

# MONITORING

# HOSPITAL CARE



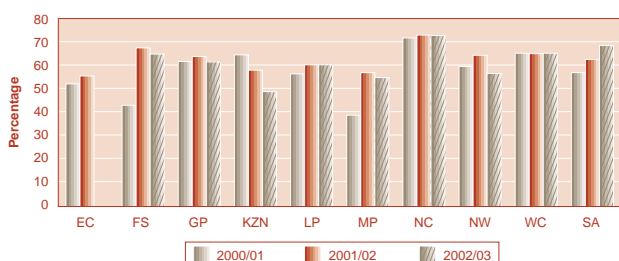
## Development and use of indicators in hospital service management

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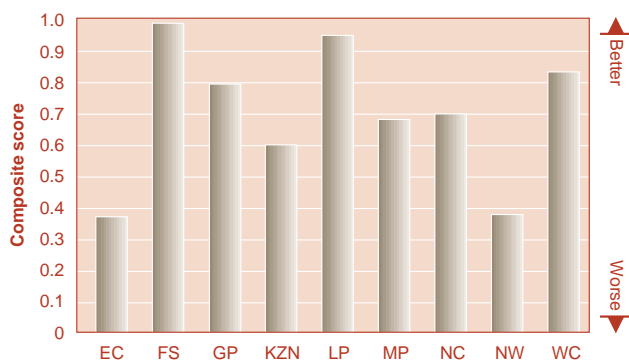
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### Useable bed utilisation rate, district hospitals



Source: Hospital MDS

### Composite score of data quality, hospital minimum data set, 2002/03



### Key Messages

- ◇ There has been a serious attempt to use indicators to influence overall health services planning and strategy, and frameworks for strategic planning have been developed at all levels.
- ◇ However, the use of indicators to support the local management of hospital services still appears to be very limited.
- ◇ The initiative to mainstream the use of indicators for health systems planning and as an early warning system for identification of performance problems needs to be sustained and implemented at the local level.
- ◇ Efforts to identify and deliver on hospital managers' information needs must be coupled with adequate delegation of management.
- ◇ Known gaps in the national information system (such as data dictionaries and indicator definitions) need to be addressed by the NDoH.
- ◇ A human resources development strategy for information management specialists is absolutely critical.

### Framework for Monitoring and Evaluation

South Africa:

- ◇ Medium Term Expenditure Framework Strategic Plans at national, provincial and district levels
- ◇ Hospital Minimum Data Set
- ◇ Revitalisation Minimum Data Set
- ◇ National Tertiary Services Minimum Data Set
- ◇ Health Goals, Objectives and Indicators 2001-2005

### Key Indicators

- Useable bed utilisation (occupancy) rate
- Length of stay
- Stillbirth rate
- Caesarean delivery rate
- Cost per Patient Day
- Useable beds per 1000 (uninsured) people

### Key References and Data Sources

- ◇ District Health Information System (DHIS)
  - Hospital Minimum Data Set (HMDS)

## Introduction

With the implementation of a 3-year strategic planning process, there has been a serious attempt over the last 12 months to use indicators to influence health services planning and strategy. Frameworks for strategic plans have been developed for the medium term expenditure framework (MTEF) period for national, provincial and district level plans. All three frameworks include extensive use of indicators, especially at provincial and district levels. The frameworks are based on Treasury budget programmes, and so explicitly include central, general and district hospitals, the latter being included under district health services.

This initiative follows the implementation of various national data sets for hospital services over the last 4 years. But are these national initiatives making any difference to the actual wealth of information available to managers at national, provincial and local levels?

The use of indicators to support the local management of hospital services still appears to be very limited. The use of indicators at local level in primary health care has been encouraged for a number of years by the EQUITY Project and the Health Information Systems Programme (HISP), primarily through the use of the District Health Information System (DHIS). This process has received support from the national Department of Health (NDoH) through the National Health Information Systems Committee (NHIS/SA). This has met with considerable success in most provinces, and especially where provincial management teams have sponsored and encouraged such developments. However, these successes have not typically been replicated in hospital services.

This chapter aims to use the available indicator data to determine trends and perspectives on hospital services, and to discuss possible solutions to the lack of use of indicators for local service management in hospital.

## Framework for monitoring and evaluation

### Historical context

In hospitals in 1994 there was a wide range of data collection systems and consequently a total absence of standard, nationally agreed data elements and indicators. No routine system existed for the nationwide (or even province-wide) collection of the most simple service data, such as the number of admissions. At the NDoH, although a database existed showing the location and size of hospitals, it was out of date, inaccurate and incomplete. It contained no data on service delivery volumes, and consequently no indicators.

### Indicator development before 2000

The Hospital Strategy Project report<sup>1</sup> was initially submitted to the NDoH in June 1996. The report identified 19 priority indicators, 'useful' for the management of hospitals and hospital services (Table 1). Indicators were designated either 'basic' for general use, or 'advanced' for use by managers with more experience in the use of indicators. However, there was no formal adoption of these indicators by the NDoH. Without the acceptance of these indicators by the National Hospital Coordinating Committee or NHIS/SA, these indicators remained advisory only and no data collection systems were implemented. Some of the indicator definitions are no longer consistent with current data element definitions, and are sometimes over complicated, but the indicators remain a useful 'suggestion box' for planners and managers, including managers of hospitals.

Table 1: Indicators selected by the Hospital Strategy Project as appropriate for hospital management, 1996

| Indicator group and name                   | Type     | Technical definition  |
|--|----------|---|
| <b>Activity</b>                            |          |   |
| Inpatient days                             | Basic    | Sum of midnight census figures plus total deaths and discharges for the month                                       |
| Inpatient admissions                       | Basic    | Sum of emergency, elective, obstetric and other admissions  |
| Outpatients attendances & head counts      | Basic    | Actual patient headcount, patient attendances, and the ratio of the two (to provide no. of attendances per patient) |
| Emergency attendances                      | Basic    | Actual emergency attendance count   |
| Inpatients with a stay of more than 8 days | Advanced | No. of patients in hospital for more than x days  |
| Waiting lists for outpatient appointments  | Advanced | No. of patients with a future appointment date for a (specialist) clinic appointment                                |
| <b>Efficiency</b>                          |          |   |
| Average length of stay                     | Basic    | Inpatient days in the month, divided by the no. of discharges and deaths in the month                               |
| Bed occupancy rate                         | Basic    | Inpatient days in the month divided by available bed days in the month, multiplied by 100                           |
| Sickness & absence rate                    | Basic    | Days lost to sickness and absence, divided by total working days available, multiplied by 100                       |
| Theatre utilisation                        | Basic    | Theatre hours used 8am to 5pm, divided by theatre hours available 8am to 5pm, multiplied by 100                     |
| Staff turnover                             | Advanced | (Definition too complex for inclusion in this table)  |
| Admission rates per staff                  | Advanced | No. of admissions divided by no. of doctors (or nurses)   |
| <b>Quality</b>                             |          |   |
| Complaints received                        | Basic    | No. of clinical / non-clinical complaints received  |
| Post operative infection rate              | Basic    | No. of post operative wound infections (purulent discharge) (divided by total no. of operative cases)               |
| Patients failing to attend clinic rate     | Advanced | No. of patients failing to attend clinic divided by the no. of patients with appointment (planned clinics only)     |
| Clinical audit                             | Advanced | No. of deaths audited divided by total no. of deaths, multiplied by 100   |
| <b>Financial</b>                           |          |   |
| Expenditure (against budget)               | Basic    | Expenditure for the period divided by the budget for the period, multiplied by 100                                  |
| Cost per patient day equivalent            | Basic    | Total cost, i.e. expenditure, divided by (no. of inpatient days plus 1/3 of outpatient attendances)                 |
| Patient income                             | Basic    | Actual income derived from patient treatment. Split into inpatient, outpatient and health insurance income          |

Note: Some of these indicators are not well defined, but this is how they were given in the source.

## Indicators from routine hospital information systems introduced since 2000

The data sets defined for hospital services (which are described in this section) are comprised of data elements that have been defined in the national health services data dictionary. These definitions have also been included, in non-technical language, in 'Guidelines for Use' for each data set.

Forms were designed for the collection of the data. Many hospitals still complete paper forms and send them to district or provincial offices, but more and more are now using the DHIS to collect and submit the data, as the DHIS is rolled out to hospitals. Data received at provincial offices are either imported or entered (from the paper forms) into the DHIS, and then sent to the NDoH.

### The hospital minimum data set

In an attempt to collect simple service volume data and derive some indicators of the efficiency of service delivery, a national hospital minimum data set (HMDS) was introduced from April 2000.

The implementation of this data set was mandated by a ministerial task team on the decentralisation of hospital

management, and its original objectives were focused on supporting hospital managers as well as meeting national and provincial monitoring requirements. These objectives were:

1. enabling monitoring and evaluation by provincial and national departments,
2. assisting managers in hospitals to manage performance and to benchmark performance against other similar hospitals, and
3. helping hospitals to identify a small set of data to be reviewed by the management team on a regular basis.

The NHIS/SA Committee has decided to include primary health care data elements (for PHC services provided in hospitals) in this data set with effect from 1 April 2004, and some expenditure and staffing data elements will also be included.

The following indicators can be calculated directly from the national HMDS, i.e. all numerators and denominators are HMDS data elements.

Further indicators, such as Cost per Patient Day, Separations per Doctor, or Useable beds per 1000 (uninsured)<sup>a</sup> population, can be calculated by using data from the minimum data set along with cost, staffing or population data.

**Table 2: Indicator Definitions based on the Hospital Minimum Data Set**

| Indicator   | Numerator   | Denominator  |
|---|---|--|
| Useable bed utilisation (occupancy) rate <sup>i, ii</sup> | (Inpatient days + ½ Day patients) x 100   | Useable beds x Days in period                      |
| Length of stay <sup>ii</sup>                              | Inpatient days + ½ Day patients   | Discharges + Deaths + Transfers out + Day patients |
| Stillbirth rate   | Stillbirths x 100   | Total births                                       |
| Assisted delivery rate                                    | Assisted deliveries x 100   | Total deliveries                                   |
| Caesarean delivery rate                                   | Caesarean deliveries x 100  | Total deliveries                                   |
| Crude death rate <sup>ii</sup>                            | Total deaths x 100  | Discharges + Deaths + Transfers out + Day patients |
| Early neonatal death rate <sup>iii</sup>                  | Early neonatal deaths x 100   | Live births  |
| Patient days  | Inpatient days + ½ Day patients   | -  |
| Patient day equivalent                                    | Inpatient days + ½ Day patients + 1/3 outpatient headcount + 1/3 Casualty headcount | -  |
| Day surgery rate  | Surgical day patients x 100   | Discharges + Deaths + Transfers out + Day patients |

Notes: *i* This indicator measures the occupancy of the beds available for use.

*ii* These indicators can be used at specialty level as well as at hospital level.

*iii* Not technically correct at facility level as some neonates may be transferred into a facility after birth.

<sup>a</sup> The uninsured or public sector dependent population is the number of people assumed to be dependent on services in the public health sector, because they are not medical scheme beneficiaries.

The DHIS contains an index of hospitals, including all private and NGO hospitals. This index in itself provides extremely useful data that were not previously available, and permits the calculation of indicators, such as Useable beds per 1000 population.

### The hospital revitalisation data set

With effect from April 2002 the hospital revitalisation data set (RDS) was introduced. All hospitals receiving grant funding under the Revitalisation Project were to submit the data, plus a set of control hospitals. The RDS is intended to measure organisational development in these hospitals. The population of hospitals capturing this data will extend as the project itself is rolled out. At present, only 27 hospitals are expected to submit data, but the project will be rolled out to all public hospitals over the next 20 years.

The implementation of this data set has not been a great success. There are not enough data to produce an adequate baseline position for the project, nor to assess progress from such a point of departure. A survey is currently being undertaken to address this shortfall.

The revitalisation data set actually comprises two components – a quarterly and an annual data set. A list of indicators that can be calculated from the data set (and semi-permanent data in the DHIS) is included in Table 3 and Table 4, but there is no analysis of data included in this report, primarily because of the lack of data available. The quarterly indicators focus on efficiency, while the annual indicators consider organisational development, measuring organisational governance and management performance.

**Table 3: Indicator definitions using the Revitalisation Data Set - Annual**

| Description   | Format | Calculation  |
|---|--------|--|
| % under or over spend - total expenditure compared to total budget                      | %      | $(\text{Total budget} - \text{Total expenditure}) / \text{Total budget} \times 100$                            |
| Expenditure on hospital staff (personnel) as a percentage of total hospital expenditure | %      | $\text{Staff expenditure} / \text{Total expenditure} \times 100$   |
| Expenditure on hospital drugs as a percentage of total hospital expenditure             | %      | $\text{Drug expenditure} / \text{Total expenditure} \times 100$  |
| Expenditure on hospital maintenance as a percentage of total hospital expenditure       | %      | $\text{Maintenance expenditure} / \text{Total expenditure} \times 100$   |
| Nurses per doctor   | Number | $\text{Nurses in post} / \text{Doctors in post}$   |
| Useable beds per 1000 population  | Number | $\text{Useable beds} / \text{Population} \times 1000$  |
| Total hospital expenditure per head of the total population                             | Rand   | $\text{Total expenditure} / \text{Population}$   |
| Separations (inpatients and day cases) per 1000 population                              | Number | $\text{Separations} / \text{Population} \times 1000$   |
| Patient day equivalents per 1000 population   | Number | $(\text{Patient days} + 1/3 \text{ Outpatient headcount}) / \text{Population} \times 1000$                     |
| Percentage of senior management posts filled on permanent basis                         | %      | $\text{Filled senior management posts} / \text{Senior management posts in organogram} \times 100$              |
| Percentage of senior managers with performance contracts                                | %      | $\text{Senior management posts with performance contracts} / \text{Filled senior management posts} \times 100$ |
| Percentage of senior managers with agreed performance ratings                           | %      | $\text{Senior managers with ratings for last year} / \text{Filled senior management posts} \times 100$         |
| Percentage difference between actual and planned (business plan) separations            | %      | $(\text{Total separations} - \text{Planned separations}) / \text{Planned separations} \times 100$              |
| Percentage difference between actual and planned (business plan) expenditure            | %      | $(\text{Total expenditure} - \text{Planned expenditure}) / \text{Planned expenditure} \times 100$              |

**Table 4: Indicator definitions using the Revitalisation Data Set - Quarterly**

| Description                                | Format | Calculation  |
|--|--------|--|
| Average length of stay                     | Number | Patient days / Separations                             |
| Bed utilisation rate                       | %      | Patient days / (Useable beds x Days in period) x 100   |
| Expenditure per patient day                | Rand   | Total Expenditure / Patient days                       |
| Surgery day patient ratio                  | %      | Day patients in surgery / Separations in surgery x 100 |
| Separations per doctor                     | Number | Separations / Doctors in post                          |
| Hospital acquired infection rate           | Number | Hospital acquired infections x 1000 / Separations      |
| Patient income per separation              | Rand   | Patient income / Separations                           |
| Case fatality rate for surgical admissions | %      | Deaths in surgery / Separations in surgery x 100       |

**Table 5: Indicator definitions using the National Tertiary Services Data Set**

| Indicator                               | Numerator   | Denominator   |
|---|---|---|
| Outpatient re-attendance ratio          | Outpatient follow up attendances  | Outpatient first attendances                                    |
| Length of stay                          | Inpatient days + ½ Day patients   | Inpatient separations + Day patient separations                 |
| Percentage of separations (by province) | Inpatient separations (by province) + Day patient separations (by province) | Inpatient separations + Day patient separations (all provinces) |

Note: 'Separations' is equivalent to Discharges + Deaths + Transfers out + Day patients in the hospital minimum data set.

### The national tertiary services data set

The tertiary services data set was also introduced with effect from April 2002, and measures patient treatments in tertiary services. Indicators for this data set assess patient access to tertiary services and the performance of the service units.

The above indicators (Table 5) can be calculated directly from the national tertiary services data set, i.e. all numerators and denominators are data elements from the tertiary services data set.

### Indicators from strategic planning frameworks introduced from 2002

In the year 2002 strategic planning frameworks for district and provincial health departments were developed for the medium term expenditure framework (MTEF) period. Provincial strategic plans are now in place for all nine provinces, although district plans have not been as thoroughly implemented.

The hospital services indicators included in the provincial strategic plan framework for 2005/06 to 2007/08 are shown in Table 6. Some of these indicators can be determined from the hospital minimum data set and from the revitalisation data set. They relate to hospital services in a province, and therefore they

are 'average' indicators (e.g. average hospital expenditure on drugs) or they refer to a proportion or percentage of hospitals that have a certain characteristic (e.g. a hospital board). In this way they differ from the indicators in the previously described data sets. The indicators in the district planning guidelines<sup>2</sup> mirror these indicators.

In this way, it is intended to 'mainstream' the use of indicators into health programme and health systems planning. In addition to the planning guidelines, the NDoH has also introduced an Early Warning System<sup>3</sup> (EWS) that monitors on a quarterly basis the performance of provinces against their strategic planning targets. The indicators in this EWS are a subset of the indicators in the planning guidelines. This system has only been operational since July 2003, and following this initial experience the indicators included in the EWS are currently being reviewed.

The indicators reported in the provincial MTEF plans for 2003-2006 were generally of poor quality. A comparison of provincial values for the indicators included in the plan framework revealed large gaps in the indicators reported on, and a large number of unrealistic (i.e. incorrect) values. So far the indicators reported through the EWS also appear to be of poor quality. Indicator values in the draft strategic plans for the 2004-2007 period do appear to be of better quality.

Table 6: Indicator definitions from the Provincial Strategic Plan Framework 2005/06 to 2007/08<sup>4</sup>

| Indicator name   | Type | Numerator   | Denominator   |
|--|------|---|---|
| <b>Input</b>   |      |   |   |
| Expenditure on hospital staff as percentage of total hospital expenditure                    | %    | Expenditure on hospital personnel   | Expenditure on hospitals by provincial DoH                    |
| Expenditure on drugs for hospital use as percentage of total hospital expenditure            | %    | Expenditure on drugs  | Expenditure on hospitals by provincial DoH                    |
| Hospital expenditure per uninsured person  | Rand | Expenditure on hospitals by DoH + Expenditure on hospitals by provincial DPW            | Population x Uninsured population proportion                  |
| Useable beds per 1000 uninsured population   | No.  | Useable beds  | Population / 1000 x Uninsured population proportion           |
| <b>Process</b>   |      |   |   |
| Hospitals with operational hospital board  | %    | Hospitals with board in place   | Hospitals   |
| Hospitals with appointed (not acting) CEO in place   | %    | Hospitals with manager / CEO appointed  | Hospitals   |
| Facility data timeliness rate  | %    | Number of facilities with data submitted to NDoH within 60 days after end of period     | All facilities expected to submit data to NDoH                |
| <b>Output</b>  |      |   |   |
| Caesarean section rate   | %    | Caesarean deliveries  | Total deliveries  |
| <b>Quality</b>   |      |   |   |
| Hospitals with a published nationally mandated patient satisfaction survey in last 12 months | %    | Hospitals with a published nationally mandated patient satisfaction survey              | Hospitals   |
| Hospitals with clinical audit (morbidity and mortality) meetings at least once a month       | %    | Hospitals with clinical audit meeting every month                                       | Hospitals   |
| <b>Efficiency</b>  |      |   |   |
| Average length of stay   | Days | Patient days  | Separations   |
| Bed utilisation rate (based on useable beds)   | %    | Patient days  | Usable beds x Days in period                                  |
| Expenditure per patient day equivalent   | Rand | Expenditure on hospitals by provincial DoH + Expenditure on hospitals by provincial DPW | Patient days + 1/3 (OPD total headcount + Casualty headcount) |
| <b>Outcome</b>   |      |   |   |
| Case fatality rate for surgery separations   | %    | Deaths (surgery)  | Separations (surgery)   |

Note: DPW – Department of Public Works.

## Data and Analysis

### Hospital minimum data set indicator analysis

The tables and graphs in this section are presented as examples of the types of indicator available from this data set. These analyses are all interprovincial comparisons, but exactly the same analyses can be completed at district or hospital level.

A list of indicators that can be calculated from the HMDS is included in Table 2, and tables showing the values of selected indicators nationally and by province are included in Appendices 1 and 2.

### Local use of information and indicators

A telephone survey completed in October 2002 by the authors indicated that the use of information and indicators to manage services at hospital level was very limited. Managers in 27 hospitals were interviewed, and no hospital had developed its own data set for routine collection and presentation to the hospital management team. National and provincial data sets exist, but no hospital had determined its own information requirements. Although anecdotal information suggests that a few hospitals are now beginning to address this problem, this is only happening rarely. However in the Eastern Cape, a tender has recently been awarded to help some hospitals create and collect their own minimum data sets, using the DHIS as a data collection and reporting tool.

### Role of hospital information systems

A number of provinces have embarked on the procurement of major hospital information systems. Managers at national level certainly expect these investments to materialise in improved data quality and in a broader data set enabling more comprehensive analysis of hospital services in the country.

Estimates suggest that about 40% (or about 150) of public hospitals in the country have some form of electronic patient information system, i.e. a system that collects and presents individual patient information. In the Free State and Gauteng, systems have been locally developed to enable the computerisation of patient information systems in most hospitals, whilst in Limpopo and Western Cape most hospitals have implemented third party privately supplied systems. In other provinces, most hospitals still use manual patient information systems.

In general, the bigger the hospital, the larger and more expensive the information system. As such, solutions procured for large hospitals in Gauteng, Free State, KwaZulu-Natal and Western

Cape are more expensive than average, and require lengthy and complex implementation.

Data quality in the hospital minimum data set has improved since it was implemented in April 2000, but in general it still remains very poor. As Table 7 shows, data submitted for the financial year 2002/03 still had substantial problems of accuracy, and contained major gaps.

**Table 7: Hospital MDS 2002/03 – Indicators of data quality (%)**

| Province      | Error rate <sup>i</sup> | Missing data sets <sup>ii</sup> | Missing data elements <sup>iii</sup> |
|---------------|-------------------------|---------------------------------|--------------------------------------|
| Eastern Cape  | 90                      | 5                               | 50                                   |
| Free State    | 5                       | 0                               | 0                                    |
| Gauteng       | 10                      | 5                               | 13                                   |
| KwaZulu-Natal | 155                     | 3                               | 0                                    |
| Limpopo       | 22                      | 0                               | 0                                    |
| Mpumalanga    | 61                      | 9                               | 0                                    |
| Northern Cape | 121                     | 2                               | 0                                    |
| North West    | 132                     | 16                              | 0                                    |
| Western Cape  | 0                       | 8                               | 0                                    |

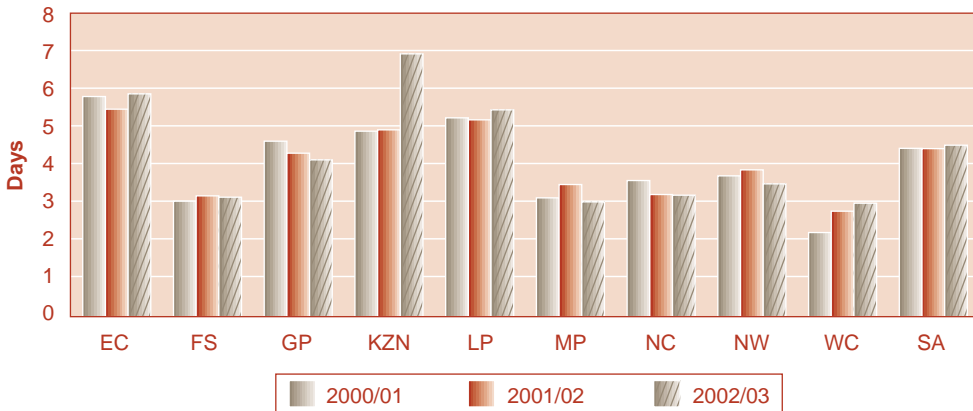
Notes: *i* Number of errors (e.g. arithmetic / logical) per data set expressed as a percentage.

*ii* Percentage of data sets not submitted to the NDoH.

*iii* Percentage of data elements missing (i.e. compared to an expected norm) from a typical hospital monthly data set.

Table 7 was used to generate scores for each indicator, normalised against the worst performer in each column, and a composite 'data quality score' has been generated by averaging the indicator values and calculating an inverse score (i.e. subtracting the average indicator score from 1). These data are presented in Table 8, and the composite 'data quality score' shows that those provinces with more comprehensive coverage in terms of electronic patient information systems (Gauteng, Free State, Western Cape, Limpopo) performed better than other provinces on data quality.

Figure 1: Length of stay, district hospitals



Note: The data for KZN are known to be of poor quality in 2002/03.

Figure 2: Useable beds per 1000 uninsured population, 2002/03

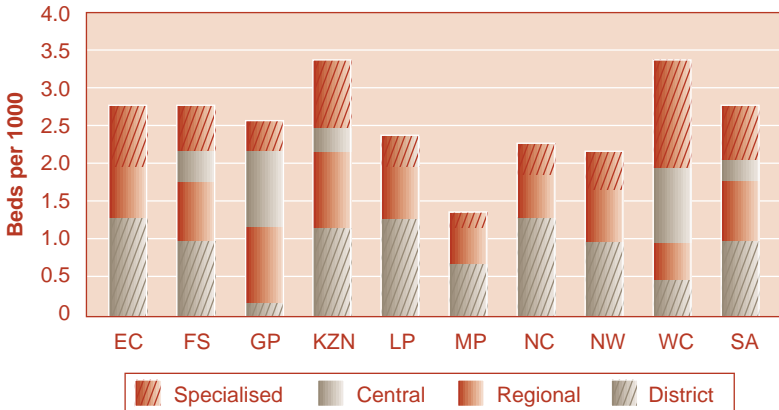
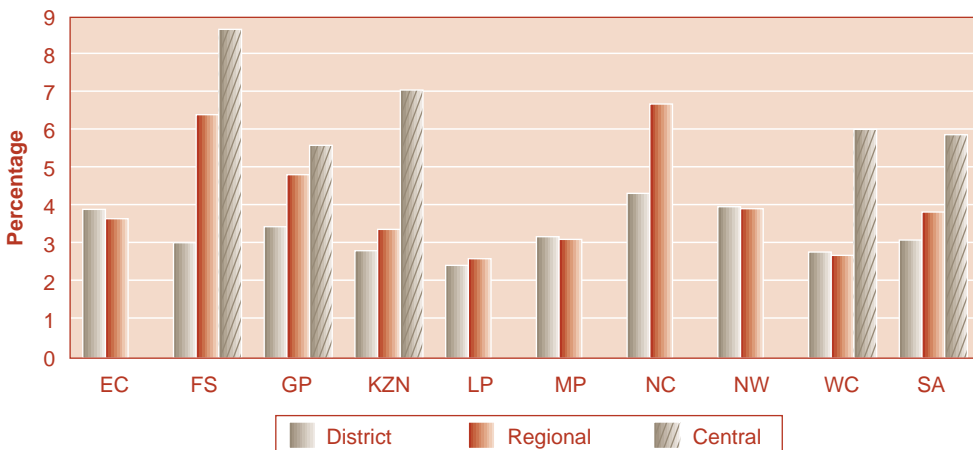


Figure 3: Stillbirth rates by type of hospital, average values from 2000/01 to 2002/03



**Table 8: Hospital MDS 2002/03 – Composite score of data quality**

| Province      | Error rate | Missing data sets | Missing data elements | Composite 'data quality score' |
|---------------|------------|-------------------|-----------------------|--------------------------------|
| Eastern Cape  | 0.58       | 0.31              | 1.00                  | 0.37                           |
| Free State    | 0.03       | 0.00              | 0.00                  | 0.99                           |
| Gauteng       | 0.06       | 0.31              | 0.26                  | 0.79                           |
| KwaZulu-Natal | 1.00       | 0.19              | 0.00                  | 0.60                           |
| Limpopo       | 0.14       | 0.00              | 0.00                  | 0.95                           |
| Mpumalanga    | 0.39       | 0.56              | 0.00                  | 0.68                           |
| Northern Cape | 0.78       | 0.13              | 0.00                  | 0.70                           |
| North West    | 0.85       | 1.00              | 0.00                  | 0.38                           |
| Western Cape  | 0.00       | 0.50              | 0.00                  | 0.83                           |

Of course, there are other factors at play that could have led to better data quality in these provinces rather than information system coverage. These factors could include stronger information management personnel, and more attention to information systems issues by senior management.

It is also true that data quality often deteriorates temporarily during implementation of hospital information systems, as processes within a hospital are re-designed to accommodate the characteristics of the system.

In conclusion, there are indications that investment in information systems in South Africa is correlated to better data quality. However, we do not know that one has led to the other. Even if we did, we have yet to have any assessment of the 'value for money' of such systems in South African public hospitals.

2. Managers at facility level do not typically have substantial management delegations. Over-centralised management structures remove incentives for local management to actually use information to improve service delivery.
3. Information systems have often not been well implemented. This is true of certain national data sets (e.g. revitalisation) and of electronic patient information systems in certain provinces. For major patient information systems there is a history of poor procurement and poor implementation, often without proper prior assessment of the expected benefits from the system or of its value for money. Although there are indications that information systems may have improved data quality in general, there is plenty of scope for achieving better results.

However, there are some positive trends that need to be brought together to improve the use of indicators to manage hospitals at the local level:

1. By introducing indicators within the planning guidelines and the Early Warning System, there are signs that a national framework for monitoring services is developing. This initiative needs to be sustained and implemented with rigour at the local level.
2. At facility level, an initiative being undertaken in Eastern Cape needs to be considered for broader implementation. This project focuses on identifying hospital managers' information needs and ensuring they are delivered. However, such initiatives will fail if adequate management delegations are not given to hospital managers.
3. Development of the DHIS is set to support national initiatives around the planning guidelines and the EWS. Known gaps in the national information system such as data dictionaries and indicator definitions are also being

## Conclusions and Recommendations

The first purpose of this chapter was to identify available indicator data to determine trends and perspectives on hospital services. In fact, there is little indicator data about the hospital sector currently available, beyond the indicators presented in Appendices 1 and 2. This obviously hinders a true interpretation of policy priorities and of progress against these priorities.

The second purpose was to discuss solutions to the lack of use of indicators by hospital managers. Surveys and anecdotal evidence suggest that hospital management does not use information extensively. There are some obvious obstacles to improving this situation:

1. There is a lack of capacity at national, provincial and facility level in information management. Managers at all levels are not well served by information specialists.

addressed by the NDoH. This should help local information specialists.

Finally, a human resources development strategy for information management specialists is absolutely critical. At present there is very little evidence of recruitment and skills development, or career structure, for this staff group. Without developing strategies and policies for improving the cadre of information specialists at facility level, initiatives driven from national or provincial offices such as national data sets, the EWS and information systems implementation, are likely to ultimately fail.

## Appendix 1: Selected hospital minimum data set indicators, National

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**Table 9: Average length of stay (days) by type of hospital**

| Year  | District | Regional | Central |
|---|----------|----------|---------|
| 2000/01                                     | 4.4      | 4.9      | 6.6     |
| 2001/02                                     | 4.4      | 4.6      | 6.3     |
| 2002/03                                     | 4.5      | 4.7      | 6.5     |
| IHPF <sup>i</sup> sustainable model targets | 3.0      | 4.0      | 5.0     |

i Integrated Health Planning Framework

**Table 10: Bed utilisation rate (%) by type of hospital**

| Year    | District         | Regional         | Central          |
|---------|------------------|------------------|------------------|
| 2000/01 | 56               | 69               | 71               |
| 2001/02 | 60               | 71               | 76               |
| 2002/03 | 60<br>(estimate) | 73<br>(estimate) | 77<br>(estimate) |

**Table 11: Stillbirth rate (%) by type of hospital**

| Year    | District | Regional | Central |
|---------|----------|----------|---------|
| 2000/01 | 3.0      | 3.8      | 5.8     |
| 2001/02 | 3.1      | 3.8      | 5.6     |
| 2002/03 | 3.1      | 4.0      | 6.2     |

**Table 12: Caesarean section rate (%) by type of hospital**

| Year    | District | Regional | Central |
|---------|----------|----------|---------|
| 2000/01 | 14       | 20       | 31      |
| 2001/02 | 13       | 22       | 31      |
| 2002/03 | 13       | 22       | 31      |

## Appendix 2: Selected hospital minimum data set indicators, Provincial

Table 13: Cost per patient day by type of hospital, 2001/02

| Province | District | Regional | Central |
|----------|----------|----------|---------|
| EC       | R 719    | R 921    | -       |
| FS       | R 740    | R 1 156  | -       |
| GP       | R 771    | R 1 047  | R 1 713 |
| KZN      | R 677    | R 1 058  | R 1 442 |
| LP       | R 768    | R 740    | -       |
| MP       | R 796    | R 1 029  | -       |
| NC       | R 652    | -        | -       |
| NW       | R 668    | R 785    | -       |
| WC       | R 650    | R 951    | R 1 691 |
| SA       | R 710    | R 984    | R 1 637 |

Table 14: Beds<sup>i</sup> per thousand uninsured population by type of hospital, 2002/03

|     | District | Regional | Central | Spec-<br>ialised <sup>ii</sup> | Total |
|-----|----------|----------|---------|--------------------------------|-------|
| EC  | 1.3      | 0.7      | 0.0     | 0.8                            | 2.8   |
| FS  | 1.0      | 0.8      | 0.4     | 0.6                            | 2.9   |
| GP  | 0.2      | 1.0      | 1.0     | 0.4                            | 2.7   |
| KZN | 1.2      | 1.0      | 0.3     | 0.9                            | 3.5   |
| LP  | 1.3      | 0.7      | 0.0     | 0.4                            | 2.4   |
| MP  | 0.7      | 0.5      | 0.0     | 0.2                            | 1.4   |
| NC  | 1.3      | 0.6      | 0.0     | 0.4                            | 2.3   |
| NW  | 1.0      | 0.7      | 0.0     | 0.5                            | 2.3   |
| WC  | 0.5      | 0.5      | 1.0     | 1.4                            | 3.4   |
| SA  | 1.0      | 0.8      | 0.3     | 0.7                            | 2.8   |

Notes: i These figures include beds provided by organisations such as SANTA and Lifecare for use by public health service patients.

ii The low number of specialised beds per population in some provinces, including Gauteng, partly reflects under-reporting of activity in these facilities.

Table 15: Stillbirth rate (%) by type of hospital, April 2000 - March 2003

|     | District | Regional | Central | All |
|-----|----------|----------|---------|-----|
| EC  | 3.9      | 3.6      |         | 3.8 |
| FS  | 3.0      | 6.4      | 8.7     | 4.2 |
| GP  | 3.5      | 4.8      | 5.6     | 4.8 |
| KZN | 2.8      | 3.4      | 6.6     | 3.3 |
| LP  | 2.5      | 2.6      |         | 2.5 |
| MP  | 3.1      | 3.1      |         | 3.1 |
| NC  | 4.4      | 6.6      |         | 4.8 |
| NW  | 3.9      | 3.9      |         | 3.9 |
| WC  | 2.8      | 2.7      | 6.0     | 3.4 |
| SA  | 3.1      | 3.8      | 5.9     | 3.7 |

Table 16: Caesarean section rate (%) by type of hospital, April 2000 - March 2003

|     | District | Regional | Central | All |
|-----|----------|----------|---------|-----|
| EC  | 9        | 22       |         | 15  |
| FS  | 9        | 31       | 61      | 17  |
| GP  | 16       | 16       | 27      | 20  |
| KZN | 18       | 26       | 44      | 23  |
| LP  | 12       | 17       |         | 13  |
| MP  | 13       | 15       |         | 14  |
| NC  | 10       | 36       |         | 16  |
| NW  | 10       | 19       |         | 14  |
| WC  | 11       | 25       | 36      | 22  |
| SA  | 13       | 21       | 31      | 18  |

**Table 17: Average length of stay (days) by type of hospital, April 2000 - March 2003**

|     | District | Regional | Central | All |
|-----|----------|----------|---------|-----|
| EC  | 5.7      | 4.9      |         | 4.9 |
| FS  | 3.1      | 5.1      | 5.7     | 4.2 |
| GP  | 4.3      | 4.3      | 6.4     | 5.1 |
| KZN | 5.6      | 5.3      | 8.1     | 5.5 |
| LP  | 5.2      | 5.9      |         | 5.4 |
| MP  | 3.2      | 4.6      |         | 3.7 |
| NC  | 3.3      | 3.9      |         | 3.5 |
| NW  | 3.7      | 5.3      |         | 4.4 |
| WC  | 2.6      | 4.2      | 6.1     | 4.1 |
| SA  | 4.4      | 4.7      | 6.4     | 4.8 |

**Table 18: Bed utilisation rate (%) by type of hospital, April 2000 - March 2003**

|     | District | Regional | Central | All |
|-----|----------|----------|---------|-----|
| EC  | 55       | 71       |         | 62  |
| FS  | 58       | 63       | 55      | 59  |
| GP  | 62       | 71       | 76      | 72  |
| KZN | 57       | 65       | 62      | 61  |
| LP  | 59       | 62       |         | 60  |
| MP  | 50       | 64       |         | 54  |
| NC  | 72       | 85       |         | 77  |
| NW  | 60       | 75       |         | 67  |
| WC  | 65       | 88       | 76      | 78  |
| SA  | 57       | 69       | 72      | 64  |

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