5.  Outcome Indicators

5.1  Incidence of STI treated-new

This indicator measures the percentage of people 15 years and older who have been treated for a new episode of a sexually transmitted infection (STI). In other words an STI incidence of 5% means that for every 100 people fifteen years and older, during the year under review, 5 of them were treated in the public sector clinics for a new episode of STI.

The average STI incidence in SA during 2005 was 4.8%. The average in the rural districts decreased minimally from 6.6 % in 2003 to 6.2 % in 2005. The Metro average decreased to 4% which is lower than the national average.

District View

Of all the districts, Namakwa (NC) had the lowest incidence of STIs (1.1%) while Vhembe (LP) had the highest (10.4%). All the districts in KZN and Limpopo provinces had high incidences of STIs, well above the national average. Given that STIs are co-factors in the spread of HIV, the situation in KZN is of concern. The Western Cape performed the best with an average incidence of 2.7%. Figure 66 and Map 14 illustrate the variation between all the districts.

Map 14: Incidence of STIs treated (new) by district in South Africa, 2005/06
Figure 66: The incidence of STIs treated (new) by district 2005/6

STI incidence, 2005/06

Percentage of people 15 years and older
**Section A: Indicator Comparisons by District**

**Metro View**

The Metro average was slightly below the SA average and all the metros were clustered around an STI incidence of 3%, with the exception of eThekwini, which had an incidence of 7%, nearly double the next highest in Johannesburg and Tshwane (3.6%).

**Figure 67: Incidence of STIs treated (new) by metro district 2005/6**

![Metro Incidence Chart]

**Rural Nodes**

The average incidence of STIs presenting for treatment in South Africa was 4.8%, and in the rural district nodes 6.2%. Ten of the rural node districts reported STI incidence above the South African average, with only Thabo Mofutsanyane, Greater Sekhukhune and Central Karoo reporting a STI incidence below the national average.

**Figure 68: Incidence of STIs treated (new) in the rural nodes, 2005/06**

![Rural Incidence Chart]
Change in STI incidence

It is pleasing to see that in some 40 districts the incidence of STI dropped. There were small increases in STI incidence registered in 4 districts in the Western Cape. The district that stands out is uMgungundlovu in KZN, where the incidence of STIs increased by 2.1% while all the other KZN districts showed decreases.

Sisonke (KZN) and Bohlabela in Limpopo are among the 5 districts with the highest incidences of STIs, but are also in the top 5 districts in terms of progress and decrease in STI incidence. Figure 69 illustrates these changes.

Figure 69: Change in STI incidence (new) by district 2003/4 to 2005/6
Rural Nodes

On average in the rural node districts, there was a marginal decrease in the incidence of people 15 years and older presenting for STI treatment. If this is a genuine reduction in incidence, it could be seen either as a marker for changes in sexual behaviour, or changes in health seeking behaviour. An increase was noted in only three of the rural districts, viz. O.R. Tambo, Chris Hani and Central Karoo.

Figure 70: Change in STI incidence (new) in the rural nodes, 2003/04 - 2005/06

5.2 Tuberculosis

The aim of the TB programme is to reduce the number of people contracting TB and to cure those who do get the disease. Two of the most important ways of achieving this are to stop people from passing on the TB bacillus who are not infected and to cure those who are infected. These two objectives are reflected in the two indicators chosen to illustrate how well the TB control programme is working. These are:

- Smear conversion rate
- TB cure rate

The target for the TB cure rate set by the World Health Organisation in 1991 is to cure 85% of newly detected cases of smear positive pulmonary tuberculosis. The corresponding target set for 2005/6 by the National DOH is 65%.

One of the consequences of the HIV epidemic has been a large increase in the number of tuberculosis cases as a result of decreased resistance. In South Africa the number of cases has increased by 50% in 3 years from 2001 (188 695 cases) to 2004 (279 260 cases). Few, if any, tuberculosis programmes in high prevalence HIV countries, i.e. most countries in sub-saharan Africa are achieving adequate outcomes and the WHO target remains elusive.

5.2.1 Smear Conversion Rates

When a person has the TB bacillus in their sputum when they cough, they are said to be "TB smear positive". When their sputum is taken to a laboratory for a smear test the TB bacillus is "positively" identified. These are the people who are infectious and can pass the infection through coughing and sneezing into the air.

The smear conversion rate (SCR) measures the proportion of infectious people who no longer have the TB bacillus in their sputum after 2 months of treatment. SCR is the percentage of new smear positive TB cases who are smear negative after two months of TB treatment and therefore no longer infectious.

23 Department of Health Annual Report 2005/6, page 39
This indicator is very important as it measures how effective the initial treatment is in helping to stop the transmission of TB. It is an important indicator of how well the health service is doing and makes information available to health workers much earlier than does the cure rate. For most patients this indicator should be available within 3 months of the diagnosis with TB.

The current national target for smear conversion rate is 70%.24 In 2005 the average SCR for South Africa was 50.5%.25 The National Department of Health’s strategic plan 2006/07 - 2007/08, states that the SCR at 2 months target for 2006 is 60%, 2007 is 70% and 2008 is 80%.26

**District View**

Figure 71 illustrates variations in the SCR ranging from 23% in Nkangala in Mpumalanga to 80.9% in Bohlabela in Limpopo. The top three SCRs in the country are from districts in Limpopo (Bohlabela, Waterberg and Vhembe) with values surpassing the national target of 70%. Gauteng has the highest average of 62.2% amongst all the provinces. However, only one district (West Rand) reached the national target.

The Free State has the second highest provincial average of 61.1% with all districts except Fezile Dabi having SCRs above the national average. In KZN values range from 28.6% in Uthungulu to 64.7% in Amajuba. All but two districts in KZN (Amajuba and Umzinyathi) have SCRs less than the SA average of 50.8%. Mpumalanga has performed the worst of all provinces with its highest SCR of 40.9% in Ehlanzeni and the lowest rate of 23% in Nkangala. The districts in the Western Cape all achieved results higher than the average for SA but none have reached the national target.

There are 8 districts with a smear conversion rate below 40%, of which four are in KZN and two in MP.

**Map 15: Smear conversion rate in South Africa, 2005**

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25 This is different from the 3 month smear conversion rate, referred to in the Department of Health Annual Report 2005/6, Page 39. The 3 month smear conversion rate is less useful as a management monitoring tool.
Figure 71: Smear conversion rate by district, 2005

Metro View

From the graph below, it is clear that the metropoles have performed poorly in comparison to the rural districts. Both eThekwini and Nelson Mandela have SCRs less than 50%. By contrast more than half the rural districts have SCRs higher than these two metros. The remaining four metros (three from Gauteng and Cape Town) are clustered around 60%. Given the high socio-economic status of these metros, it is obvious that the TB programme has not been given the adequate prioritisation and attention from management that it deserves.
Section A: Indicator Comparisons by District

Figure 72: Smear conversion rate by metro district, 2005

The target for the TB smear conversion rate set by the National Department of Health is 70%. However, the average for South Africa was only 50.5% in 2005. Six of the rural node districts performed above this average. However, Ugu in KwaZulu-Natal, has the lowest smear conversion rate at 35.4%. Umzinyathi, the district in KwaZulu-Natal where extremely multi-drug resistant TB became the focus of media attention earlier this year, has a smear conversion rate of 62.9%.

It is encouraging to note that Bohlabela has achieved the highest SCR not only among the rural districts but also in the country. Thabo Mofutsanyane has a SCR of 69.1% which is very close to the NDOH target. Similarly to the TB cure rates, the districts in KZN and EC generally performed poorly in achieving high smear conversion rates with six of the eight districts below 50% SCR.

Figure 73: Smear conversion rate by rural node, 2005
**Change in Smear Conversion Rate**

In South Africa the smear conversion rate improved from 46.6% in 2004 to 50.5% in 2005. Although more than half the districts demonstrated a positive change in SCR, 23 of the 53 districts showed a decrease in the SCR. This is very disappointing performance for such a high priority programme and from such a low base Metsweding (GP) showed the largest decline of 14.1% between 2004 and 2005 while iLembe (KZN) showed the highest improvement of 11.8%. Nkangala (MP) presently has the lowest SCR in SA and presented with the 3rd worst deterioration in the country. Seven of the eleven KZN districts, where the TB programme has not been doing well, declined even further.

**Figure 74: Change in smear conversion rate by district, 2005**
Rural Nodes

It was concerning to observe that in three of the rural node districts, Umkhanyakude, Ugu and Greater Sekhukhune, there were notable decreases in the smear conversion rate. Especially worrying was Greater Sekhukhune’s decline of nearly 15% while the other four districts in Limpopo showed an improvement. Chris Hani and the Central Karoo reported increases in smear conversions of over 10%.

Figure 75: Change in TB smear conversion rate in the rural nodes, 2005
5.2.2 TB Cure Rate

The TB cure rate is the proportion of new smear positive TB cases who are shown to be smear negative at the end of six months and / or on at least one previous occasion of TB treatment. In other words, it measures what percentage of patients who were diagnosed as having the TB bacillus in their sputum, have taken the required treatment (usually 6 months) and that the TB bacillus has successfully been eliminated from their system.

In SA the target is to cure 65% of patients while the target set by the World Health Organization is 85%. The value for SA in 2004, deteriorated to 50.8% from 56.7% in 2003. This bottom line indicator is an indictment of the management and monitoring of the TB programme across the country.

**District View**

Figure 76 clearly illustrates the variation in the cures rates across the country. The values range from 12% in Nkangala to 84.5% in Overberg. More than two thirds (34) of all the districts have cure rates over 50% whereas five districts have cure rates of less than 30%.

The districts in the Western Cape performed relatively well compared to the rest of the country, with all districts above the national target of 65% (Eden and Overberg districts had results of 81.8% and 84.5% respectively). Limpopo and Gauteng also performed relatively well with all of the districts in these two provinces performing above the national average. The districts in Mpumalanga have the worst results with all three districts below 40%. Most of the districts in the Eastern Cape and KwaZulu-Natal were also below 50%.

Map 16: TB cure rate in South Africa, 2004

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27 The latest available data for the TB cure rate from the South African National TB Register is for the year 2004.
28 Limpopo’s data was questionable for the year under review.
Figure 76: TB cure rate by district, 2004
Metro View

Both Nelson Mandela and eThekwini metropolitan districts have unacceptably low TB cure rates, for relatively well off urban areas which are far below the national average.

Figure 77: TB cure rate in the metro districts, 2004

Rural Nodes

Eight of the rural district nodes had TB cure rates above the South African average of 50.8%.

Figure 78: TB cure rate in the rural nodes, 2004

Change in TB cure rate 2003-2004

As shown in the Figure 79, twelve districts showed a positive growth change of more than 10%, with Waterberg district in Limpopo showing a massive improvement of 40.7%. This large jump is questionable and can be due to inaccurate data. Eastern Cape, Northern Cape and Limpopo only started using the Electronic TB Register in 2004. The large variation in cure rates between 2003 and 2004 are due to the changes in denominator. Five districts which include three in the Northern Cape, registered a deterioration in their cure rates of 20% or more, including Frances Baard’s cure rate which declined by 40%. It is not clear what is responsible for the poor performance in this priority programme in many districts, but it is probable that management in the Northern Cape, Mpumalanga and KwaZulu-Natal did not give the TB programme the attention that was required.

Nelson Mandela metro is one of the five worst performing districts. It is not clear what the reason is for such a large deterioration (27%) in the short space of 1 year, for an urban district with relatively good health infrastructure and staffing.
Figure 79: Change in TB cure rate in all districts, 2003-2004

Section A: Indicator Comparisons by District
### Section A: Indicator Comparisons by District

**Rural Nodes**

Kgalagadi had the greatest increase between 2003 and 2004 in cure rate. A decrease in TB cure rate between these two years was noted for three of the rural node districts, Alfred Nzo, Chris Hani and Ugu.

**Figure 80:** Change in TB cure rate in the rural nodes, 2003-2004

[Graph showing the change in TB cure rate between 2003 and 2004 for various districts.]
5.3 Diarrhoea incidence in children under 5 years

Diarrhoeal disease is one of the major killers of children in developing countries. Consequently, measuring morbidity due to diarrhoeal disease in children under 5 remains an important indicator. Diarrhoea incidence under 5 measures the number of new cases of diarrhoea in children under 5 for each 1000 children. Although diarrhoea is formally defined as three or more watery stools in 24 hours, in practice any complaint by the mother that the child is suffering from diarrhoea is used as the means to define a case of diarrhoea. This lack of standardisation in the definition may make the indicator less reliable. It is generally felt that access to clean water is one of the factors that decrease the incidence of diarrhoea. However, access to water is one of the determinants of disease that is largely out of the control of the health departments, but is an important component of the Integrated Development Planning of all the districts in South Africa.

District view

Figure 81 illustrates that the average for South Africa in 2005 was 258 new cases of diarrhoeal disease per 1000 children under 5. There was a wide variation in the range of figures presented; with Kgalagadi (NC) demonstrating an incidence of 802.5 cases while Chris Hani (EC) had 0.8 cases per 1000 children under 5. Two districts in the Eastern Cape, Amathole and Cacadu had no data available. Five of the six districts having either no data or the lowest incidence, were from the Eastern Cape, which generally has the fewest households with access to running water. This probably means that the quality of the data from the Eastern Cape is unreliably low.

With the exception of Kgalagadi, the districts with the 15 highest diarrhoeal incidence rates were in KwaZulu-Natal and Limpopo provinces. Both of these provinces have districts which are classified as being deprived and which are shown to have relatively fewer households with access to piped water.
The average diarrhoea incidence in the metro districts was 190.5, lower than the South African average. This is expected as the majority of households in the urbanised metros have access to piped water. However, there is a significantly wide variation in the figures, with eThekwini having an extremely high incidence of 493.9 cases per 1000 children, while Nelson Mandela has an improbably low rate at 8.4 cases per 1000 children. Both these districts need further investigation, eThekwini needs to explain the high incidence and Nelson Mandela needs to review the data quality.

The other four metros were clustered around an incidence of 100 cases per 1000 children.
Rural nodes

The average incidence in the rural district nodes was 276.5 cases per 1000 children, which is slightly higher than the South Africa average. There were extreme variations with Kgalagadi reporting 802.5 new cases of diarrhoea in comparison to Chris Hani where only 0.8 new cases per 1000 children were reported. The four KwaZulu-Natal districts were clustered between 400 and 500 new cases per 1000 children.
5.4 Not gaining weight rate under 5 years

This indicator measures the proportion of children who, when weighed while attending a PHC facility, were found to have not gained the appropriate weight relative to their age. In other words an episode of growth faltering or failure was noted.

Every child who attends a health facility is issued with a road-to-health card. One feature of this card is a growth percentiles chart, where the normal expected growth of children is plotted. One of the preventive aspects of every interaction with a child in a public health facility is to check the child’s weight and to plot it against these growth charts to check if the child is growing and developing normally.

This indicator represents the number of new cases of children under five who had not gained the appropriate weight compared with the total number of children under five who were weighed.

It shows a faltering in the expected weight gain, which is one of the first signs of childhood malnutrition. It presents an opportunity to health providers to identify those children who for one reason or another are at high risk and who require some intervention, whether it is to identify an underlying chronic disease such as tuberculosis or HIV, or whether it is due to lack of adequate nutrition.

District View

As is shown in Figure 84 the average lack of weight gain in children under 5 in South Africa in 2005 was 1.4%. There was a wide variation with a low of 0.3% in Johannesburg and a high of 5.2% in Namakwa. There was some clustering of districts with most of the Western Cape and Gauteng districts with few children who are not gaining weight appropriately. At the other end of spectrum seven of the eight districts with the highest proportion of children not gaining weight appropriately, are in the Free State (4 districts) and Northern Cape (3 districts). The reasons for this clustering needs further research and speculatively it may be due to remoteness of these districts and a high proportion of children living on farms with poor living conditions.

Map 18: Not gaining weight under 5 years rate in South Africa, 2005/06
Figure 84: Not gaining weight under 5 years rate by district, 2005/06
**Metro View**

As would be expected in more affluent and largely urbanised areas, the average lack of weight gain in the Metro districts is 0.9%. All the districts with the exception of Tshwane (1.5%) are below the SA average of 1.4% with Johannesburg (0.3%) and Cape Town (0.5%) having very few children who are not gaining weight appropriately.

**Figure 85:** Not gaining weight under 5 years rate by metro district, 2005/06

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**Rural Nodes**

Overall, in South Africa, 1.4% of children under 5 years were found to be not gaining weight at a satisfactory rate. The average in the rural node districts was higher at 1.9%. Thabo Mofutsanyane reported the highest percentage (3.8%) of children not gaining weight and O.R. Tambo reported the lowest percentage (0.9%).

**Figure 86:** Not gaining weight under 5 years rate by rural node, 2005/06
Change in Weight Gain

Overall, in South Africa there was a very marginal increase (0.1%) in the percentage of children who did not gain weight satisfactorily. Roughly 60% of the districts improved and decreased the proportion of children who did not gain weight appropriately for their age. All of the eleven districts in KwaZulu-Natal, all four of the North West districts and five of the six Gauteng districts had weight gain indicators that deteriorated over the period 2003 to 2005. It is likely that such systemic changes are likely to be linked to data quality or changes in data systems, rather than real changes.

Figure 87: Change in not gaining weight rate under 5 years by district, 2003/04 - 2005/06
Section A: Indicator Comparisons by District

Rural Nodes

In all the rural node districts, with the exception of the four KwaZulu-Natal districts, there was a decrease in the percentage of children under 5 years not gaining weight. There was a notable increase in the percentage of children not gaining weight in the four KwaZulu-Natal districts. The reason for this increase needs investigation as to whether it is due to some change in the information systems or whether it is a real change.

Figure 88: Change in not gaining weight rate under 5 years by rural node, 2003/04 - 2005/06
5.5 Delivery rate in facility

This indicator measures the proportion of all expected births that take place in public health facilities under the supervision of a trained professional i.e. a doctor or a trained nursing midwife. It gives an idea if women are able to access facilities as opposed to giving birth at home. It is one of the indicators in Improving Maternal Health, which is Goal Number 5 of the Millennium Development Goals.

District View

As shown in Figure 89, the average delivery rate in a facility in SA was 81.1%. However, at the low end of the range was Cape Town (43.5%) and West Coast (52.5%). In both of these districts there was unreliable data quality which had the effect of pulling down the SA average. At the top end of the range was Nelson Mandela metro with a reported coverage rate of 139.4%. Clearly this is also of doubtful reliability and has the opposite effect to Cape Town metro and has increased the SA average.

Monitoring by managers, at all levels of the system, in regards to these named districts has been deficient, as these data have passed through the system to the national Department of Health.

Four of the six districts with the highest delivery rates in facilities are in Limpopo, all with rates in excess of 100%. Because the denominator is based on the number of children under one, it is possible, with some undercounting of these to have high rates. If these data are reliable, then the health services in Limpopo have done very well at getting women into the formal health system.

Slightly less than half the districts had an 80% delivery rate in facilities, meaning that 20% of deliveries are taking place at home, placing both mother and baby at risk of complications. None of the three Mpumalanga districts obtained an 80% delivery rate in facilities.

Map 19: Delivery rate in facility in South Africa, 2005/06
Figure 89: Delivery rate in facility by district, 2005/06

Delivery coverage in facility, 2005/06
Metro View
Although the metro average of 80% of deliveries in facilities is slightly below the SA average, this has been distorted by the poor data quality in the Cape Town metro. In reality the Cape Town delivery rate is likely to have been around 90%, which would have been more in accord with the other metros. At the other end of spectrum, Nelson Mandela metro also has data of dubious quality and is unrealistically high at 139.4%. Both Ethekwini and Tshwane achieved over 90%.

Figure 90: Delivery rate in facility by metro district, 2005/06

Rural Nodes
The average delivery rate in facilities in the rural nodes was 82.8%, which was slightly higher than the average in South Africa at 81.1%. Five of the rural nodes achieved delivery coverage rates of 90% or more while three were less than 70%, including two nodes in the Eastern Cape.

Figure 91: Delivery rate in facility in the rural nodes, 2005/06
Change in delivery rate in facility

In South Africa, an average increase of 5.5% in deliveries in facilities was recorded from 2003 (75.5%) to 2005 (81.1%). All five of the districts with the highest improvements in delivery rates in facilities were in Limpopo, with three districts (Capricorn, Greater Sekhukhune and Bohlabela) having improvements of more than 30%. It is unlikely that such large changes are due to improvements in the maternity component of the health system. More likely is that these large changes are due to unreliable data.

The same applies to the exceptionally large change in Cape Town, which shows the highest decrease of over 40%, and to a lesser extent in Pixley ka Seme and Francis Baard in the Northern Cape.

Forty of the fifty-two districts showed an improvement in their reported delivery rates in facilities.

Figure 92: Change in delivery rate in facility by district, 2003/04 - 2005/06
Over the period 2003 to 2005, there was an average 14.2% improvement in professionally supervised deliveries in facilities, in the rural node districts. The Limpopo districts, Gr Sekhukhune and Bohlabela had the greatest increases, (although improbably large and probably due to unreliable data quality) while Zululand and Kgalagadi were the only two districts with a decrease in delivery coverage. All four of the Eastern Cape rural nodes showed improvements ranging from 9.3% in Alfred Nzo to 15.7% in Chris Hani.

**Figure 93:** Change in delivery rate in facility in the rural nodes, 2003/04 - 2005/06