for each district and province, which are displayed, ranked and compared to the national averages. For those indicators that can be ranked, the colour coding splits the ranking into thirds, with red indicating ranking in the lowest third; green in the top third and orange indicating ranking in the middle.

Socioeconomic indicators:

These are all linked to Millennium Development Goal number 1 "Eradicate Extreme Hunger and Poverty".⁴

Household access to water

One of the leading causes of death and diseases in underprivileged areas and in developing countries are water-related disease transmitted through contaminated drinking water, inadequate sanitation, and poor personal hygiene.⁵ This indicator, available from the Census 2001, demonstrates areas of deprivation across the districts in terms of access to piped water.

Deprivation indices

This index is a measure of relative deprivation across districts within South Africa and is a composite measure derived from a set of variables,⁶ which are sourced from 2001 Census data.

Socioeconomic quintiles

These are rankings of districts based on the deprivation index which have been grouped into quintiles. The quintiles are labelled 1 to 5 and each contains 20% of all districts. Those districts that fall in the 5th quintile have a population in the top 20% of all districts and are the least deprived (best off) while those in quintile 1 have the population with the lowest socioeconomic status and are the worst off.

³ A table with definitions, references and terms for each indicator used in this report is available in the Appendices, page 215.

⁴ Millennium Development Goals Report 2006. United Nations Millennium Development Programme. New York: United Nations; 2006.

⁵ Becker, B. Pickett, J. Levine, R. Measuring Commitment to Health. Global health indicators working group report. Center for Global Development, Washington DC; August 2006.

⁶ See "Variables included for calculating the deprivation index" in the Appendices, page 204.

Input indicators:

Financial indicators:

Per capita non-hospital expenditure on health (public sector)

Proportion of district health services expenditure on management

Proportion of district health services expenditure on district hospitals.

The purpose of this group of indicators is to provide an indication of the government's commitment to health spending on Primary Health Care and district health services as well as providing insight into the equity aspects of health resource allocation.

The per capita expenditure refers to the amount spent on non-hospital PHC health services per person without medical aid coverage. It is estimated that 14% of the total population have access to a private medical aid.⁷

Expenditure on district health services includes expenditure on: district management, clinics and community health centres, services in the community, HIV and AIDS, nutrition and district hospitals. By looking at the proportion of the total expenditure on management and district hospitals, we get an indication of variations in expenditure patterns among districts as well as an indication of the relative priority placed on these two key areas of the district health services.

Process indicators:

Nurse Clinic Workload (PHC)

This indicator measures the average number of patients per day seen by a professional nurse at a PHC facility. Its purpose is to analyse utilisation patterns, efficiency and equity in terms of staff distribution.

Bed Utilisation Rate (BUR)

The bed utilisation rate or useable bed utilisation (occupancy) rate measures the occupancy of beds available for use in a hospital. It gives an indication under or over supply. Patients sleeping on the floor are reflected in bed occupancies over 100%.

Average Length of Stay (ALOS)

The average length of stay, which measures the average duration of patients' stay in a health facility, is largely indicative of the quality of care a patient receives during their stay. The better the quality of care and patient management, the lower the average length of stay.

Output indicators:

Immunisation coverage rate and drop out rate

Immunisations are one of the most cost-effective PHC interventions and contribute to the decrease of childhood mortality, Goal number 4 of the Millennium Development Goals. These indicators are also a proxy of the strength of the public health system in providing essential services. Effective immunisation coverage controls a wide range of diseases including measles, tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, hepatitis B and Haemophilus influenzae.

Caesarean Section rate

This is a facility based indicator and measures the percentage of deliveries that are carried out by Caesarean section in a hospital. It indicates the range and level of sophistication of care available to women. Because of the continuum of maternity related care, all hospitals are included in this indicator. It also contributes to improvement of maternal health, Goal Number 5 of the Millennium Development Goals.

⁷ General household survey July 2005. Statistical Release P0318. Pretoria: Statistics South Africa; 2006.
URL: <http://www.statssa.gov.za/>

Male condom distribution rate

This is the number of condoms per annum provided by the public sector and taken for use by men 15 years and older. It is one of the proxy indicators that contributes to the "Combat of HIV and AIDS, malaria and other diseases", Goal Number 6 of the Millennium Development Goals.⁴ It also gives some insight into commitment to the comprehensive HIV Plan.⁸

Prevention of Mother to Child Transmission (PMTCT) indicators:

Proportion of antenatal clients tested for HIV

HIV prevalence rate amongst antenatal clients tested

Nevirapine uptake rate among HIV+ve pregnant women

Nevirapine uptake rate among babies born to HIV+ve women

These indicators assess the progress made in preventing mother-to-child transmission through the testing of mothers for HIV and then after identifying those who are HIV+ve, providing these mothers and their babies with antiretroviral medicines as a prophylaxis. Although strictly speaking the prevalence of HIV amongst antenatal clients tested is a health status (impact) indicator, for the purposes of grouping all the PMTCT indicators together, it has been included in this section. These indicators also contribute to the "Combat of HIV and AIDS, malaria and other diseases", Goal Number 6 of the Millennium Development Goals.⁴

PHC Utilisation rate

This indicator measures the average number of visits per person per year to a public health facility and is a proxy measure for both access to PHC as well as community satisfaction with these services.

Outcome Indicators:

Incidence of Sexually Transmitted Infections (STIs) treated

Incidence of STI treated measures how many new episodes of a sexually transmitted infection, in people 15 years and older, have been treated in the public health sector facilities. Because of the importance of STIs as a co-factor in the spread of HIV, a decrease in the STI incidence is likely to contribute to the "Combat of HIV and AIDS, malaria and other diseases", Goal Number 6 of the Millennium Development Goals.⁴

TB cure rate and smear conversion rate

These two indicators are key indicators that assess the success of the national TB control strategy. Large numbers of people are infected with TB in South Africa, with huge increases recently as a result of the inter-relationship between TB and HIV. These indicators measure the success in combating TB, which is one of the major diseases referred to in Millennium Goal number 6.⁴

The cure rate looks at the proportion of those patients who had pulmonary TB with confirmed evidence of TB bacillus in their lungs ("smear positive") who were confirmed "smear negative" after 6 months of treatment with anti-TB drugs.

The smear conversion rate is the percentage of new smear positive PTB patients who are smear negative after two months of anti-TB treatment and are therefore no longer infectious, however they are not yet cured.

Incidence of diarrhoea under 5 years (per 1000)

Diarrhoeal disease is well recognised as one of the most important contributors to childhood morbidity and mortality. This indicator measures the burden of diarrhoeal disease on the public health sector and for every 1000 children under 5 years of age measures how many new cases of diarrhoeal disease presented for treatment in a public facility in the year.

Not gaining weight under 5 years rate

Malnutrition is one of the underlying factors that contribute significantly to childhood mortality and morbidity. One of the early indicators of malnutrition is a child not gaining weight according to growth

⁸ The operational plan on comprehensive HIV and AIDS care, management and treatment. National Department of Health, Pretoria, 2003. URL <http://www.doh.gov.za>

norms. This indicator measures the proportion of children who have fallen below the expected weight increase for their age. It is one of the key indicators in Millennium Development Goal number 1, Eliminate Extreme Poverty and Hunger.

Delivery rate in facility

The facility delivery rate looks at the percentage of deliveries that take place in a health facility per year. It gives an idea if women are able to access skilled health personnel as opposed to giving birth at home. It is one of the proxy indicators⁹ in Improving Maternal Health, Goal Number 5 of the Millennium Development Goals.⁴

Impact Indicators:

Perinatal mortality rate

Stillbirth rate

Both of these indicators are based on deaths occurring in health facilities. The stillbirth rate measures the number of deliveries that end in stillbirths per 1000 births. The perinatal¹⁰ mortality rate measures the number of stillbirths together with the number of deaths in the first 7 days of life per 1000 births.

Both of these indicators give an indication of maternal health and the responsiveness and effectiveness of the health system with respect to maternal and child health.

Methodology and Data Sources

General

The indicators were all based on secondary data that were either readily available, or on available data that needed manipulation. The principle on which the DHB is based is that there should not be any primary data collection in order to construct the indicators, as these should be sustainable over time.

Another principle followed was not to change the data, even if it was obviously incorrect, as that creates the additional problem of multiple sources of data measuring the same thing. If data was incorrect we tried to highlight this in the accompanying text with the view to explaining this and improving the quality in subsequent years. Unfortunately these incorrect data do influence the averages for the various categories in which they fall.

The Data

1) Deprivation indices

The deprivation index is a measure of relative deprivation across districts within South Africa. Just as any index, the deprivation index is a composite measure derived from a set of variables.¹¹

Variables included in the analysis are variables considered to be indicators of material and social deprivation. The major underlying process that influences the outcomes of these variables is social and material deprivation – hence a deprivation index. Further details regarding the methodology followed and interpretation of the deprivation index can be found in the Appendices, page 204.

2) District health financing indicators

Data from the Basic Accounting System (BAS) financial database (2005/06 financial year) for all provinces except the North West were reviewed to assess spending on district health services at a district level. The raw data obtained by HST was not coded according to health districts for all provinces. This coding was done by HST, by matching health facility names with the DHIS health facility

⁹ Indicator number 17 "proportion of births attended by skilled health personnel" feeds into MDG Goal number 5 and is one of 48 MDG indicators.

¹⁰ The perinatal period commences at 22 completed weeks (154 days) of gestation (the time when birth weight is normally 500 g), and ends seven completed days after birth. (WHO - World Health Organization).

¹¹ The deprivation index used in this report was 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.

file. Summarised data on district health services expenditure were supplied by the North West province. Provincial expenditure was coded according to the programmes and sub-programmes shown in Table 1.

Total non-hospital PHC expenditure includes local government expenditure on PHC. The 2005/06 per capita calculation was based on the uninsured (public sector dependent population) using the General Household Survey (GHS) 2005 value of 14% for medical aid coverage, in the absence of district-level estimates of medical aid coverage. The figures have not been adjusted to take inflation into account and are based on actual rand values spent in the relevant years.

For some provinces (especially LP and to a lesser degree GP, EC, FS, MP and KZN) a significant percentage of expenditure on district health services is not allocated to the districts but is simply allocated at provincial level. This expenditure was allocated to each district in proportion to its population size.

Table 1: Structure of provincial financing information

| Programmes | | Sub-programmes | |
|------------|------------------------------|------------------|---|
| PR1 | Administration | | |
| PR2 | District Health Services | Non-hospital PHC | District management Community health clinic services Community health centres Community based services Other community services |
| | | | HIV/AIDS Nutrition District Hospitals Others |
| PR3 | Emergency Medical Service | | |
| PR4 | Provincial Hospital Services | | |
| PR5 | Central Hospital Services | | |
| PR6 | Health Sciences and Training | | |
| PR7 | Health Care Support Services | | |
| PR8 | Health Facilities Management | | |
| | Other | | |

3) Indicators from the District Health Information System (DHIS)

The District Health Barometer has increased the focus and attention on DHIS data quality, analysis, feedback and use. The aim of the DHB is not to correct or change any data, but to leave it as is, highlighting the inadequacies that are found. This should assist districts and provinces where to focus their attention with respect to improving their health management information capacity and systems.

The majority of the indicators in this report have been obtained from the DHIS,¹² extracted for the financial years ending March, for 2003/04, 2004/05¹³ and 2005/06. The data for the current year was extracted from the DHIS at the end of June 2006. This is the official dataset for 2005/06 financial year as submitted by the provinces to the national Treasury and Department of Health.¹⁴ The exception to this were the two indicators related to district hospitals, viz. average length of stay (ALOS) and bed utilisation rate (BUR), which were extracted in December 2006.

As detailed in the government Gazette Nr 28363 of 23 December 2005,¹⁵ the cross-boundary

¹² DHIS: the NDOH4 file.

¹³ For the DHB year 1, data was extracted mainly for the calendar year 2004.

¹⁴ It is important to note that subsequent data correction and data cleaning exercises may cause extractions of the same indicators after this date to be different. This issue of multiple datasets for the same indicators (as a result of an unclear data flow policy) is currently the subject of discussion, with a view to improvement in the national DOH.

¹⁵ Available from: http://www.demarcation.org.za/documents/Legislation/2006Jan17_1/Cross_Boundaries_Repeal_Act.pdf

municipality of Bohlabela, has been divided between Limpopo and Mpumalanga provinces and thus no longer exists.¹⁶ The December 2006 DHIS dataset has incorporated the data for Bohlabela into Mpumalanga and Limpopo districts and therefore any district hospitals that were previously classified under Bohlabela, fall into either one of those provinces. Therefore, for the hospital data indicators only 52 health districts are shown.

Gaps in the completeness of the DHIS data affect the general completeness of this report, national averages, interpretation, analysis and trends. For example, nurse clinical workload data is missing for all 6 districts in the Western Cape province. This affects the national average.

Some indicators were not obtained from the DHIS and were obtained via different routes. For example, Western Cape and KwaZulu-Natal provinces provided PMTCT data directly to the HST from data kept in the province on this programme.

Data Quality

Data quality varies for a number of reasons. Data is not uniformly collected for all indicators because some provinces and districts have not yet fully implemented the National Indicator Data Set (NIDS). This has resulted in a mix of data elements that make up the indicator. For some indicators data is not being collected at facility level at all.

There is inadequate monitoring of indicators throughout the system, from facility to national levels. This has resulted in some districts having indicators with aggregated values that are clearly implausible. In addition, as indicated in the previous section, "correcting" of data by districts and provinces, after it has been formally submitted to the national Department of Health can result in multiple datasets, with consequent confusion as to which is the "right" one.

The stillbirth rate and perinatal mortality rate indicators are both represented per 100 births in the DHIS. In this report the denominator has been converted to 1000 births, which is the internationally accepted format.

Data Display

Indicator ranking

The districts are ranked from 1 to 53 for the majority of indicators in the league table graphs in section A, with number 1 representing the best performance/indicator and number 53 the worst performance/indicator.

However, with some indicators (e.g. nurse clinical workload and Caesarean section rate) being in the number one slot at the top of the graph, does not mean best performance. Best is in the middle range and close to the average for South Africa.

In the district profiles, a simple colour coding and a rank number has been added to facilitate understanding: green 1-17 (best), orange 18-35 (middle), red 36-53 (worst).

Population data

Indicators that require population denominators use the population mid-year estimates available at the time of calculation.¹⁷

Name changes of districts

The following name changes have taken place in the last year:

In the Northern Cape province DC7, Karoo District Municipality changed name to Pixley ka Seme District Municipality. In the Free State, DC20, Northern Free State District Municipality changed name to Fezile Dabi District Municipality. In the Western Cape, DC2, Boland District Municipality changed name to Cape Winelands District Municipality. In Limpopo province, CBDC3 Sekhukhune District Municipality changed to Greater Sekhukhune District Municipality.

¹⁶ Bushbuckridge sub-district has become part of DC32 Ehlanzeni district in Mpumalanga and Maruleng has become part of DC33 Mopani district in Limpopo.

¹⁷ For the DHIS indicators these were obtained from the DHIS data source. However, indicators obtained from other sources (e.g. per capita expenditure) used updated mid-year estimates circulated in March 2006, but were not yet incorporated into the DHIS at the time of extraction for this report. Both of these estimates are different to the Stats SA mid-year estimates, as adjustments have been made to the Census 2001 underestimation of children under 5 years old, by the Department of Health.

Cross-boundary districts

The existence of cross-boundary districts continued to complicate analysis at the district level. Currently indicators in a number of health districts that cross provincial boundaries are affected because the data on which these indicators based are collected by two provinces with differing information systems. This is a fluid situation, which is also going to be affected by proposed changes to provincial boundaries. The Department of Provincial and Local Government has gazetted the Cross-Boundary Municipalities Laws Repeal Bill for public comment. For the 2005/6 DHB, as with the DHB year 1, the DHIS data for cross boundaries have been allocated as follows:

| Cross-boundary district | Data incorporated into |
|--------------------------------------|------------------------|
| Ekurhuleni Metropolitan Municipality | Gauteng |
| Tshwane Metropolitan Municipality | Gauteng |
| Frances Baard District Municipality | Northern Cape |
| Kgalagadi District Municipality | Northern Cape |
| Metsweding District Municipality | Gauteng |
| Sekhukhune District Municipality | Limpopo |
| West Rand District Municipality | Gauteng |

Private health Facilities and beds

The information in this section has been obtained from the Private Healthcare Review 2006, and does not include state-aided private hospitals or private public partnerships (PPPs). The private health facilities included, are only those that have beds available.

Targets

For some indicators (e.g. Immunisation coverage of 90%; TB cure rate of 65%) there are clear and unambiguous targets. However for the majority of indicators, there are either an absence of targets or the targets are not based on the current realities of the health system (e.g. Caesarean section rate of 11%). In this DHB, in the absence of realistic targets, we have used the SA average as a proxy for benchmarking district performance.

It is the responsibility of each cluster and programme in the national Department of Health to set realistic and achievable targets that stretch the performance of the health system.

