REPORT ON WEEKLY DEATHS IN SOUTH AFRICA

1 – 7 AUGUST 2021

(WEEK 31)

Debbie Bradshaw, Ria Laubscher,

Rob Dorrington, Pam Groenewald, Tom Moultrie

Burden of Disease Research Unit
South African Medical Research Council
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UCT Centre
for Actuarial
Research

Glossary:

Age-standardised excess death rate: Indirectly age-standardised excess death rates have been calculated for each province to adjust the crude death rates per capita for the differences in distribution of the population by age. The adjustment factor for each province is calculated as the crude death rate for South Africa divided by what the crude rate for South Africa would have been had the age distribution of the population been that of the province. Standardisation for age is necessary when comparing populations that differ in their age structure because age has a powerful influence on the risk of dying. The rate is based on the cumulative number of excess deaths since 3 May 2020 to date divided by the population estimate for 2021 and has not been annualised.

Actual number of deaths: The actual number of deaths in South Africa have been estimated from the numbers recorded on the National Population Register using weighting factors set to produce results consistent with those of the annual Rapid Mortality Surveillance Report to account for deaths of persons who are not on the National Population Register as well as those that have not been registered with the Department of Home Affairs. **The adjustments to account for incompleteness of recording of deaths on the NPR have been re-estimated for the 2021 reports taking into account the 2017 cause-of-death data released by Stats SA in 2020**. A methodological note briefly outlining the changes can be downloaded with this report from the SAMRC website: https://www.samrc.ac.za/reports/report-weekly-deaths-south-africa.

Epi-week: The Weekly Death Reports in 2020 used weeks from 1 January and ran from Wednesday to Tuesday. In setting up the monitoring for 2021, we recast the data to report by an 'Epi-week' consistent with CDC and many NICD reports which run from Sunday to Saturday, ensuring continuity of weeks from one year to the next. Each week is aligned with the 'Epi-year' that has 4 or more days in that week. Week 53 of 2020 is from 27 December 2020 to 2 January 2021 and Week 1 of 2021 is 3 January – 9 January 2021.

Excess deaths: There is no universal definition of, or understanding of what is meant by, "excess mortality". It is a term used in epidemiology and public health that refers to the number of deaths that are occurring above what we would normally expect. The WHO uses the term to describe "Mortality above what would be expected based on the non-crisis mortality rate in the population of interest. Excess mortality is thus mortality that is attributable to the crisis conditions. It can be expressed as a rate (the difference between observed and non-crisis mortality rates), or as a total number of excess deaths."

Excess natural deaths associated with COVID-19: Generally, the number of excess deaths per week is calculated as the number of all-cause deaths in that week less the number that might be assumed to have occurred had there not been the epidemic (i.e. the counterfactual number), provided that the counterfactual is lower. However, this approach has generally only been applied to countries where deaths have been tracking the counterfactual before the onset of significant numbers of COVID-19 related deaths. The method provides a poor estimate of the numbers of COVID-19 and collateral deaths in the early stages of the epidemic when this is not the case. Thus, we estimated the numbers of COVID and collateral deaths, once a clear upward trend is evident, as the number of actual deaths less a baseline number determined as a proportion of the predicted number. By the end of the 1st wave of the pandemic, the predicted values have been used as the counterfactual.

Warning: The Department of Home Affairs has faced sporadic temporary office closures, particularly in areas that are more affected by COVID-19. This may affect our allocation of a death to a metro area. For example, a death that occurred in the City of Cape Town might have been registered at an office outside of the City because of a temporary closure. Closure may also cause a delay in the processing of the death registration which would result in an underestimate of the deaths in the most recent week.

Background

This report provides estimates of the weekly number of deaths of person 1+ years in South Africa for epidemiological **Week 31** of 2021, covering the period **1 – 7 Aug 2021.**

Warning: Estimates of the number of deaths for the most recent week are more uncertain than is usually the case arising from the backlog in processing due to the public holiday on Monday 9 August.

While preparing predicted numbers of weekly deaths for 2021, enhancements have been made to the estimation process. The estimates now take into account the release of vital registration data to include registrations up to the close of 2017. They also ensure that the national estimate of excess deaths is consistent with the sum of the estimates for the provinces. Reporting has changed to 'Epi-weeks' that run from Sunday to Saturday, which will align with other weekly reports and enable us to lessen the lag in reporting.

The main methodological change introduced in the 2021 reporting is that predicted values for 2020 and 2021 are based on death data for the period 2014-2019, instead of data for 2018 and 2019 as was done for 2020 estimates. After reviewing trends in the data, separate negative binomial models have been fitted to the unnatural deaths, the natural deaths for each of KwaZulu-Natal and Western Cape, and for natural deaths for the 7 other provinces in a combined model to provide estimates by age, sex and epi-week for each year. A prediction interval has been estimated on the basis of the variability in the observed weekly data for each reported domain. The data for both 2020 and 2021 have been recast and both years will be reported with a cumulative total of excess deaths taken from the week starting 3 May 2020, considered to be the point of rapid increase in excess deaths associated with the COVID-19 pandemic in South Africa. Except for KwaZulu-Natal (and eThekwini in particular), where the additional VR data identified substantial missing late registrations from the 2015 data, the impact of the changes is relatively small. Predicted values for the metropolitan areas are still based on data from 2018 and 2019 as the trends in the sub-provincial data need further investigation to develop a comprehensive district-level model.

A brief methodological note outlining the changes that have been made for monitoring deaths during 2021 can be downloaded with this report from the SAMRC website as well as a spreadsheet with estimated values: https://www.samrc.ac.za/reports/report-weekly-deaths-south-africa.

Trends

- The weekly numbers of deaths of persons 1+ years of age from all causes was **17,267** in Week 31 (**1 – 7 Aug 2021**) indicating a decrease in the weekly numbers since a peak of **20,452** in Week 28 (**11 – 18 Jul**). However, the public holiday on Monday 9 August has created additional uncertainty in the numbers for the last week and the number could change.
- The number of excess deaths of persons 1+ years from natural causes decreased to **7,397** in Week 31 (**1 – 7 Aug 2021**) having peaked at **10,021** in Week 28 (**11 – 18 Jul**). The peak of wave 3 exceeds the highest number experienced during the surge of wave 1 but is not as high as the **15,929** deaths at the peak of wave 2 experienced in Week 2 (**10 – 16 Jan 2021**).
- Since 3 May 2020, there has been a cumulative total of **229,850** excess deaths from natural causes of persons 1+ years of age of which **144,800** occurred in 2021 (since 3 Jan 2021).

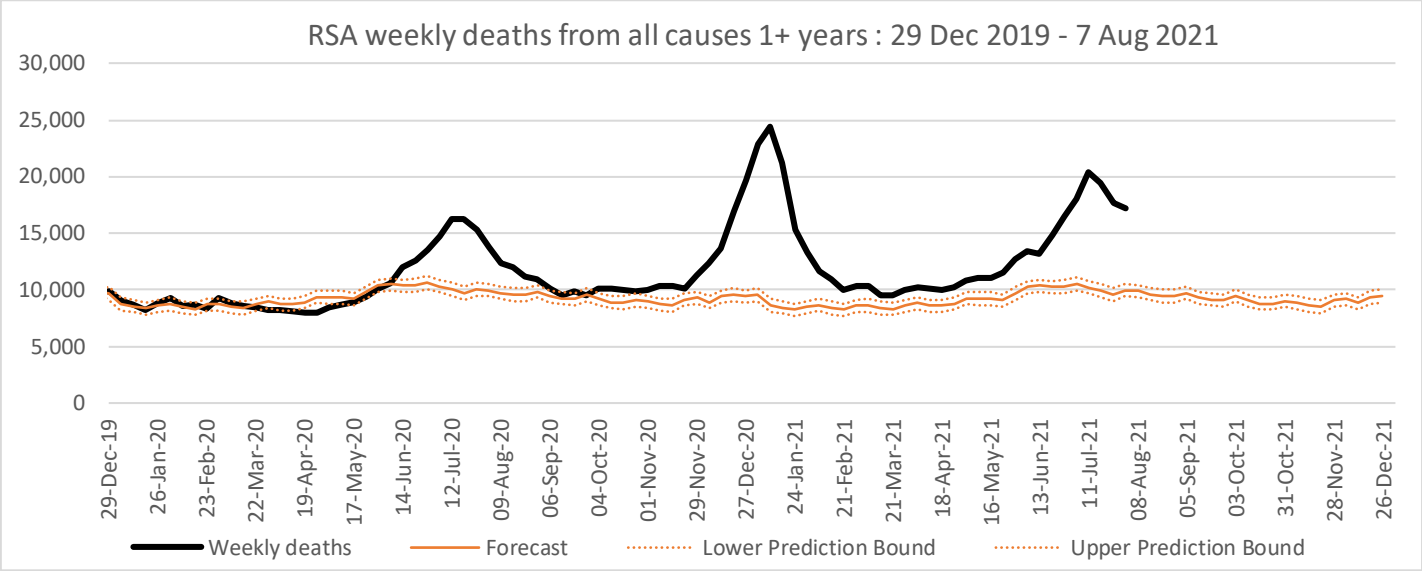
Week	Date	Weekly excess deaths from natural causes	Cumulative excess since 3 May 2020	Cumulative excess since 3 January 2021
23	6-Jun-21 – 12-Jun-21	3,039	172,664	87,669
24	13-Jun-21 – 19-Jun-21	2,812	175,477	90,481
25	20-Jun-21 – 26-Jun-21	4,624	180,100	95,105
26	27-Jun-21 – 3-Jul-21	6,399	186,499	101,504
27	4-Jul-21 – 10-Jul-21	7,951	194,451	109,455
28	11-Jul-21 – 17-Jul-21	10,021	204,471	119,476
29	18-Jul-21 – 24-Jul-21	9,761	214,232	129,237
30	25-Jul-21 – 31-Jul-21	8,221	222,453	137,458
31	1-Aug-21 – 7-Aug-21	7,397	229,850	144,855

- For people 1-59 years, the number of natural deaths tracked within the prediction bounds after wave 1. During Week 25 (**20 – 26 Jun 2021**), the number increased above the upper prediction bound and increased to a peak in Week 28 (**11 – 17 Jul 2021**). By the end of Week 31 (**1 – 7 Aug 2021**), the excess natural deaths for people 1-59 years since **3 May 2020** totals nearly **55,600**.
- For people 60 years and older, the number of natural deaths remains well above the upper prediction bound and also reached a peak in Week 28 (**11 – 17 Jul 2021**). The excess natural deaths for people 60 years and older by the end of Week 31 (**1 – 7 Aug 2021**) is over **174,000**.
- Phase 2 of the vaccination programme, targeting persons 60 years and older in addition to health care workers, began on 17 May 2021. In the weeks leading up to the vaccination roll-out, there were about 1,200-1,500 weekly excess deaths from natural causes among persons 60+ years with p-scores ranging from 29%-37%. The table below shows that the number of weekly excess deaths from natural causes in this age group increased to **7,107** in Week 28 (**11 – 17 Jul 2021**) with a p-score of 152%. The numbers have decreased to **5,040** in Week 31 (**1 – 7 Aug 2021**) and the p-score decreased to 113%. However, it is difficult to quantify the impact of vaccines from the decline associated with the decline of Wave 3.

Week	Date	Weekly excess deaths from natural causes for persons 60+ years	p-score
22	30-May-21 – 5-Jun-21	2,290	51.7%
23	6-Jun-21 – 12-Jun-21	2,555	54.0%
24	13-Jun-21 – 19-Jun-21	2,605	54.9%
25	20-Jun-21 – 26-Jun-21	3,689	77.3%
26	27-Jun-21 – 3-Jul-21	4,759	100.8%
27	4-Jul-21 – 10-Jul-21	5,722	119.9%
28	11-Jul-21 – 17-Jul-21	7,107	151.5%
29	18-Jul-21 – 24-Jul-21	7,001	152.4%
30	25-Jul-21 – 31-Jul-21	5,791	131.9%
31	1-Aug-21 – 7-Aug-21	5,040	112.5%

- **KwaZulu-Natal** and **eThekwini** experienced a sharp increase in the number of natural deaths in Week 28 (**11-17 Jul 2021**) and have continued to increase in Week 31 (**1 – 7 Aug 2021**).
- The numbers of excess natural deaths in **Western Cape** and the **City of Cape Town** have plateaued during Week 31 (**1 – 7 Aug 2021**).

- The previously observed decrease in excess deaths in the **Eastern Cape** has faltered, associated with an increase in the numbers of deaths in **Buffalo City**.
- **Free State** reached a peak in Week 22 (**30 May - 5 Jun 2021**) and had been decreasing since then. However, the decreasing trend stalled in Week 26 (**27 Jun – 3 Jul 2021**) and began to increase again. The numbers of excess deaths have plateaued in Week 31 (**1 – 7 Aug 2021**). The **Northern Cape**, with smaller numbers of weekly deaths, has shown a similarly extended trend.
- The number of excess deaths from natural causes in **Gauteng** peaked in Week 27 (**4 – 10 Jul 2021**) with **3,743** deaths and has dropped since then to **1,497** excess natural deaths in Week 31 (**1 – 7 Aug 2021**). This is well above the numbers experienced at the peak of their 1st and 2nd waves of the pandemic (about **2,100** excess deaths). The **City of Johannesburg** also peaked in Week 27 (**4 – 10 Jul 2021**), and **Ekurhuleni** and **Tshwane** metros peaked a week later during Week 28 (**11 – 17 Jul 2021**).
- **Limpopo, North West** and **Mpumalanga** continued decreasing in Week 31 (**1 – 7 Aug 2021**).
- Per capita excess death rates have been calculated for the provinces to scale the cumulative deaths for the population size of each province (**Table 1**). By the end of Week 30 (**25 – 31 Jul 2021**), the national excess death rate since 3 May 2020 was **374 per 100,000** population.
- The provinces with the highest cumulative numbers of excess deaths at the end of Week 31 (**1 – 7 Aug 2021**), are, in order, **Gauteng, KwaZulu-Natal** and **Eastern Cape**. The ranking changes to **Northern Cape, Eastern Cape** and **Free State** for the crude death rates per capita (i.e., taking size of the provincial populations into account) and to **Northern Cape, KwaZulu-Natal** and **Eastern Cape** using the age-standardised rates (i.e., taking into account the age distribution of the provincial population).
- The weekly number of deaths from unnatural causes has continued to track close to the predicted numbers since the end of January 2021, with increases corresponding with month-ends. During Weeks 26 and 27, the unnatural deaths dropped below their lower prediction bound, coinciding with the change of lockdown to adjusted level 4 with re-banning of alcohol sales and extension of curfew. However, coinciding with the unrest in **KwaZulu-Natal** and **Gauteng**, and continued taxi violence in the **Western Cape**, the number of unnatural deaths increased to the level of the upper prediction bound during Week 28 (**11 – 17 Jul 2021**) and dropped to below the lower prediction bound during Week 29 (**18 - 24 Jul 2021**) once the unrest had subsided. Coinciding with the easing of the alcohol ban to limited hours of sale during Week 30 (**25 – 31 Jul 2021**), the number of unnatural increased to close to the predicted number for the past 2 weeks.



Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations

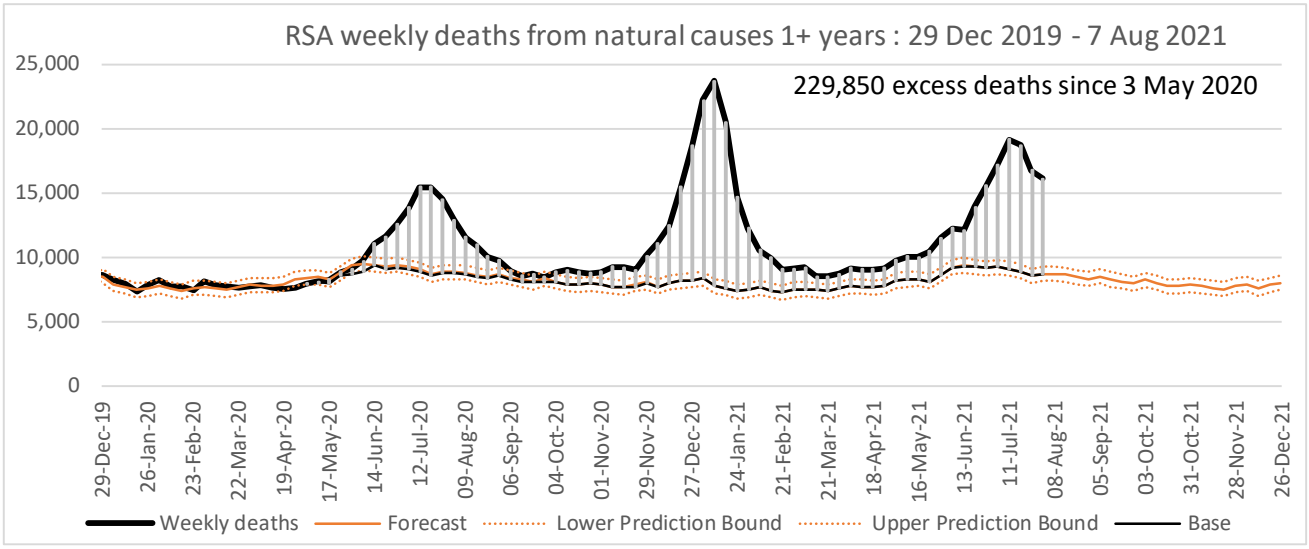
Table 1: Number of excess natural deaths of persons 1+ years by province and metro relative to revised predicted number based on the observed drop during lockdown, South Africa 2020/21

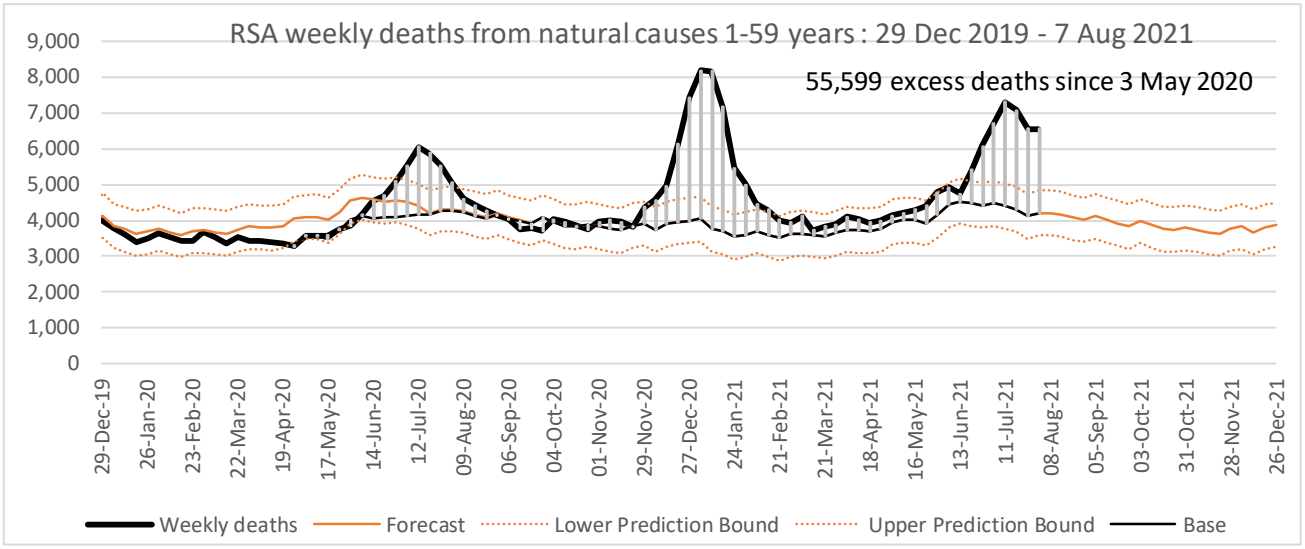
Region	Period	Excess deaths vs revised base	Excess deaths per 100,000 population	Age standardised excess death rate per 100,000
South Africa	3 May 20 – 7 Aug 21	229,850	386	386
Province				
Eastern Cape	31 May 20 – 7 Aug 21	36,624	556	448
Free State	21 Jun 20 – 7 Aug 21	12,996	446	446
Gauteng	7 Jun 20 – 7 Aug 21	50,857	326	358
KwaZulu-Natal	7 Jun 20 – 7 Aug 21	45,526	398	458
Limpopo	21 Jun 20 – 7 Aug 21	23,885	404	354
Mpumalanga	21 Jun 20 – 7 Aug 21	17,543	365	393
Northern Cape	28 Jun 20 – 7 Aug 21	7,094	606	567
North West	28 Jun 20 – 7 Aug 21	13,302	330	339
Western Cape	3 May 20 – 7 Aug 21	22,024	312	275
Metropolitan Municipality				
Buffalo City	31 May 20 – 7 Aug 21	3,934		
City of Cape Town	3 May 20 – 7 Aug 21	15,933		
Ekurhuleni	7 Jun 20 – 7 Aug 21	12,956		
eThekwini	14 Jun 20 – 7 Aug 21	10,035		
Johannesburg	7 Jun 20 – 7 Aug 21	17,925		
Mangaung	21 Jun 20 – 7 Aug 21	3,876		
Nelson Mandela Bay	31 May 20 – 7 Aug 21	5,877		
City of Tshwane	7 Jun 20 – 7 Aug 21	10,739		

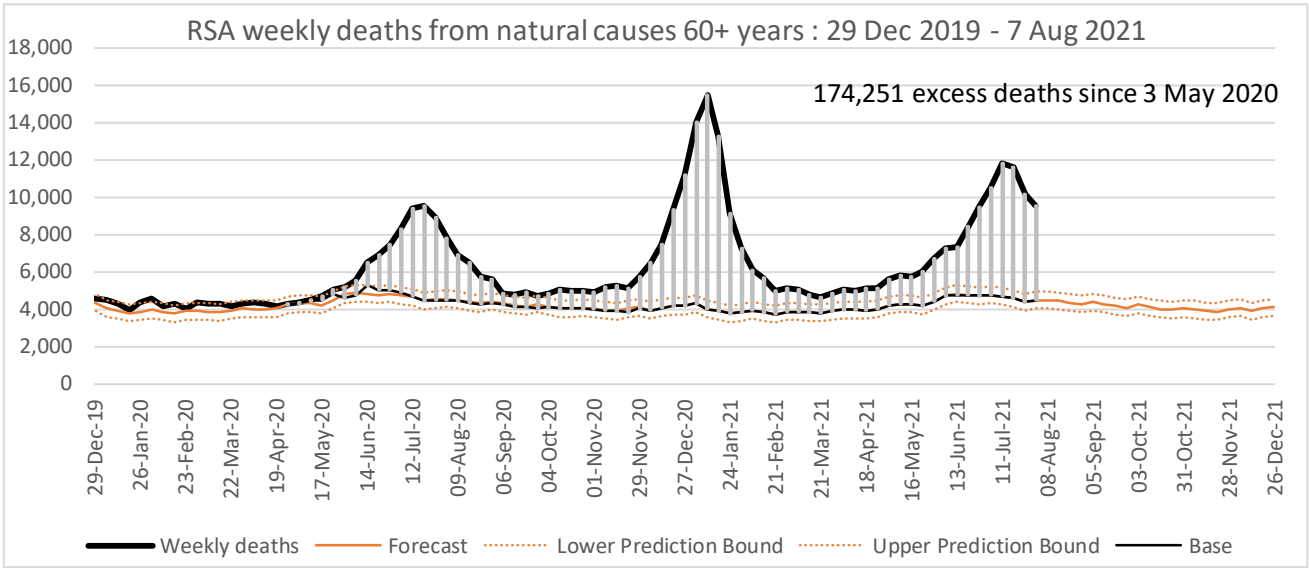
Note: Period has been determined based on when an upturn in the number of natural deaths became apparent. Parts do not sum to the whole because office closures due to Covid-19 may have led to registration of deaths at other offices which may not be in the same area, and random fluctuation at the point at which the baseline is determined.

Table 2: Number of excess deaths from all causes of persons 1+ years by province and metro relative to predicted number based on historical trend, South Africa 2020/21

Region	Excess deaths vs forecast	Excess deaths per 100,000 population
South Africa	221,084	371
Province		
Eastern Cape	37,350	567
Free State	12,177	418
Gauteng	47,577	305
KwaZulu-Natal	45,375	396
Limpopo	22,758	385
Mpumalanga	17,109	356
Northern Cape	6,575	562
North West	11,892	295
Western Cape	20,271	287
Metropolitan Municipality		
Buffalo City	3,060	
City of Cape Town	13,061	
Ekurhuleni	12,879	
eThekwini	10,519	
Johannesburg	15,358	
Mangaung	4,121	
Nelson Mandela Bay	5,839	
City of Tshwane	10,234	







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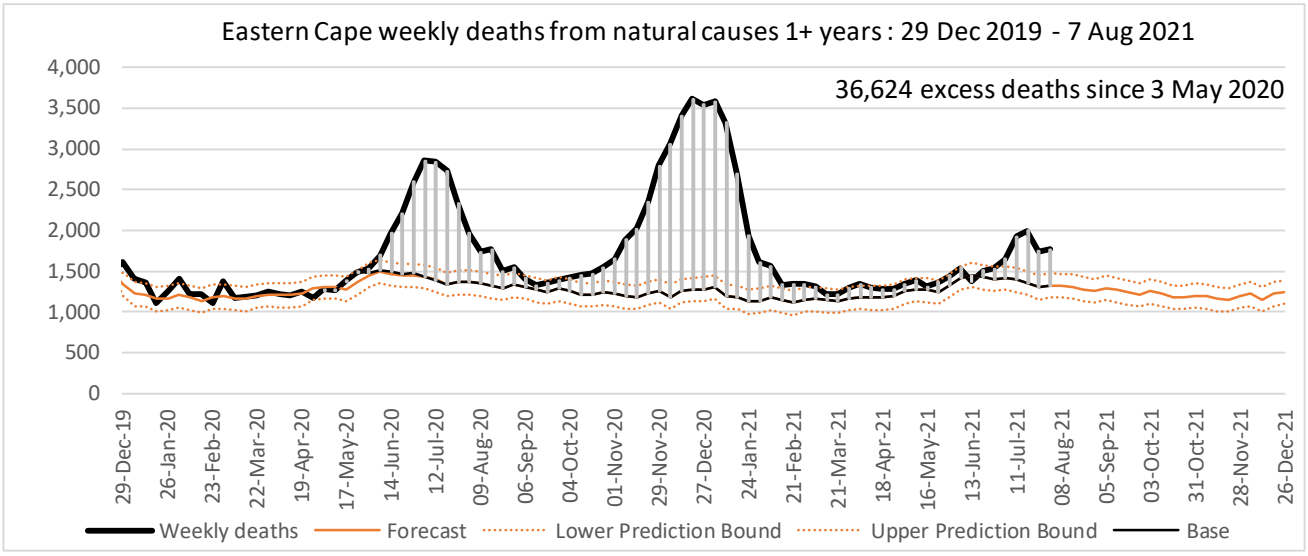

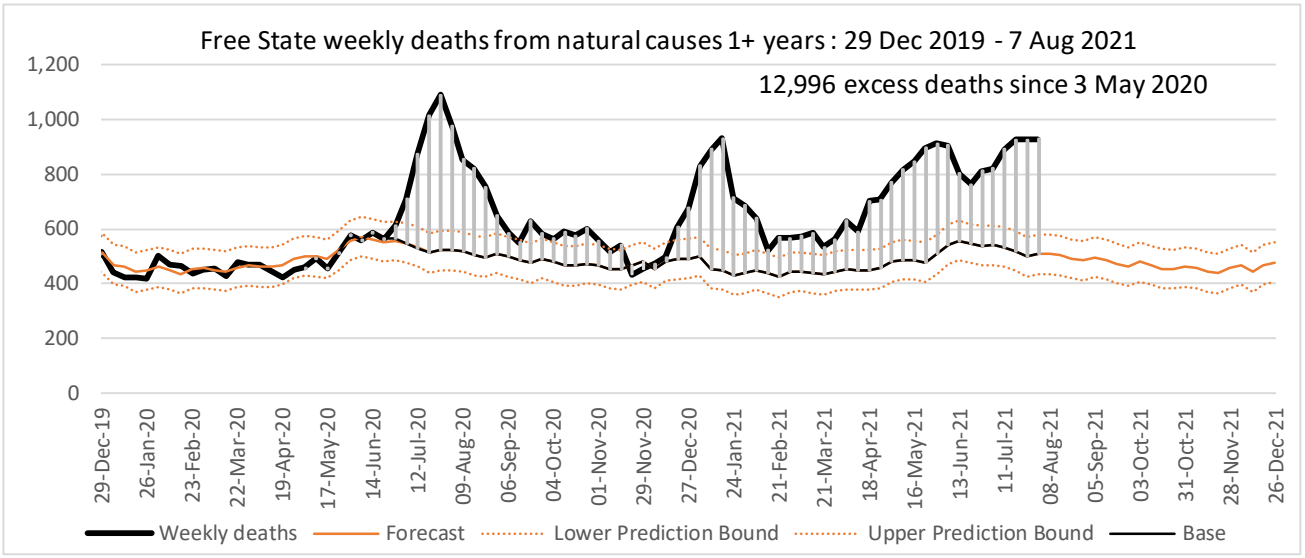

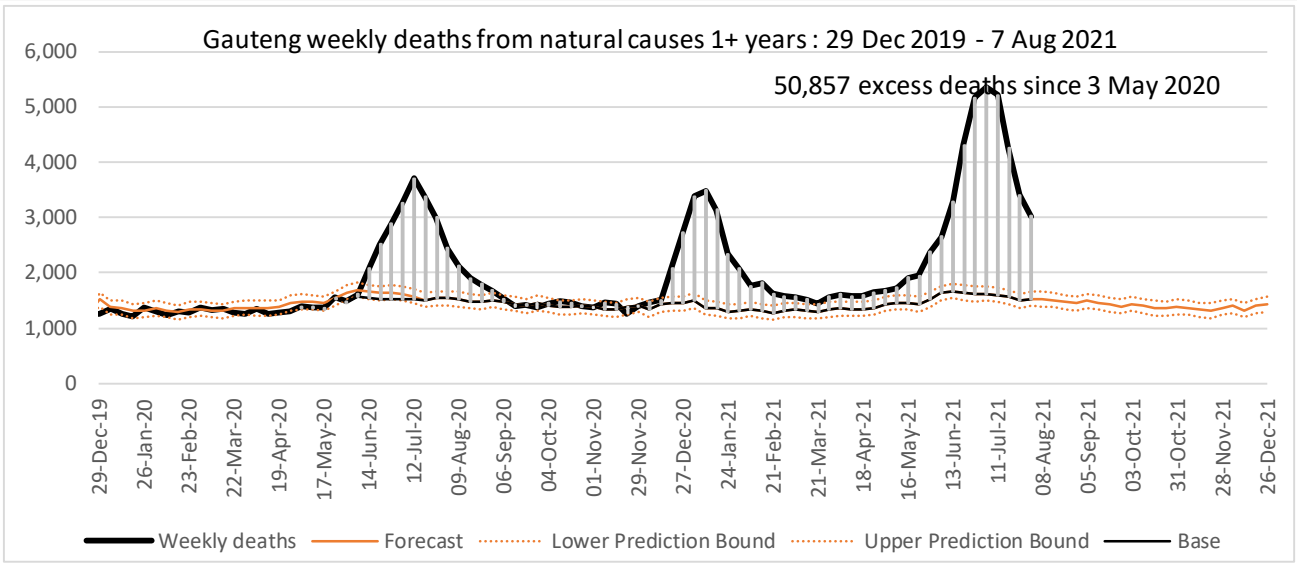

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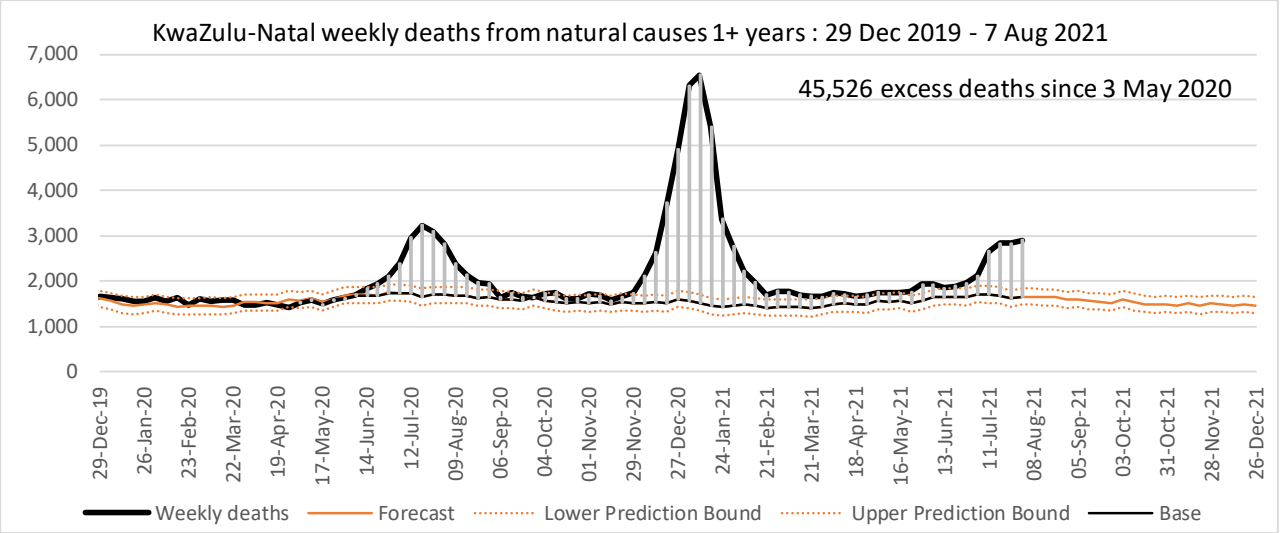

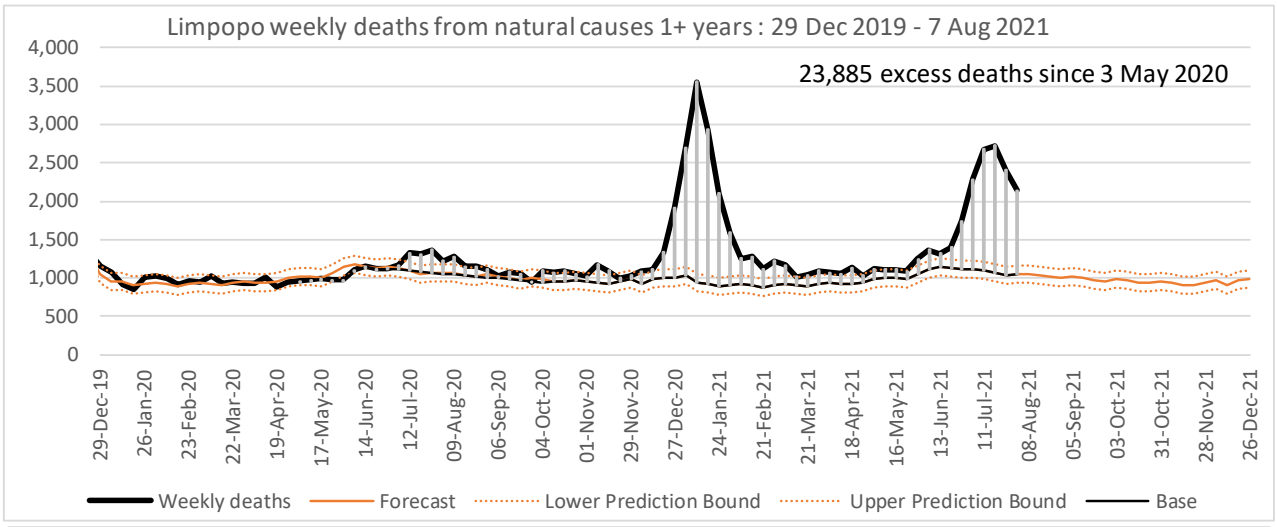

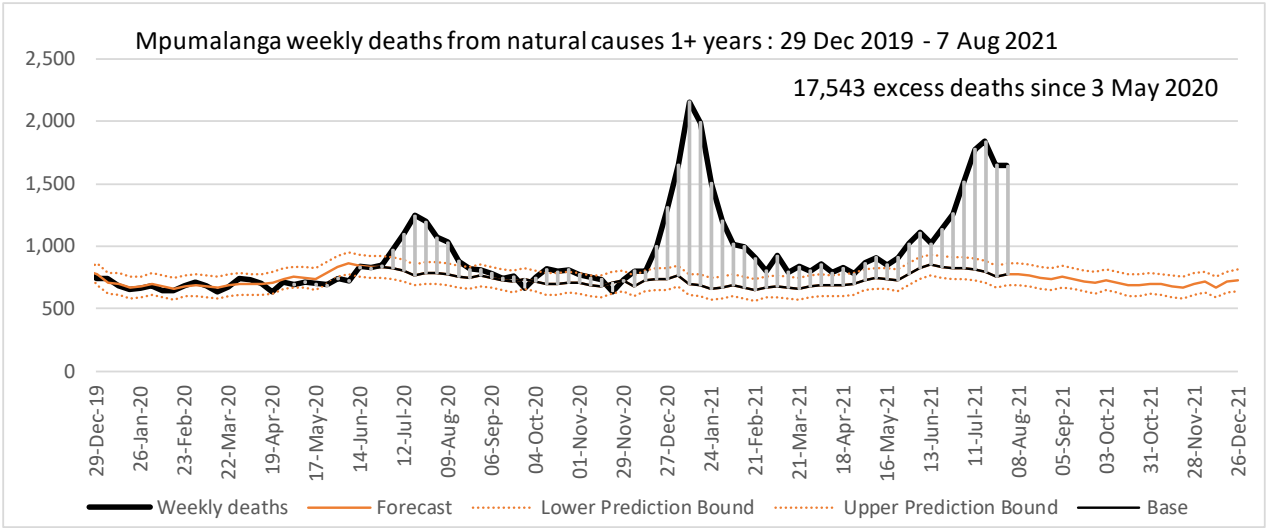

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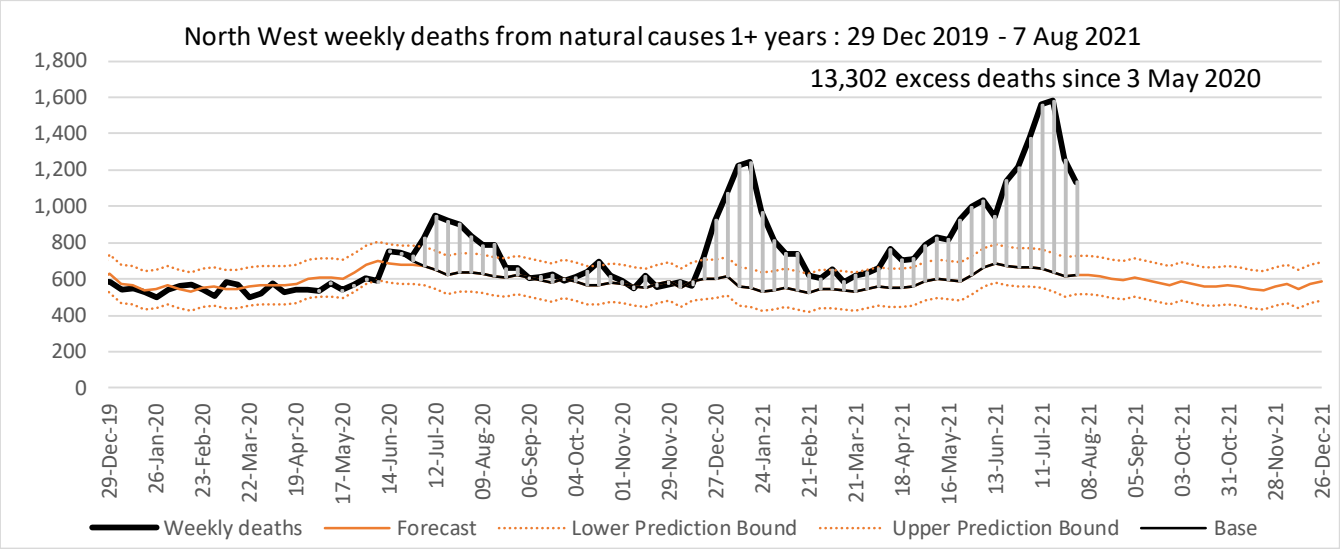

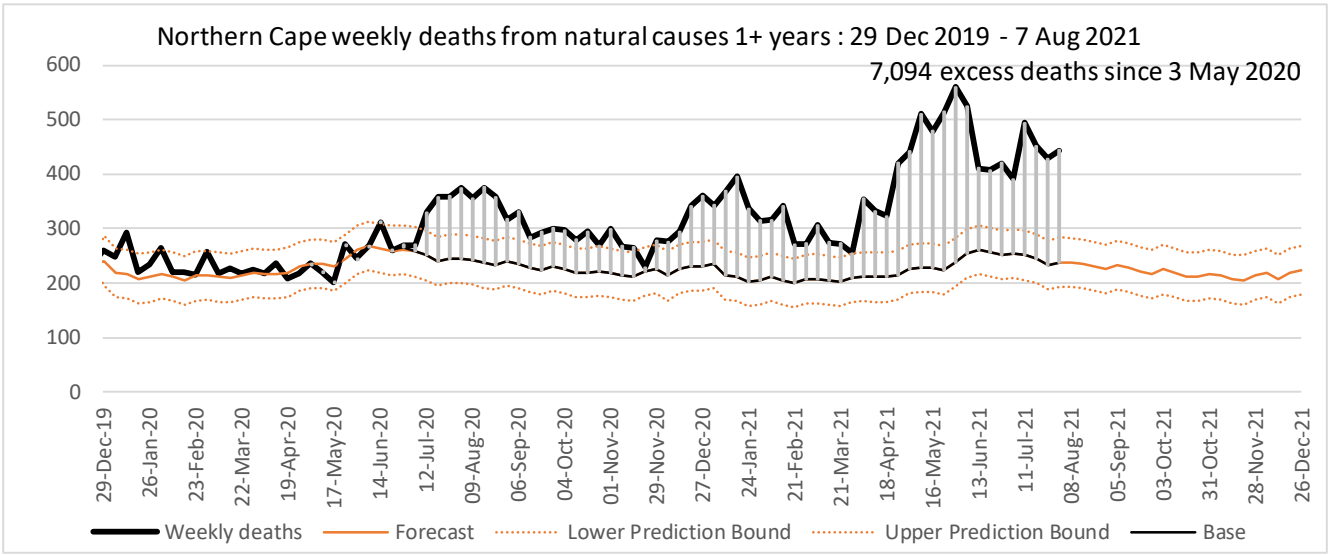

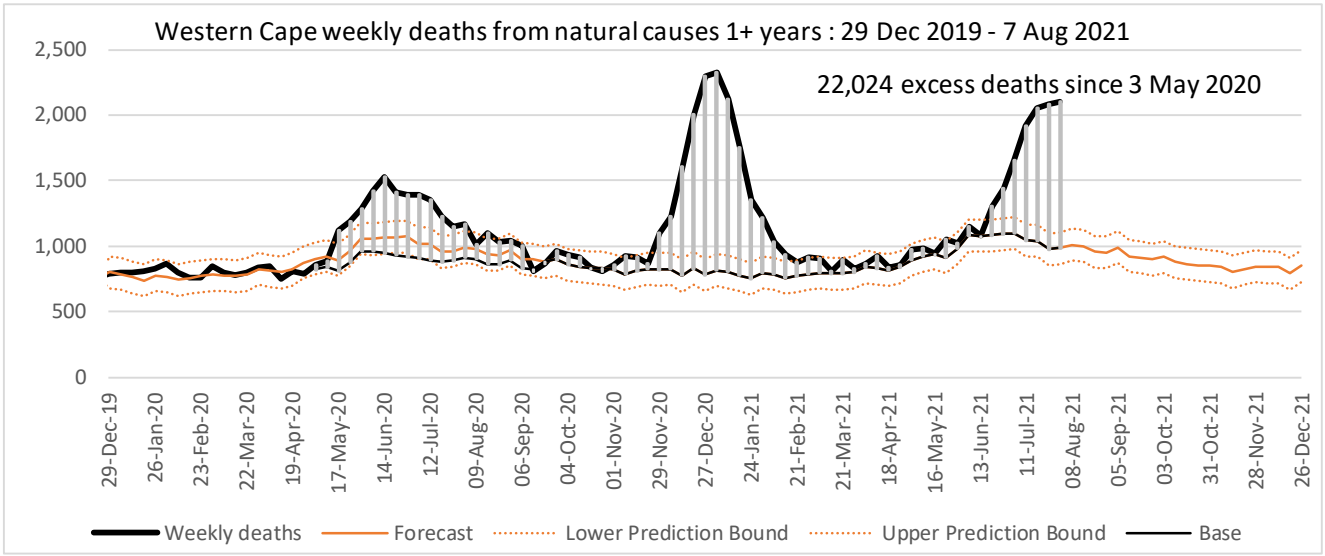

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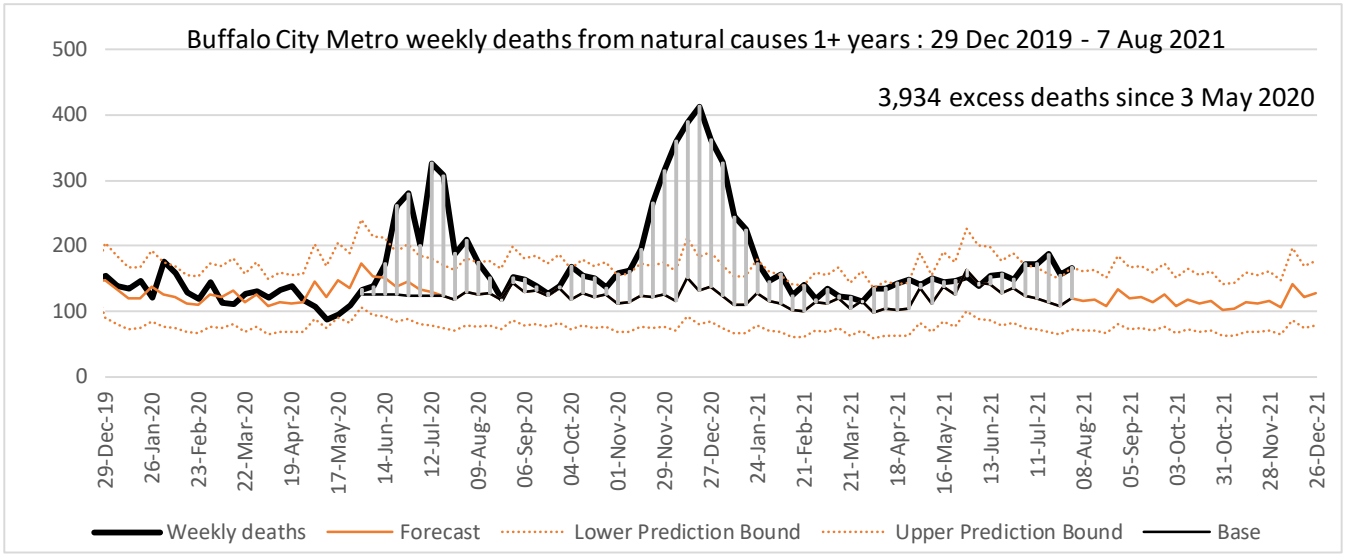

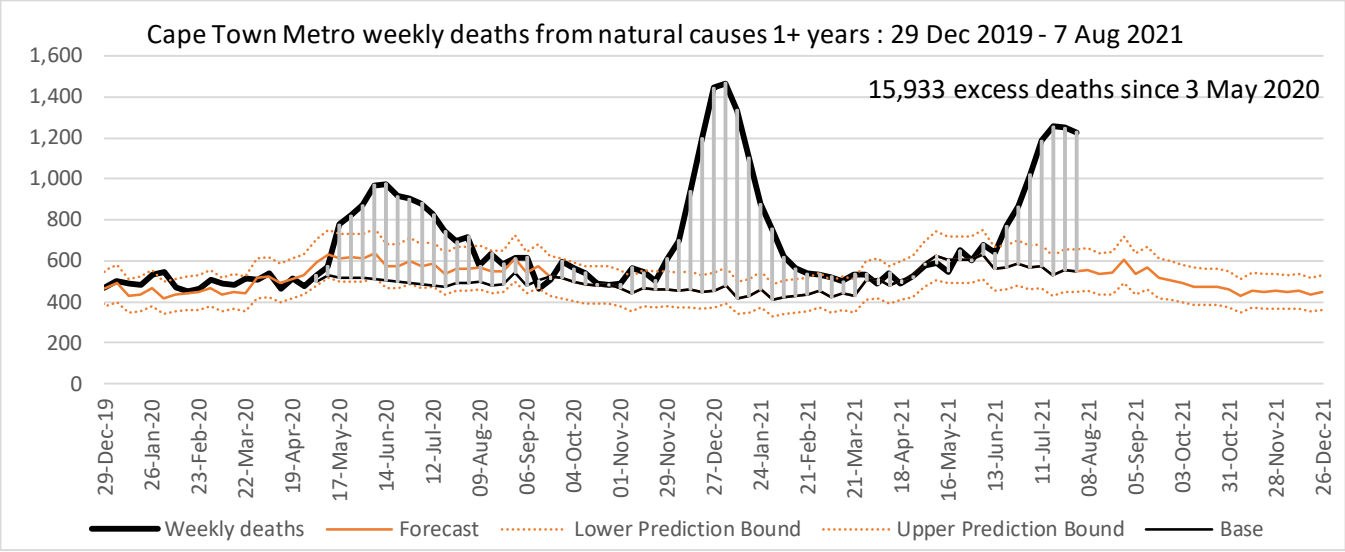

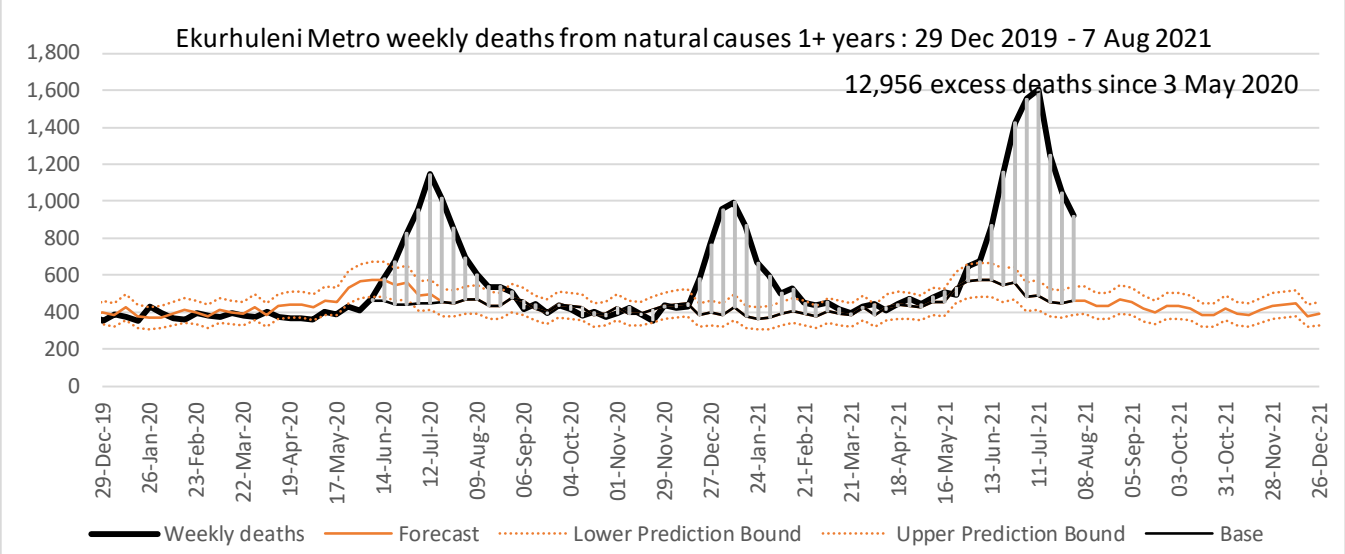

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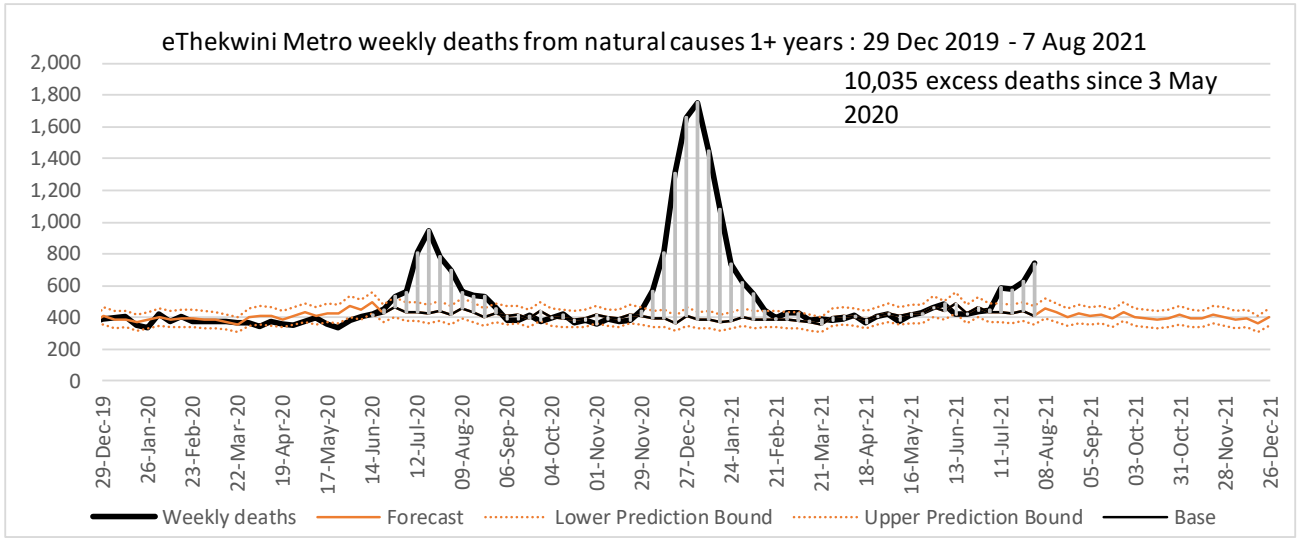

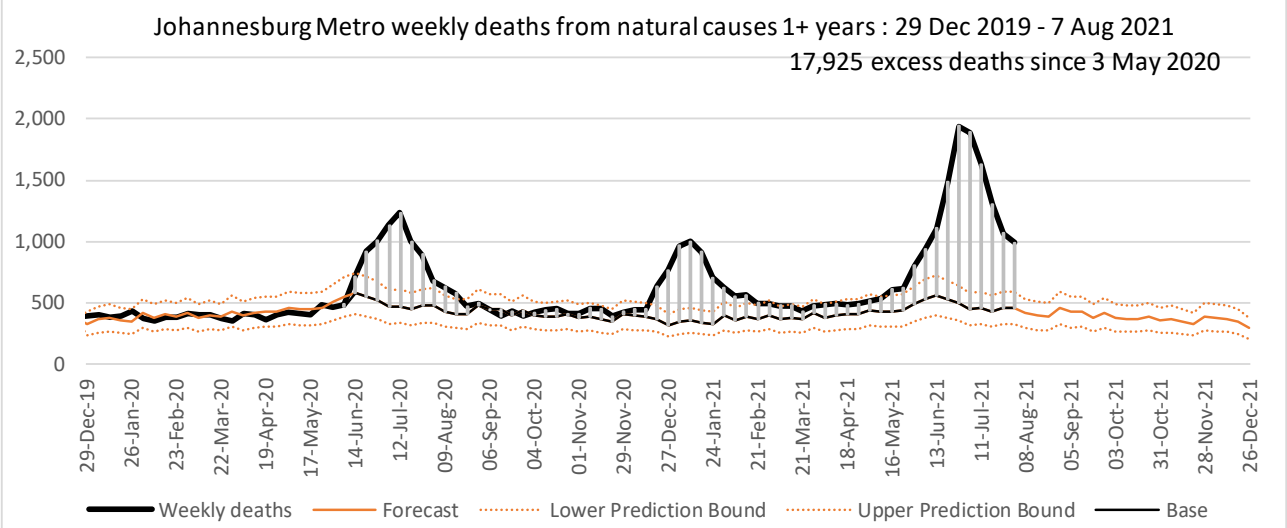

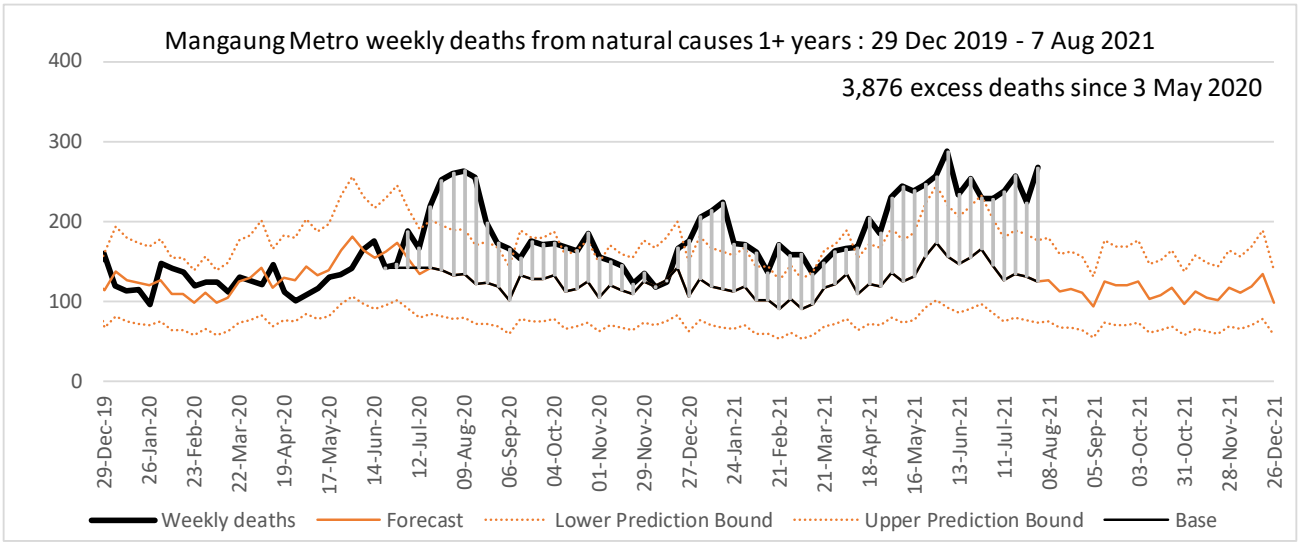

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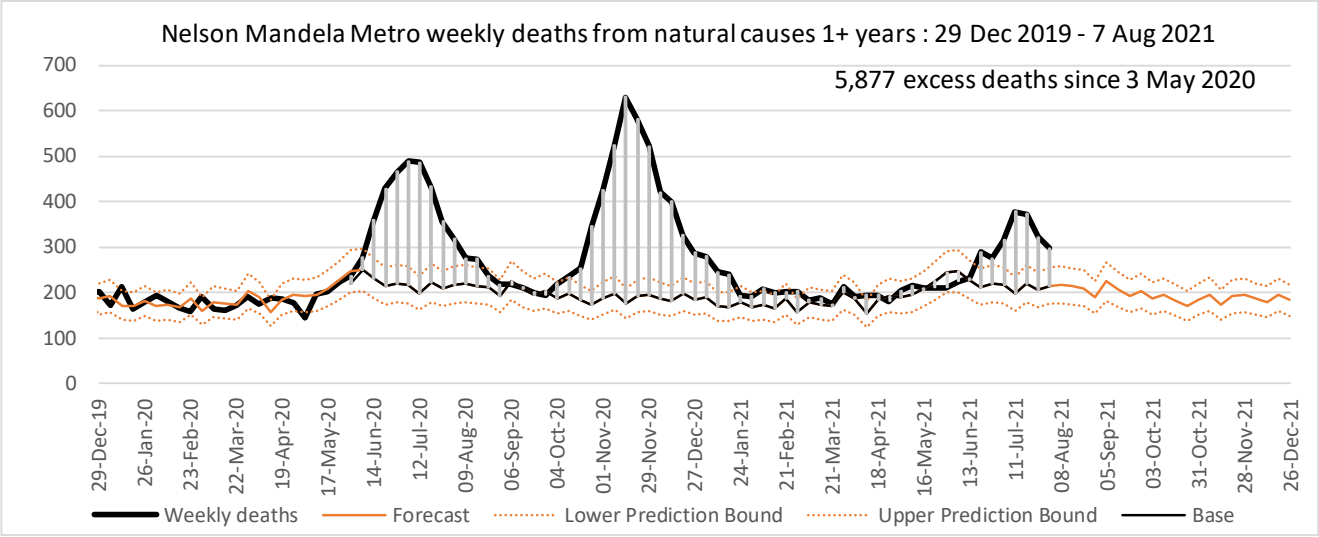

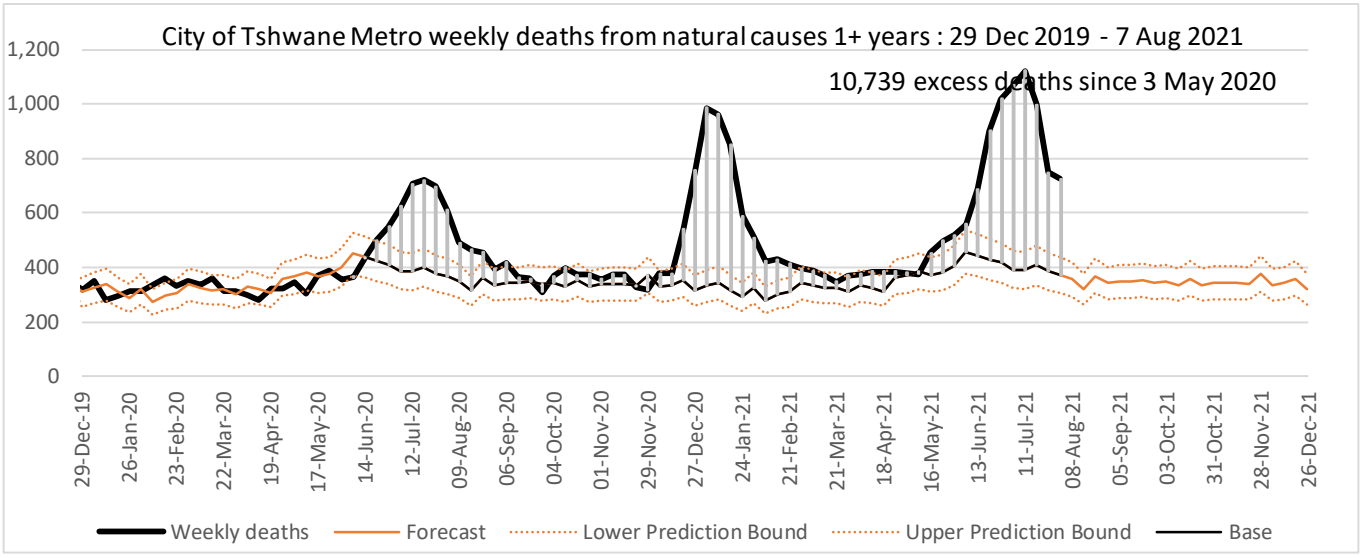

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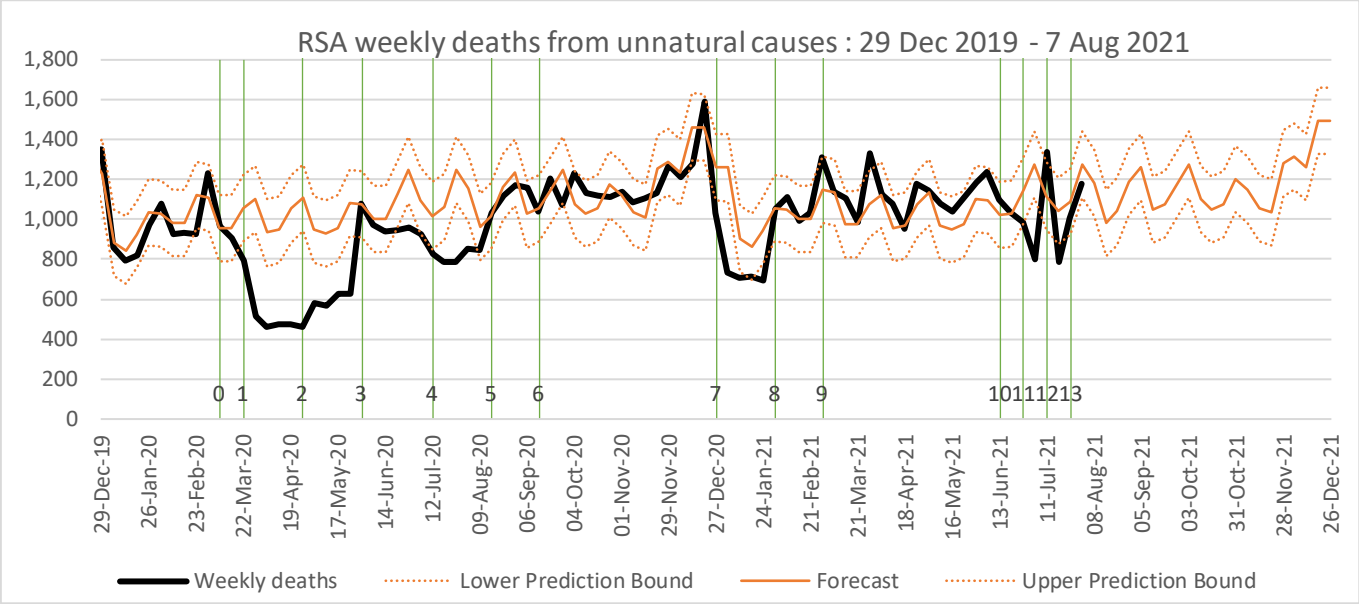

Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations. As only a quarter to a third of unnatural deaths in the most recent week are processed at the time of the survey, the estimate for the most recent week is quite uncertain.

Vertical lines in order

0	Week Disaster Management Act implemented
1	Week lockdown level 5 introduced
2	Week lockdown changed to level 4, with curfew
3	Week lockdown changed to level 3 including unbanning of alcohol
4	Week alcohol re-banned and a curfew re-introduced
5	Week lockdown changed to level 2, including unbanning of alcohol
6	Week lockdown changed to level 1
7	Week lockdown changed to level 3 advanced (rebanning alcohol and a extension of curfew)
8	Week lockdown relaxed to allow sale of alcohol 4 days/week and reduce curfew
9	Week lockdown relaxed to allow sale of alcohol except during curfew and reduce curfew to midnight to 4am
10	Week lockdown changed to level 3 advanced (limiting alcohol and a extending of curfew)
11	Week lockdown changed to level 4, with re-banning of alcohol and longer curfew
12	Week of unrest in KZN and GT
13	Week lockdown changed to level 3 advanced (limiting alcohol and reducing curfew)