An assessment of household deaths collected during Census 2011 in South Africa

By

Christine Khoza, PhD
Statistics South Africa

Table of contents

Tables

Figures

1. Introduction

The collection of household deaths data has been found to be problematic in most developing countries, in spite of international efforts to use censuses as a vehicle to solicit this information (UN, 2008). Reasons for this include under-reporting (the most affected groups are children and the elderly), reference-period errors and the unwillingness of the respondents to talk about recent deaths (Timæs, 1993). Another cited shortcoming is the exclusion of deaths due to the dissolution of households after the death of a breadwinner. In the case of South Africa, the inclusion of questions on household deaths in the Census2011 questionnaire was the second attempt following Census 2001. According to Dorrington& Moultrie (2004), analyses of the 2001 household deaths revealed that the month and the year of death as well as the age of the deceased were subjected to some unnecessary editing (3,1%, 6% and 8% respectively).

For the Census2011, questions on household deaths were asked in SECTION I: MORTALITY IN THE LAST 12 MONTHS in Questionnaire A. The descriptions of questions pertaining to household deaths are available in the Census 2011 METADATA at <http://www.statssa.gov.za>. These questions were administered to populations living in households. Persons living in institutions were excluded. However, persons who were found living in households within an institutional area (e.g. caretakers) were included as they were enumerated with Questionnaire A. Fieldwork monitoring reports by the Monitoring and Evaluation division within Statistics South Africa (Stats SA) revealed that Section I did not do well from the Pilot to the main census. Some reasons for under-reporting were:

- Fieldworkers were afraid to ask the questions or skipped these deliberately, the reason being that some respondents felt those were too personal and emotional questions.
- Some questions were left blank.

All in all, a combination of respondent fatigue, sensitivity of the mortality questions, poor training strategy and lack of supervision during data collection appear to be the underlying factors for under-reporting when one looks at the responses on household deaths.

The release of Census 2011 results one year after the data collection exercise was well received by stakeholders during the dissemination workshops held across the country. That notwithstanding, the ongoing coding of industry, occupation and migration as well as assessments of both the fertility and household deaths data led to the delay of the 10% sample release. With regard to published mortality tables, about 20% of the total number of deaths had unspecified values for both age and sex. This

feature became a cause for concern, as presented in Table 1.1. These death records were ultimately flagged for further investigation at the time of the release. Such death records include those for which both the month and the year of death are not stated, an invalid month (not 1–12) and not stated year of death, year of death not stated, invalid or out of the reference period (10/2010 to 10/2011). One reason for including such records at the time of the release was the suspicion of erroneous reading by the scanning system.

Apart from death records that were flagged for further investigation, a few deaths were reported as having occurred in November and December 2011. A number of respondents called the call centre to request enumeration after 31 October 2011. As a result, enumeration continued up to early December 2011. About 5 489 (weighted) death records had November and December 2011 reported for the month and the year of death, constituting less than one per cent of the total number of deaths. Analysis of the comparison of deaths by month of death between the vital register and those enumerated during Census 2001, as well as those enumerated during the 2007 Community Survey, reveals that some of the enumerators tended to put the month of enumeration as the month of death. It was considered therefore to accept such cases as in-scope by evenly distributing them throughout the reference period months from October 2010 to October 2011 in the edited data.

Table 1.1 and Table 1.2 present a comparison of Census 2011 household deaths between Published Tables (Census 2011 Statistical Release: P0301.4) and those tabulated from the final data (expected to be released with the 10% sample). Lower values of deaths are shown in Table 1.2 relative to those shown in Table 1.1 for all provinces, although there is a variation regarding the magnitude. Provinces that reflect higher percentages of reduced number of deaths include Gauteng and Western Cape (32% and 25% respectively), whilst Eastern Cape shows the lowest percentage (14%). The most affected cases are those whose age and sex were unspecified at the time of the release. The detailed process that produced these changes is explained below.

Table 1.1: Distribution of household deaths by province: Published Tables, Census 2011

Province	Total number of deaths	Unspecified age	Unspecified sex	Unspecified age and sex	Unspecified age	Unspecified sex	Unspecified age and sex
	Number				Per cent		
Western Cape	45 453	849	160	10494	1.9	0.4	23.1
Eastern Cape	92 185	2 354	355	12 359	2.6	0.4	13.4
Northern Cape	14 369	386	53	2 130	2.7	0.4	14.8
Free State	44 318	881	153	8 315	2.0	0.3	18.8
KwaZulu-Natal	136 636	7 948	843	21 292	5.8	0.6	15.6
North West	45 903	1 202	153	7 832	2.6	0.3	17.1
Gauteng	118 066	9 983	650	27 427	8.5	0.6	23.2
Mpumalanga	51 828	1 046	161	13 656	2.0	0.3	26.3
Limpopo	55 786	885	172	14 715	1.6	0.3	26.4
South Africa	**604 544**	**25 534**	**2 700**	**118 220**	**4.2**	**0.4**	**19.6**

Source: Statistics South Africa

Table 1.2: Distribution of household deaths by province: Final data

Province	Total number of deaths	Unspecified age	Unspecified sex	Unspecified age and sex	Unspecified age	Unspecified sex	Unspecified age and sex
	Number				Per cent		
Western Cape	34 026	163	160	3	0,5	0.5	0.0
Eastern Cape	79 330	1 986	271	72	2.5	0.3	0.1
Northern Cape	12 033	338	43	15	2.8	0.4	0,1
Free State	35 535	720	92	18	2.1	0.3	0.1
KwaZulu-Natal	109 768	4 018	521	174	3.7	0.5	0.1
North West	37 705	1 035	94	32	2.7	0.2	0.1
Gauteng	80 839	2 095	288	87	6.2	0.4	0.1
Mpumalanga	37 944	903	117	24	2.6	0.3	0.1
Limpopo	40 887	748	112	33	1.8	0.3	0.1
South Africa	**468 067**	**12 006**	**1 698**	**458**	**2.6**	**0.4**	**0.1**

Source: Statistics South Africa

2. Preliminary evaluation of samples of death records

The purpose of this undertaking was to do further investigation into household deaths flagged as such at the time of the release. With no preconceived notions of what constituted blanks for both age and sex, a need arose to first view a sample of scanned questionnaire images of all aforementioned death records. Of the total of 518 002 unweighted death records (not adjusted for the undercount) available for screening, about 115 221 matched the status of being flagged for further investigation. About 653 of the 115 221 death records were randomly selected for screening. The results of the screening showed that, during processing, about 21% of the 653 selected records were erroneously read by the scanning system as valid records, whereas the response to whether a death had occurred in the household during the reference period was “No”.

In the event that a line/s or some figure-like images having been created on the questionnaire image emanating from dirt, these translated into figures for at least one mortality variable in the raw data (see an example of a blank record with figure-like images and one with a line drawn through a specific case in Figure 1.2 and Figure 1.3). About 4% of the screened records were out of the reference period (October 2010 to October 2011). However, among the aforementioned records, some were erroneously declared as out of scope just by erroneously reading the month or year of death differently than what is reported on the questionnaire. For example, when the month and year of death are reported as April 2011 on the scanned questionnaire image, but read as April 2010 in the raw data, this pushes it out of the reference period, whilst it was actually reported within said period. Others were declared as out of scope due to the enumerator failing to utilise the year of birth of the deceased provided by the respondent to derive the age of the deceased, in the event that it was not known by the respondent. The year of birth would also have been written on some parts of the questionnaire, probably as a means to enable the calculation of age at some stage in the process of enumerating. In almost all cases, whether the age of the deceased was calculated correctly or incorrectly by the enumerator, the year of birth would be put in as the year of death even after calculating the age of the deceased.

Some of such records were ultimately included back into the raw data after the incorporation of manually captured cases. This was done by summing up the year of death (which in this case would be the year of birth of the deceased) and the reported age in the event that the year of death was out of scope and the reported month valid, which would then amount to either 2010 or 2011 as the year of death. Although such cases were minimal, a few were actually lost as a result of the enumerator's erroneous calculation of the age of the deceased, say by one year higher or lower than the actual age implied. This led to a slightly exaggerated number of out-of-scope death records.

In contrast to the 653 death records flagged for further investigation, the results of about 900 randomly selected death records from the remaining 402 781 death records that were not flagged for further investigation showed consistency between the scanned questionnaire images and the raw data. Although some may argue that both screening samples were rather too small, some insights pertaining to data problems being linked to death records flagged for further investigation at the time of the release assisted in deciding the way forward.

A decision was made therefore, to manually capture all 115 221 death records. Figure 1.1 gives an example of the error resolution interface for the month of death. The exercise focused on the four key household death variables, namely month of death, year of death, sex, and age of the deceased. Given this, each of the 115 221 cases would have four error resolution interfaces developed for the four variables respectively, amounting to 460 884. This does not mean that the other variables were free of errors. The modified final edit specification rules were expected to deal with the remaining data problems upon the incorporation of manually captured cases into the bigger raw mortality data. For example, the minimum processability rule would resolve cases where the pregnancy-related responses were erroneously captured by the scanner reading system. For example, if a value was erroneously provided for whether the deceased was pregnant at the time of death, emanating from dirt or other scanner related problems, that record would not meet the minimum processability rule.

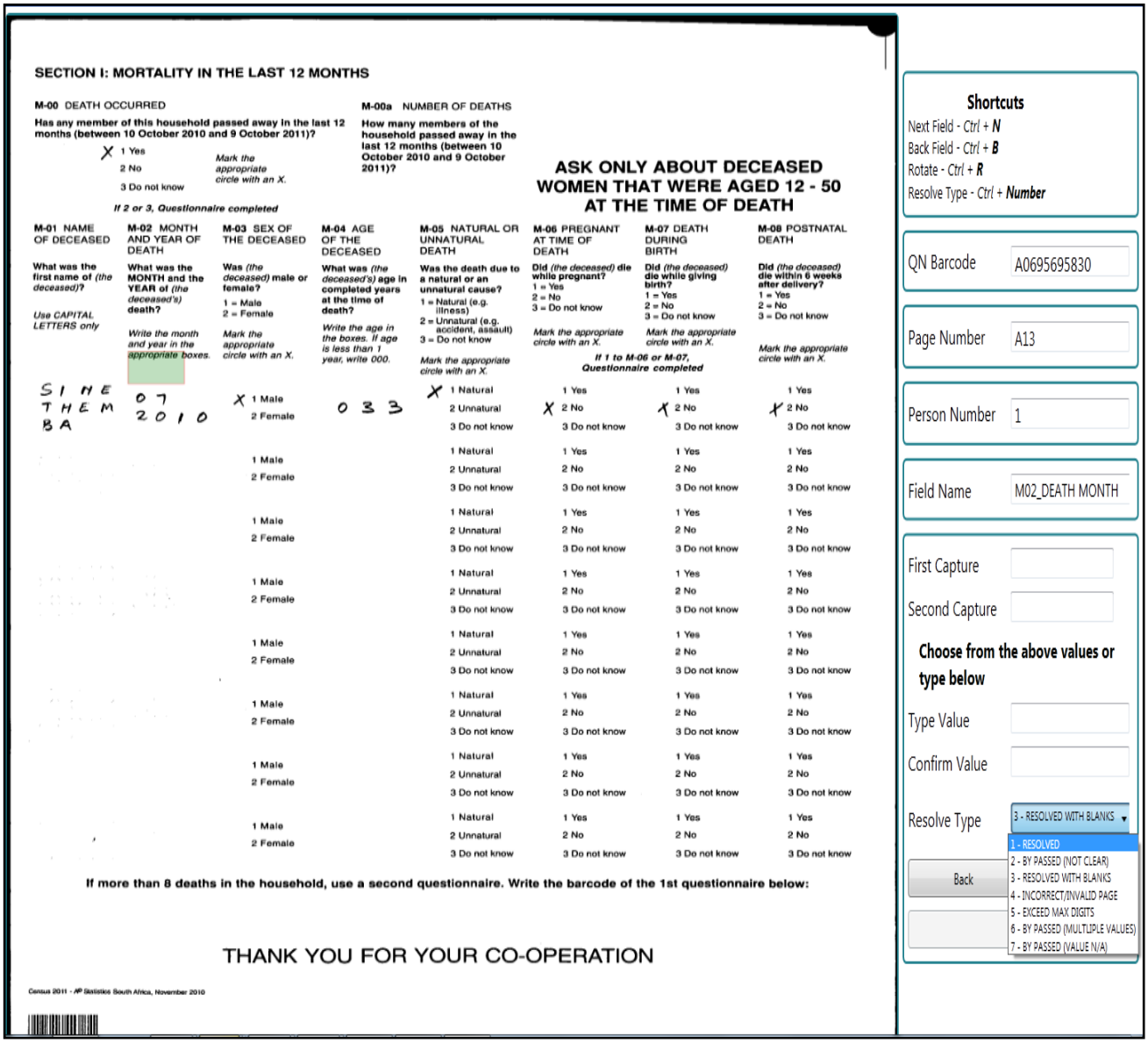
3. The error resolution exercise

Error resolution involves the use of the scanned questionnaire to verify missing or out-of-range values in the raw data. It is usually done after scanning, but before data editing. In the case of Census2011, such an exercise was done following the initial data capturing through scanning. However, it would appear there was a challenge regarding the mortality variables, where for most of the blank variables, these could not be verified since there were no values on the scanned images either. Some of the cases that were blank for the month and the year of death were changed to being unspecified (99 and 9999 respectively). The error resolution term may actually be misleading in this context, as a decision was made to manually capture all four variables as they appear on the screened image. This meant that even when all the four variables reflected unacceptable values (missing, out of range or unclear) on the screened image, these were captured as they appeared.

About 11 employees were seconded from the Processing division within Statistics South Africa to augment the three members of the mortality monograph. All these employees were trained on the error resolution interface by the system developers. The first manual capturing phase ran for about three weeks. Upon the completion of the first phase, it emerged that about 84 197 of the manually captured 460 884 values in the data were not consistent with the scanned questionnaire images. Since the principle used was to capture what is on the questionnaire image, regardless of being out of scope, invalid or not stated, it was decided that there is a need to resolve those inconsistent cases. The second

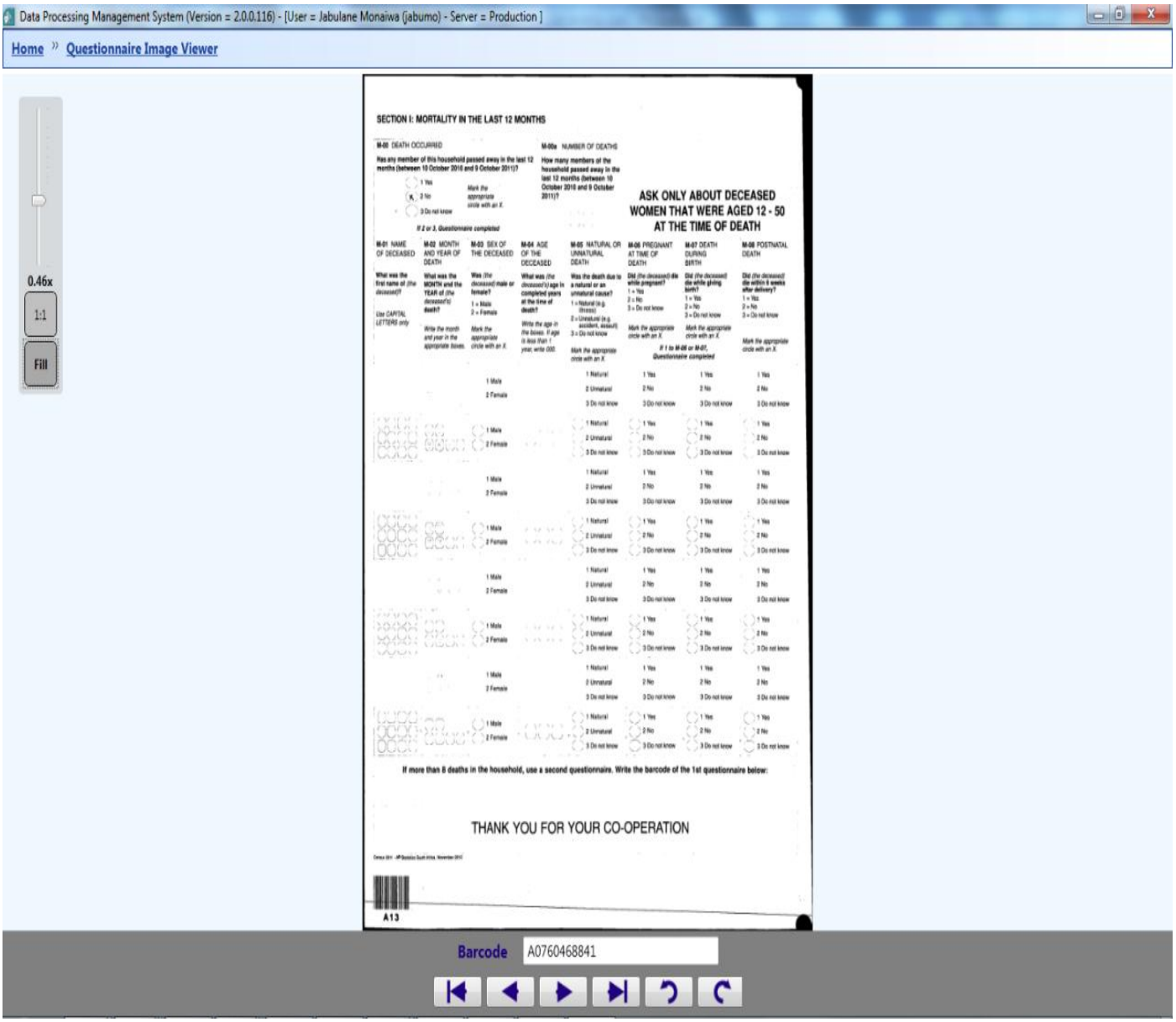
manual capturing phase focused on the aforementioned 84 197 cases. About eight data processors were tasked to do some quality assurance on those remaining inconsistent cases.

Figure 1.1: An example of an error resolution interface for the month of death



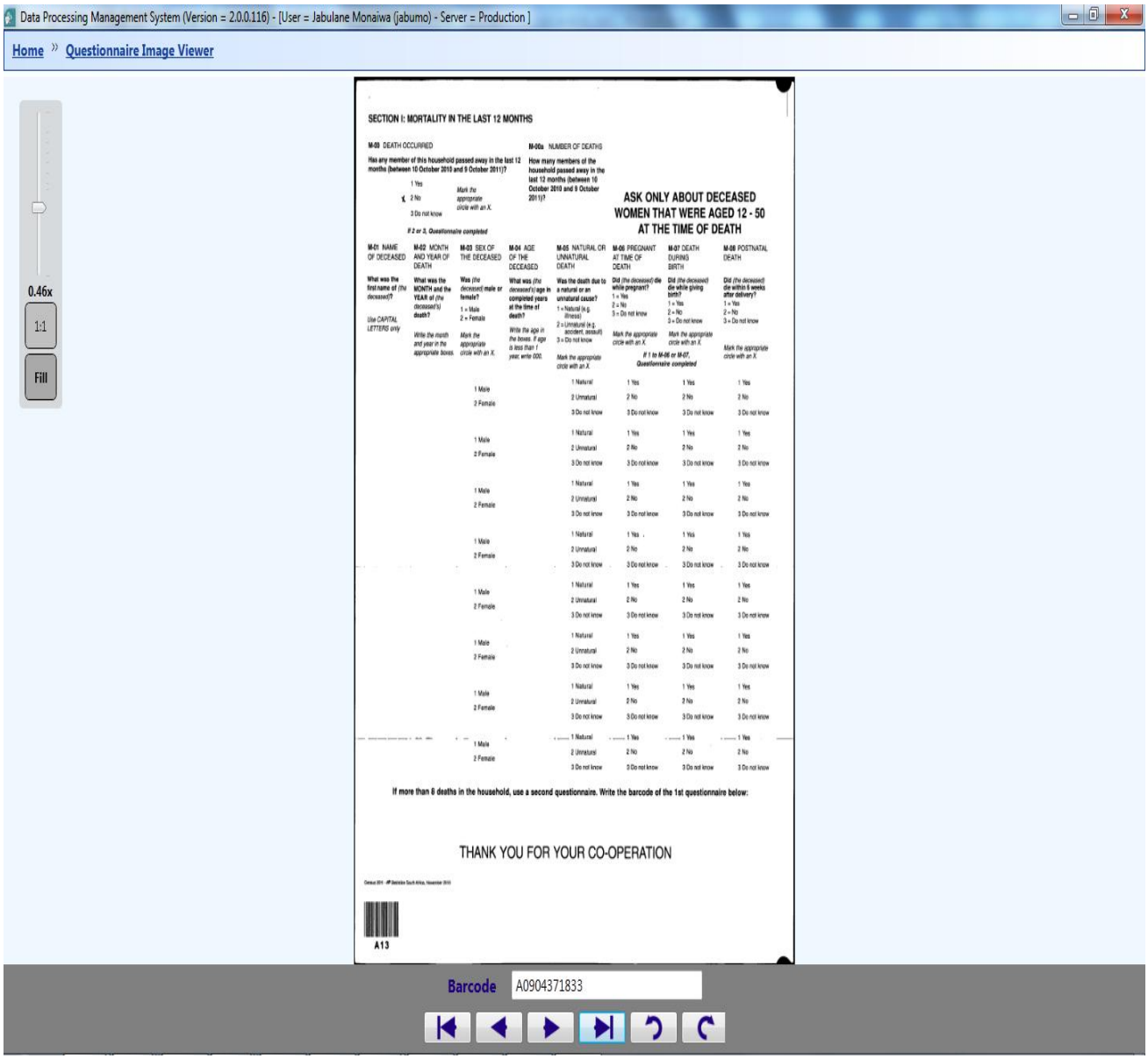
Note: The scanned image shows that the reading system read the month of death as blank since it pointed above the value (07) for the month of death.

Figure 1.2: An example of a blank death record with images



Note: Figure-like images that may have emanated from dirt, as the mortality section is on the back page of the questionnaire, which may translate into figures in the raw data.

Figure 1.3: An example of a blank death record with a line drawn through person number eight



Note: In the event that a line was drawn through a specific record during the scanning process, such lines may translate into figures in the raw data.

4. Results of the manual capturing exercise

Of the total number of records recaptured (115 221), data for about 61% (70 017) were altered during the process of the error resolution phase as shown in Table 2. Being altered suggests that the recaptured data were inconsistent with the raw data. Cases that were not altered are those whose recaptured data were consistent with the raw data. These were cases whose data were accurately read as out-of-scope, in-scope, invalid, unclear and not stated.

Table 2: Number of manually captured death records by province

Province	Total death records manually captured	Records changed	Proportion changed	Number not changed	Proportion not changed
Western Cape	343	342	100	1	0
Eastern Cape	13 281	5 710	43	7 571	57
Northern Cape	2 184	1 292	59	892	41
Free State	8 151	5 353	66	2 798	34
KwaZulu-Natal	25 529	13 212	52	12 317	48
North West	7 382	4 252	58	3 130	42
Gauteng	32 156	21 197	66	10 959	34
Mpumalanga	12 349	8 675	70	3 674	30
Limpopo	13 846	9 984	72	3 862	28
South Africa	**115 221**	**70 017**	**61**	**45 204**	**39**

Source: Statistics South Africa

4.1 Type of captured values

Table 3 presents two parts, namely A and B. Part A shows the two sets of manually captured death records. These sets include those that were made blank for all mortality variables and those for which at least one variable was populated with some value. Broadly, about two-thirds of the total 70 017 death records that changed were resolved with a blank for all four variables, as presented in Table 3 (see images of blank death records in Figure 1.2 and Figure 1.3). This finding suggests that a substantial number of cases initially captured as a death record without age or sex information were in fact not death records at all. Table 4 shows a higher number of death records deleted due to simply being blank for all mortality variables (54 334) compared to about 47 800 (a subset of the changed records) presented in Table 3. The extra records shown in Table 4 involve some of the 45 204 death records that were accurately read by the scanning system as such, as shown in Table 2. Provinces that reflect above 70% for such records include Limpopo, Mpumalanga, Gauteng and Free State. Provinces that reflect below 50% for such records include Eastern Cape and KwaZulu-Natal, as presented in Table 3.

Part B shows the disaggregation of the remaining third of the total death records (22 217) that were changed because the variable changed. The sex of the deceased was the most resolved of the four variables whilst the age of the deceased was the least resolved of the four, as shown in Table 3. This stage marks the end of the error resolution phase. The next phase would be data editing for all mortality data.

Table 3: Number of death records changed

		A				B							
		Made blank for all four variables		At least one variable populated		Month of death		Year of death		Sex of deceased		Age of deceased	
Province	Total records changed	N	Proportion	N	Proportion	N	Proportion	N	Proportion	N	Proportion	N	Proportion
Western Cape	342	200	58	142	42	108	32	120	35	135	39	45	13
Eastern Cape	5 710	2 474	43	3 236	57	2 545	45	2 652	46	3 116	55	2 233	39
Northern Cape	1 292	769	60	523	40	441	34	439	34	504	39	341	26
Free State	5 353	3 885	73	1 468	27	1 186	22	1 241	23	1 416	26	1 038	19
KwaZulu-Natal	13 212	6 039	46	7 173	54	5 236	40	5 498	42	6 795	51	4 479	34
North West	4 252	2 744	65	1 508	35	1 218	29	1 256	30	1 448	34	1 013	24
Gauteng	21 197	16 109	76	5 088	24	4 064	19	4 280	20	4 860	23	3 672	17
Mpumalanga	8 675	7 118	82	1 557	18	1 237	14	1 336	15	1 499	17	1 089	13
Limpopo	9 984	8 462	85	1 522	15	1 863	19	1 874	19	2 155	22	1 654	17
South Africa	**70 017**	**47 800**	**68**	**22 217**	**32**	**17 898**	**26**	**18 696**	**27**	**21 928**	**31**	**15 564**	**22**

Notes: Row proportions were derived to provide insight into the magnitude of data errors at provincial level. Total numbers of death records resolved by variable do not necessarily add up to the total provincial number since more than one variable would have been resolved with a value for one record.

Source: Statistics South Africa

Table 4: A comparison of household deaths between published tables and final data (unweighted)

Province	Number of deaths at the time of the release (unweighted)	Month and year of death not stated	Out-of-scope and invalid cases	Not meeting the minimum processability rule	Total records deleted	Final data (to be released with the 10% sample) (unweighted)
Western Cape	37 115	4629	3836	856	9 321	27 794
Eastern Cape	81 678	2742	7045	1553	11 340	70 338
Northern Cape	12 401	766	934	276	1 976	10 425
Free State	38 842	4113	2741	814	7 668	31 174
KwaZulu-Natal	115 976	6780	12267	3377	22 424	93 552
North West	38 064	2753	2980	853	6 568	31 478
Gauteng	99 545	16657	11595	2821	31 073	68 472
Mpumalanga	44 345	7159	3512	838	11 509	32 836
Limpopo	50 036	8735	3432	905	13 072	36 964
South Africa	**518 002**	**54 334**	**48 342**	**12 293**	**114 969**	**403 033**

Source: Statistics South Africa

The incorporation of the manually captured cases into the raw data entailed super-imposing the new information on the existing one for those barcodes. Thereafter, the modified final edit specification rules were applied to the overall data. The minimum processability rule accepted cases that had either age or sex and other two mortality variables stated. It also stated that in the event that both age and sex

were not stated, but the record had the month and the year of death stated within the reference period, it should be accepted as a valid record.

The reader is reminded that of the 518 002 unweighted deaths (not adjusted for the undercount) at the time of the release, only 115 221 records were availed for the manual capturing process. Given this, about 402 781 records were considered to be acceptable. The comparability of the 114 969 records deleted from the release data after the aforementioned intervention regarding the 115 221 manually captured records may prompt an argument as to why the aforementioned error resolution exercise was done rather than just deleting the suspect 115 221 death records to save time. This outcome, although almost the same as the original number of unspecified cases for both age and sex at the time of the release, was driven by multiple changes as highlighted in Table 4.

The reader should at this stage be reminded that the number of deleted records presented in Table 4 refers to the overall raw mortality data after the application of the final modified edit specification rules. The status of the year of death was used as the yardstick for accepting records by virtue of providing the reference period. Cases that may have met the minimum processability owing to either age or sex and two other variables reported would be accepted if two of the reported variables included the month and the year of death, failure to which these would be deleted.

5. Records deleted after the application of the modified final edit specification rules

More than a half of the deleted records (60 631) were deleted due to year of death being out of scope or failure to meet the minimum processability rule, as shown in Table 4.This finding suggests that there were more errors introduced during the data collection phase than those introduced during the processing phase. Records deleted due to being out of the reference period (October 2010 to October 2011) constitute about 42% of the total records deleted, as shown in Table 4. A subset of about 289 death records of records deleted due to being out of scope was deleted due to year of death being invalid (zero to 3-digit values). Out-of-scope values for the year of death include zero, one to 3-digit values with a range of 0–8838.

Records that were deleted due to not meeting the minimum processability rule constitute about 11%. Such records had the year of death either not stated or unspecified. A subset of about 5 625 of such cases was deleted due to missing year of death, while the month of death may either be valid (1–12),

invalid or unspecified. Another subset of about 4 508 of such cases was deleted due to the year of death missing and at most two other mortality variables reported. The remaining subset of about 2 156 involved cases that had unspecified values for both the month and the year of death.

Nearly half of the total death records (54 334) deleted are linked to the month and the year of death not stated, as presented in Table 4. Such records are as a result of data scanning problems. All in all, Gauteng appears to reflect a higher number of records deleted for missing month and year of death, relative to other provinces. However, for records deleted due to failure to meet the minimum processability rule, as well as being out of scope, KwaZulu-Natal is leading.

6. A comparison of age ratios of deaths

Table 5 presents a comparison of numbers of household deaths between the Census 2011 Published Tables (available in the Census 2011 Statistical Report at<http://www.statssa.gov.za>) and the final data (to be released with the 10% sample). The value of the error resolution exercise is evident in the proportion of records deleted due to being unspecified for age and sex (92%) as shown in Table 5. Vital register deaths were tabulated from the beginning of October 2010 to the end of September 2011 (2011 registered deaths are provisional since they are yet to be published) to enable comparison with the Census 2011 reference period.

Table 5: A comparison of age ratios between household and vital register deaths

Age	Census 2011 Published Tables: available on the Census 2011 Statistical Release (P0301.4)	Census 2011 Final Mortality Data (to be released with the10% sample)	Vital Register Deaths from the beginning of October 2010 to the end of September 2011	Census 2011 Published Tables: available on the Census 2011 Statistical Release (P0301.4) and Final Mortality Data (to be released with the10% sample)	Published Tables (available on the Census 2011 Statistical Release (P0301.4) and Vital Register Deaths from the beginning of October 2010 to the end of September 2011	Census 2011 Final Mortality Data (to be released with the10% sample) and Vital Register Deaths from the beginning of October 2010 to the end of September 2011
	Frequency			Ratios		
0	4 1635	40 978	28 772	1,0	1,5	1,4
1-4	13 838	13 605	10 331	1,0	1,4	1,3
5-9	6 153	5 812	4 321	1,1	1,4	1,4
10-14	4 294	4 103	3 966	1,0	1,1	1,0
15-19	8 186	8 094	7 740	1,0	1,1	1,1
20-24	19 173	18 920	17 863	1,0	1,1	1,1
25-29	31 546	31 260	32 009	1,0	1,0	1,0
30-34	37 023	36 696	38 469	1,0	1,0	1,0
35-39	37 698	37 496	40 572	1,0	0,9	0,9
40-44	32 415	32 140	37 089	1,0	0,9	0,9
45-49	31 136	30 998	36 278	1,0	0,9	0,9
50-54	29 502	29 250	35 669	1,0	0,8	0,8
55-59	28 383	28 076	34 525	1,0	0,8	0,8
60-64	28 373	28 117	35 384	1,0	0,8	0,8
65-69	23 703	23 492	30 928	1,0	0,8	0,8
70-74	24 686	24 493	33 099	1,0	0,7	0,7
75-79	20 342	20 166	27 680	1,0	0,7	0,7
80-84	18 203	18 076	26 668	1,0	0,7	0,7
85-89	11 462	11 385	16 679	1,0	0,7	0,7
90+	13 038	12 904	15 563	1,0	0,8	0,8
Unspecified	143 755	12 006	2 284	12,0	67,1	5,6
Total	604 544	**468067**	**515 889**	**1,3**	**1,2**	**0,9**

Source: Statistics South Africa

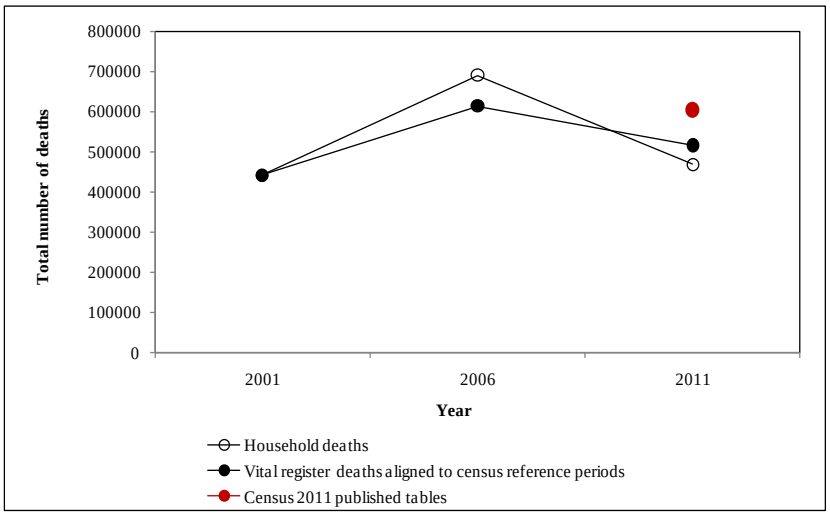
Age ratios of household deaths enumerated during Census 2011 reflect compatibility at all ages. This finding suggests that the age-specific death rates derived are comparable. Age ratios of both the published tables versus vital register deaths as well as deaths tabulated from the final mortality data versus vital register deaths show a similar pattern. Household deaths show higher values for children aged 0–9 relative to the vital register. In contrast, vital register deaths show higher values for adults aged 35 years and above relative to household deaths. This age pattern comparison is expected, given that rural populations may not see the necessity of registering dead children, while the registration of adult deaths links to the administration of estates in the case of South Africa.

7. A comparison of total number of deaths between household and vital register deaths

Figure 2 presents a comparison of the total number of deaths between the vital registration system and enumerated deaths over time. Vital register deaths are aligned with the census/survey reference period. For example, registered deaths for 2001 are tabulated from the beginning of October 2000 to the end of September 2001 for the sake of comparing deaths pertaining to the same period. Also, those for 2006 are tabulated from the beginning of February 2006 to the end of January 2007 and so on.

On the one hand, the total number of household deaths enumerated during the 2007 Community Survey appears to be higher than that provided by the vital register at the same period. On the other hand, Census 2011 household deaths appear to be slightly under-reported relative to Census 2001. Nonetheless, sampling and non-sampling errors cannot be ruled out regarding the 2007 Community Survey. Overall, both the vital register and enumerated data reveal the same upward and thereafter downward trend. That notwithstanding, Census 2011 household deaths implies a steeper decline in the mortality rate relative to vital register deaths at the same period. In essence, the steeper downward trend reflected between the 2007 Community Survey and Census 2011 signifies some over- as well as under-enumeration of household deaths.

Figure 2: A comparison of total number of deaths over time



Source: Statistics South Africa

8. Conclusion

Although the assessment of household deaths is actually the first of its kind since the onset of mortality data collection through censuses and surveys in the case of South Africa, some of the data problems observed provide some useful insights into what may have been happening during previous attempts. Also, death records that lack year of death should have been discarded earlier on, since keeping them in the data proved not to be useful in the long run. Overall, this exercise revealed that there were actually more data collection errors compared to processing errors in the Census 2011 mortality data. There is a need therefore, for an improved data collection strategy, particularly pertaining to training strategies in preparation for future censuses.

9. Acknowledgements

The support provided by staff members within both Data Processing and Population Statistics divisions at Statistics South Africa is well acknowledged.

Enquiries:
Name: Christine Khoza, PhD
Email: christinek@statssa.gov.za

References

Dorrington, R., Moultrie T.A. &Timæs I.M. 2004.Estimation of mortality using the South African Census 2001 data.

Statistics South Africa. 2012. Census 2011 Statistical Release P0301.4. Available at <http://www.statssa.gov.za>.

Statistics South Africa. 2004. Household deaths tables for Census 2001. Pretoria: Statistics South Africa.

Statistics South Africa. 2013. Monitoring and Evaluation: Census 2011.Pretoria: Statistics South Africa. (not yet published).

Statistics South Africa. 2013. Mortality and causes of death in South Africa: findings from death notification. Statistical Release P0309.3.Available at <http://www.statssa.gov.za>.

Statistics South Africa. 2007. The 2007 Community Survey. Pretoria: Statistics South Africa. Available at <http://www.statssa.gov.za>.

Timæs, I. 1993. Measurement of adult mortality in less developed countries: a comparative review. *Population Index* 57(4), pp. 552-568.

United Nations, 2008. Principles and Recommendations for Population and Housing Censuses: Revision 2. New York: United Nations.

Appendix

The attached Appendix replicates the tables that were included in the Census 2011 release by using the revised final figures.

Table 1: Death occurred

	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
Yes	32 166	72 199	11 240	33 211	99 641	34 971	74 778	35 483	38 961	432 654
No	1 598 679	1 612 487	289 619	788 553	2 435 144	1 024 788	3 824 402	1 038 174	1 377 087	13 988 933
Do not know	3 154	2 697	547	1 551	4 644	2 256	9 841	1 831	2 054	28 575
Total	**1 633 999**	**1 687 383**	**301 406**	**823 315**	**2 539 429**	**1 062 015**	**3 909 021**	**1 075 488**	**1 418 102**	**14 450 162**

Table 2: Number of deaths

	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo	South Africa
1	31 746	69 947	10 684	31 589	93 941	33 282	73 682	33 746	37 505	416 122
2	1 968	8 178	1 154	3 356	13 076	3 782	6 016	3 636	3 046	44 212
3	246	861	117	417	1 704	453	840	339	228	5 205
4	56	236	60	112	812	160	208	168	84	1 896
5	0	60	5	20	95	15	35	20	15	265
6	0	42	6	18	120	12	42	24	6	270
7	14	0	0	7	0	0	14	0	0	35
8	0	0	8	8	24	0	0	8	0	48
Total	**34 030**	**79 324**	**12 034**	**35 527**	**109 772**	**37 704**	**80 837**	**37 941**	**40 884**	**468 053**

Table 3: Distribution of household deaths by age and sex nationally

Age	Total	Male	Female	Unspecified
0	**40 977**	21 888	18 812	281
1-4	**13 603**	7 248	6 304	51
5-9	**5 813**	3 074	2 720	17
10-14	**4 103**	2 193	1 892	15
15-19	**8 094**	4 279	3 792	22
20-24	**18 919**	9 252	9 636	34
25-29	**31 260**	14 939	16 254	67
30-34	**36 697**	18 673	17 950	72
35-39	**37 497**	20 325	17 089	80
40-44	**32 139**	17 748	14 332	61
45-49	**30 998**	17 529	13 399	70
50-54	**29 251**	16 627	12 552	71
55-59	**28 077**	16 325	11 709	43
60-64	**28 116**	15 965	12 072	80
65-69	**23 491**	13 023	10 407	60
70-74	**24 494**	12 488	11 944	60
75-79	**20 167**	9 380	10 734	52
80-84	**18 078**	7 569	10 466	40
85+	**24 293**	8 382	15 855	55
Unspecified	**12 006**	6 123	5 424	458
Total	**468 072**	**243 027**	**223 349**	**1 698**

Table 4: Distribution of household deaths by age, sex and province

	Western Cape				Eastern Cape				Northern Cape			
Age	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**
0	2 290	1 234	1 012	44	5 692	3 043	2 610	39	919	477	432	10
1-4	542	319	215	8	2 067	1 134	924	9	320	193	127	1
5-9	323	184	132	7	975	518	454	2	140	99	41	0
10-14	201	115	86	0	666	353	309	3	93	51	42	0
15-19	543	357	183	3	1 694	944	745	6	202	116	86	0
20-24	1 369	867	501	0	3 850	2 028	1 814	9	408	212	197	0
25-29	1 697	983	711	3	5 902	2 835	3 052	15	644	315	329	1
30-34	1 641	967	664	10	6 512	3 314	3 191	6	787	414	371	1
35-39	1 911	1 155	749	7	6 286	3 415	2 854	16	834	426	408	0
40-44	1 845	991	845	10	5 036	2 799	2 228	8	855	474	378	4
45-49	2 065	1 179	874	11	5 065	2 874	2 181	11	879	492	385	2
50-54	2 384	1 365	1 016	3	4 956	2 829	2 112	15	902	506	393	3
55-59	2 628	1 526	1 098	5	4 560	2 632	1 925	3	795	458	337	0
60-64	2 852	1 639	1 199	13	4 700	2 620	2 068	12	831	452	377	2
65-69	2 595	1 469	1 121	5	3 886	2 064	1 813	9	725	396	328	2
70-74	2 655	1 425	1 219	11	4 492	2 314	2 164	14	728	365	363	0
75-79	2 392	1 245	1 143	5	3 622	1 665	1 946	11	606	301	305	0
80-84	1 910	948	961	1	3 242	1 344	1 890	7	413	171	243	0
85+	2 021	788	1 221	12	4 142	1 477	2 662	3	614	211	400	2
Unspecified	163	79	81	3	1 986	980	933	72	338	170	153	15
Total	**34 027**	**18 834**	**15 033**	**160**	**79 331**	**41 183**	**37 877**	**271**	**12 033**	**6 298**	**5 693**	**43**

Table 4 continued: Distribution of household deaths by age, sex and province

	Free State				KwaZulu-Natal				North West			
Age	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**
0	3 061	1 608	1 445	9	11 179	5 985	5 122	73	3 639	1 914	1 715	11
1-4	954	500	450	3	3 663	1 926	1 720	17	1 135	601	531	2
5-9	402	214	188	0	1 552	815	734	3	468	241	226	1
10-14	259	131	128	0	1 214	661	545	8	290	174	115	0
15-19	539	284	253	1	2 125	1 064	1 055	6	555	293	261	1
20-24	1 268	561	706	1	5 286	2 496	2 779	11	1 306	547	757	2
25-29	2 300	1 086	1 210	4	8 797	4 421	4 352	24	2 070	897	1 172	1
30-34	2 858	1 438	1 418	2	9 651	5 195	4 434	22	2 816	1 452	1 354	10
35-39	3 054	1 603	1 447	4	9 172	5 152	3 993	27	3 307	1 733	1 566	8
40-44	2 911	1 534	1 372	6	7 124	4 039	3 074	12	2 796	1 573	1 220	3
45-49	2 720	1 453	1 262	4	6 557	3 788	2 744	25	2 636	1 474	1 159	3
50-54	2 472	1 403	1 060	9	5 807	3 322	2 467	18	2 472	1 369	1 099	4
55-59	2 200	1 204	991	4	5 572	3 279	2 276	17	2 354	1 359	994	1
60-64	2 256	1 246	1 003	7	5 932	3 353	2 562	17	2 165	1 297	863	6
65-69	1 703	947	750	5	4 729	2 528	2 188	13	1 869	1 095	774	0
70-74	1 676	847	825	4	4 981	2 302	2 662	17	1 843	1 035	807	1
75-79	1 395	610	784	1	3 915	1 584	2 314	16	1 607	827	777	3
80-84	1 104	428	672	3	3 859	1 374	2 474	11	1 362	650	711	1
85+	1 682	535	1 143	4	4 635	1 472	3 154	9	1 980	711	1 267	2
Unspecified	720	351	352	18	4 018	2 049	1 795	174	1 035	565	437	32
Total	**35 535**	**17 985**	**17 458**	**92**	**109 770**	**56 804**	**52 445**	**521**	**37 705**	**19 805**	**17 806**	**94**

Table 4 continued: Distribution of household deaths by age, sex and province

	Gauteng				Mpumalanga				Limpopo			
Age	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**	**Total**	**Male**	**Female**	**Unspecified**
0	6 431	3 457	2 930	44	3 853	2 086	1 735	32	3 913	2 084	1 811	19
1-4	2 160	1 145	1 011	5	1 370	696	670	4	1 392	734	656	2
5-9	948	483	462	2	524	281	243	0	481	239	240	2
10-14	578	290	286	1	436	229	206	1	366	189	175	2
15-19	1 167	612	550	4	675	318	357	0	594	291	302	1
20-24	2 591	1 322	1 263	7	1 590	632	955	3	1 251	587	664	1
25-29	4 670	2 198	2 462	10	2 876	1 222	1 648	6	2 304	982	1 318	3
30-34	5 957	2 936	3 007	15	3 296	1 541	1 751	3	3 179	1 416	1 760	3
35-39	6 355	3 532	2 812	11	3 268	1 684	1 580	3	3 310	1 625	1 680	4
40-44	5 748	3 200	2 537	11	2 938	1 549	1 382	6	2 886	1 589	1 296	1
45-49	5 710	3 262	2 444	4	2 596	1 438	1 153	5	2 770	1 569	1 197	5
50-54	5 608	3 146	2 454	8	2 270	1 289	974	7	2 380	1 398	978	4
55-59	5 422	3 118	2 299	5	2 174	1 275	894	5	2 372	1 474	895	3
60-64	5 232	2 916	2 300	16	2 008	1 138	869	2	2 140	1 304	832	5
65-69	4 476	2 520	1 940	16	1 592	875	710	7	1 916	1 129	783	3
70-74	4 495	2 293	2 196	6	1 565	761	801	2	2 059	1 146	908	5
75-79	3 720	1 781	1 930	9	1 117	553	561	2	1 793	814	974	5
80-84	3 251	1 457	1 783	11	1 114	467	644	2	1 823	730	1 089	4
85+	4 227	1 496	2 716	15	1 782	638	1 143	1	3 210	1 054	2 149	7
Unspecified	2 095	1 065	943	87	903	475	404	24	748	389	326	33
Total	**80 840**	**42 229**	**38 324**	**288**	**37 944**	**19 147**	**18 680**	**117**	**40 887**	**20 742**	**20 033**	**112**

Table 5: Distribution of household deaths by age, cause of death and sex nationally

Age	RSA					Male					Female				
	Total	Natural	Unnatural	Do not know	Unspecified	Total	Natural	Unnatural	Do not know	Unspecified	Total	Natural	Unnatural	Do not know	Unspecified
0	40 977	32 940	3 330	3 679	1 031	21 888	17 350	1 955	2 011	571	18 812	15 412	1 350	1 620	428
1-4	13 603	10 948	1 912	414	330	7 248	5 721	1 111	232	183	6 304	5 189	794	183	139
5-9	5 813	4 318	1 236	122	137	3 074	2 195	740	69	72	2 720	2 111	492	52	64
10-14	4 103	2 865	1 061	97	80	2 193	1 434	652	60	50	1 892	1 422	407	37	29
15-19	8 094	4 655	3 166	157	116	4 279	1 955	2 175	79	73	3 792	2 690	984	77	39
20-24	18 919	11 942	6 389	335	255	9 252	3 965	4 989	146	151	9 636	7 959	1 387	187	103
25-29	31 260	23 169	7 147	546	397	14 939	8 931	5 493	252	263	16 254	14 182	1 646	296	133
30-34	36 697	29 821	5 770	605	498	18 673	13 754	4 278	295	346	17 950	16 007	1 485	312	150
35-39	37 497	31 729	4 655	609	505	20 325	16 211	3 462	311	337	17 089	15 455	1 178	293	163
40-44	32 139	27 604	3 564	534	437	17 748	14 633	2 525	301	285	14 332	12 915	1 034	231	150
45-49	30 998	26 744	3 338	494	421	17 529	14 615	2 375	261	277	13 399	12 065	959	234	140
50-54	29 251	25 653	2 659	428	510	16 627	14 278	1 836	228	284	12 553	11 313	815	198	226
55-59	28 077	24 944	2 229	388	516	16 325	14 257	1 576	201	291	11 709	10 646	649	186	225
60-64	28 116	25 568	1 704	344	499	15 965	14 361	1 133	190	278	12 073	11 141	564	154	215
65-69	23 491	21 608	1 216	262	405	13 023	11 914	750	142	219	10 407	9 646	461	120	183
70-74	24 494	22 752	1 051	227	461	12 488	11 542	591	111	245	11 945	11 159	459	120	209
75-79	20 167	18 921	742	156	349	9 380	8 786	363	72	160	10 734	10 087	376	85	187
80-84	18 078	17 033	551	147	345	7 569	7 101	262	60	143	10 467	9 890	289	88	200
85+	24 293	23 002	633	196	459	8 382	7 900	263	62	157	15 855	15 050	370	134	302
Unspecified	12 006	9 436	1 254	264	1 051	6 123	4 644	839	136	502	5 424	4 539	379	118	389
Total	**468 072**	**395 652**	**53 609**	**10 008**	**8 803**	**243 027**	**195 551**	**37 363**	**5 219**	**4 895**	**223 349**	**198 876**	**16 078**	**4 725**	**3 674**