

REPORT ON WEEKLY DEATHS IN SOUTH AFRICA

24 - 30 JANUARY 2021
(WEEK 4)

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UCT Centre
for Actuarial
Research

Glossary:

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. This accounts for the kinks in what should otherwise be a smooth increase in numbers of deaths in Cape Town and Buffalo City, for example.

Background

This report provides estimates of the weekly number of deaths of person 1+ years in South Africa for epidemiological **Week 4** of 2021, covering the period **24 - 30 January 2021**.

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 death data for the period 2014-2019 have been used to estimate the trend in mortality and the weekly variations to provide predicted values for 2020 and 2021, rather than using 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 KwaZulu-Natal, the natural deaths for Western Cape and for natural deaths for the 7 other provinces 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 3 May 2020, considered to be the starting point of excess deaths associated with the COVID-19 pandemic in South Africa. Except for KwaZulu-Natal (and eThekweni in particular) the impact of the changes is relatively small. The time-series approach using data from 2018 and 2019 is used for the metropolitan areas 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>.

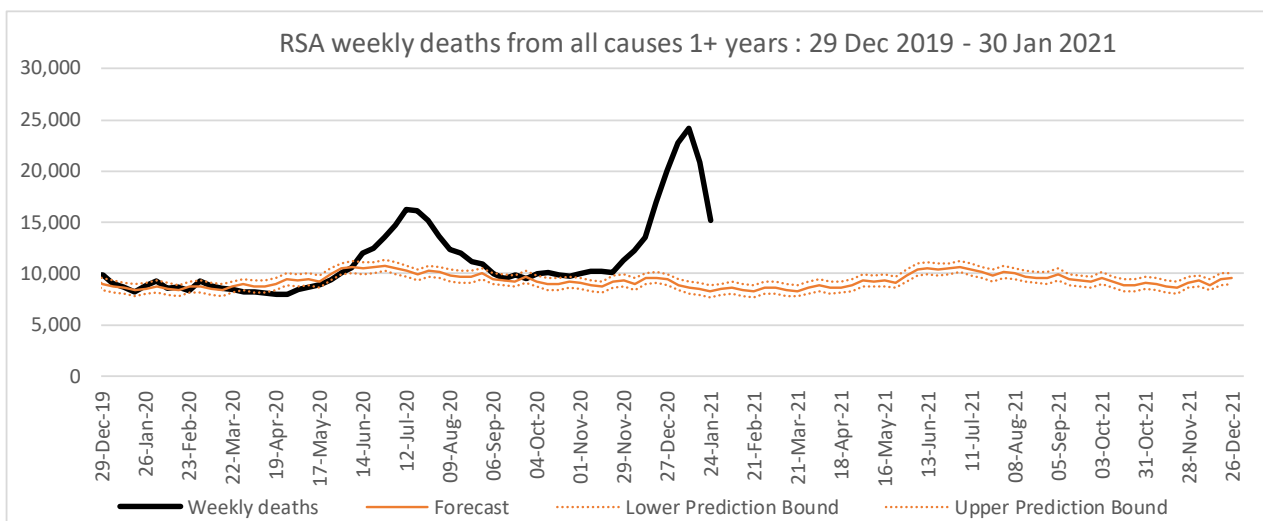
Trends

- The weekly numbers of deaths of persons 1+ years of age from all causes has dropped for the 3rd consecutive week to **15,192** in the Week 4 (**24 - 30 Jan 2021**).
- The number of excess deaths of persons 1+ years from natural causes also dropped to **7,152** in Week 4 (**24 - 30 Jan 2021**) after reaching a peak of **15,739** in Week 2 (**10 -16 Jan 2021**), and have decreased across all metropolitan areas and province. However, most are well above the upper prediction bound.

Week	Date	Weekly excess deaths from natural causes	Cumulative excess since 3 May 2020
53	27-Dec-20 – 02-Jan-21	10,771	82,649
1	03-Jan-21 – 9-Jan-21	14,243	97,048
2	10-Jan-21 – 16-Jan-21	15,739	112,788
3	17-Jan-21 – 23-Jan-21	12,541	125,329
4	24-Jan-21 – 30-Jan-21	7,152	132,481

- By the end of Week 4, spanning the period **3 May 2020 – 30 Jan 2021**, there had been a total of **132,481** excess deaths from natural causes of persons 1+ years of age.
- For people 1-59 years the excess natural deaths since **3 May 2020** is **32,434** and **100,047** for people 60+ years by the end of Week 4 (**30 Jan 2021**).

- The number of deaths 1+ years from natural causes in the **Eastern Cape** has continued to decrease. The province has experienced a total excess of **31,263** excess deaths by the end of Week 4 (**30 Jan 2021**). Natural deaths in 2nd wave in **Nelson Mandela Bay** have also decreased but are still above the upper prediction bounds while the deaths in **Buffalo City** are now within the prediction bounds.
- The number of deaths from natural causes in the **Western Cape** have continued to decrease. The province has experienced a cumulative total of **14,747** excess deaths of person 1+ years and older from natural causes in the period **3 May 2020 – 30 Jan 2021**. The natural deaths in the **City of Cape Town** has also started to decrease but is still well above the upper prediction bound.
- The number of deaths from natural causes in the **KwaZulu-Natal** has decreased after the surge of the 2nd wave and the province has a cumulative total of **32,488** excess deaths since **3 May 2020**. The number of deaths from natural causes in **eThekweni** peaked during Week 1 (**3 – 10 Jan 2021**) with a cumulative total of **8.488** excess deaths **from 3 May 2020 – 30 Jan 2021**. The numbers are still well above the upper prediction bound.
- During Week 4 (**24 - 30 Jan 2021**), the number of deaths from natural causes in the **Gauteng** continued to decrease after reaching a high during Week 2 (**10 -16 Jan 2021**). The height of the 2nd peak has lower than the peak of the 1st wave with a cumulative total of **21,680** excess deaths from natural causes by the end of Week 4 (**30 Jan 2021**). The number of excess deaths in **Johannesburg, Ekurhuleni** and **Tshwane** continued to decrease.
- The extremely sharp increases in the number of natural deaths in **Limpopo** and **Mpumalanga** during December and January have turned. During Week 3, **Limpopo** experienced an excess of **2,270** deaths and **Mpumalanga** an excess of **1,305** natural deaths.
- Deaths from natural causes have been increasing in all the other provinces.
- The weekly number of deaths from unnatural causes in Week 2 (**10 -16 Jan 2021**) has dropped below the prediction interval.



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

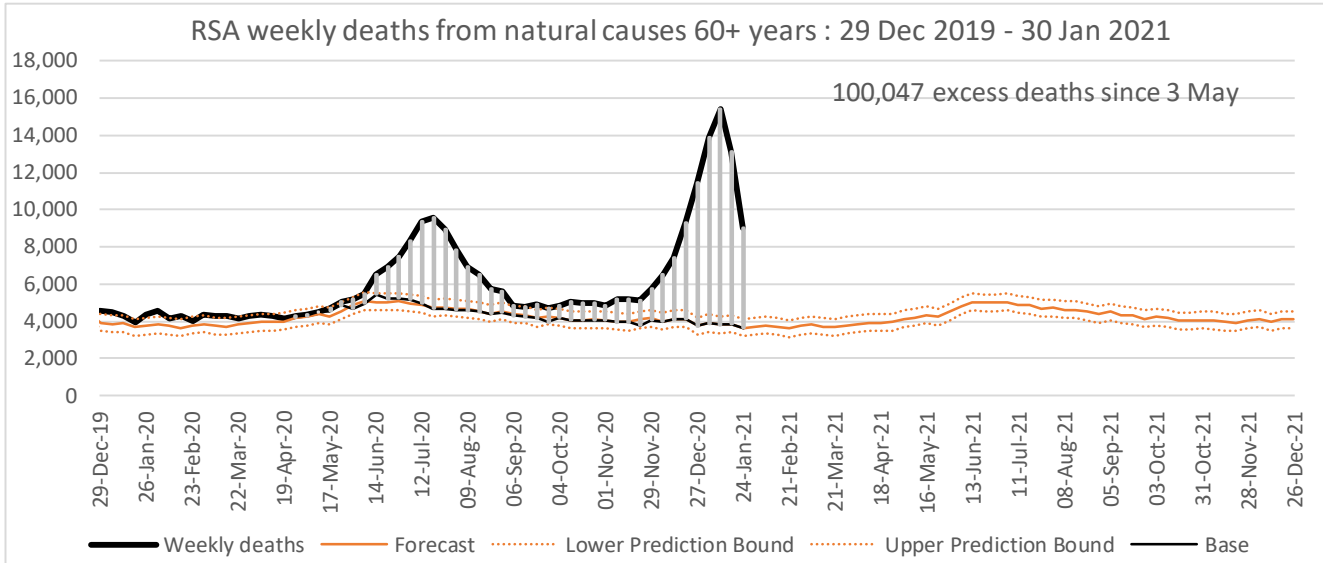
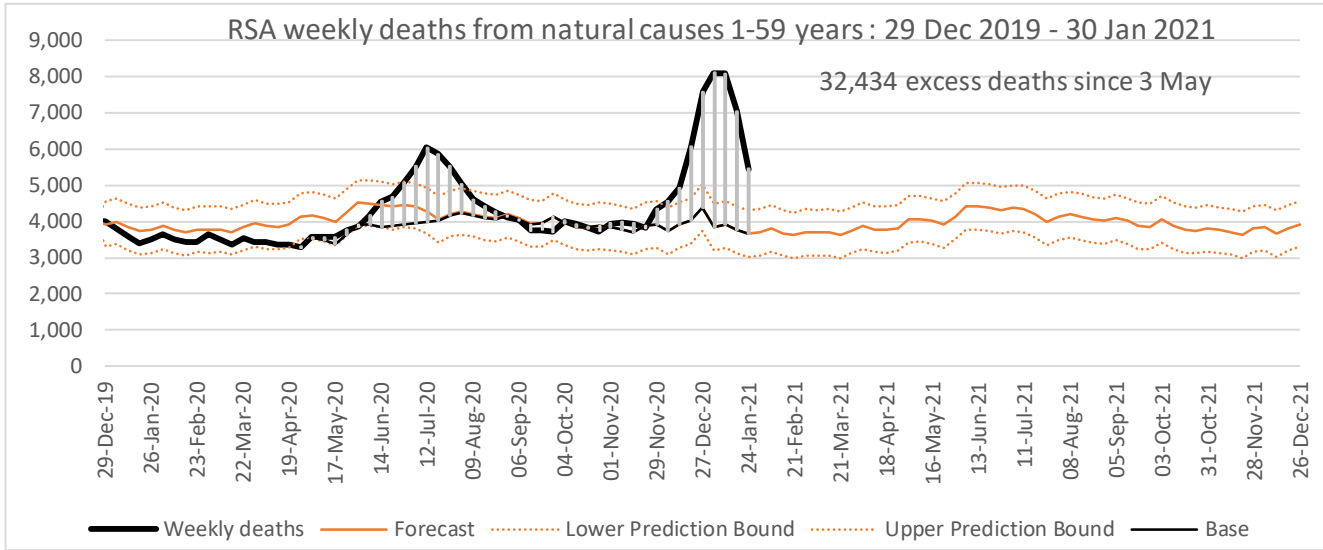
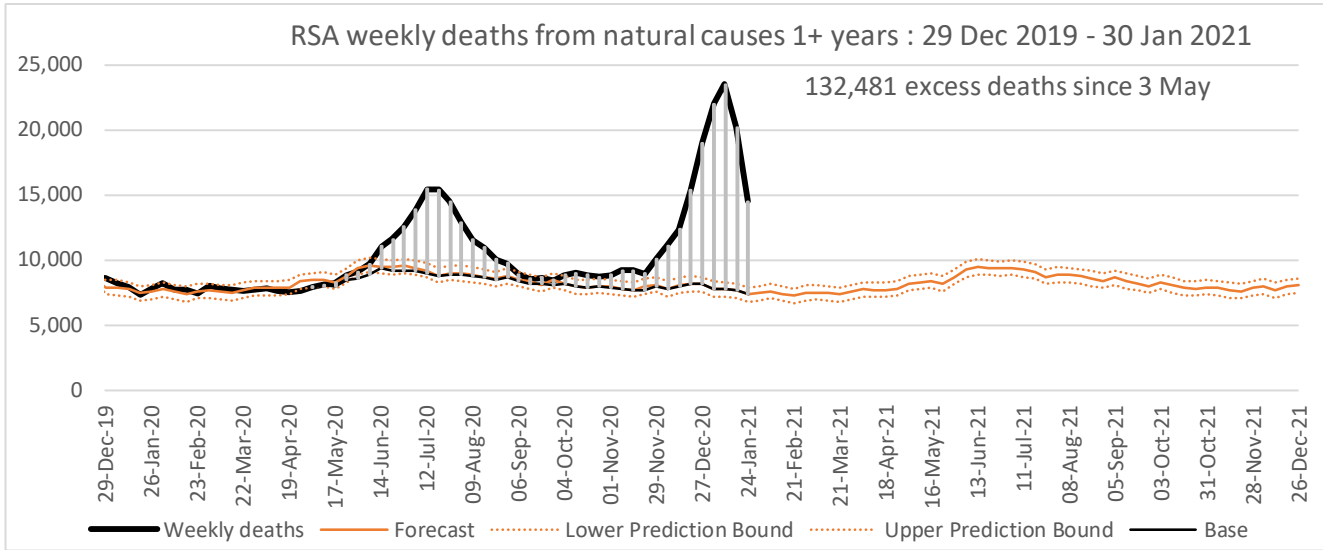
Table 1: Number of excess natural deaths of persons 1+ years by province and metro relative to revised predicted number based on the observed drop during lockdown, South Africa 2020

Region	Period	Excess deaths vs revised base
South Africa	3 May 20 – 30 Jan 21	132,481
Province		
Eastern Cape	31 May 20 – 30 Jan 21	31,263
Free State	21 Jun 20 – 30 Jan 21	5,774
Gauteng	7 Jun 20 – 30 Jan 21	21,680
KwaZulu-Natal	7 Jun 20 – 30 Jan 21	32,488
Limpopo	21 Jun 20 – 30 Jan 21	11,469
Mpumalanga	21 Jun 20 – 30 Jan 21	8,308
Northern Cape	28 Jun 20 – 30 Jan 21	2,420
North West	28 Jun 20 – 30 Jan 21	4,332
Western Cape	3 May 20 – 30 Jan 21	14,747
Metropolitan Municipality		
Buffalo City	31 May 20 – 30 Jan 21	3,181
City of Cape Town	3 May 20 – 30 Jan 21	10,900
Ekurhuleni	7 Jun 20 – 30 Jan 21	6,100
eThekweni	14 Jun 20 – 30 Jan 21	8,588
Johannesburg	7 Jun 20 – 30 Jan 21	7,448
Mangaung	21 Jun 20 – 30 Jan 21	1,721
Nelson Mandela Bay	31 May 20 – 30 Jan 21	4,836
City of Tshwane	7 Jun 20 – 30 Jan 21	5,242

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.

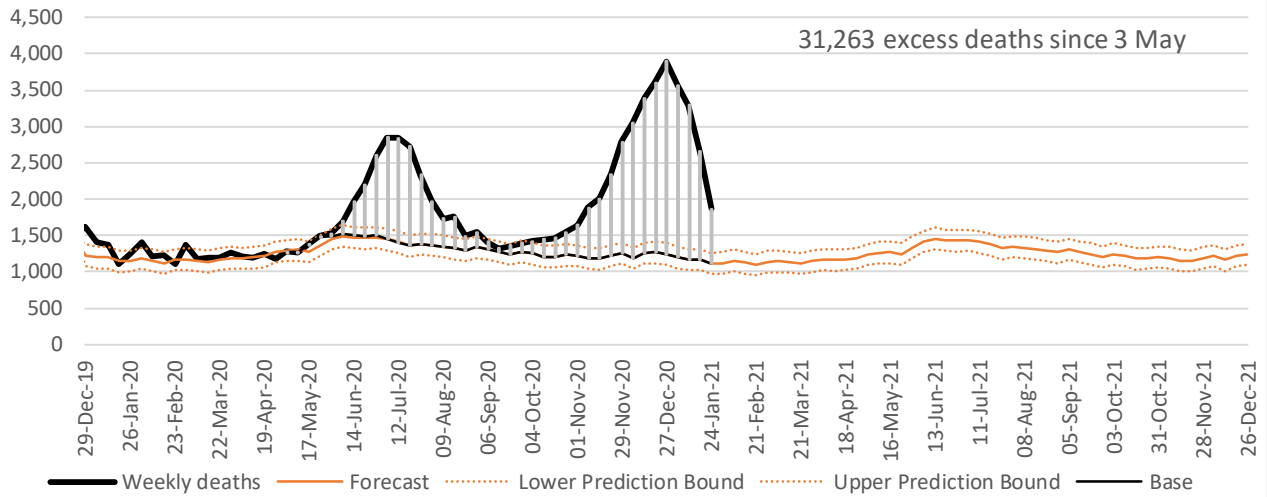
Table 2: Number of excess deaths from all causes of persons 1+ years by province and metro relative to predicted number based on historical trend, South Africa 2020

Region	Excess deaths vs forecast
South Africa	126,684
Province	
Eastern Cape	31,489
Free State	5,558
Gauteng	19,495
KwaZulu-Natal	31,957
Limpopo	11,133
Mpumalanga	7,885
Northern Cape	2,305
North West	4,126
Western Cape	12,736
Metropolitan Municipality	
Buffalo City	2,685
City of Cape Town	8,642
Ekurhuleni	5,786
eThekweni	8,613
Johannesburg	6,212
Mangaung	1,869
Nelson Mandela Bay	4,760
City of Tshwane	4,954

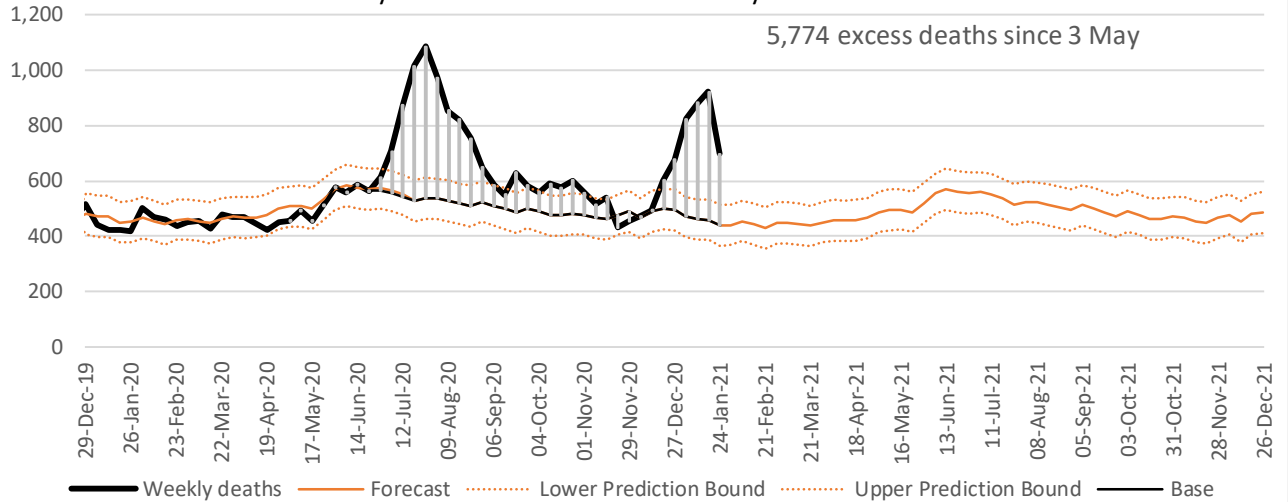


Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations

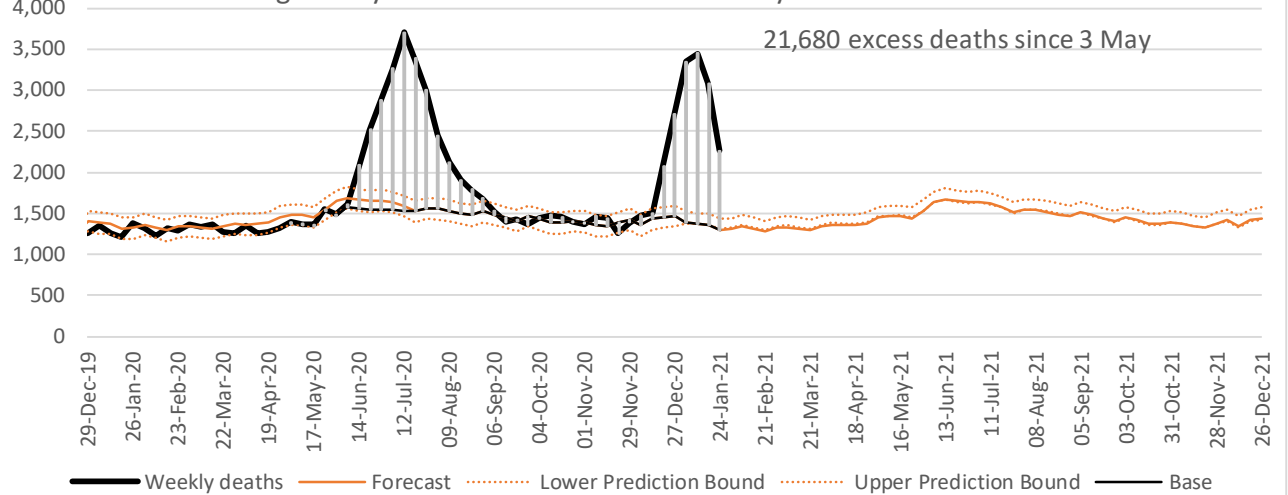
Eastern Cape weekly deaths from natural causes 1+ years : 29 Dec 2019 - 30 Jan 2021



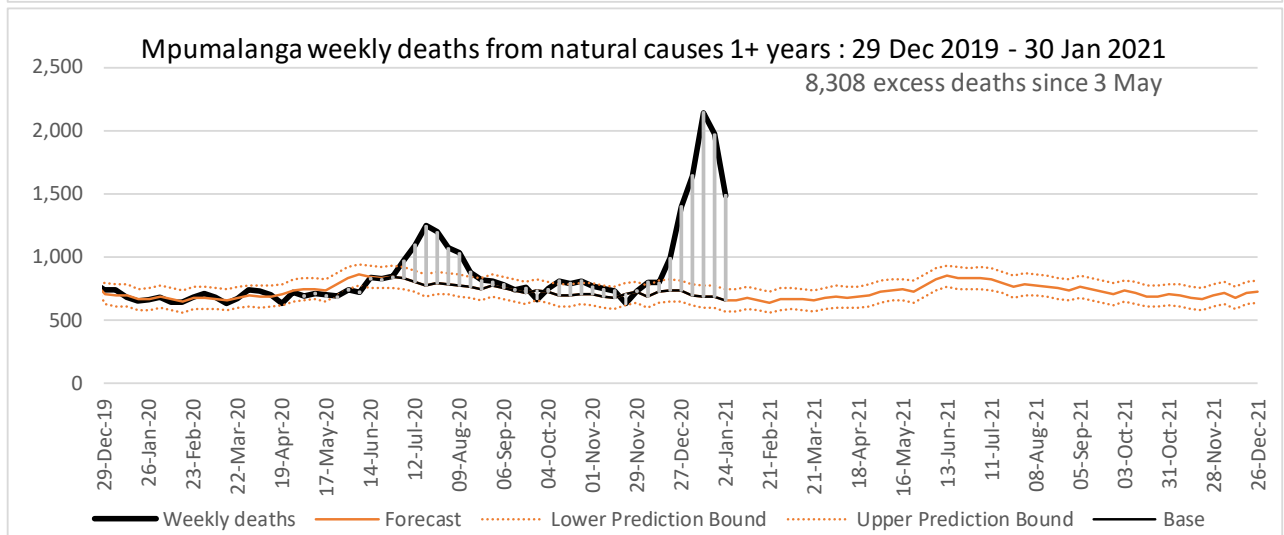
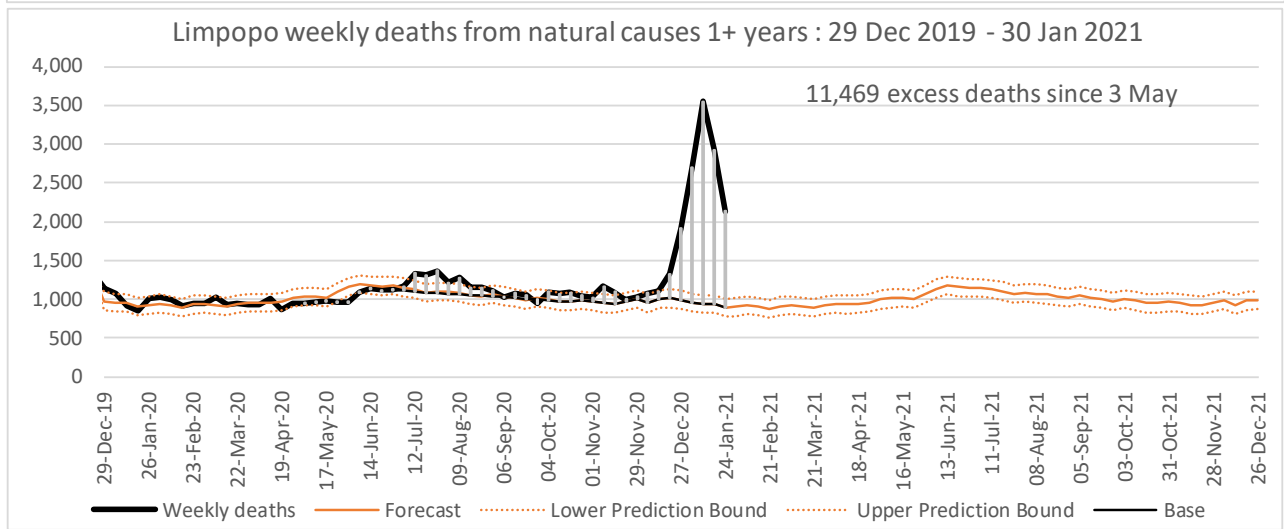
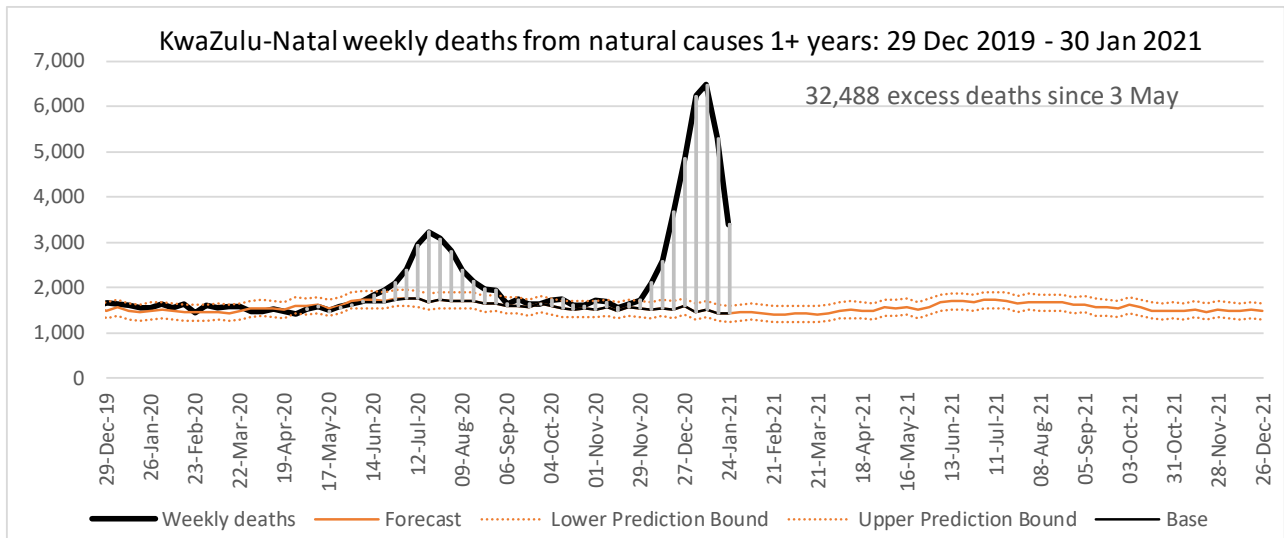
Free State weekly deaths from natural causes 1+ years : 29 Dec 2019 - 30 Jan 2021



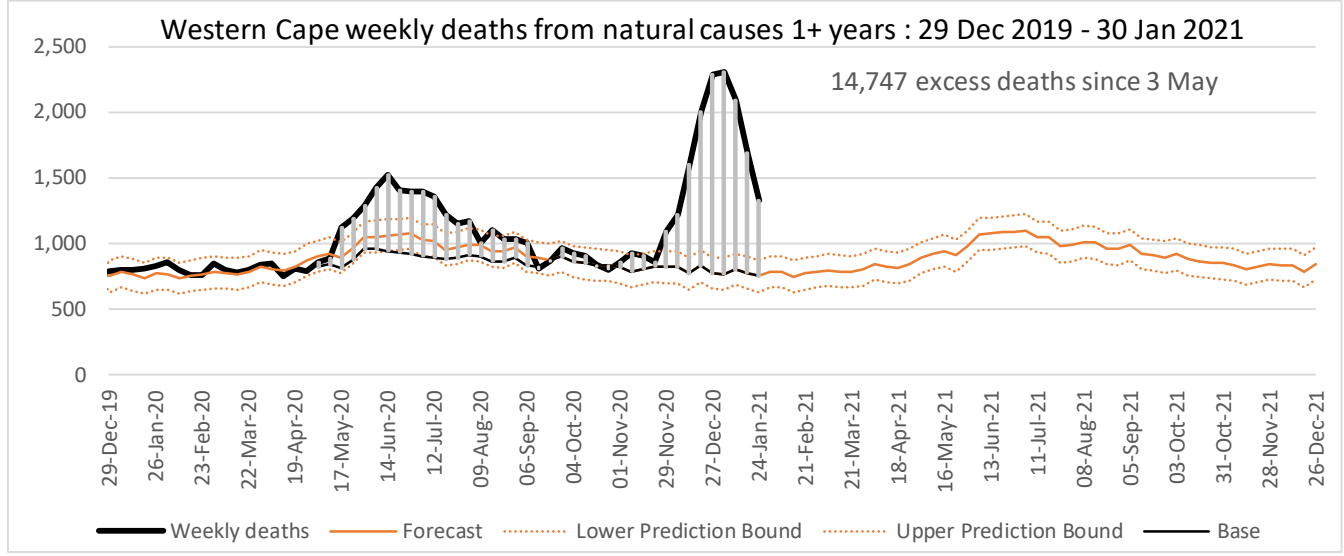
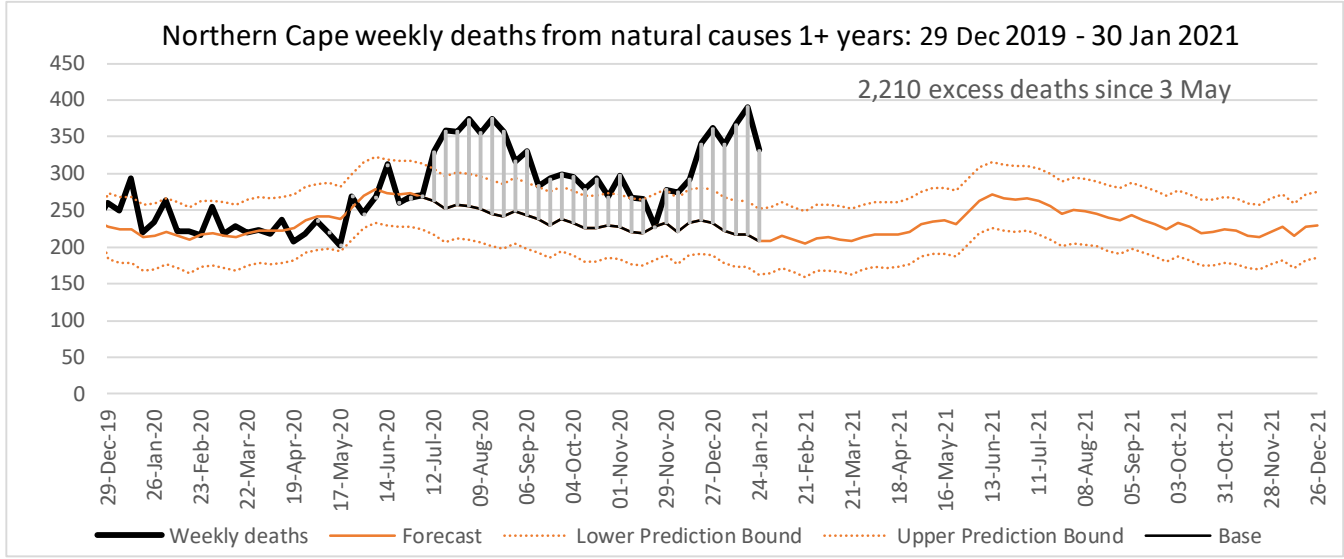
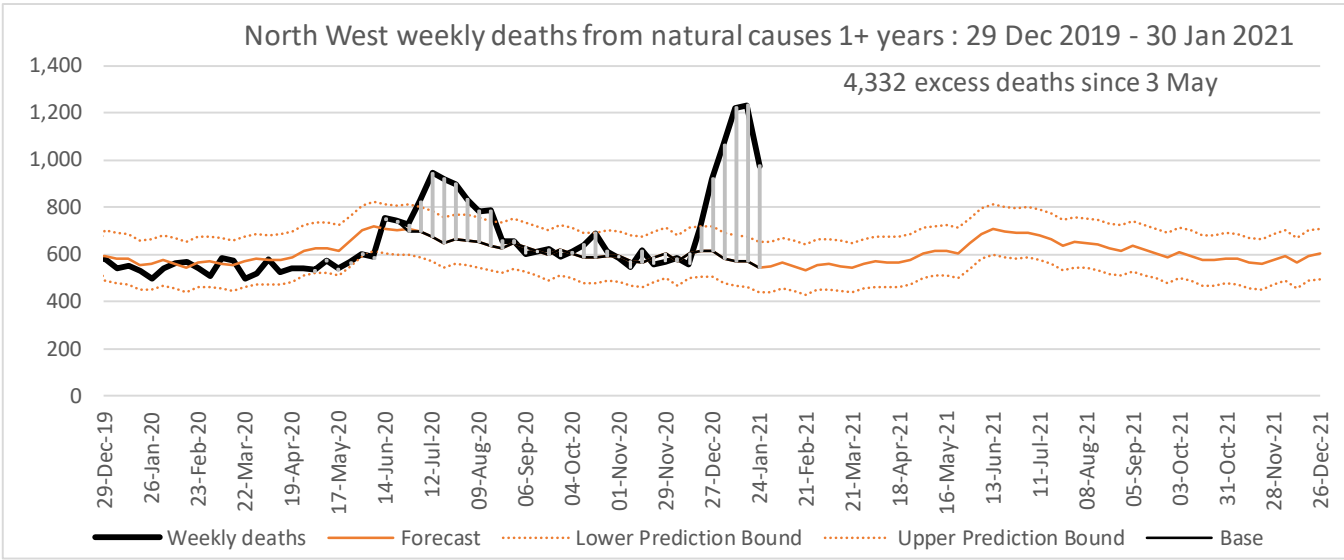
Gauteng weekly deaths from natural causes 1+ years : 29 Dec 2019 - 30 Jan 2021



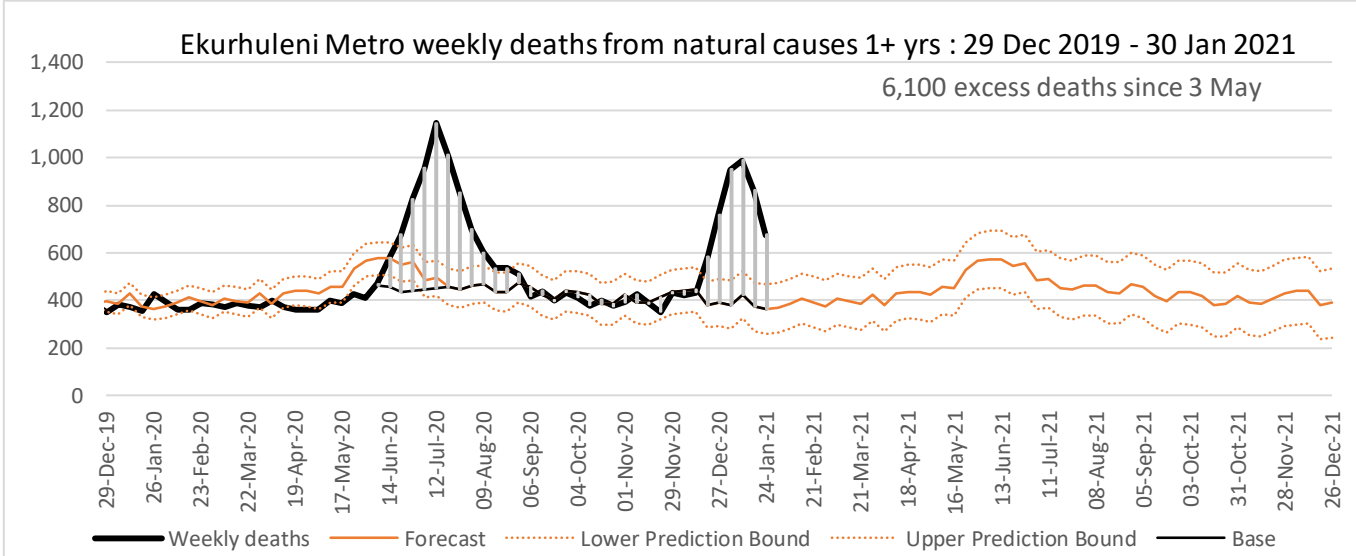
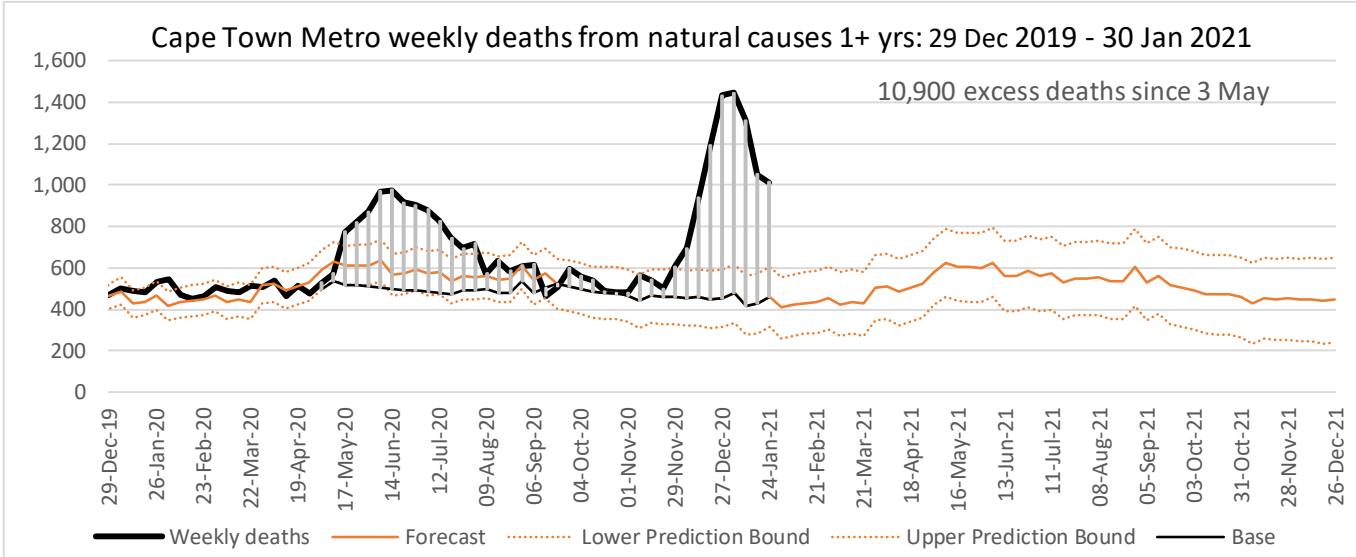
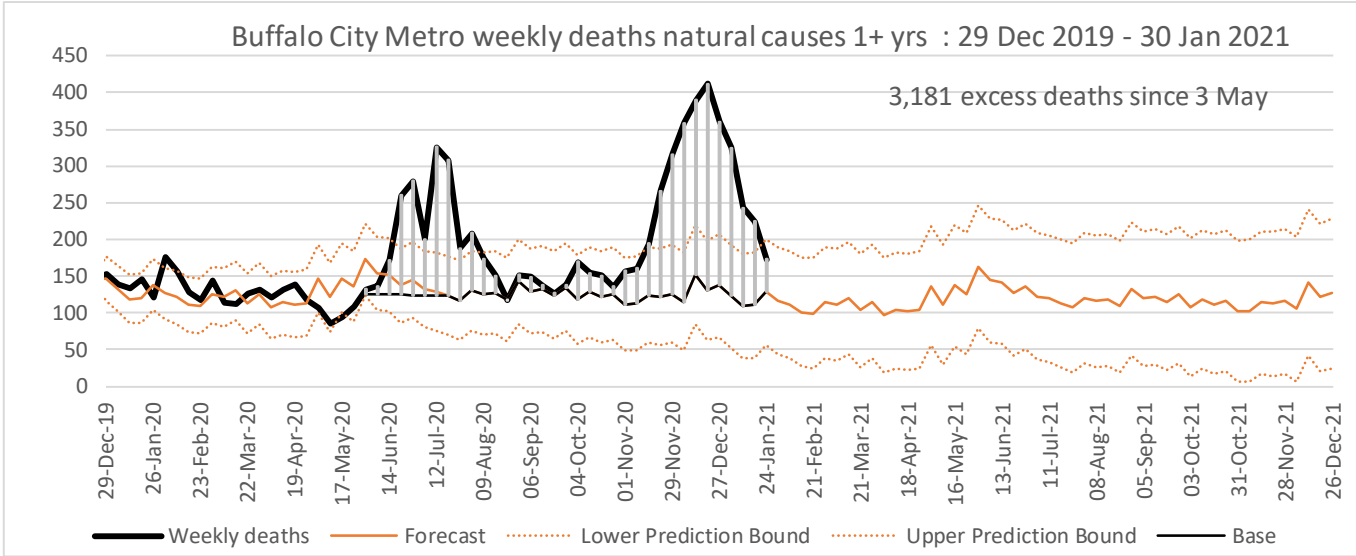
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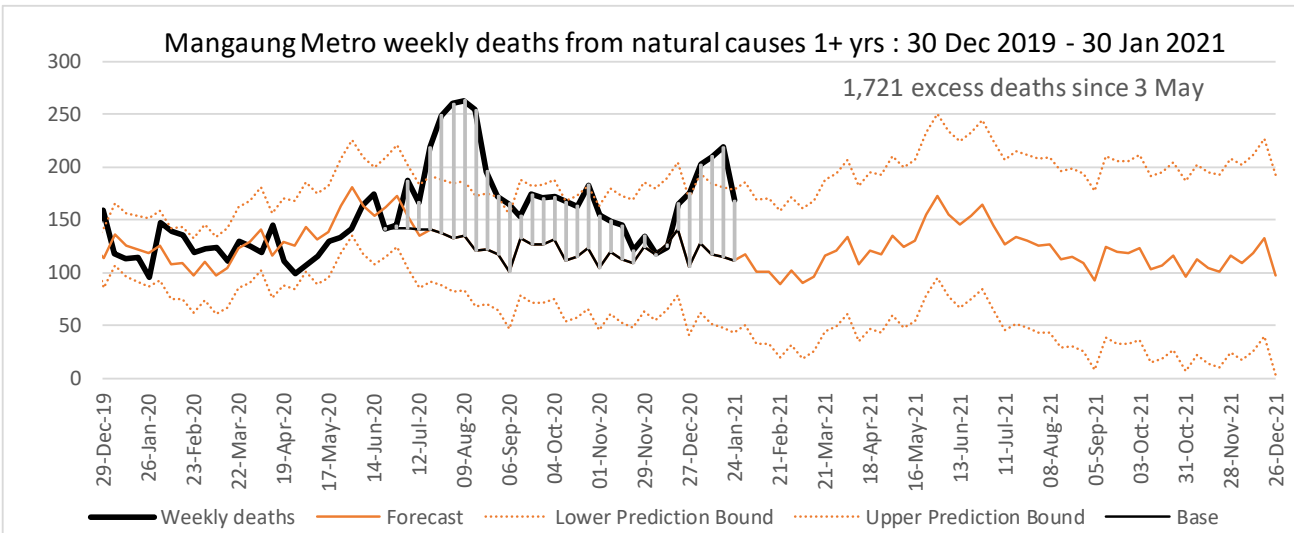
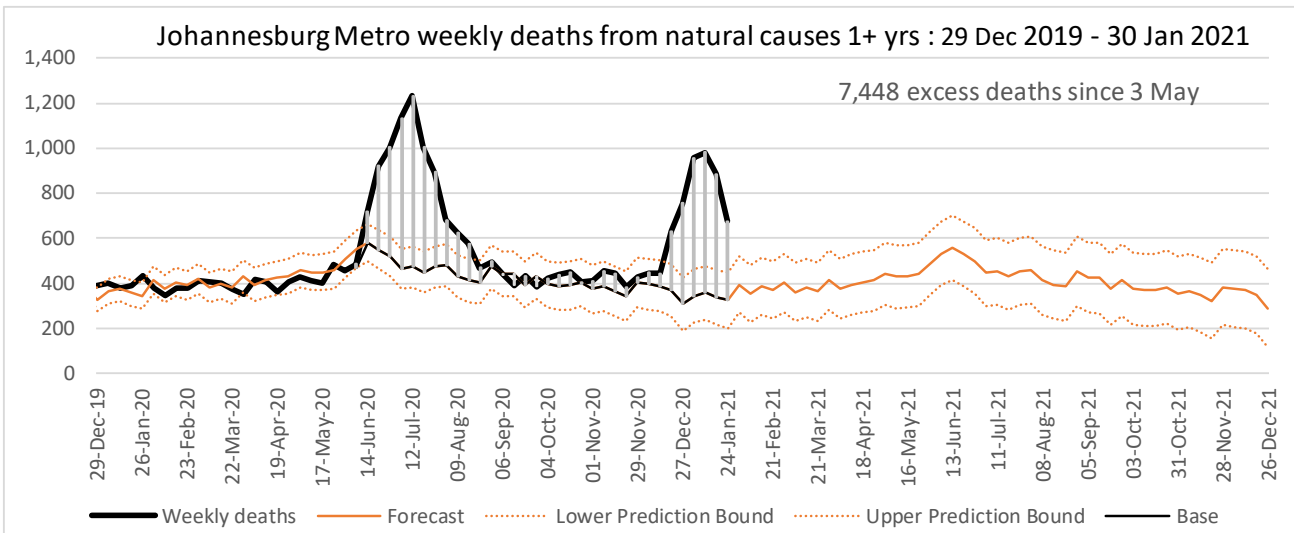
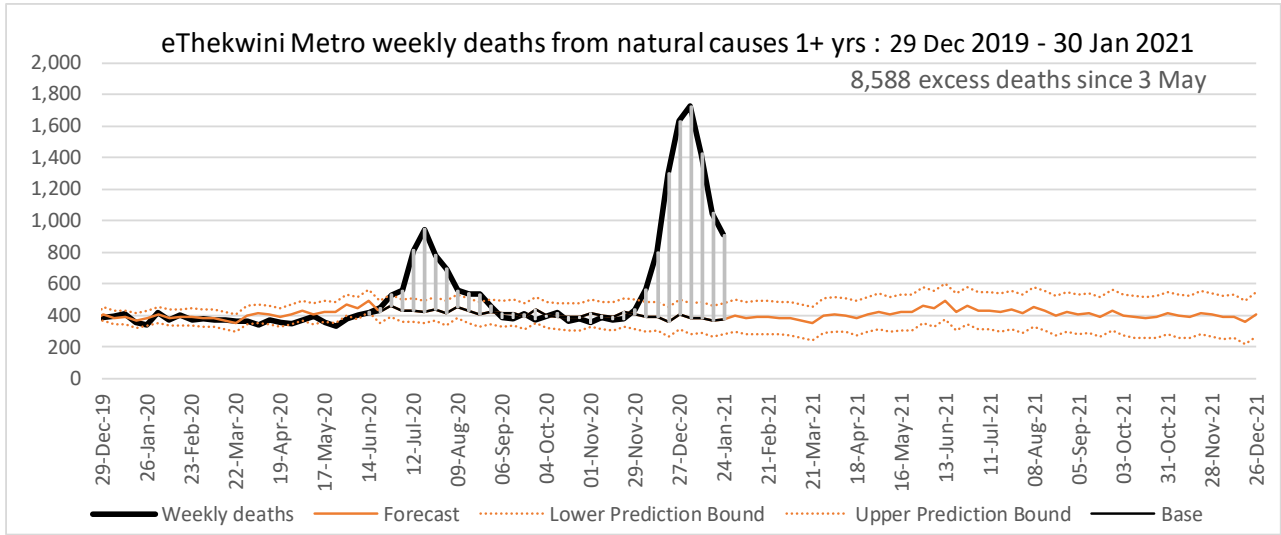
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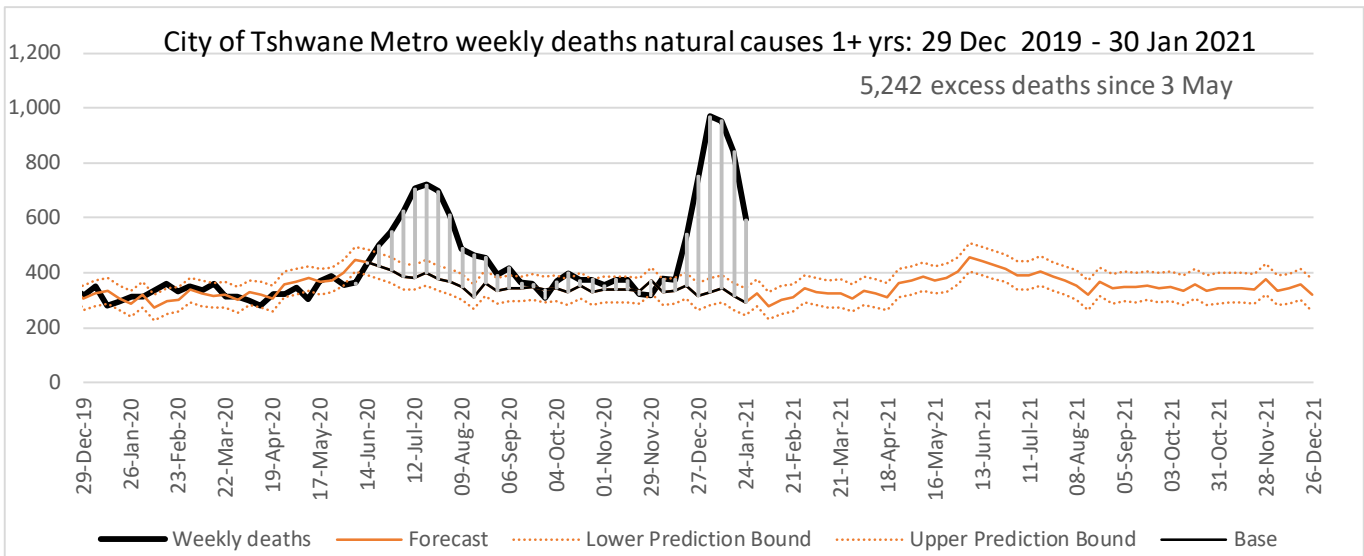
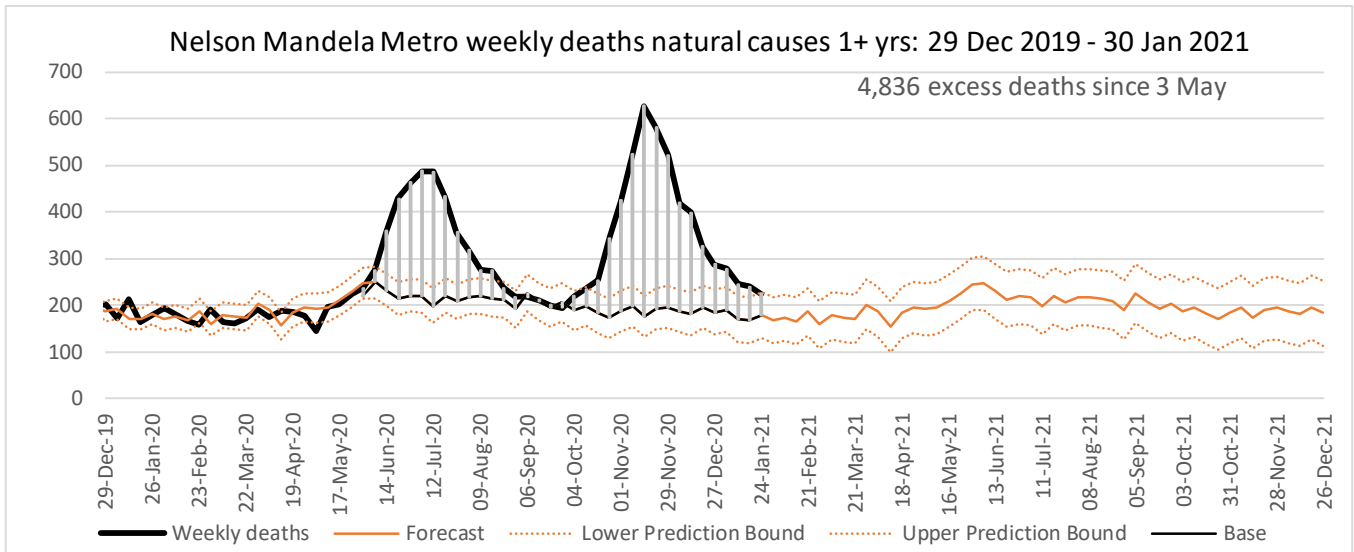
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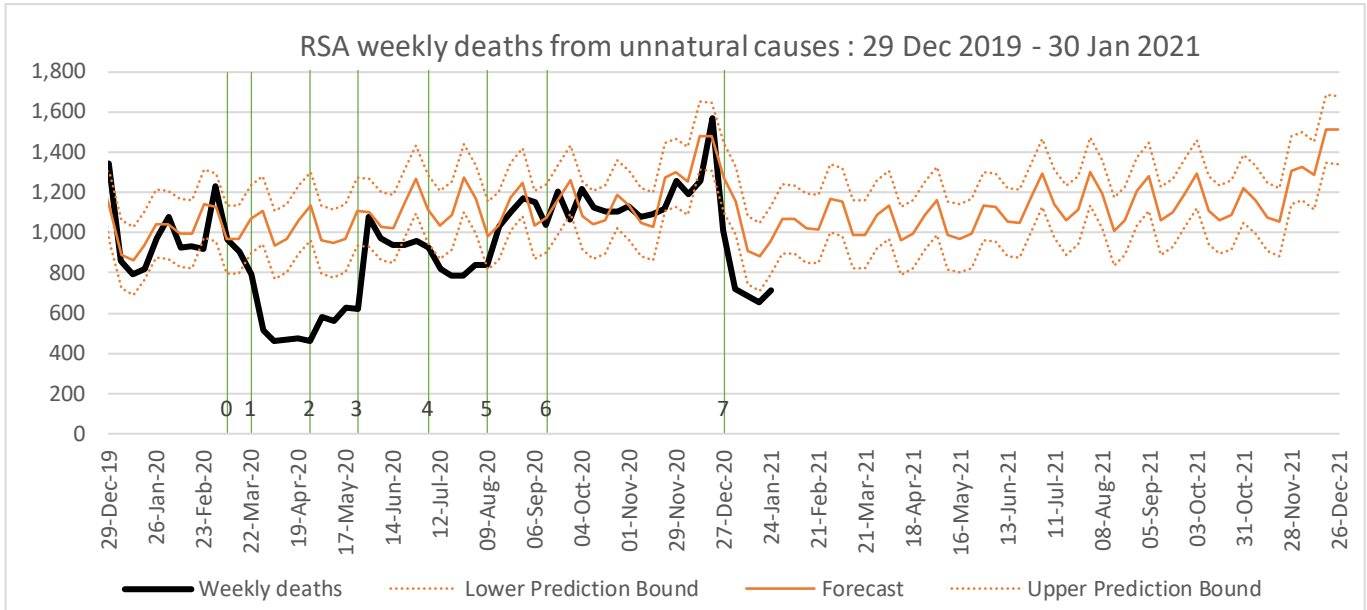
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Vertical lines in order

- 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)