

# REPORT ON WEEKLY DEATHS IN SOUTH AFRICA

11 – 17 JULY 2021

(WEEK 28)

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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 1<sup>st</sup> 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 28** of 2021, covering the period **11 – 17 Jul 2021**.

It is unclear whether the unrest experienced in KwaZulu-Natal and Gauteng during the past week has affected the registration of deaths, in which case, the numbers of deaths reported for Week 28 may understate the actual numbers of deaths. The estimates for the last week should be interpreted with caution.

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 eThekweni 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 **20,131** in Week 28 (**11 – 17 Jul 2021**), an increase from the **17,242** from the previous week. It is unclear whether the unrest experienced in KwaZulu-Natal and Gauteng during Week 28 has affected the registration of deaths, in which case, the numbers of deaths reported for Week 28 may understate the actual numbers of deaths.
- The number of excess deaths of persons 1+ years from natural causes has continued to increase reaching **10,000** in Week 28 (**11 – 17 Jul 2021**), following the low in Week 11 (**14-20 Mar 2021**) of **1,064**. This exceeds the highest number experienced during the surge of wave 1, but is not as high as the **15,926** experienced in Week 2 (**10 – 16 Jan 2021**) at the peak of wave 2.
- Since 3 May 2020, there has been a cumulative total of **203,000** excess deaths from natural causes of persons 1+ years of age of which **115,000** occurred in 2021 (since 3 Jan 2021).

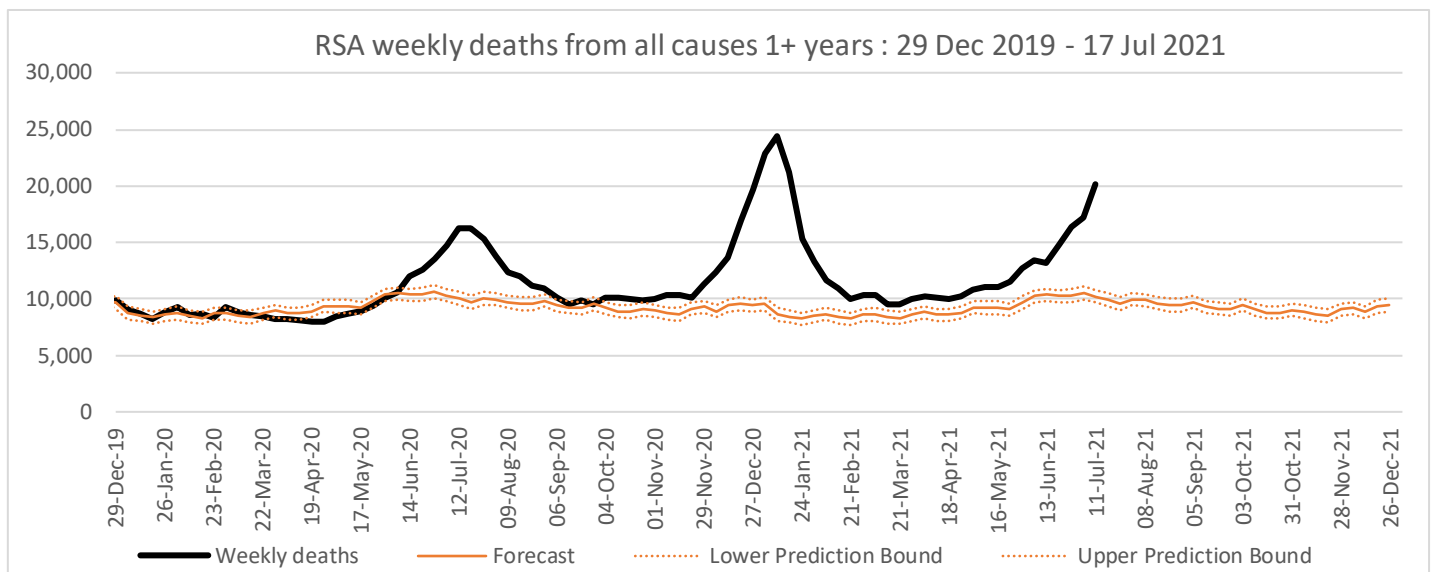
Week	Date	Weekly excess deaths from natural causes	Cumulative excess since 3 May 2020	Cumulative excess since 3 January 2021
20	16-May-21 – 22-May-21	1,706	164,281	75,919
21	23-May-21 – 29-May-21	2,357	166,637	78,276
22	30-May-21 – 5-Jun-21	2,904	169,541	81,179
23	6-Jun-21 – 12-Jun-21	3,027	172,568	84,206
24	13-Jun-21 – 19-Jun-21	2,781	175,349	86,987
25	20-Jun-21 – 26-Jun-21	4,552	179,901	91,539
26	27-Jun-21 – 3-Jul-21	6,247	186,148	97,786
27	4-Jul-21 – 10-Jul-21	7,298	193,446	105,084
28	11-Jul-21 – 17-Jul-21	10,000	203,446	115,084

- For people 1-59 years, the number of natural deaths tracked within the prediction bounds since February 2021. During Week 25 (**20 – 26 Jun 2021**), the number increased above the upper prediction bound. By the end of Week 28 (**11 – 17 Jul 2021**), the excess natural deaths since **3 May 2020** totals over **47,000**.
- For people 60 years and older, the number of natural deaths remains well above the upper prediction bound. The excess natural deaths for people 60 years and older by the end of Week 28 (**11 – 17 Jul 2021**) is nearly **156,000**.
- 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 have been 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 **7,242** in Week 28 (**11 – 17 Jul 2021**) and the p-score increased to 154%.

Week	Date	Weekly excess deaths from natural causes for persons 60+ years	p-score
20	16-May-21 – 22-May-21	1,431	33.5%
21	23-May-21 – 29-May-21	1,870	44.8%
22	30-May-21 – 5-Jun-21	2,283	51.6%
23	6-Jun-21 – 12-Jun-21	2,544	53.7%
24	13-Jun-21 – 19-Jun-21	2,501	51.8%
25	20-Jun-21 – 26-Jun-21	3,645	76.4%
26	27-Jun-21 – 3-Jul-21	4,661	98.7%
27	4-Jul-21 – 10-Jul-21	5,287	110.8%
28	11-Jul-21 – 17-Jul-21	7,242	154.3%

- The number of excess deaths from natural causes in **Gauteng** reached **3,590** in Week 28 (**11 – 17 Jul 2021**), with little change over in the past 3 weeks. This is well above the numbers experienced at the peak of their 1<sup>st</sup> and 2<sup>nd</sup> waves of the pandemic (about **2,100** excess deaths). The numbers of excess deaths dropped rapidly in the **City of Johannesburg**, but this should be interpreted cautiously as it may reflect a slow-down in registration due to the unrest. In Week 28 (**11 – 17 Jul 2021**), Johannesburg experienced **1,038** excess deaths from natural causes, well above its peak in the 1<sup>st</sup> and 2<sup>nd</sup> waves (**760** and **650** respectively). **Ekurhuleni** experienced **1,140** excess deaths from natural causes and **Tshwane** experienced **816** deaths in Week 28 (**11 – 17 Jul 2021**) with no obvious sign of reaching the peak of the 3<sup>rd</sup> wave.

- **Free State** and **Northern Cape** 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 these provinces are showing signs of continued increase.
- **North West, Mpumalanga, Limpopo, Western Cape** and the **City of Cape Town** continued to increase in Week 28 (**11 – 17 Jul 2021**).
- **Eastern Cape** and **Nelson Mandela Metro** have continued to increase, and **Buffalo City Metro** has reached its upper prediction bound in Week 28 (**11 – 17 Jul 2021**).
- **KwaZulu-Natal** experienced a slight increase in the number of natural deaths in Week 27 (**4 – 10 Jul 2021**), while **eThekweni** experienced a drop, suggesting that there may have been a slow-down in the processing of death registrations, particularly in Durban. The estimates for the last week should be interpreted with caution.
- 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 28 (**11 – 17 Jul 2021**), the national excess death rate since 3 May 2020 was **342 per 100,000** population.
- The provinces with the highest cumulative numbers of excess deaths at the end of Week 28 (**11 – 17 Jul 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, Eastern Cape, and KwaZulu-Natal** 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 have continued to track close to the predicted numbers since the end of January 2021, with the month-end peaks being higher and at the February and March month ends reaching the upper prediction bound. 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 a level slightly lower than the predicted number during Week 28 (**11 – 17 Jul 2021**).



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

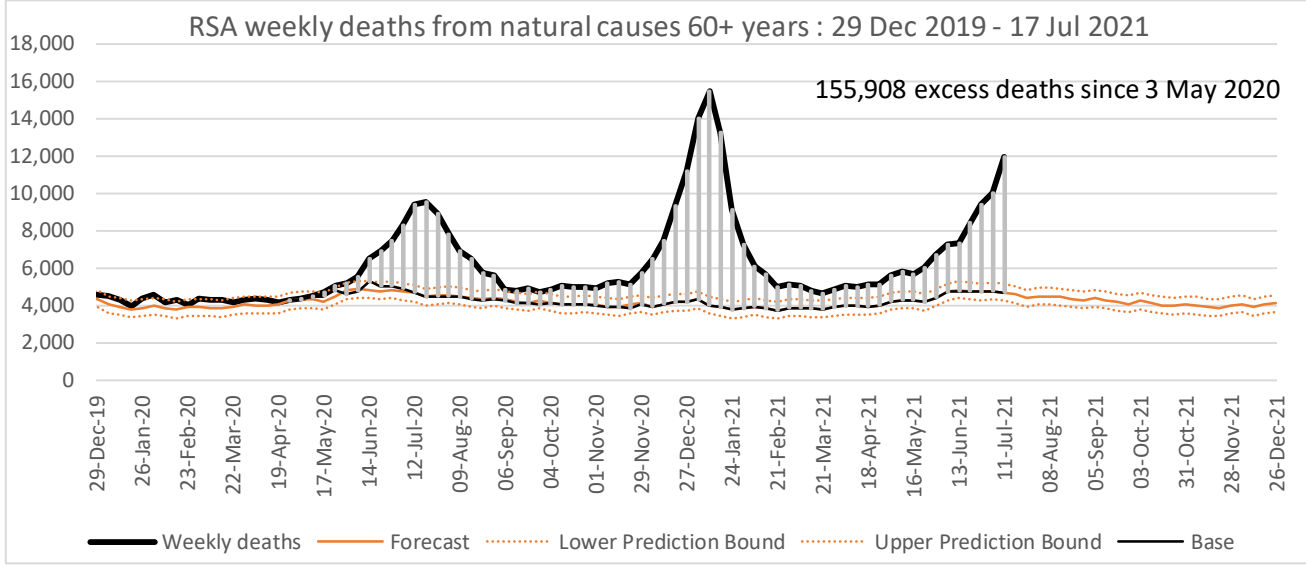
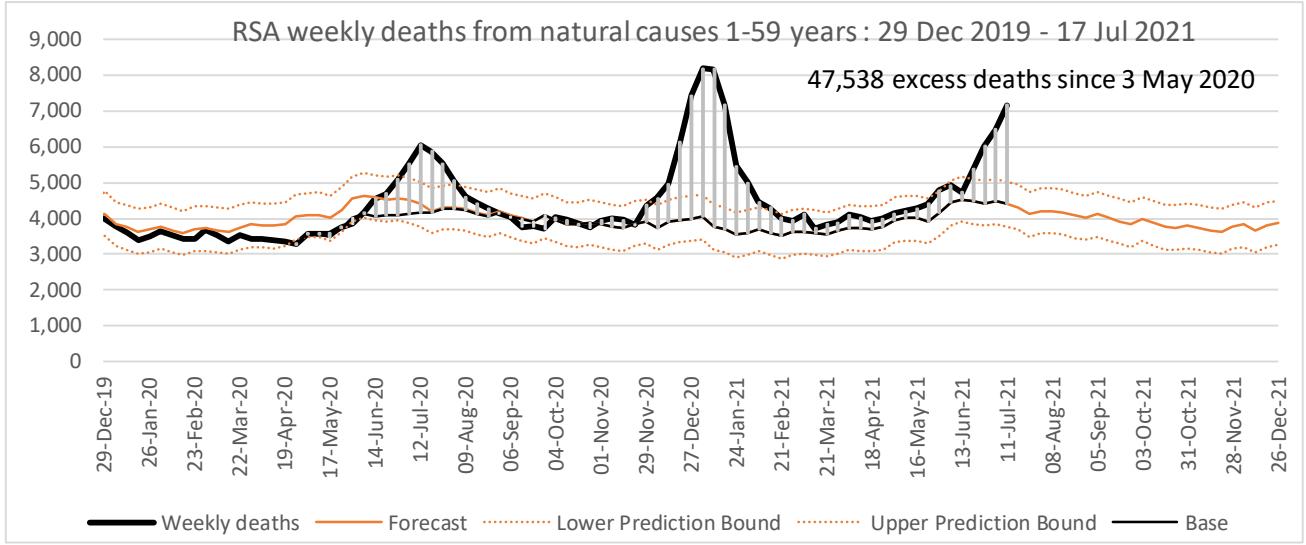
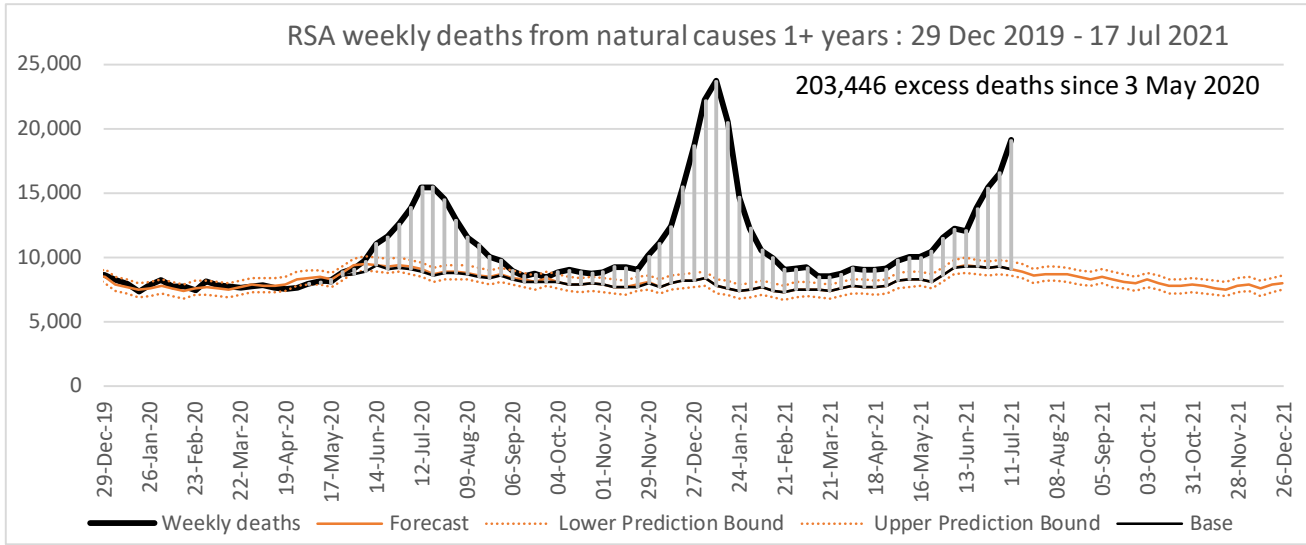
**Table 1: Number of excess natural deaths of persons 1+ years by province and metro relative to revised predicted number based on the observed drop during lockdown, South Africa 2020/21**

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 – 17 Jul 21	203,446	342	342
<b>Province</b>				
Eastern Cape	31 May 20 – 17 Jul 21	35,170	534	431
Free State	21 Jun 20 – 17 Jul 21	11,749	404	404
Gauteng	7 Jun 20 – 17 Jul 21	44,229	283	312
KwaZulu-Natal	7 Jun 20 – 17 Jul 21	41,303	361	415
Limpopo	21 Jun 20 – 17 Jul 21	19,806	335	293
Mpumalanga	21 Jun 20 – 17 Jul 21	14,836	308	332
Northern Cape	28 Jun 20 – 17 Jul 21	6,483	554	518
North West	28 Jun 20 – 17 Jul 21	11,283	280	288
Western Cape	3 May 20 – 17 Jul 21	18,587	263	232
<b>Metropolitan Municipality</b>				
Buffalo City	31 May 20 – 17 Jul 21	3,766		
City of Cape Town	3 May 20 – 17 Jul 21	13,704		
Ekurhuleni	7 Jun 20 – 17 Jul 21	11,042		
eThekweni	14 Jun 20 – 17 Jul 21	9,190		
Johannesburg	7 Jun 20 – 17 Jul 21	15,505		
Mangaung	21 Jun 20 – 17 Jul 21	3,519		
Nelson Mandela Bay	31 May 20 – 17 Jul 21	5,519		
City of Tshwane	7 Jun 20 – 17 Jul 21	9,429		

**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.

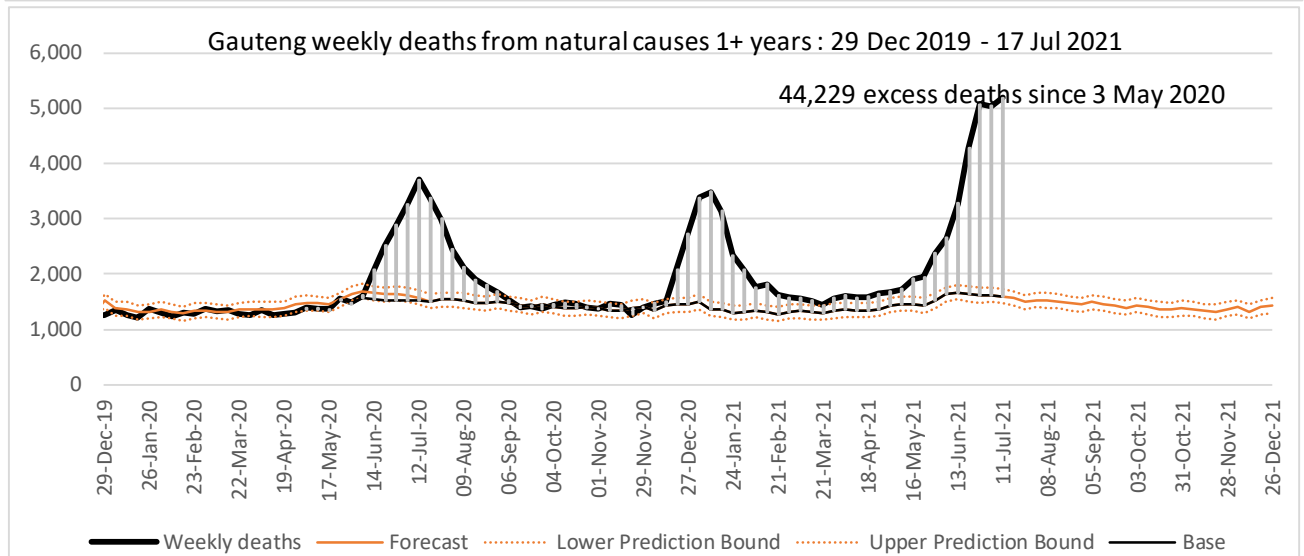
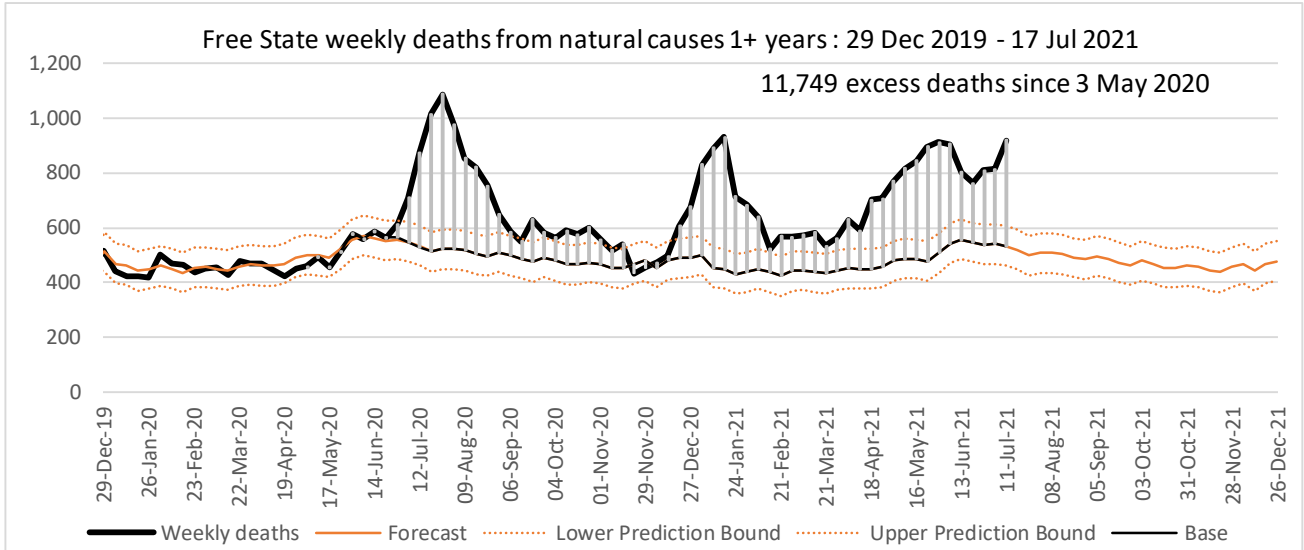
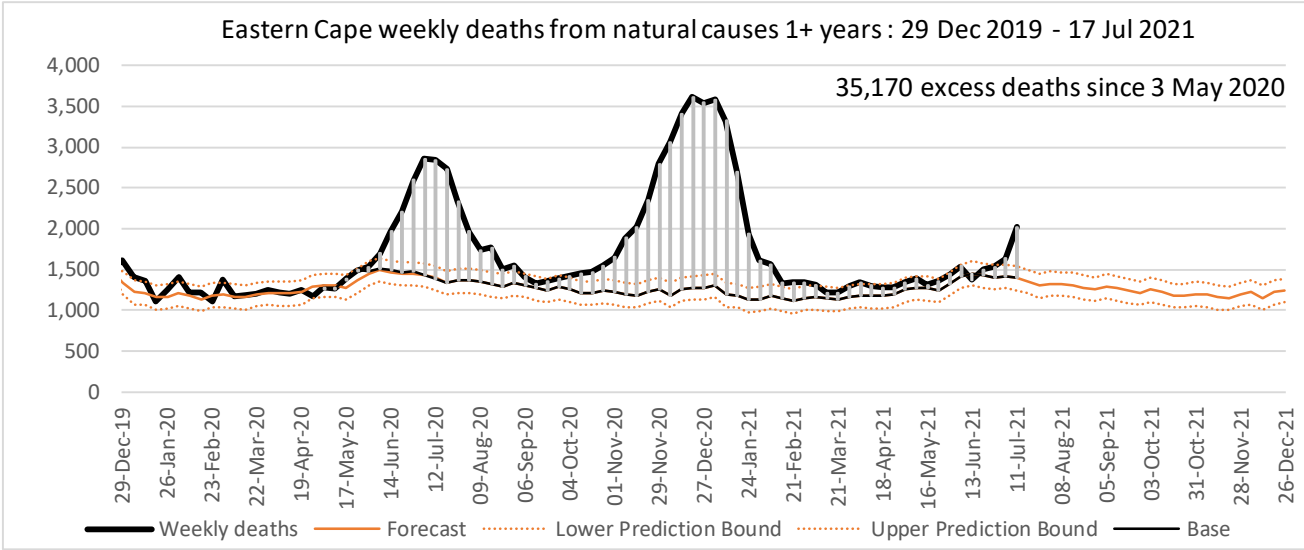
**Table 2: Number of excess deaths from all causes of persons 1+ years by province and metro relative to predicted number based on historical trend, South Africa 2020/21**

<b>Region</b>	<b>Excess deaths vs forecast</b>	<b>Excess deaths per 100,000 population</b>
South Africa	195,202	328
<b>Province</b>		
Eastern Cape	35,932	546
Free State	11,012	378
Gauteng	41,178	264
KwaZulu-Natal	40,846	357
Limpopo	18,792	318
Mpumalanga	14,466	301
Northern Cape	6,015	514
North West	10,010	249
Western Cape	16,950	240
<b>Metropolitan Municipality</b>		
Buffalo City	2,949	
City of Cape Town	11,179	
Ekurhuleni	11,011	
eThekweni	9,472	
Johannesburg	13,194	
Mangaung	3,828	
Nelson Mandela Bay	5,497	
City of Tshwane	9,079	

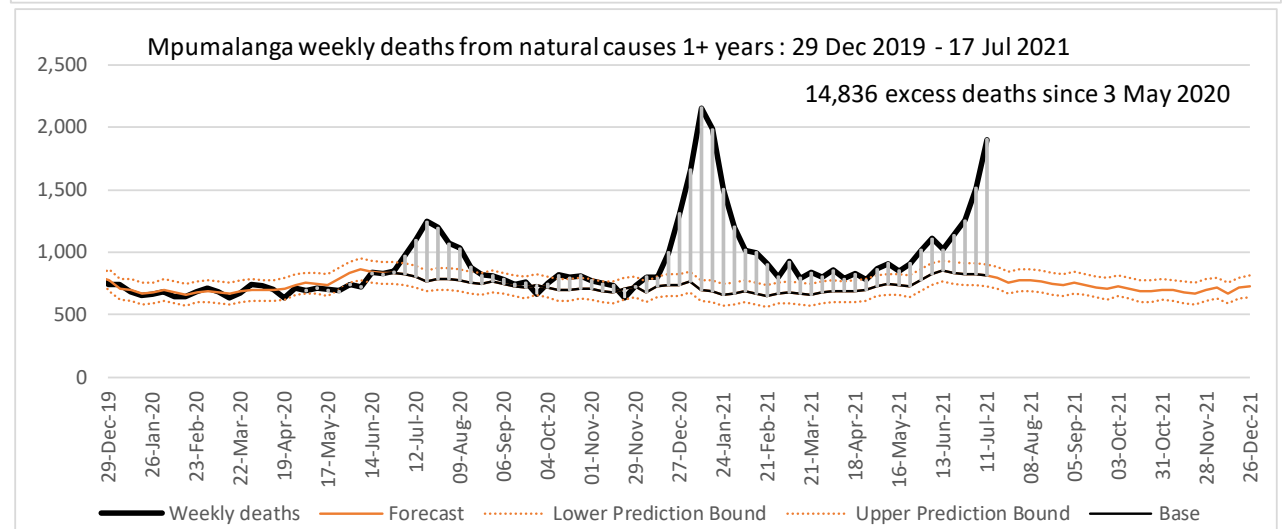
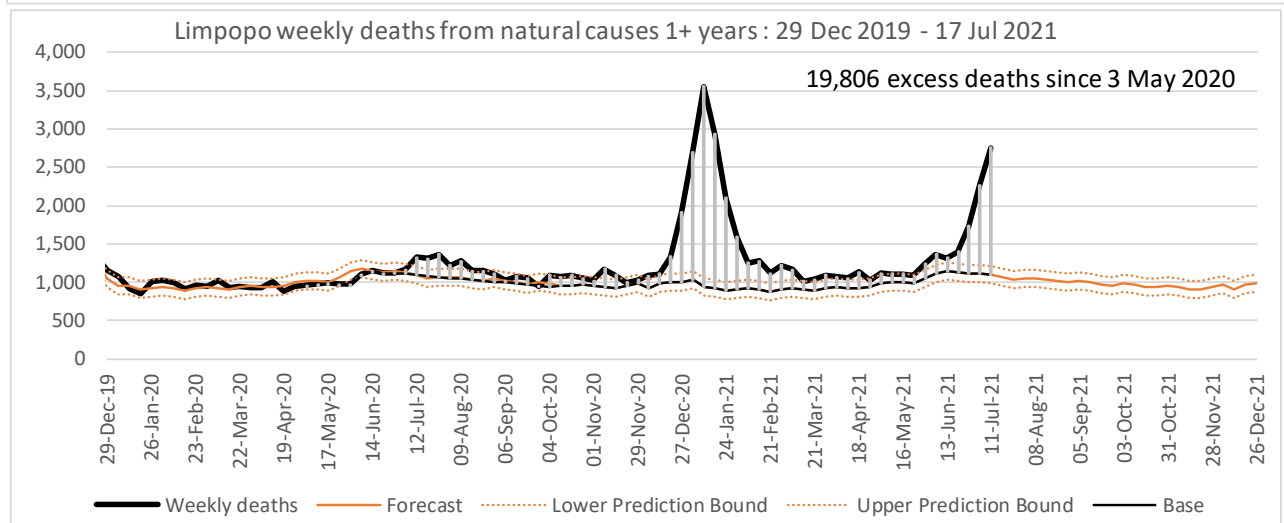
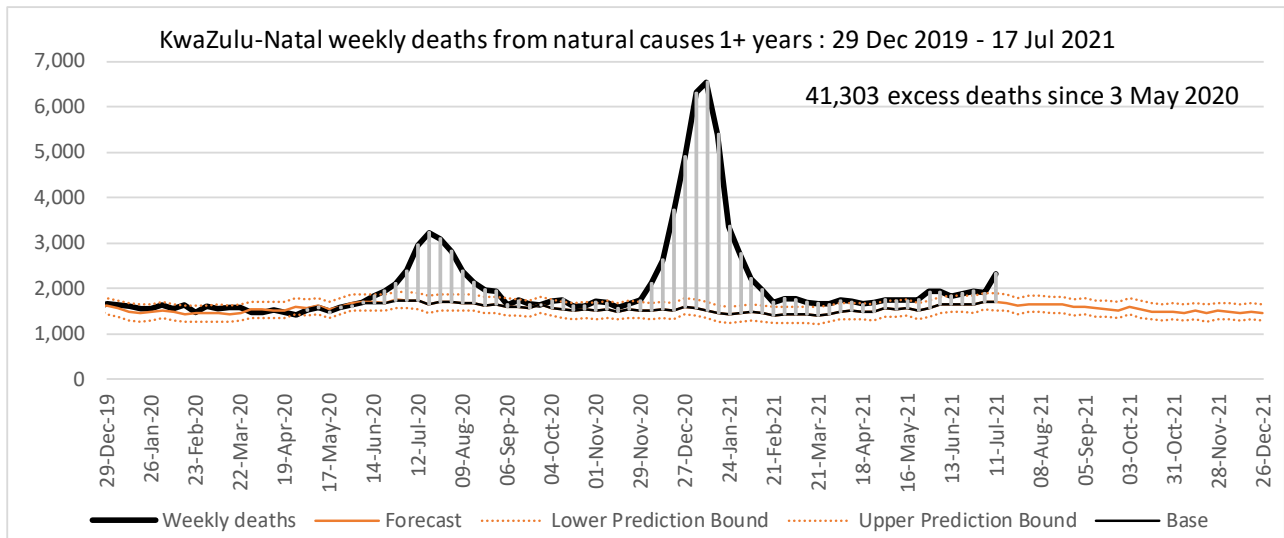


Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations

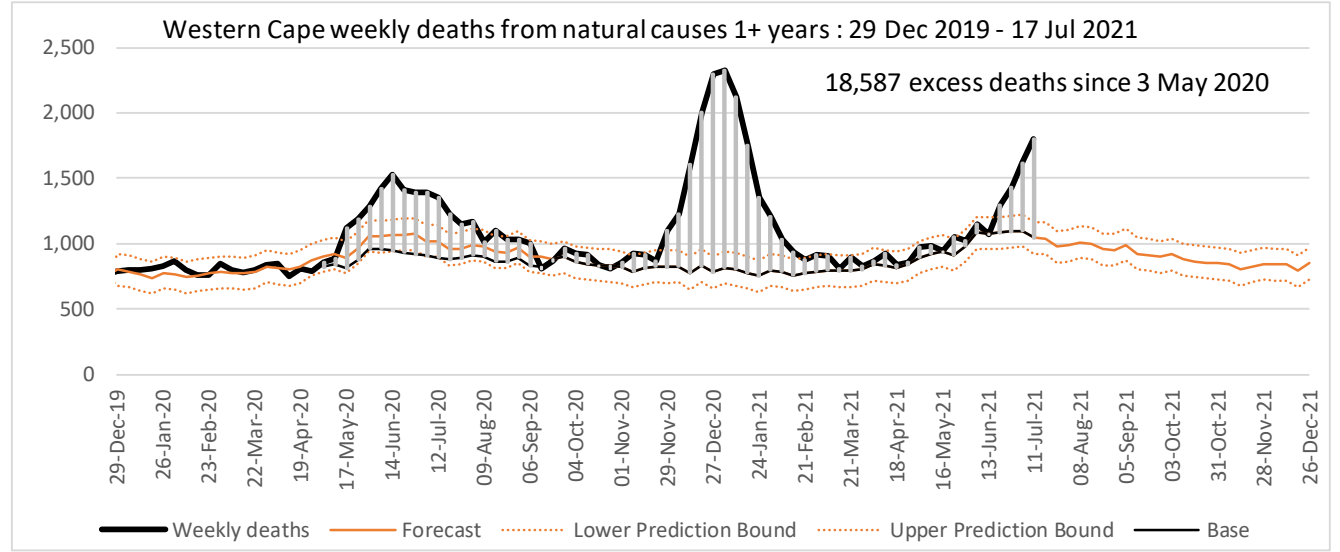
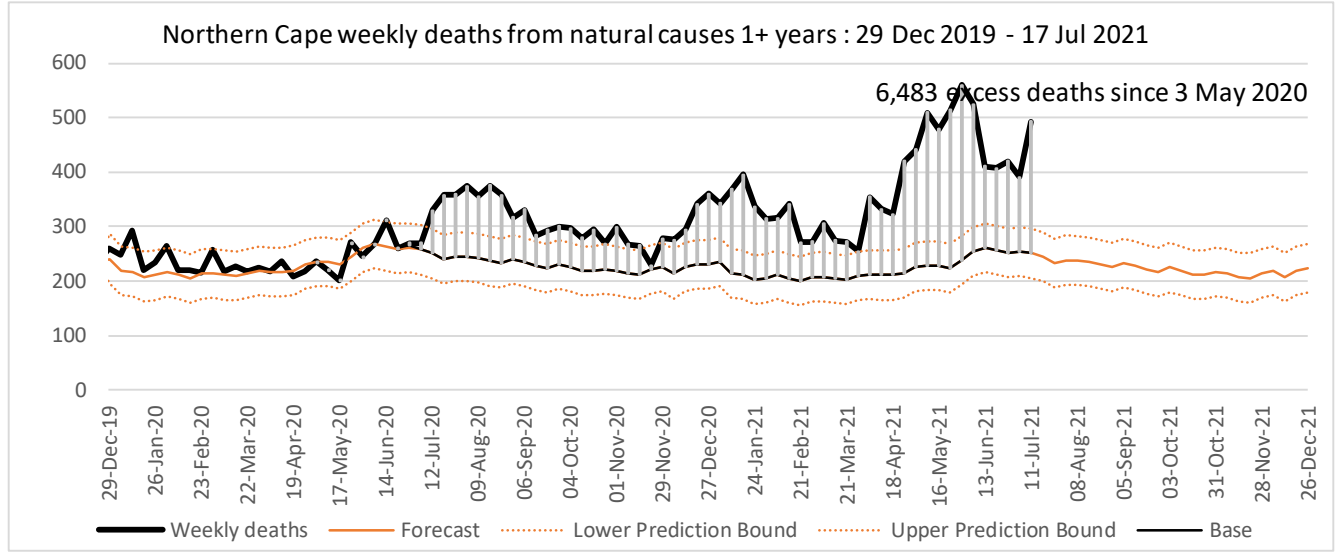
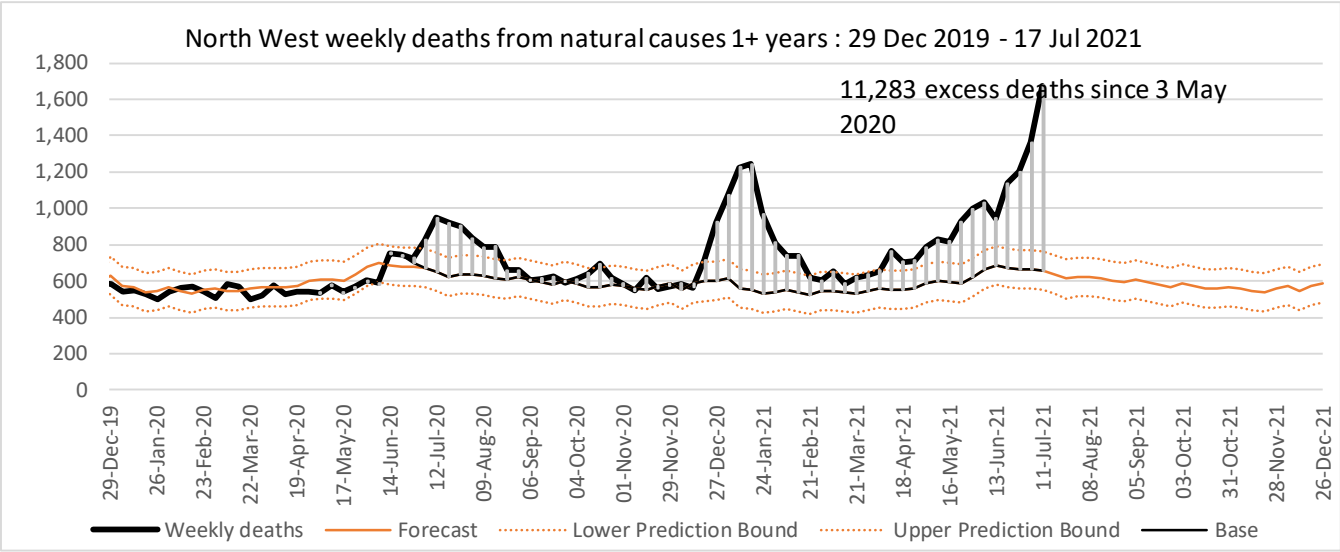




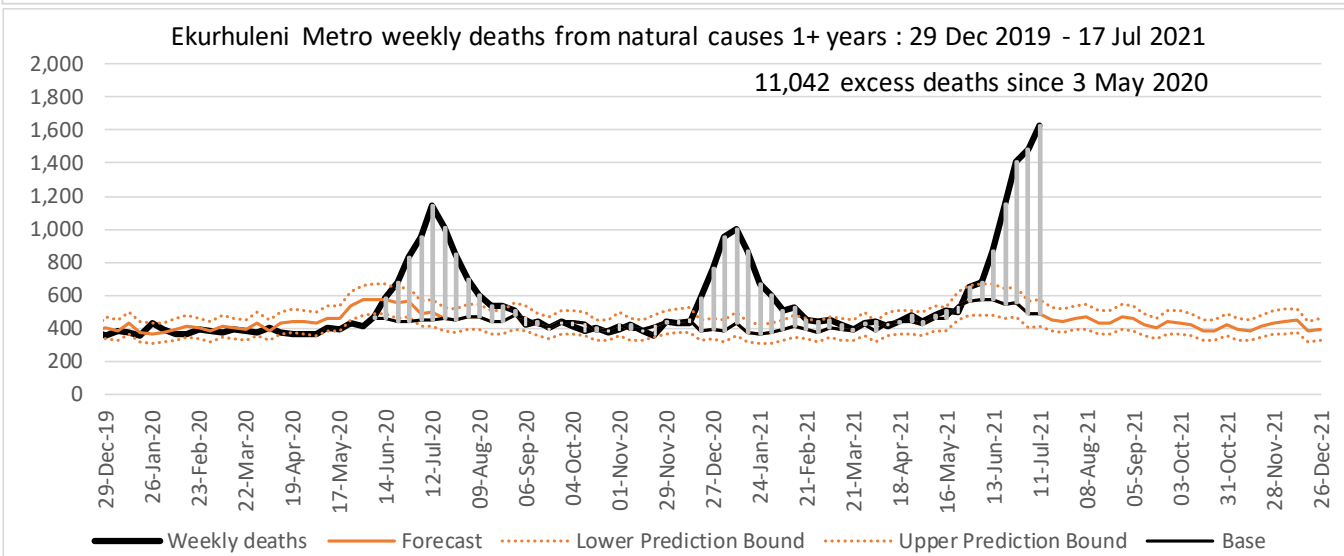
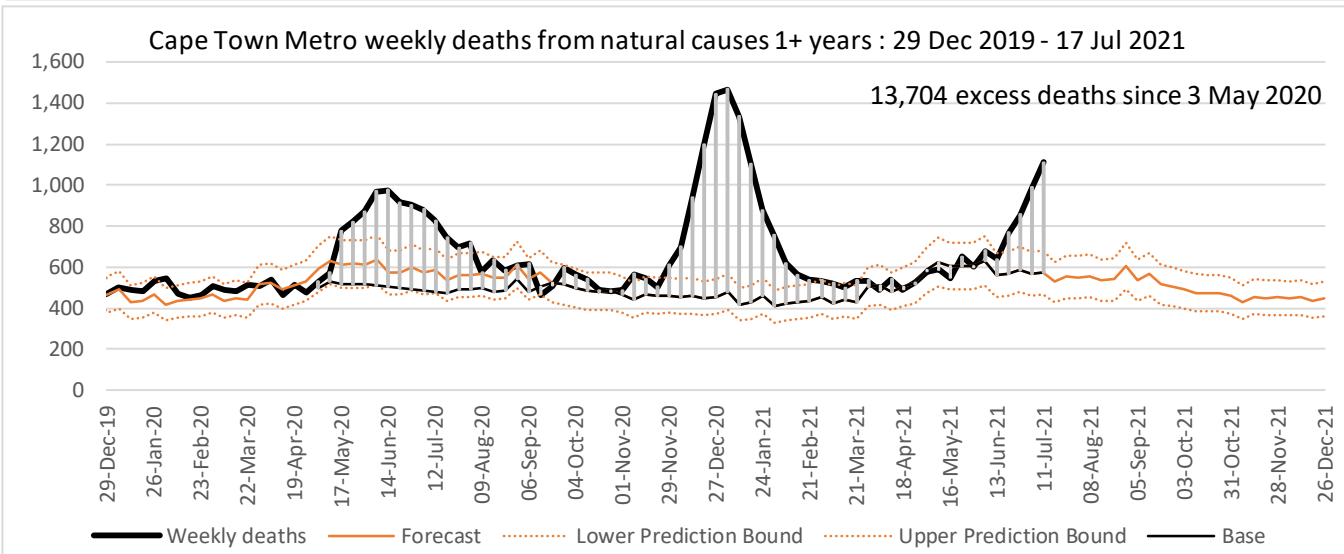
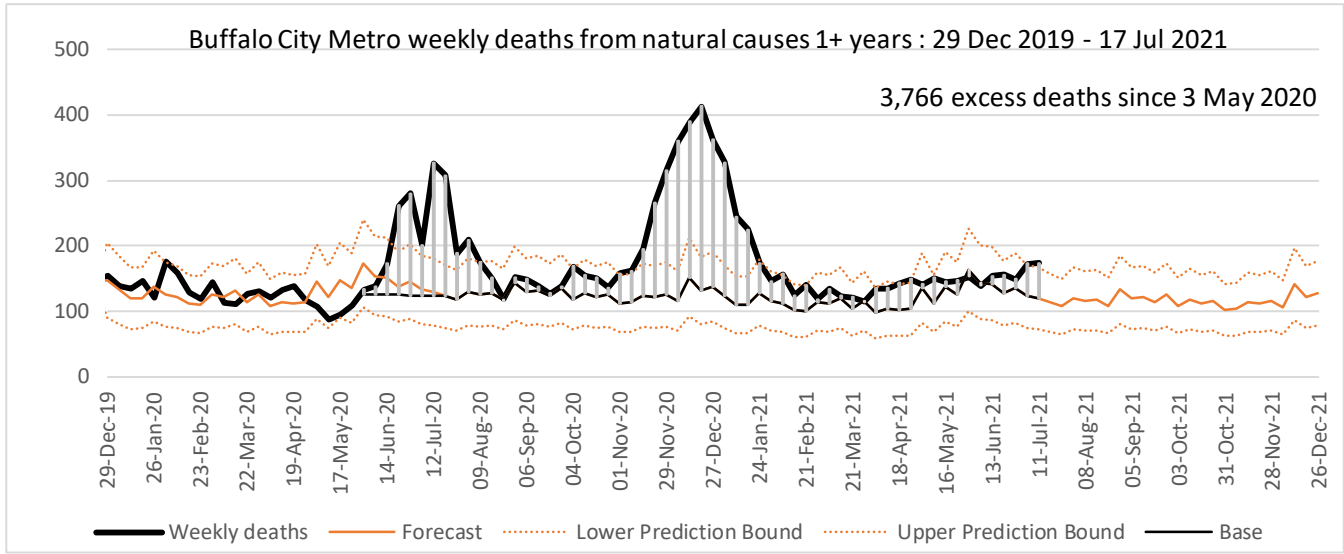
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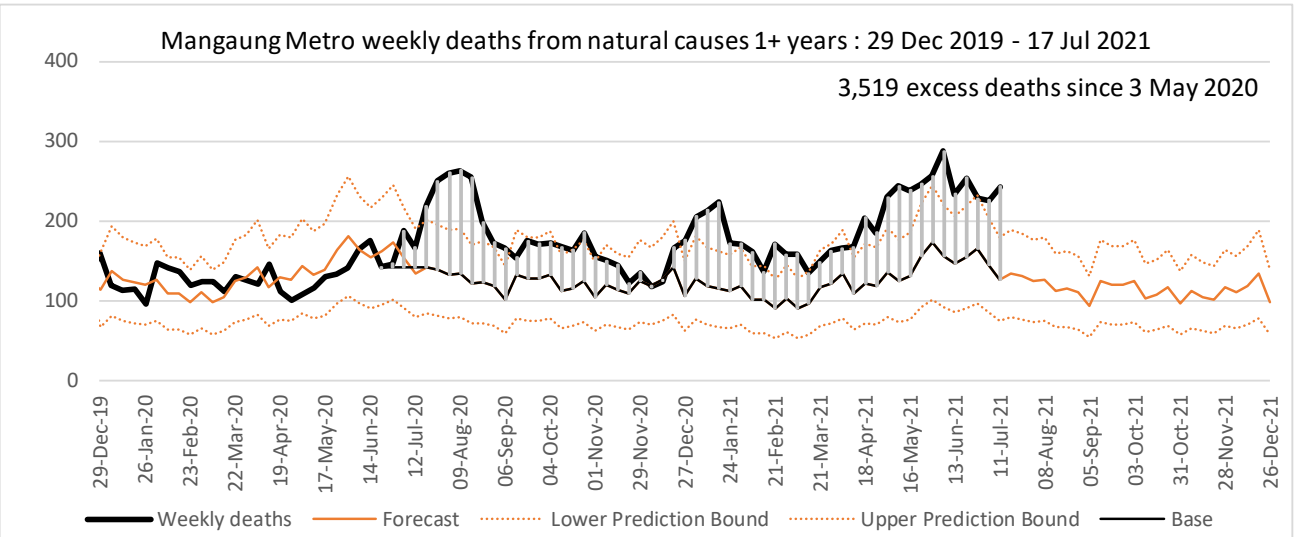
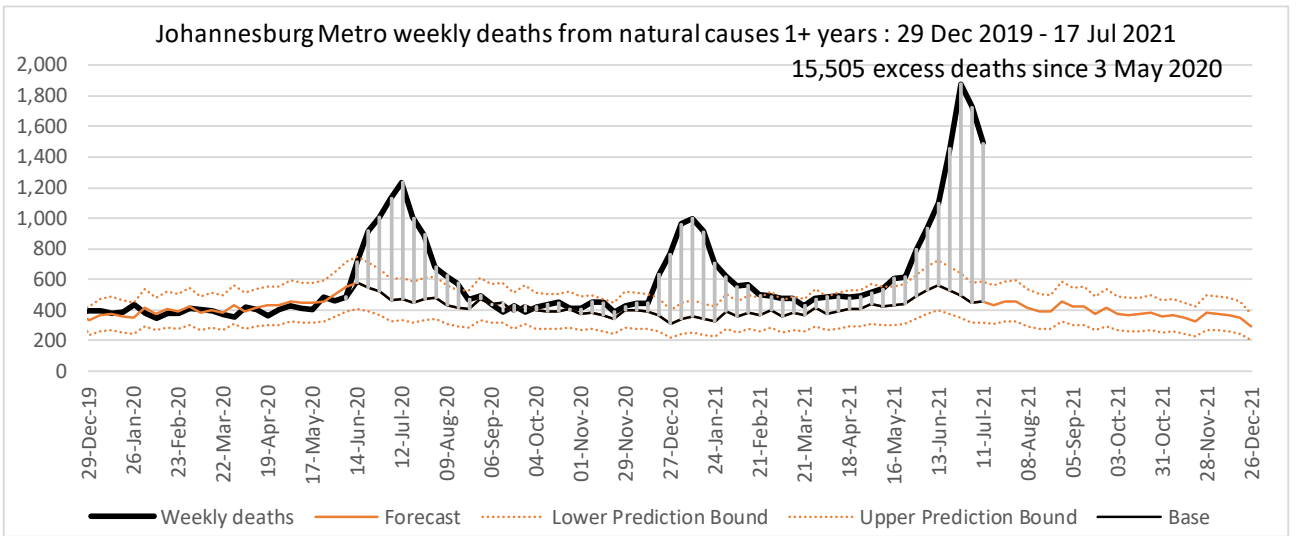
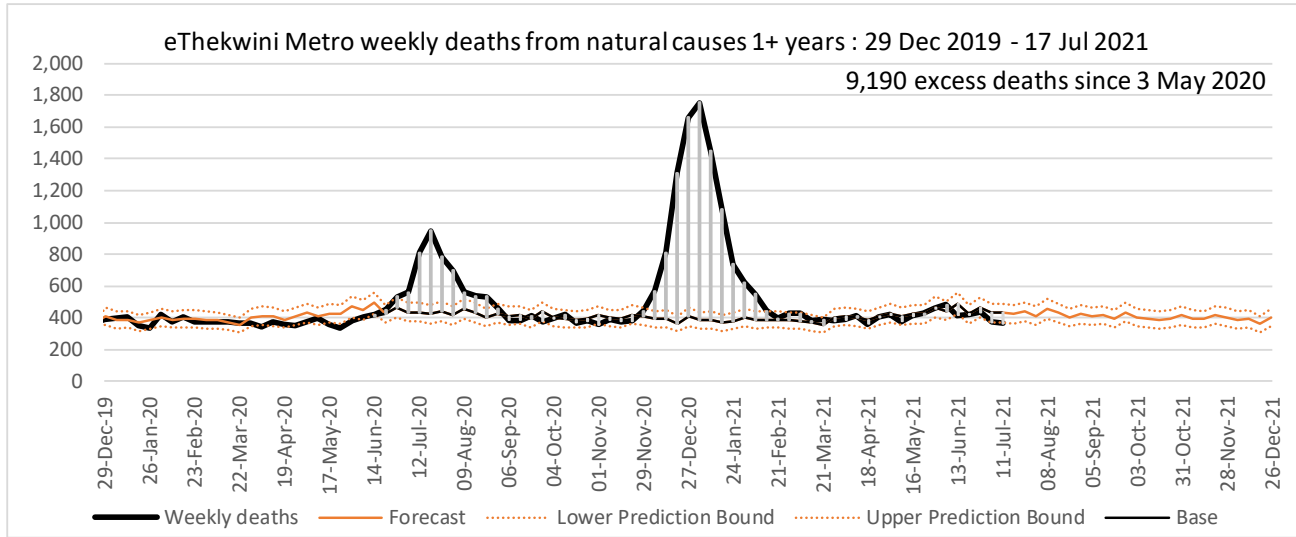
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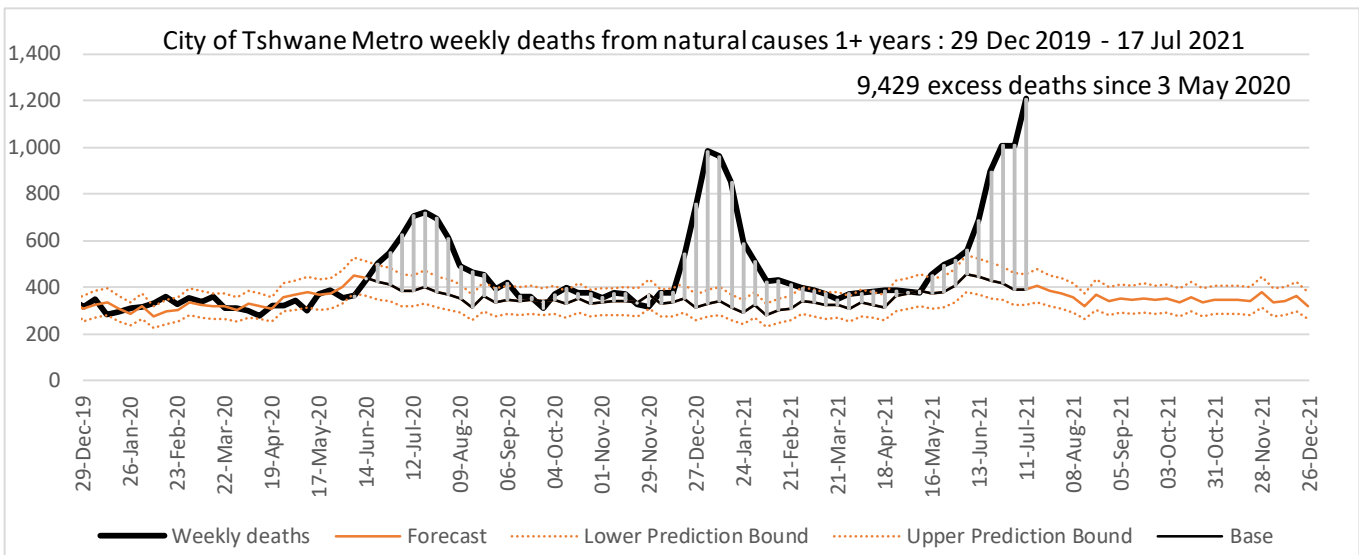
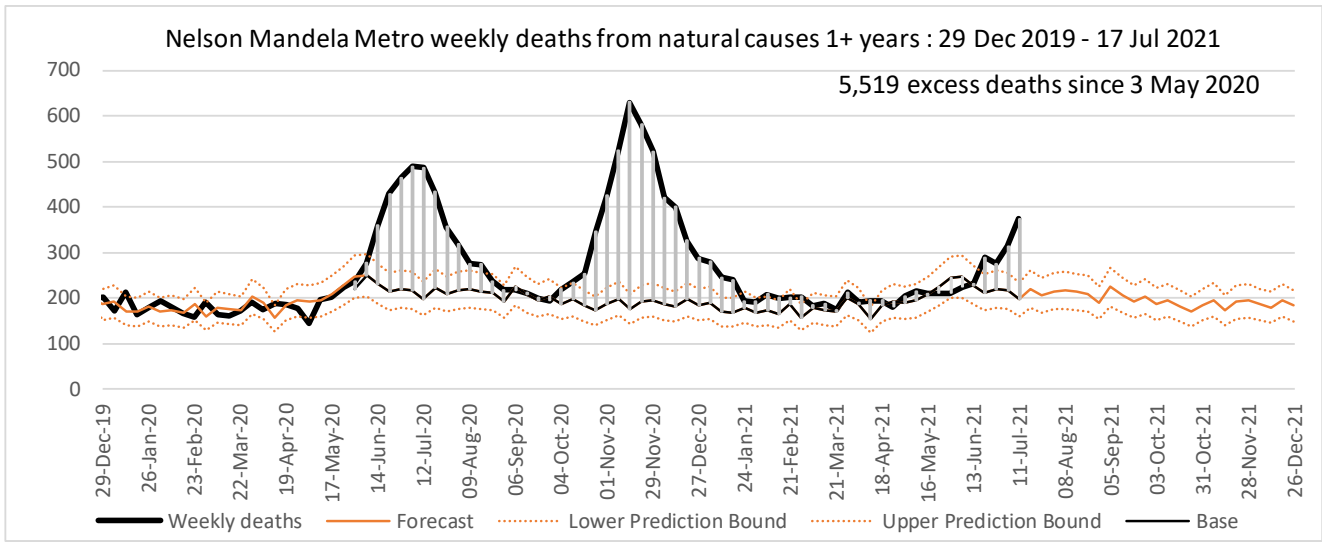
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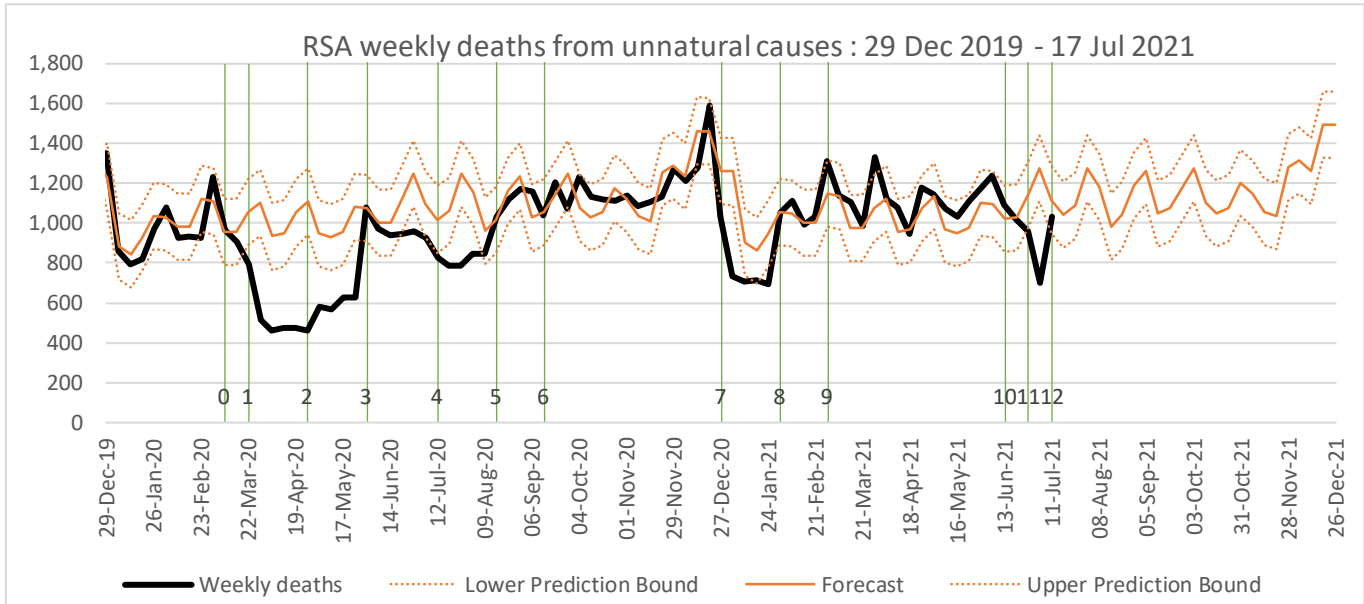
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Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations. As only a quarter to a third of unnatural deaths in the most recent week are processed at the time of the survey, the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