

# Technical notes on the indicators and data sources

## Indicators

### The number and proportion of children living in South Africa

(Table 1a – 1d): This indicator refers to the number and proportion of children under the age of 18 years who were living in South Africa at the time of the *General Household Survey 2004* (GHS). The proportion is calculated by dividing the number of children per category (e.g. girl/boy) by the total number of children in the population. The provincial proportions are calculated by dividing the number of children per category (e.g. girl/boy) in a province by the total number of children in the population.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

### The number and proportion of orphans

(Table 2): An orphan is defined as a child under the age of 18 years whose mother, father or both parents have died. This indicator measures the number and percentage of children under 18 years whose parent(s) had died by July 2004.

For the purpose of this indicator, we define different kinds of orphans as follows: a maternal orphan is a child whose mother has died but whose father is alive; a paternal orphan is a child whose father has died but whose mother is alive; a double orphan is a child whose mother and father have both died.

Orphans as a proportion of the child population is calculated by aggregating the number of children whose mother, father or both parents are dead or whose living status is unknown, and dividing this by the total child population.

The proportion of orphans by type is calculated by dividing the number of orphans for each category (maternal, paternal, double) by the total orphan population. This indicator does not include the numbers of double orphans when calculating the numbers of maternal and paternal orphans.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

### The number and proportion of children living in child-headed households

(Table 3): A child-headed household is defined as a household where everyone who lives there is under 18 years old, i.e. a child-headed household is a household consisting only of children. This indicator reflects the number and proportion of children that are living in child-headed households in South Africa in 2004.

The proportion of children living in child-headed households in South Africa is calculated by identifying the number of children living in households where the oldest resident is younger than 18, and dividing this figure by the total child population in South Africa.

The proportion of child-headed households is calculated by dividing the number of households where the oldest resident is younger than 18 by the total number of households in South Africa.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

### The number and proportion of children living in income poverty

(Table 4): One way of identifying how many children live without enough resources to meet their needs is to use a poverty line and measure how many children live under this poverty line. In this indicator, we identify children (aged 0 – 17 years) as poor when they live in households with an income of less than R1,200 per month for all the household members combined.

We used the R1,200 per month poverty line because it is the closest we could get to the R1,100<sup>1</sup> per month line when using the GHS. The income data in the GHS is collected in question 4.71 which asks, "What was the total household expenditure in the last month?" The bands break at R399, R799 and R1,199. Children living in households in these three bands were included as poor for the purposes of this indicator.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

### The number and proportion of children aged 0 – 14 years receiving the Child Support Grant (CSG)

(Table 5): This indicator is defined as the number and proportion of eligible children from birth to 14 years who were receiving the CSG at the end of June 2005.

**Source:** Department of Social Development (2005) *SOCPEN database*. (These figures are taken from the daily reports for June 2005.) The eligibility figures were calculated by Budlender using the 2004 GHS (Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa). The eligibility calculations were sourced from: Budlender D, Rosa S & Hall K (2005) *At all costs? Applying the means test for the Child Support Grant*. Cape Town: Children's Institute and the Centre for Actuarial Research, University of Cape Town.

### The number of children receiving the Care Dependency Grant (CDG)

(Table 6): This indicator reflects the number of children (aged 0 – 17 years) who are accessing the CDG. The Department of Social Development's SOCPEN database records the CDGs paid out per month according to the number of children and their caregivers (beneficiaries). Figures are taken from the last working day in June 2005 from the SOCPEN daily reports.

**Source:** Department of Social Development (2005) *SOCPEN database*.

### The number of children receiving the Foster Care Grant (FCG)

(Table 7): This indicator reflects the number of children (aged 0 – 17 years) receiving the FCG as of the end of June 2005. The SOCPEN database records the FCGs paid out per month according to the number of children and their caregivers (beneficiaries). Figures are taken from the last working day in June 2005 from the SOCPEN daily reports.

**Source:** Department of Social Development (2005) *SOCPEN database*.

<sup>1</sup> The R1,100 line is used by the Treasury and the Department of Provincial and Local Government funding for poverty alleviation programmes. Hendricks M & Hussey G (2004) The field assessment of nutrition. In: Gershwin M, Nestel P & Keen C (eds) *Handbook of nutrition and immunity*. Tottowa: Humana Press.

**Infant Mortality Rate (IMR)** (Table 8): The IMR is defined as the number of children younger than one year who die before their first birthday, per 1,000 live births during that year. This indicator presents data on the probability of a child dying in the first year of his/her life, for every 1,000 live births within that given year. The ASSA2000 model was used to determine overall mortality, the population size and the number of deaths due to HIV/AIDS for each province.

Estimates of the number of deaths refer to the 12-month period that started in mid-2000 and are referred to as 2000. The estimates for South Africa are from the *South African National Burden of Disease Study 2000* and differ slightly from the sum of the provincial estimates.

**Source:** Bradshaw D, Nannan N, Laubscher R, Groenewald P, Joubert J, Nojilana B, Norman R, Pieterse D & Schneider M (2004) *South African National Burden of Disease Study 2000 – Estimates of Provincial Mortality*. Cape Town: Medical Research Council of South Africa, Burden of Disease Unit.

**Under-five mortality rate (U5MR)** (Table 8): This indicator refers to the number of children younger than five years old who die in a year, per 1,000 live births during that year. It is a combination of the infant mortality rate, plus the 1 – 4 years mortality rate.

This indicator presents data on the probability of a child dying between the ages of one and five years. The ASSA2000 model was used to determine overall mortality, the population size and the number of deaths due to HIV/AIDS for each province. Estimates of the number of deaths refer to the 12-month period that started in mid-2000 and are referred to as 2000. The estimates for South Africa are from the *South African National Burden of Disease Study 2000* and differ slightly from the sum of the provincial estimates.

**Source:** Bradshaw D, Nannan N, Laubscher R, Groenewald P, Joubert J, Nojilana B, Norman R, Pieterse D and Schneider M (2004) *South African National Burden of Disease Study 2000 – Estimates of Provincial Mortality*. Cape Town: Medical Research Council of South Africa, Burden of Disease Unit.

**The proportion of children aged 1 – 9 years who are underweight and severely underweight** (Table 9): This indicator refers to children aged 1 – 9 years whose weight is below a cut-off weight (i.e. the third percentile or Z-score < -2SD) for their age. A child whose weight falls below this cut-off is referred to as being underweight for age. The third percentile represents a 60% of expected weight-for-age growth curve. If the child's weight is below 60% of expected weight (Z-score < -3SD) the child is considered to be severely underweight.<sup>2</sup>

Weight was determined for all children using electronic scales. The average of two readings was used. If the two readings varied by more than 100g, the procedure was repeated.

**Source:** Labadarios D (ed) (1999) *The National Food Consumption Survey (NFCS): Children aged 1 – 9 years, South Africa, 1999*. Pretoria: Department of Health, Directorate: Nutrition.

**The percentage of leading causes of deaths among children under five years of age** (Table 10): This indicator shows the leading causes of death among children younger than five years old. The ASSA2000 model was used to determine overall mortality, the population size and the number of deaths due to HIV/AIDS for each province. Estimates of the number of deaths refer to the 12-month period that started in mid-2000 and is referred to as 2000.

The estimates for South Africa are from the *South African National Burden of Disease Study 2000* and differ slightly from the sum of the provincial estimates.

**Source:** Bradshaw D, Nannan N, Laubscher R, Groenewald P, Joubert J, Nojilana B, Norman R, Pieterse D & Schneider M (2004) *South African National Burden of Disease Study 2000 – Estimates of Provincial Mortality*. Cape Town: Medical Research Council of South Africa, Burden of Disease Unit.

**The HIV-prevalence rate among children** (Table 11): This indicator shows the proportion of children, at a given period, who have HIV infection. It is calculated by dividing the number of children from age 0 – 17 with proven HIV infection in a given time period by the total number of children in the child population (0 – 17) during that same time period.

By its very nature, updated prevalence data can only be obtained through surveys. The difficulty with doing these surveys on children is that taking blood in young children is a very difficult task, and other diagnostic tests such as tests using saliva are not effective in young children. Hence we will have to continue relying on modelled estimates, such as those produced by the ASSA, and have to ensure that the underlying model assumptions are adapted according to changes in the pandemic.

**Source:** Actuarial Society of South Africa (2004) *ASSA2002 AIDS and Demographic Model*. Available: <http://www.assa.org.za/default.asp?id=1000000050>.

**The proportion of children receiving antiretroviral therapy (ART)** (Table 12): The indicator reflects the number of children who are receiving antiretroviral therapy as a percentage of children who require, and should be on, antiretroviral therapy, but who are not yet receiving it. This indicator is calculated by dividing the number of children receiving ARV treatment by the number of children who require ARV treatment.

The difficulty with this data is that the denominator is not known. The actual number of children that are HIV positive, as well as the number of those children who are in need of ARV treatment, are not known nationally. Thus all the figures, both prevalence and need, are based on modelled estimates.

**Source:** Actuarial Society of South Africa (2004) *ASSA2002 AIDS and Demographic Model*. Available: <http://www.assa.org.za/default.asp?id=1000000050>.

**The number and proportion of children living in households with adequate water** (Table 13): For the purposes of this indicator, children (aged 0 – 17 years) have access to adequate water if they have access to a clean and reliable water supply that is at their house. All other water supplies including rivers and communal taps are considered inadequate.

The *General Household Survey* asks in question 4.19 what the household's main source of water is. There are 13 options. The first four water sources are considered adequate in this indicator and include a piped tap in the dwelling or on the site or yard, a borehole on site or a rain-water tank on site. The remaining water sources are considered inadequate because of their distance from the house or the likelihood that the water is of poor quality. These inadequate water sources include public taps or those at other houses, rivers, dams, and springs.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

<sup>2</sup> Hendricks M & Hussey G (2004) The field assessment of nutrition. In: Gershwin M, Nestel P & Keen C (eds) *Handbook of nutrition and immunity*. Tottowa: Humana Press.

**The number and proportion of children living in households with adequate sanitation** (Table 14): This indicator includes the number and proportion of children (aged 0 – 17 years) living in households with adequate and inadequate sanitation. Adequate sanitation includes facilities that are safe, reduce odours and are within or near a house. Inadequate sanitation includes a wide range of poor toilet facilities including pit latrines that are not ventilated, chemical toilets, buckets, or no facilities at all.

The *General Household Survey* asks about each household's sanitation facilities. The following facilities are included in the category of adequate sanitation: 'flush off-site', 'flush on-site', and 'VIP', standing for ventilated improved pit toilet. Inadequate sanitation includes the following: 'chemical' toilets, 'other pit', 'bucket', 'none' and a small number of 'unspecified'.

**Source:** Statistics South Africa. 2005. *General Household Survey July 2004*. Pretoria, Cape Town: Statistics South Africa.

**The number and proportion of children living in households with an electricity connection** (Table 15): The number and proportion of children (aged 0 – 17 years) that live in households connected to the mains electricity supply. Question 4.39 of the GHS 2004 asks, "Does this household have a connection to the mains electricity supply?" This indicator is calculated according to the number and proportion of children in households that answered yes (connected) and no (not connected).

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

**The number and proportion of children relative to their area of residence** (Table 16): This indicator shows the number and proportion of children (aged 0 – 17 years) living in urban and rural areas. The classification between urban and rural is described by Statistics South Africa as 'rather fluid', and some areas have been reclassified in the past few years. This is mostly because the 'semi-urban' category was dispensed with in the 2001 Census, resulting in a slightly more inclusive 'urban' classification.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

**The number and proportion of children relative to the type of housing they live in** (Table 17): This indicator shows how many children (aged 0 – 17 years) live in adequate housing. 'Adequate' is defined as formal housing, while 'inadequate housing' includes informal dwellings in informal settlements and backyard dwellings. 'Traditional' housing in rural areas is a third category, which is not necessarily adequate, but is not always defined as 'inadequate' in official estimates of the housing need.

South African housing policy has no clear or consistent definition of adequate housing since 'adequate' includes a range of attributes. Some of these are very technical, for instance relating to the quality and size of the dwelling. There are also qualitative descriptors of 'adequate' housing. However, the main attribute used to determine the housing backlog is the type of the dwelling. This indicator provides a fairly crude measurement of adequacy, calculated purely on the basis of housing type.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

**The number and proportion of children living in overcrowded dwellings** (Table 18): Children (aged 0 – 17 years) are defined as living in overcrowded dwellings when there is a ratio of more than two people per room (excluding bathrooms but including kitchen and living room).

There is no standard measure of overcrowding in South Africa, but there are many international definitions. The definition used here is derived from the UN-HABITAT definition, which is a maximum of two people per habitable room. 'Habitable' excludes bathroom and toilet. The data is taken from Question 4.5 in the *General Household Survey*: number of rooms occupied (excluding bathrooms and toilets). The overcrowding ratio is obtained by dividing the total number of household members by the total number of rooms occupied by the household.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

**The Gross Enrolment Ratio (GER) for children enrolled in ordinary schools** (Table 19): This indicator reflects the proportion of children enrolled at school in a specific school phase (e.g. primary school), regardless of age, as a percentage of the total appropriate school-age population.

The GER is thus defined as the number of learners enrolled in a school phase, regardless of age, as a proportion of the appropriate age group in the population (e.g. seven-year-olds to 18-year-olds), and expressed as a percentage.

**Source:** Department of Education (2003) *Education statistics in South Africa at a glance in 2001*. Pretoria: Department of Education.

**The learner-to-educator ratio for children enrolled in ordinary schools** (Table 20): The learner-to-educator ratio is the average number of pupils per educator at a specific level of education, or for a specific type of school, in a given school year (EduAction, 2005<sup>3</sup>). The ratio is calculated by dividing the number of learners by the number of educators for a specific school type (e.g. public schools).

**Source:** Department of Education (2003) *Education statistics in South Africa at a glance in 2001*. Pretoria: Department of Education.

**The number and proportion of children relative to the distance travelled to school** (Table 21): This indicator reflects the distance that children (aged 6 – 17 years) travel from their homes to the school that they attend. The distance is seen as far if children travel more than 30 minutes to reach their schools.

This indicator is based on the *General Household Survey* (2004:8<sup>4</sup>) question: "How long does it take (the child) to get to the school/educational institution where he/she attends?" Where respondents indicated that children spent more than 30 minutes travelling to their school, the distance to school was categorised as 'far'. Where children spent 30 minutes or less travelling to their school, the distance was categorised as 'not far'. The indicator was also defined by school-going age (primary or secondary) and not by school attendance.

**Source:** Statistics South Africa (2005) *General Household Survey 2004*. Pretoria, Cape Town: Statistics South Africa.

<sup>3</sup> EduAction (2005) *SADC Regional EMIS Database*. Accessed 19 July 2005: <http://brilliantweb.co.za/test/sadc/overview.html>

<sup>4</sup> Statistics South Africa (2004) *General Household Survey Questionnaire 2004*. Pretoria, Cape Town: Statistics South Africa.

## Data Sources

**General Household Survey:** The *General Household Survey* is an annual survey conducted by the national statistics body, Statistics South Africa (<http://www.statssa.gov.za>). The sample used is based on the enumeration areas established during the Census demarcation phase and therefore covers all parts of the country. The sample of 30,000 dwelling units ensures as much representivity as possible by stratifying by province, and then by urban and rural area. The resulting estimates should be representative of the total population of South Africa.

However, over- and under-estimation appears to have occurred in the weighting processes. It seems that the numbers of children aged 7 – 12 has been over-estimated by 6%, as well as the numbers of persons aged 13 – 22 years. The number of very young children appears to be under-estimated. The patterns of over- and under-estimation appear to differ across population groups. For example, the number of White children appears to be over-estimated by 14%, while the number of Coloured persons within the 13 – 22 year age group appears to be 9% too low.<sup>5</sup>

Further error may be present due to methodology, i.e. the questionnaire is administered to only one respondent in the household who is expected to provide information about all other members of the household. Not all respondents will have accurate information about all children in the household. In instances where the respondent could not provide an answer, this was recorded as 'unspecified' (no response) or 'don't know' (the respondent stated that they didn't know the answer). The survey is conducted annually, and datasets are therefore available on a yearly basis.

**SOCPEN database, Department of Social Development:** There has never been a published, systematic review of the SOCPEN database, and the extent of the limitations of validity or reliability of the data has not been quantified. However, it is regularly used by the department and other government bodies to monitor grant uptake. This administrative data set is constantly updated by Department of Social Development employees when entering application and payment data. Uptake data and selected reports are available from the department on request throughout the year. Grants data will be updated every three months for the *Children Count – Abantwana Babalulekile* project.

**Education statistics in South Africa at a glance, Department of Education:** This data is based on the department's annual survey and SNAP (snap-shot) survey, taken on the tenth day of the school year. The data capturing and processing of these surveys are known to be problematic and erroneous. The accuracy and reliability of this data is therefore questionable.

As these surveys are conducted annually, data should be available on a yearly basis. However, data processing systems differ across the provinces, and some are more efficient than others. The most recent data set that has been released is for 2001. The department's current information management system, known as the Education Management Information System (EMIS), is presently under review.

**South African National Burden of Disease Study:** This study makes use of vital registration data (number of official births and deaths) but adjusts for under-registration, as large number of births and deaths of younger children in particular are unreported. A modelling approach, developed by the Actuarial Society of South Africa (ASSA), was thus used to estimate the total number of deaths since vital statistics are incomplete. The ASSA2000 model was used to

determine overall mortality, the population size, and the number of deaths due to HIV/AIDS for each province.

The basic mortality assumptions for children were as follows: "child mortality estimates from the 1996 Census and the 1998 *Demographic Health Survey* (SADHS) both show a reversal of the downward trend, although there are differences in the estimated levels (Nannan et al, 2000). Adjustments are made to both sets of estimates due to differences and inherent biases in the different methodologies. A small upward adjustment is made to the DHS and a downward adjustment to the Census data which appear too high due to the inclusion of stillbirths incorrectly classified as live births who have died (Moultrie and Timaeus, 2002)."

The ASSA modelled estimates are made available on a yearly basis.

**The National Food Consumption Survey (NFCS):** This was a cross-sectional survey in children aged 1 – 9 years in South Africa. A nationally representative sample with provincial representation was drawn using the Census 1996 data. The number of children included in the study was 3,120, allowing for over-representation of children from high-risk areas.

A total of 156 randomly selected Enumerator Areas (EA) was included in the survey. A qualifying household was defined as any household with at least one child aged between 1 – 9 years. A snowball sampling technique was used to establish a sampling frame in each EA of households with children in the prescribed age group. From the list of qualifying households, the required number of households for the survey in a given area was randomly selected. Five questionnaires were used in the study, and anthropometric assessments were carried out on each child in the study by trained fieldworkers. Standardised and internationally recognised methods were used for these assessments.

The results of the survey appear to be accurate, within the sampling framework used, at a national and at provincial levels.

**ASSA2002 AIDS and Demographic Model:** Currently the only available data on HIV-related indicators are estimates based on modelling. The underlying assumptions of the model, however, are well accepted nationally and these are thus the best estimates that we have at present.

Estimates are obtained by using mathematical models. These models give an indication of the proportion of adults and children affected by HIV/AIDS. The demographic model is based on a wide range of available empirical evidence, for example, regular survey data and vital statistics, such as the antenatal clinic survey results and number of deaths from the population register (Dorrington, Bradshaw, Johnson, & Budlender 2004). Data and modelled results are available on <http://www.assa.org.za/default.asp?id=1000000050>.

### Sources

Dorrington RE, Bradshaw D, Johnson L & Budlender D (2004) *The Demographic Impact of HIV/AIDS in South Africa National Indicators for 2004*. Cape Town: Centre for Actuarial Research, Medical Research Council of South Africa and Actuarial Society of South Africa.

Moultrie T & Timæus I (2002) *Trends in South African fertility between 1970 and 1998*. Cape Town: Medical Research Council of South Africa, Burden of Disease Unit.

Nannan N, Bradshaw D, Timæus & Dorrington R (2000) *The impact of HIV/AIDS on infant and child mortality in South Africa*. Abstract of poster MoPeD2507. XIIIth International AIDS Conference, Durban, South Africa, 8 – 13 July 2000.

<sup>5</sup> Dorrington R & Kramer S (2004) *The 2004 mid-year estimates: Method, reliability and implications*. Paper presented at a Centre for Actuarial Research seminar, University of Cape Town.