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Caesarean section deliveried in public sector hospitals in South Africa, 2001-2009.

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ABSTRACT

Introduction

There is concern that C-section rates are increasing in the public health sector in South Africa and wide variation has been reported between districts, provinces and hospitals. This study is a comprehensive analysis of C-section rates in all public sector hospitals during 2000/01-2008/09 by facility, district and province. It aims to inform decision makers in maternal health services of the trends and patterns occurring in C-section rates in South African public sector hospitals. Variation in C-section rates is described to highlight the differences in care that pregnant women receive in different parts of the country and to illustrate where inequity of resource allocation is occurring, as well as highlighting possible data quality problems.

Methodology

This is a descriptive study using quantitative methods of analysis on secondary data obtained from the National Department of Health's routinely collected data specific to Caesarean sections in the DHIS. C-section averages are weighted by taking the number of deliveries per facility and level into consideration.

Results

1. **Wide variation is noted between individual facilities, between and within provinces and districts and within the different levels of hospitals in 2008/09.**

   The mean weighted C-section rate ranges from 17.2% in District Hospitals to 40.7% in Specialised Maternity Hospitals. A 3.7 fold difference between the highest and lowest district average C-section rates is seen for District Hospitals. Within provinces, average District Hospital C-section rates vary by as much as 3.5 fold between districts. Inter-district variation in Regional Hospitals shows a 3.3 fold difference between the lowest and highest average district rates. Among the eight National Central Hospitals there is a 2.5 fold difference between the highest (79.7%) and lowest (31.7%) facility C-section rates. Nationally a total of 23 District Hospitals had C-section rates below 5% and nine hospitals of varying levels had rates of over 50%

2. **Caesarean Section rate trends, 2000/01 – 2008/09 are increasing.**

   Nationally the average C-section rate in South Africa increased by 6.3 percentage points from 18.1% in 2000/01 to 24.4% in 2008/09, with an average annual compounded growth rate of 3.8%. Bivariate linear regression analysis confirms there is a positive linear relationship between time (year) and C-section rate ($p<0.001$). All levels of hospitals showed an increasing trend over the nine years, ($p<0.001$), with the rate in Provincial

Hospitals having increased by the highest amount (1.40%) year on year and District Hospitals, the least (0.48%). Trends within certain districts and individual hospitals however, show a decline.

3. **A strong relationship between level of deprivation and C-section rate exists when adjusting data for provincial variation**

   Bivariate linear regression analysis revealed no association between the level of deprivation of the population at district level and the mean C-sections rate per district (p=0.130). Multiple regression analysis adjusted for the effect of province, reveals a significant association (p=0.044). A negative association between the DI (p=0.006) and C-section rate is seen in eight out of nine provinces.

4. **Data quality of C-sections and deliveries in the DHIS needs improving**

   Data quality in the DHIS leaves uncertainty in some instances whether C-section rate trends are a true reflection or not. The C-section rate indicator on its own is unable to inform on the full spectrum of emergency obstetric care. The definition of C-section rate for primary health care currently only considers deliveries in District Hospitals. The national C-section rate for primary health care in the country however, reduces from 17.2% to 13.2% when including the deliveries which take place in CHCs.

Conclusions

The quality of data relating to C-sections (number of births, C-sections and hospital categorisation) in the DHIS needs to be improved in order to enable accurate monitoring and should include deliveries and C-sections which take place in Community Health Centres to allow for a more accurate reflection of C-section rate in primary health care.

The C-section rate indicator on its own is insufficient to adequately inform on the full spectrum and quality of the provision of emergency obstetric care in South Africa. Including additional indicators to the DHIS, such as the UN process indicators, could improve on the current knowledge and monitoring of the provision of emergency obstetric care in South Africa.

The wide variation in C-section rates seen among District Hospitals and the C-section rates between and within districts and provinces, suggest inequity in resource allocation and irregular service delivery patterns. Reasons and solutions for these wide differences need to be found, which are likely to be unique to each district and province.

Further studies are needed to investigate the access of poorer women, especially those in remote rural areas to emergency obstetric care services.