INDEPTH Verbal Autopsy Causes of Death MONOGRAPH

Data Template for Agincourt

A. Identification

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B. Background

The Agincourt demographic surveillance site (DSS) is situated about 500 kilometers north-east of Johannesburg in the Agincourt sub-district of the Bushbuckridge region, Limpopo Province, South Africa. Until 1994 the site was located within a 'homeland' or bantustan area. The site extends from 24°50' to 24°56' south latitude and 31°08' to 31°25' east longitude. The altitude range is 400 to 600 metres above sea level. The field site with its twenty-one village communities covers 390 km^2, measuring 38 km by 16 km at its widest points.

The geo-ecological zone is semi-arid savanna. Low rainfall is common rendering the area vulnerable to drought. Eighty percent of rain falls during the summer months of November to March. The area experiences hot summer and mild winter months. The temperature range is 12-40°C in summer and 5-27° C in winter.

The total DSS population in 2002 comprised of 69 000 people living in 11,500 in 21 villages with a population density of 172 persons per square kilometer. The sex ratio for the total population is 0.93. The setting is rural in terms of distance from urban centres and lack of infrastructure. The population is largely Shangaan, with a quarter (25%) being of Mozambican origin, and 44% under 15 years of age. Employment opportunities are scarce with 60% of men and 14% of women aged 30-49 years consequently being labour migrants. While 85% of children aged 10-14 years enter primary school, less than 50% continue to secondary school and only 3% to any post-secondary education.

The baseline Agincourt census was conducted in 1992. The original population monitored was 57,509 persons in 8,896 households. By 2002 this had increased to 69 000 in 11 500 households. Verbal autopsies (VAs) and maternity histories were introduced in 1993.

The objectives of collecting VA data at the site are:

a) To describe the cause-of-death profile in the area, and to monitor temporal trends in the main causes of mortality
b) To use mortality data to inform a research agenda which investigates major disease burdens and which includes intervention research
c) To inform health service priorities with respect to needed intervention programmes and appropriate resource allocation.

Further information on the Agincourt DSS can be obtained on page 197 of *Population and Health in Developing Countries. Volume 1: Population, Health, and Survival at INDEPTH Sites* (INDEPTH 2002).

A health centre and five satellite clinics exist in the DSS site, all staffed by nurses. A restricted number of drugs (consistent with the national Essential Drugs List [EDL]) are dispensed from each of these primary care facilities, and the health centre has a small laboratory able to perform a limited number of diagnostic tests. An ambulance is based at the health centre. All services are free, and include child health, family planning, antenatal care, delivery and postpartum care, minor ailments and chronic disease treatments. Although waiting times are long, most of these services are under-utilised. A contributing factor is poor drug supply. Referrals are to three district hospitals, two about 25 kilometers, and the other 45 kilometers from the health centre. Deaths in the sub-district usually occur at home (46%) or at hospital (41%), with much of the rest occurring at an accident site.

The 2000 South African infant mortality rate was 59/1000 live births, under-five mortality was 95/1000 and maternal mortality rate was 150/100 000 births. Life expectancy at birth for both sexes was 55.2 years (Bradshaw et al. 2003). In 2002, in the Agincourt DSS the infant mortality rate (IMR) was 35/1000 births, the under-five mortality rate 12.64 per 1,000 person years exposed (male: 13.45 per 1000 person years exposed; female: 11.86 per 1000 person years exposed) and the period expectation of life at birth was 55.7 years for males and 64.0 years for females.

C. Methodology

Deaths are identified from census data. One census update round is conducted annually between August and November. Verbal autopsy interviews are conducted concurrently with the conduct of the annual census, but with a separate, dedicated team of fieldworkers. The VA fieldworkers conduct interviews on most of the deaths (>95%) identified through the annual census.

Data is collected by four lay, trained field workers, one of whom is the supervisor. They received a one-week training programme on initiation. This included the concept of underlying and immediate causes of death, common signs and symptoms, the most prevalent conditions in the area, interpersonal communication skills with bereaved respondents, and how to deal with overt grief.

VA work is an integral part of the Agincourt DSS. The community has been consulted during all phases of the project. This included discussion and negotiation with community leaders when the DSS was first introduced in 1992, and careful community preparation with respect to the nature of the VA interview and the purposes for which cause-of-death information would be used.

The person who cared for the deceased during his/her terminal illness is preferentially interviewed and is referred to as the 'best respondent'. Up to two revisits are made in an effort to interview the best respondent. Where this person cannot be found, an alternative respondent, also knowledgeable about the terminal illness, is interviewed. To respect the initial period of mourning, no respondent is interviewed until at least one month has elapsed since the death. The usual recall period ranges between 4 weeks and 11 months. The average completion time for a single questionnaire is 45 minutes.

Mechanisms for ensuring data quality include ongoing training and supervision of interviewers. Ongoing training and supervision is critical as the quality of interviews differs between fieldworkers, and each fieldworker has improved over time. Refresher training, and training on new questions, is provided at the start of each round. Shared language and culture between fieldworkers and study community, and increasing experience of the VA team has proved critical. Data quality is enhanced by on-site supervision of interviews and regular review of completed questionnaires with personalised feedback to the relevant fieldworker. VA data forms are correlated and cross-checked with "death forms" generated during the census interviews by separate teams of census fieldworkers.

Development of the interview schedule involved adapting one used in Niakhar, Senegal (Garenne & Fontaine 1990) to reflect local disease prevalence. Each year, questions are revised or new ones added to better capture emerging diseases. A single form is used for all age groups, including neonatal deaths. Questions appear on the form in both English and Tsonga. The questionnaire has several parts, the most

important being an open section where the respondent describes all symptoms and signs preceding death in his/her own words. This is followed by a series of filtering questions, e.g. “did the deceased cough?” When answered positively, detailed questions regarding that particular symptom are asked. If negative, the interview proceeds to the next filtering question. Further sections cover use of modern and traditional treatments, and lifestyle practices as well as accidents and injuries.

VA diagnoses at the Agincourt site have been validated by comparison with hospital reference diagnoses and sensitivity and specificity calculated for each cause of death. Forty percent of the deaths in the DSS occurred in hospital and only a third of these had hospital records of sufficiently high quality to be used as a gold standard. Although the age and sex distribution of the validated VAs were similar to those of all deaths, hospital deaths do not represent all deaths in the community, with accidents and violence typically under-represented. Of the 127 VAs used for validation, 8% were due to accidents and violence, 27% to communicable and 55% to non-communicable causes, compared to 14, 16 and 34 percent respectively among all deaths. The remaining deaths were undetermined (Kahn et al. 2000).

Internal validity is measured by the third assessor reviewing blindly a sample of VAs which have been assigned the same diagnosis by both first and second assessors. This has demonstrated 90% congruence, 8% minor and 2% major differences.

Experience over 10 years has indicated that the VA technique is acceptable to community members and that, with adequate training, lay fieldworkers are able to elicit the salient historical and clinical information. VA procedures and purpose were discussed at the outset with community leaders and at open community meetings in order to obtain community consent.

Informed verbal consent is obtained from the head of household and from the respondent. The interview with the ‘best respondent’ is conducted in private unless she/he wants another to join the discussion. VA fieldworkers are trained in the importance of maintaining confidentiality and in how to deal with recent bereavement. Where current problems are evident, fieldworkers refer the family to appropriate public sector health and social welfare services, or to locally available NGOs.

Annual feedback of DSS findings occurs at village level. Fieldworkers present findings to open village meetings. Members of local health services and other resource people are invited to these meetings. Written “village fact sheets” are prepared and distributed. While census findings are disaggregated by village, cause-of-death findings are presented for the site as a whole. This is to avoid the potential of associating specific families with particular causes of death.

Clinician assignment is used to assign cause of death. Clinician assessment of the completed questionnaire is similar to that described in other studies (Garenne & Fontaine 1990, Snow et al. 1992, Todd et al. 1994, Dowell et al. 1993). Two medical practitioners, blind to each other's assessment, review the information and assign a diagnosis for each death. If the same diagnosis is reached, this is accepted as the "probable cause of death". Where they differ, the two medical practitioners discuss the case. Where consensus is achieved the diagnosis is accepted; where they disagree a third practitioner makes a further blind and independent assessment. If two out of three diagnoses correspond, this is accepted as the probable cause of death. Otherwise the cause of death is described as undetermined. No pre-established criteria are used in assigning diagnosis, though a guideline list of symptoms associated with particular common conditions is available.

Where possible, a main (or underlying) cause, immediate cause, and contributory factors are assigned. For example, where diarrhoea is the only identified problem, it would be classified under 'main' cause of death. However, where kwashiorkor and diarrhoea are both present, and the diarrhoea continues until death, kwashiorkor would be classified as the 'main' cause and diarrhoea the 'immediate' cause of death. Deaths are assigned to narrow causes first and later grouped into one of four broad categories: communicable disease; maternal, birth-related, and nutritional conditions; accidents and violence; and non-communicable disease. The resulting cause of death classification is derived directly from deaths in the area, and conforms to the International Classification of Diseases, 10th revision (ICD-10) (International Classification of Diseases 1992).

The results presented in this chapter are based on the underlying cause of death only, with the exception of cerebrovascular accident (CVA) and congestive cardiac failure (CCF) which are included so as not to lose vital information on the extent of mortality from non-communicable disease.

The Microsoft Access 2000 software package is used for data entry. Data are entered once by one of three trained typists. The VA data system is a stand alone, but there are plans to link it to the main DSS system. Inconsistencies are resolved by checking of data entry against original questionnaires and in some instances may result in revisits to homes to verify data. EpiInfo 6.04, dBase IV and Microsoft Excel are used for analysis of the cause of death profile.

D. Results

Results are presented for the four-year period from the 1 January 1999 to 31 December 2002. During this period, 2175 deaths were identified in the sub-district, and expert review was successfully completed for all of the deaths. Failure to identify a suitable respondent, usually because of migration, accounted for the majority of unsuccessful or incomplete VAs. The place of death was equally distributed between home (46%) and hospital (41%), with the clinic/health centre (1%), accident site (4%) and other (7%) contributing to the rest. The site of death was unknown in 1% of cases.

The distribution of all deaths in the Agincourt sub-district during the study period is shown in Table 1. Just under one-third (29%) of the 2175 deaths occurred in persons aged 60 years or older. There was a strong preponderance of male deaths in the neonatal period, followed by more female deaths between 1 month and 14 years of age. The male:female ratio reached parity in the 15-44 year age group, with a male predominance re-established between ages 45 and 59 years. This ratio was reversed again in those older than 59 years (i.e. a female dominance).

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Table 1. Distribution of deaths by age and sex at *Agincourt DSS Site, South Africa, 1999-2002*

Age group	Male		Female		Total		M:F ratio
	No.	%	No.	%	No.	%	
0 – 27 days	37	3.3	21	2.0	58	2.7	1:0.57
28 days – 11 months	86	7.8	79	7.4	165	7.6	1:0.92
1 – 4 years	100	9.0	93	8.7	193	8.9	1:0.93
5 – 14 years	31	2.8	29	2.7	60	2.8	1:0.94
15 – 44 years	368	33.2	379	35.5	747	34.3	1:1.03
45 – 59 years	179	16.2	133	12.5	312	14.3	1:0.74
≥60 years	307	27.7	333	31.2	640	29.4	1:1.08
Total	1108	100	1067	100	2175	100	1:0.96

The major causes of death by age are shown in Table 2. This and subsequent tables only include data of deaths where expert review of VAs was conducted (i.e. 2176 deaths). HIV/AIDS ranked as the single greatest contributor to death overall. Deaths from HIV/AIDS were dominant in children aged 1 month to 5 years and in adults from 15 to 59 years. Cardiovascular deaths, which included stroke-related deaths, ranked second overall and were most prominent in persons aged 45 years and older. Mortality from accidents and injuries ranked third overall, and was responsible for the greatest number of deaths in children aged 5 to 14 years of age. Malignancy ranked fourth overall, with its highest toll being exacted in older persons.

Infections were responsible for most infant deaths, with AIDS, diarrhoea and acute respiratory infections being prominent. Malnutrition was another important cause of death in young children. The prominence of malaria deaths in a low endemic area is notable. The high toll of cardiovascular (including stroke) mortality is evident in almost all adult age groups.

Almost one-quarter (24%) of all deaths were classified as undetermined. This high percentage can mainly be attributed to the stringent method used to assign a single main cause of death as described earlier. Agreement of at least two of three assessors was required to assign death to a specific cause. A further 15% of deaths had inadequate data to allow assignment of a cause of death.

Table 2. Major causes of death by age at Agincourt DSS Site, South Africa, 1999-2002

Rank based on proportion	Age Group							Overall Rank n=2176
	0–27 days (%) n=57	28 days – 11 months (%) n=163	1-4 years (%) n=191	5-14 years (%) n=59	15–44 years (%) n=747	45-59 years (%) n=311	≥ 60 years (%) n=642	
1	Prematurity (28.1)	AIDS (30.7)	AIDS (33.5)	Accidents & violence (37.3)	AIDS (46.7)	AIDS (24.1)	Cardiovascular (19.8)	AIDS (25.1)
2	Perinatal asphyxia (24.6)	Diarrhoea (19.0)	Malnutrition (20.4)	AIDS (8.5)	Accidents & violence (11.2)	Cardio vascular (9.6)	Malignancy (14.3)	Cardiovascular (8.3)
3	Infection (17.6)	ARI (18.4)	Diarrhoea (8.4)	Central nervous system (8.5)	Tuberculosis (6.8)	Accidents & violence (8.0)	Tuberculosis (6.9)	Accidents & violence (7.3)
4	Congenit abnormalities (3.5)	Malnutrition (6.1)	ARI (6.8)	Malaria (6.8)	Malaria (3.9)	TB (7.4)	Diabetes (3.0)	Malignancy (6.0)
5		0ther infections & parasitic (2.5)	Accidents & violence (5.8)	Cardiovascular (5.1)	Cardiovascular (2.7)	Malignancy (6.1)	Chronic liver (2.8)	Tuberculosis (5.8)
6		Prematurity (1.2)	Tuberculosis (3.1)	Diarrhoea (3.4)	Malignancy (2.7)	Malaria (4.8)	Accidents & violence (2.2)	ARI (3.2)
7		Central nervous system (1.2)	Central nervous system (3.1)		Central nervous system (1.2)	Chronic liver (2.9)	Diarrhoea (2.0)	Diarrhoea (3.1)
8			Other infections & parasitic (2.6)		Chronic liver (1.1)	Diabetes (2.6)	ARI (1.9)	Malaria (2.6)

9					Maternal (1.1)			Malnutritio n (2.3)
10								Neonatal (2.1)
Other (known) %	14.0	4.9	4.3	8.4	6.3	9.4	10.3	10.4
Undetermi ned %	33.3	16.0	12.0	22.0	16.3	25.1	36.8	23.8
Unknown / no data*	21.1	16.0	15.7	16.9	14.3	12.5	16.2	15.1
Total (%)	100	100	100	100	100	100	100	100

Abbreviations: AIDS = Acquired immunodeficiency syndrome; ARI = acute respiratory infection;
* Unknown / No Data contains the number in each age group for which there is no code - mostly missing VAs. We redistributed that number through all the other causes according to the observed cause profile - assuming that they are distributed like the other causes.

Two-fifths (41%) of all deaths were ascribed to communicable diseases, while a fifth (21%) were non-communicable (Table 3). The prominence of deaths resulting from accidents and injuries at this site is highlighted in this table.

Table 3. Percentage of deaths by sex in specific disease categories at Agincourt DSS Site, South Africa, 1999-2002

Category	Male		Female		Overall	
	N	%	N	%	N	%
Communicable	454	41.3	440	40.9	894	41.1
Non-Communicable	219	19.9	232	21.6	451	20.8
Injuries	113	10.3	45	4.1	158	7.2
Maternal			8	0.8	8	0.4
Neonatal & Congenital	28	2.6	16	1.5	44	2.0
Miscellaneous	54	5.0	47	4.4	102	4.7
R99	230	20.9	288	26.7	518	23.8
Total	1098	100.0	1077	100.0	2175	100.0

Table 4 provides further information on accidents/injuries as causes of death. Accidents and injuries were responsible for almost thrice as many deaths in males compared to females. A third of deaths in both sexes were the result of motor vehicle related accidents. Males had a higher percentage of deaths attributed to assault while proportionally more female deaths were attributed to accidental injuries. However, even in the latter sub-category male deaths exceeded female deaths in absolute terms.

Table 4. Deaths from accidents and injuries by sex at Agincourt DSS Site, South Africa, 1999-2002						
Category	**Male**		**Female**		**Overall**	
	N	**%**	**N**	**%**	**N**	**%**
Road traffic accidents	39	32.6	13	31.7	53	32.3
Accidental injuries	20	16.5	19	46.2	39	24.2
Assault	31	26.1	5	11.5	36	22.3
Suicide	21	17.7	5	10.7	26	15.9
Other	9	7.1	0	0	9	5.3
Total accident & violence	120	100	42	100	163	100

E. Discussion

Considering the age and sex distribution of deaths, children under five years account for 18.3% of deaths. Over a quarter of deaths occurred in the 15-44 year age-group, while over a third of deaths were in the persons older than 60 years. The male/female ratio is high in neonates with male deaths exceeding female deaths as expected. However, female deaths are found to exceed male deaths from 28 days to 14 years, an unexpected finding.

The distribution of neonatal deaths is consistent with that found in middle income countries, with deaths from prematurity dominating, but perinatal asphyxia and infection still being responsible for about a fifth of deaths each.

Infectious diseases remain the major killers of children in both the infant and under-5 age groups. The impact of AIDS is prominent in infants and young children. Diarrhoeal deaths exceed acute respiratory infection in all child age categories, and is the second most important cause of infant deaths. Notable is the relative paucity of deaths attributed to acute respiratory infections, particularly after infancy in our setting. This may be related to good access to health services and a propensity of health workers to frequently prescribe antibiotics. The low frequency of vaccine-preventable infections is encouraging, and probably reflects a true reduction in these deaths.

Similar to many other settings, accidents and injures are the major cause of mortality in older children aged between 5 and 14 years. AIDS remains important, with central nervous system diseases (including meningitis) also being prominent. Among older children as well as adults under 45 years, malaria is the fourth highest cause of mortality. This is worrisome, given the low endemicity of malaria, as well as the active malaria control programme, in Agincourt.

In adults 15-44 years of age, HIV/AIDS ranks first, followed by accidents and violence as causes of death. The contribution of pulmonary tuberculosis (TB) to mortality is an under-estimate (in Table 2) because TB associated with HIV/AIDS is usually coded as an AIDS death, with TB being categorised as an immediate cause of death. TB accounted for 26% of 'immediate causes' of HIV/AIDS deaths in the 1998-2000 period. Only where there was no evidence to suggest associated HIV infection was a death classified as being due to TB. Over half the deaths due to malignancy in this age group were female genito-urinary cancers.

AIDS remained the major cause of death in the 45 to 59 year age group. Cardiovascular disease ranked second, with stroke responsible for the majority of these deaths. Mortality attributed to accidents and injuries remains prominent. Chronic liver disease, ranking 7th, is associated with high levels of alcohol use.

In adults over 60 years, cardiovascular related deaths is the top ranking cause, followed by malignancy, tuberculosis and diabetes.

HIV/AIDS, stroke, accidents and violence, kwashiorkor, and other non-communicable diseases caused many deaths in the Agincourt area, while acute respiratory infections had an unexpectedly low occurrence. HIV/AIDS, accidents and violence, and non-communicable diseases (particularly malignancy and stroke) are the top ranking causes overall, with other infectious and parasitic disease ranking less prominently. There is a higher proportion of females dying of non-communicable diseases, and a higher proportion of males dying of accidents and violence. Within this latter disease category, assault ranks second in males and fourth in females.

There has been a shift in mortality trends during the period under review compared to previous years. Cause-of-death data up to 1995 reflected a mixed picture: the 'unfinished agenda' of infectious disease and malnutrition (diarrhoea and kwashiorkor predominantly) in children, accidents and violence in adolescents and young adults, and an 'emerging agenda' of non-communicable disease in middle-aged and older adults. During the 1995 to 1999 period, these multiple burdens were compounded by escalating HIV/AIDS in young children and younger adults, and advancing non-communicable disease in older adults, primarily women. During the latest period (1999 to 2002) the dominance of AIDS deaths was established in almost all the age groups, while non-communicable diseases continued to exact an increasing toll.

Verbal autopsy approach- reliability, validity, difficulties experienced in the use of the tool at the site

Clinician assessment is the method used to determine VA diagnoses at Agincourt DSS site. In other studies, predefined algorithms have been applied (Kalter 1990, Chandramohan 1994). However, experience with validation of VAs for adult deaths shows results from clinician assessment to be more valid (have higher sensitivities and specificities) than those produced by algorithm (Chandramohan 1998). In Agincourt, a proportion of VAs was validated by comparing VA diagnoses with hospital reference diagnoses ('gold standard'), followed by calculation of sensitivity, specificity and positive predictive values for each cause of death found in hospital. For communicable diseases, sensitivity of VA diagnoses was 82% and specificity 93%; accidents and violence had a sensitivity of 88% and specificity of 98%; while values for non-communicable diseases were lower at 65% and 66% respectively. The less reliable VA diagnoses for non-communicable diseases are more useful than they initially appear as most misclassification was within the broad disease category itself, where specific diseases tend to have common risk factors. In addition, the frequency distribution of causes of death based on VAs closely approximated that of the hospital records used for validation.

Implications of findings

Many articles reporting on mortality in South Africa conclude with the need for strengthening primary health care services and the need for better routine recording of data. (Bradshaw 1992, Botha & Bradshaw 1985, Wyndham 1984, Herman & Wyndham 1985). While the pattern of mortality in Agincourt reinforces this, it calls for a third crucial approach: a deeper understanding of the causal factors underlying critical health problems to strengthen policy and better target interventions. Greater understanding is likely to be found in the interactions of social, behavioural, biological, economic and environmental characteristics of families, and consequently best studied using a multi-disciplinary approach and the combined efforts of quantitative and qualitative scientists (Chen & Bell 1994, Mosely 1989). As the importance of non-communicable disease in developing settings gains acceptance internationally (Murray & Lopez 1996, Ezzati et al. 2002), so resources must be diverted towards its research, policy and practice. However, caution must be exercised to avoid over-investing too rapidly in this area at the expense of the "unfinished agenda" which continues to afflict the youngest, poorest and most disenfranchised (Gwatkin & Heuveline 1997). On the other hand, caution must be taken not to delay non-communicable disease research in the face of the compelling HIV/AIDS imperative. The consequence of this would be to emerge from the HIV/AIDS pandemic, only to find the non-communicable disease epidemic in full force.

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Appendix. Number of deaths in disease categories over four-year period at Agincourt DSS Site, South Africa, 1999-2002

Cause	0-27 Days	28 Days - 11 Months	1-4 Years	5-14 Years	15-44 Years	45-59 Years	60+ Years	Total
Communicable	**4**	**118**	**106**	**12**	**448**	**119**	**84**	**894**
Malaria	0	1	1	4	29	15	6	57
Measles	0	0	0	0	0	0	0	0
ARI	2	30	13	0	8	2	12	69
Hepatitis	0	0	1	0	2	1	0	5
TB	0	2	6	1	51	23	44	127
AIDS	0	50	64	5	349	75	4	546
Diarrhoeal	0	31	16	2	3	2	13	67
Tetanus	0	0	0	0	0	0	1	1
Other	2	4	5	0	6	1	4	22
Non-Communicable	**0**	**3**	**9**	**10**	**67**	**76**	**287**	**452**
Cardiovascular + Stroke	0	0	0	3	20	30	127	180
Pulmonary	0	0	2	1	6	3	10	22
Liver	0	1	1	0	8	9	18	38
Acute Abdominal GIT	0	0	0	1	0	4	4	8
Diabetes	0	0	0	0	0	8	19	27
Neoplasms	0	0	0	0	20	19	92	131
Renal	0	0	0	0	4	3	11	18
Central Nervour System	0	2	6	5	9	0	6	28
Other	0	0	0	0	0	0	0	0
Injuries	**0**	**1**	**11**	**22**	**84**	**25**	**14**	**158**
Unintentional	0	0	11	20	39	17	5	92
Intentional	0	0	0	2	44	8	8	62
Other	0	1	0	0	1	0	1	4
Maternal	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**8**
Bleeding	0	0	0	0	2	0	0	2
PIH/Eclampsia	0	0	0	0	1	0	0	1
Infection	0	0	0	0	0	0	0	0
Other	0	0	0	0	5	0	0	5
Neonatal & Congenital	**34**	**5**	**3**	**1**	**0**	**0**	**0**	**45**
Asphyxia/Birth Injury	14	0	0	0	0	0	0	14
Prematurity/LBW	16	2	2	0	0	0	0	21
Congenital	2	2	1	1	0	0	0	7
Infection	2	1	0	0	0	0	0	3
Other	0	0	0	0	0	0	0	0
Miscellaneous	**19**	**36**	**62**	**14**	**140**	**91**	**257**	**619**
Anaemia	0	0	0	0	1	0	0	1

Malnutrition	0	10	39	1	0	0	1	51
All Other	0	0	0	0	17	13	20	49
Undetermined	19	26	23	13	122	78	236	518
Unknown / No Data	12	26	30	10	107	39	104	328
Totals								
Deaths (All Causes)	57	163	191	59	747	311	642	2,176
Person Years Exposed	513.16	6,291.21	27,422.54	74,957.96	129,307.60	22,352.34	16,910.92	277,755.73
Average Population	128	1,573	6,856	18,739	32,327	5,588	4,228	69,439