

INFORMATION SHEET

SAMRC Report on Weekly Deaths in South Africa

1. What is the SAMRC Report on Weekly Deaths in South Africa

The South African Medical Research Council (SAMRC) regularly publishes the Report on Weekly Deaths in South Africa highlighting the country's weekly number of deaths. Published every Wednesday by the SAMRC's Burden of Disease Research Unit (BOD), the report includes information on both natural (resulting from aging or disease) and unnatural (resulting from external causes) deaths registered on the national population register.

2. What is the source of the weekly death statistics?

South Africa has a well-established civil registration and vital statistics system. All deaths must be registered with the Department of Home Affairs; a death notification form including information about the medical cause of death on a sealed form completed by the certifying doctor must be submitted by next of kin or their undertaker to the Department. The forms are subsequently provided to Statistics South Africa for capturing, processing, assessment, analysis and dissemination of statistical reports and datasets on mortality and causes of death. The processing is time consuming which means that the latest report released earlier this year reflects deaths that occurred in 2017.

In an order to provide more timely insight into changes in mortality during the SARS-CoV-2 epidemic, the SAMRC Burden of Disease Research Unit works closely with UCT's Centre for Actuarial Research to provide a weekly report of the number of deaths in South Africa. These are based on the numbers of deaths registered by the Department of Home Affairs on the National Population Register. Deaths are classified and analysed by date of occurrence and not the date of registration. The numbers have been adjusted for deaths that are not registered as well as the people who do not have a South African ID number, based on consolidated demographic assessment of the data over the past 10 years.

Although these data do not have information about the medical cause of death (apart from whether the cause was natural or unnatural), the data are invaluable as they provide a near real-time count of the total numbers of deaths from natural and unnatural causes.

3. What has the weekly death reports shown us?

Weekly reporting of the numbers of deaths has contributed important information to compliment other data on the unfolding of the COVID-19 epidemic. Firstly, it was able to confirm that there was no evidence of significant increases in numbers prior to the first COVID-19 cases being identified by the NICD and the first death in South Africa announced by the Minister in March. It also provided confirmation of the early growth of the epidemic in Cape Town and the Western Cape, followed by a spread in Nelson Mandela Bay and the Eastern Cape. The surveillance highlighted the rapid decrease in unnatural deaths with the implementation of a hard lockdown, and the return to usual numbers following the lifting of a hard lockdown and the restrictions on alcohol, with a sudden increase in the first week of June. The rise in numbers of deaths from natural causes in July in Gauteng has confirmed that the epidemic has set in Gauteng.

4. Why track excess deaths?

Weekly excess deaths (the number of deaths in excess of the expected number) have been tracked for many countries by various agencies. This analysis has generally demonstrated that during the pandemic, countries experience excess numbers of deaths over and above confirmed COVID-19 deaths.

In the UK, for example, it was realised that the confirmed COVID-19 deaths reflected only the COVID-19 deaths that occurred in the health services and that deaths that occurred in long-term care institutions and at home were not included in their COVID-19 statistics. However, given the availability of near-real time cause of death data from the death registration process in the UK, they were able to add such deaths to

their confirmed COVID-19 statistics. Even after this they found that there were still excess deaths over and above these COVID-19 deaths, which are assumed to be deaths from conditions that might normally have been diagnosed and treated had their hospitals not been overwhelmed.

Excess deaths can be calculated in different ways. Some analysts take the excess above the expected number based on historical data while others argue that the number should be those above a threshold such as the upper prediction bound i.e. significantly higher than expected. And, in general, these excess deaths are calculated using all-cause mortality. Thus it is considered that excess deaths would comprise COVID-19 deaths that are confirmed, COVID-19 deaths that have not been confirmed as well as other deaths that may arise from conditions that might normally have been diagnosed and treated had the public been willing and able to access health care.

Faced with the challenge that South Africa had a stringent lockdown in the very early stage of the epidemic and that unnatural deaths are a higher proportion of the all-cause mortality than in developed countries (and were impacted very significantly by the stringent lockdown), the SAMRC-UCT team thought it was necessary to use a different approach. To quantify the impact of the COVID-19 epidemic on South African deaths, it was decided to focus on deaths from natural causes and remove the impact of changes in the unnatural deaths. In addition, it was necessary to take into account that the lockdown had reduced the number of natural deaths. In the early stage, this was well below the predicted numbers of deaths. Thus, a baseline was chosen that was consistent with the level that the number of natural deaths was tracking prior to the uptick in the trend.

5. How do the excess natural deaths compare with confirmed COVID-19 deaths?

The excess natural deaths reported are considerably higher than the official COVID-19 deaths report, ranging from 1.6 times higher in the Western Cape to 10 times higher in Mpumalanga. It is important to note that the excess cumulative numbers of natural deaths include more than direct and indirect COVID-19 deaths, In particular they include deaths arising from constraints on health resources. It is also important to point out that the excess deaths are classified by date of occurrence of the death while the confirmed COVID-19 deaths are classified by date of reporting by the Ministry of Health.

Province	Excess natural deaths Up till 14th July	Confirmed COVID-19 deaths*	Ratio
Eastern Cape	4,903	738	6.6
Free State	329	35	9.4
Gauteng	4,708	767	6.1
KwaZulu-Natal	2,074	317	6.5
Limpopo	299	33	9.0
Mpumalanga	331	33	10.0
Northern Cape	-	15	-
North West	238	48	5.0
Western Cape	4,022	2,467	1.6

*Source: www.sacoronavirus.co.za Update on Covid-19 (15th July 2020)

6. How do we interpret the difference between the excess natural deaths and the confirmed COVID-19 deaths?

Firstly, we acknowledge that there is uncertainty about the exact number of excess deaths. The uncertainty arises from having to estimate of the total number of deaths as well as having to estimate what would have happened in the counterfactual situation without the COVID-19 pandemic. We have reported the challenges that we face and the method that we have used. Our estimate excess natural deaths could be revised should an improved method be identified. However, given the timing and geographic spread of the increases seen in the natural deaths, there can be no doubt that the bulk of the increase is related directly or indirectly to COVID-19.

We consider that the gap between the excess natural deaths and the confirmed COVID-19 deaths probably comprises:

- i. People dying from COVID-19 before they get to the health care facility. This may be due to lack of transport, delays in transport and/or hospitals being unable to receive them.
- ii. People dying from COVID-19 but the death not being reported as such. This may be due to test results not being available at the time of death and/or challenges in the provincial COVID-19 reporting systems.
- iii. People dying from non COVID-19 conditions because the health services have been re-orientated to COVID-19. Examples include people who have not been diagnosed with TB and others with current TB who have defaulted on treatment for fear of attending the health services.

7. Why is this work important?

The researchers plan to continue with near real-time monitoring of the deaths in South Africa and continues to refine the method of estimating excess natural deaths. Such information is essential to assist the country with managing the epidemic. Not only will it contribute towards assessing the overall impact of the epidemic it will provide critical information for the groups who are modelling the epidemic and provide data relevant to intervention and mitigation efforts. Without timely access to information about the underlying cause of death, monitoring the basic details about the numbers of deaths is critical.