REPORT ON WEEKLY DEATHS IN SOUTH AFRICA

11 – 17 SEPTEMBER 2022

(WEEK 37)

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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, Week 1 of 2021 is 3 January – 9 January 2021 and Week 1 of 2022 is 2 January – 8 January 2022.

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-19 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.

General 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 deaths to a particular 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 of offices in the metro. 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 all persons in South Africa for epidemiological **Week 37** of 2022, covering the period **11 – 17 September 2022.** **Warning:** Estimates for the most recent few weeks need to be treated with caution.

The predicted numbers of weekly deaths in 2022 have been estimated using the models prepared for 2021 with population estimates for 2022. A methodological note outlining the approach for monitoring deaths during 2021 can be downloaded from the SAMRC website: https://www.samrc.ac.za/sites/default/files/files/2021-01-24/Methodological Note on Predicted Weekly Deaths 20_Jan_2021.pdf.

Briefly, the predicted values for the provinces and nationally are based on negative binomial models based on death data for the period 2014-2019. After reviewing trends in the data, separate negative binomial models have been fitted to the unnatural deaths for all provinces combined, and separate models for natural deaths for each of KwaZulu-Natal, Western Cape and the Northern Cape, and the 6 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. Predicted values for each metropolitan area continue to be based on the time-series model of data for 2018 and 2019 developed for 2020 as the trends in the sub-provincial data need further investigation to develop a comprehensive district-level model.

Trends

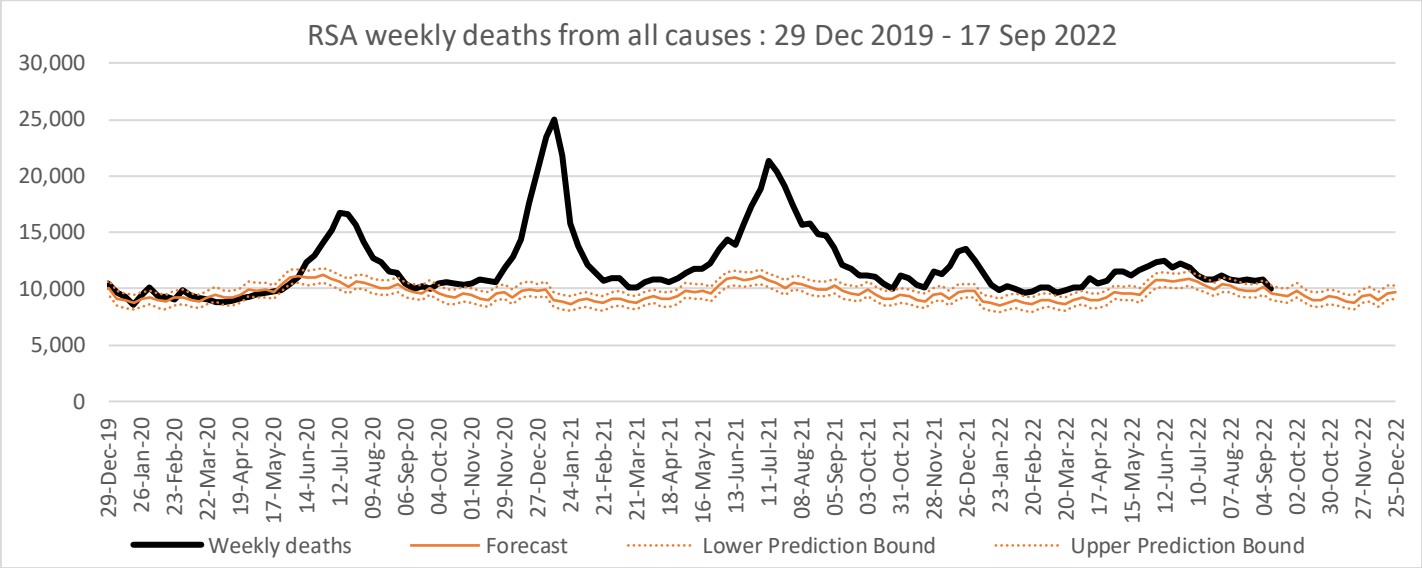
- The weekly number of deaths (all ages) from all causes has been tracking just above the upper prediction bound for several weeks and decreased to **10,017** deaths in **Week 37** (11 – 17 Sep 2022). **Warning:** Estimates for the most recent few weeks need to be treated with caution.
- The number of excess deaths from natural causes (all ages) increased to a high of **2,056** in **Week 21** (22 – 28 May 2022) and decreased to a low of **413** in **Week 29** (17 – 23 Jul 2022) and decreased to **395** in **Week 37** (11 – 17 Sep 2022) after increasing to about 810 in **Week 34** (21 – 27 Aug 2022).
- Since 3 May 2020, there has been a cumulative total of about **330,300** excess deaths from natural causes of persons all ages of which **85,000** occurred in 2020, **203,200** occurred in 2021 (since 3 Jan 2021) and **43,411** have occurred in 2022 by the end of **Week 37** (11 – 17 Sep 2022).

Week	Date	Weekly excess deaths from natural causes (all ages)	Cumulative excess since 3 May 2020 (all ages)	Cumulative excess since 2 January 2022 (all ages)
27	3-Jul-22 – 9-Jul-22	1,019	324,013	37,105
28	10-Jul-22 – 16-Jul-22	437	324,450	37,542
29	17-Jul-22 – 23-Jul-22	413	324,863	37,955
30	24-Jul-22 – 30-Jul-22	729	325,592	38,684
31	31-Jul-22 – 6-Aug-22	760	326,352	39,444
32	7-Aug-22 – 13-Aug-22	491	326,843	39,935
33	14-Aug-22 – 20-Aug-22	705	327,548	40,640
34	21-Aug-22 – 27-Aug-22	810	328,358	41,450
35	28-Aug-22 – 3-Sep-22	809	329,167	42,260
36	4-Sep-22 – 10-Sep-22	756	329,923	43,016
37	11-Sep-22 – 17-Sep-22	395	330,318	43,411

- For people under the age of 60, the number of natural deaths has been tracking close to the predicted value during June and July. The cumulative number of excess natural deaths for people under-60 years since **3 May 2020** was about **85,855**.
- The number of weekly excess deaths in the 60+ years age group had decreased to a low of **636** in **Week 28** (10 – 16 Jul 2022) with a p-score of 14% and thereafter has continued to track just above the upper prediction bound. In **Week 37** (11 – 17 Sep 2022), there were **418** excess deaths with a p-score of 10%. The cumulative total number of excess natural deaths in this age group since **3 May 2020** is just under **245,000**.

Week	Date	Weekly excess deaths from natural causes for persons 60+ years	p-score
27	3-Jul-22 – 9-Jul-22	970	20.5%
28	10-Jul-22 – 16-Jul-22	636	13.7%
29	17-Jul-22 – 23-Jul-22	658	14.4%
30	24-Jul-22 – 30-Jul-22	813	18.7%
31	31-Jul-22 – 6-Aug-22	772	17.3%
32	7-Aug-22 – 13-Aug-22	535	12.0%
33	14-Aug-22 – 20-Aug-22	633	14.3%
34	21-Aug-22 – 27-Aug-22	717	16.6%
35	28-Aug-22 – 3-Sep-22	632	14.9%
36	4-Sep-22 – 10-Sep-22	554	12.8%
37	11-Sep-22 – 17-Sep-22	418	9.9%

- Natural deaths in all provinces have been tracking withing their prediction bounds.
- 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 37** (11 – 17 Sep 2022), the national excess death rate since 3 May 2020 was **555** per **100,000** population.
- The provinces with the highest cumulative numbers of excess deaths at the end of **Week 35** (28 Aug – 3 Sep 2022), are, in order, **KwaZulu-Natal, Gauteng** and **Eastern Cape**. The ranking changes to **Eastern Cape, Northern 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 per capita (i.e., taking into account the age distribution of the provincial population). The **Western Cape**, followed by **Gauteng**, continue to have the lowest cumulative age standardised per capita rates.
- The number of unnatural deaths reached a high of **1,556 i**n **Week 15** (10 – 16 Apr 2022), the week of the floods in KwaZulu-Natal, and has resumed the predicted monthly cyclical pattern with **1,101** deaths in **Week 37** (11 – 17 Sep 2022).



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

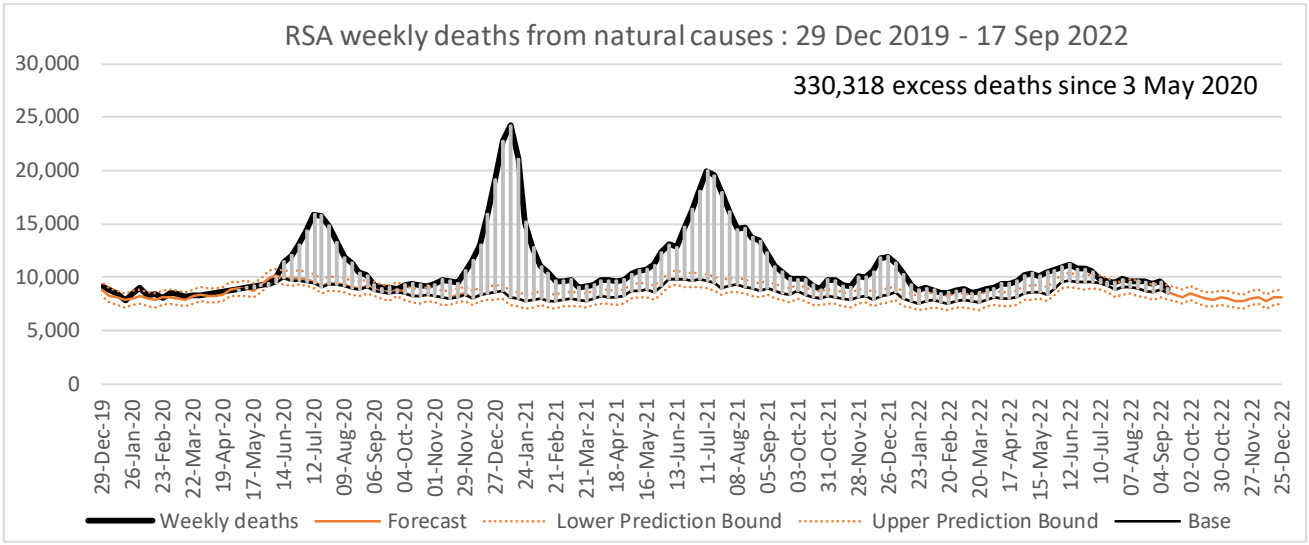
Table 1: Number of excess natural deaths of persons by province and metro relative to revised predicted number based on the observed drop during lockdown, South Africa 2020/22

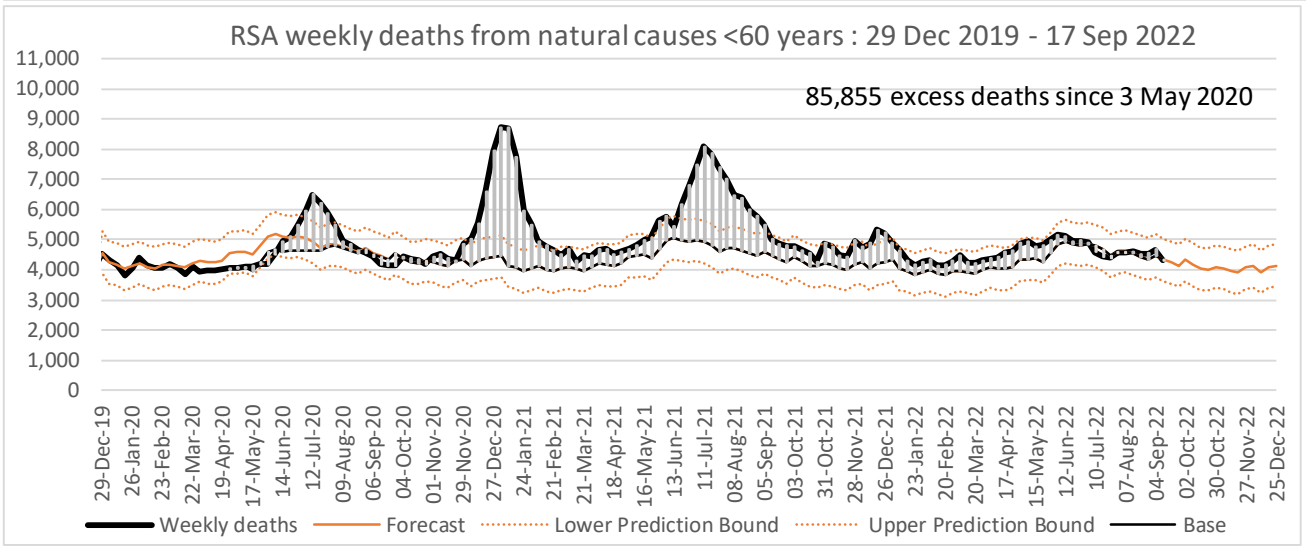
Region	Period	Excess deaths vs revised base	Excess deaths per 100,000 population	Age standardised excess death rate per 100,000
South Africa	3 May 20 – 17 Sep 22	330,318	555	555
Province				
Eastern Cape	31 May 20 – 17 Sep 22	57,043	867	699
Free State	21 Jun 20 – 17 Sep 22	19,084	655	656
Gauteng	7 Jun 20 – 17 Sep 22	65,305	419	460
KwaZulu-Natal	7 Jun 20 – 17 Sep 22	67,821	592	682
Limpopo	21 Jun 20 – 17 Sep 22	36,534	618	541
Mpumalanga	21 Jun 20 – 17 Sep 22	25,511	530	571
Northern Cape	28 Jun 20 – 17 Sep 22	9,994	854	799
North West	28 Jun 20 – 17 Sep 22	18,175	451	463
Western Cape	3 May 20 – 17 Sep 22	30,851	437	385
Metropolitan Municipality				
Buffalo City	31 May 20 – 17 Sep 22	7,186		
City of Cape Town	3 May 20 – 17 Sep 22	23,829		
Ekurhuleni	7 Jun 20 – 17 Sep 22	14,888		
eThekwini	14 Jun 20 – 17 Sep 22	13,985		
Johannesburg	7 Jun 20 – 17 Sep 22	22,517		
Mangaung	21 Jun 20 – 17 Sep 22	5,926		
Nelson Mandela Bay	31 May 20 – 17 Sep 22	8,826		
City of Tshwane	7 Jun 20 – 17 Sep 22	12,010		

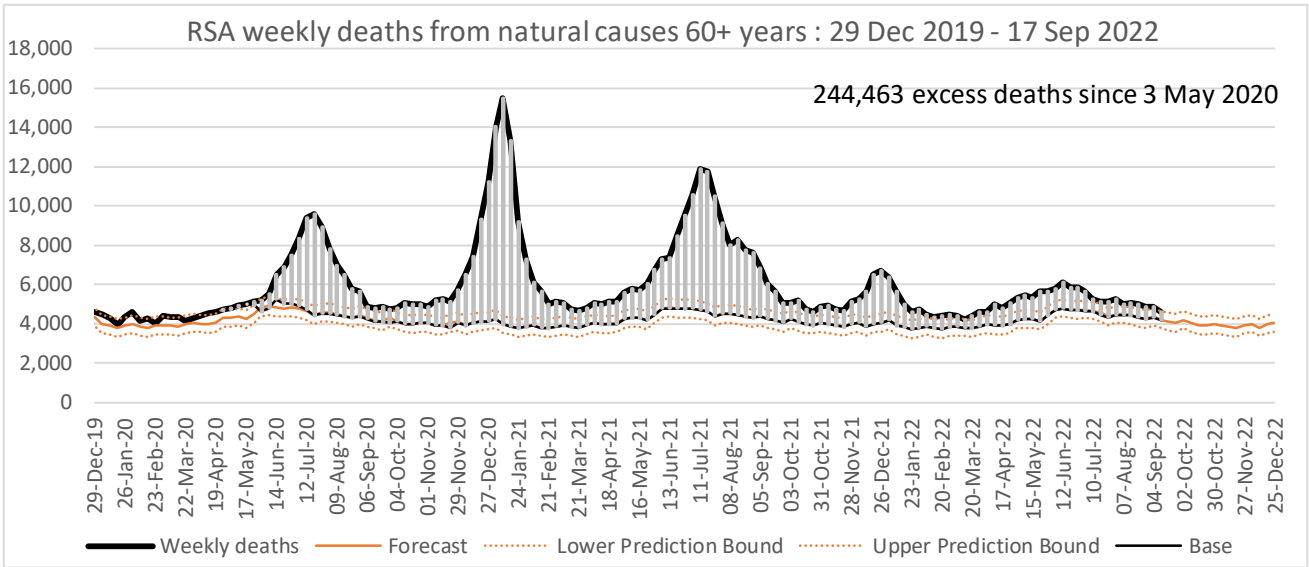
Note: Period has been determined based on when an upturn in the number of natural deaths became apparent. Parts do not sum to the whole because office closures due to Covid-19 may have led to registration of deaths at other offices which may not be in the same area, and random fluctuation at the point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

Table 2: Number of excess deaths from all causes of persons by province and metro relative to predicted number based on historical trend, South Africa 2020/22

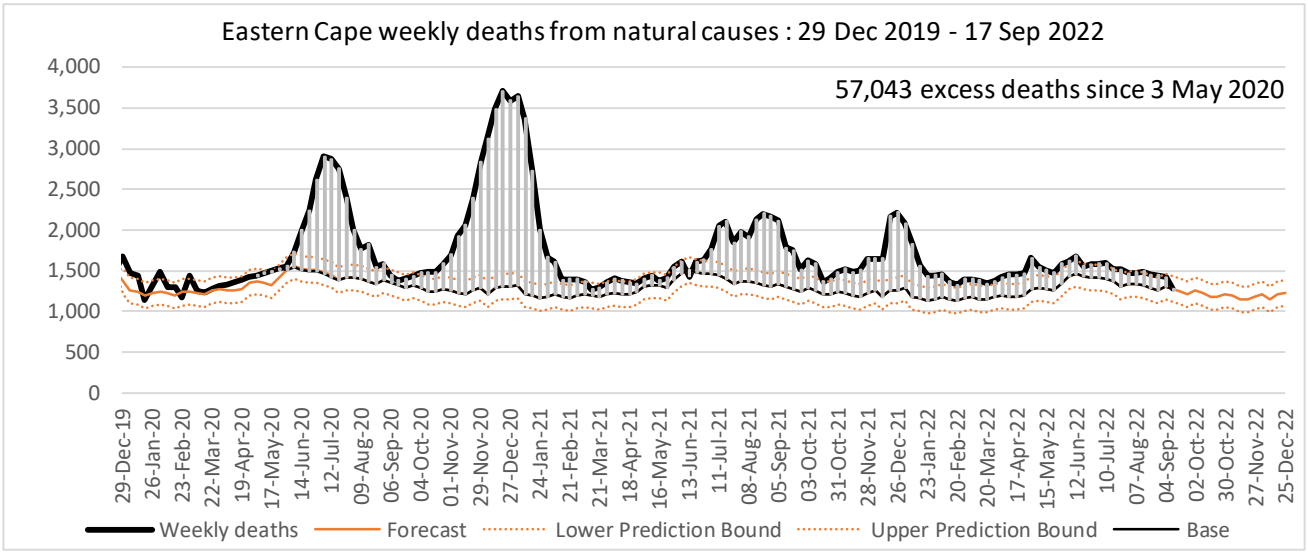
Region	Excess deaths vs forecast	Excess deaths per 100,000 population
South Africa	334,290	562
Province		
Eastern Cape	59,670	907
Free State	18,958	651
Gauteng	62,599	401
KwaZulu-Natal	71,327	623
Limpopo	37,089	628
Mpumalanga	25,376	527
Northern Cape	9,930	848
North West	17,652	438
Western Cape	31,689	449
Metropolitan Municipality		
Buffalo City	7,703	
City of Cape Town	22,514	
Ekurhuleni	13,716	
eThekwini	13,081	
Johannesburg	22,970	
Mangaung	6,705	
Nelson Mandela Bay	8,949	
City of Tshwane	12,584	

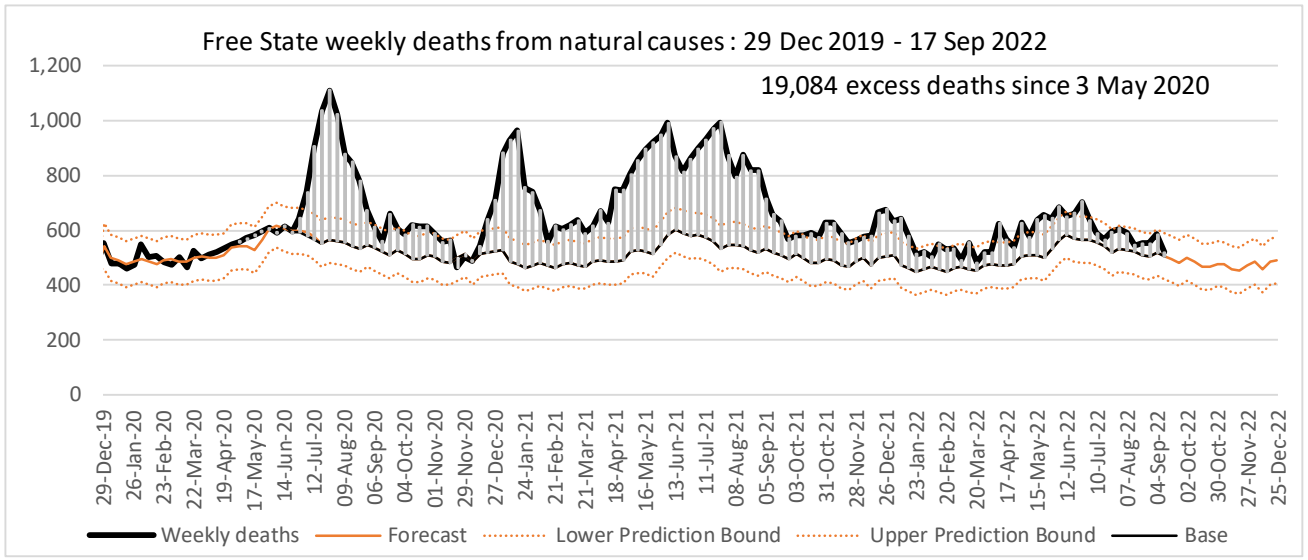


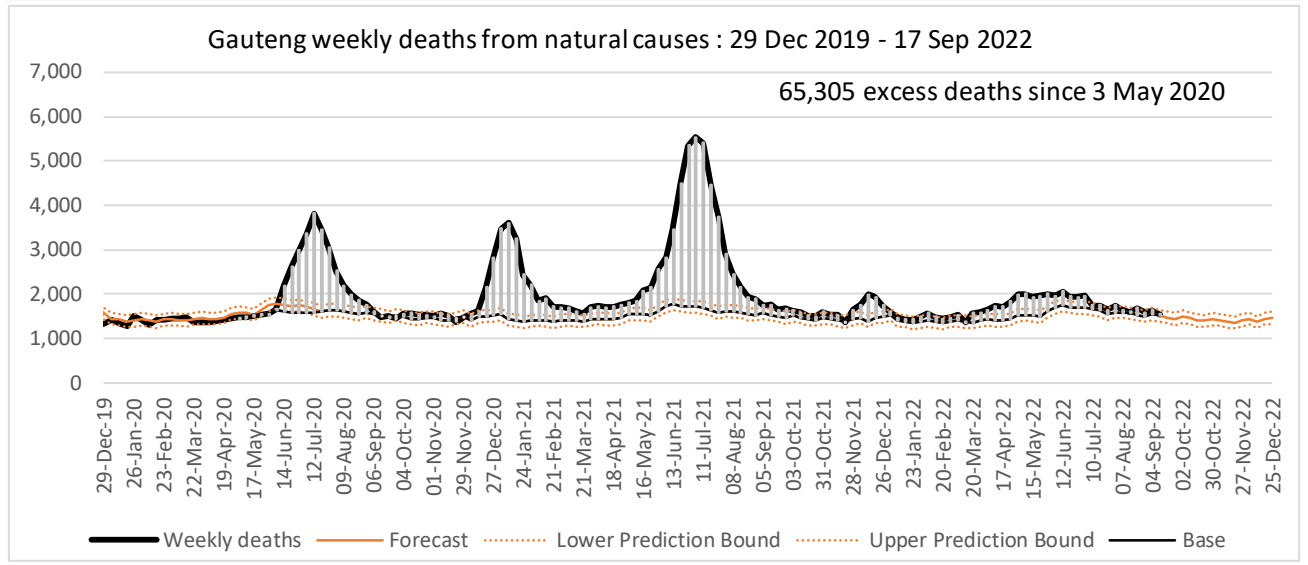




Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations







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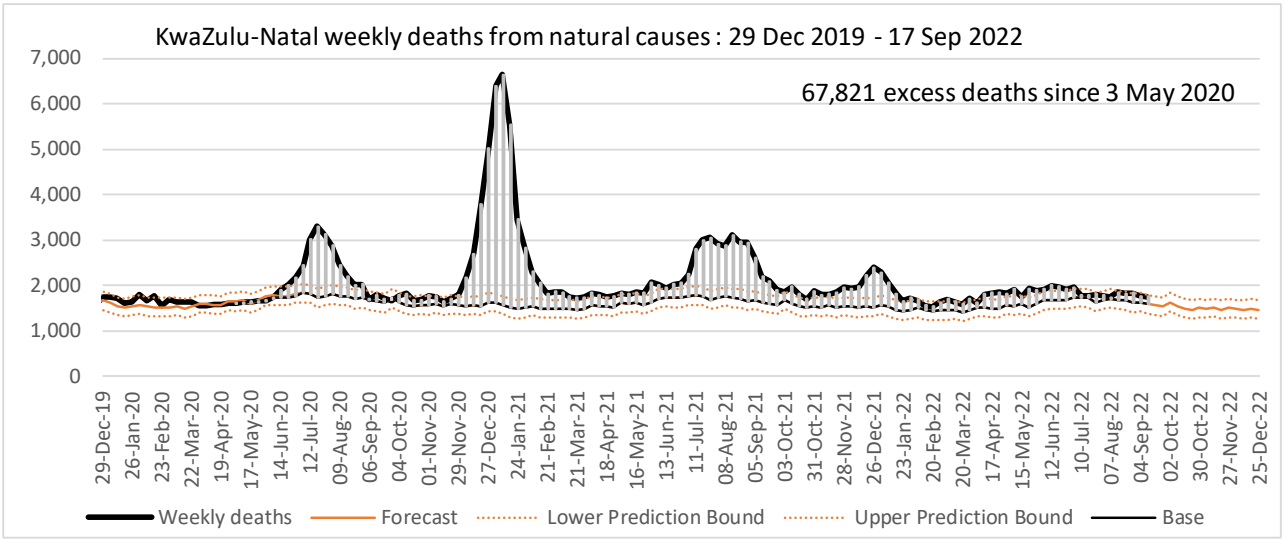

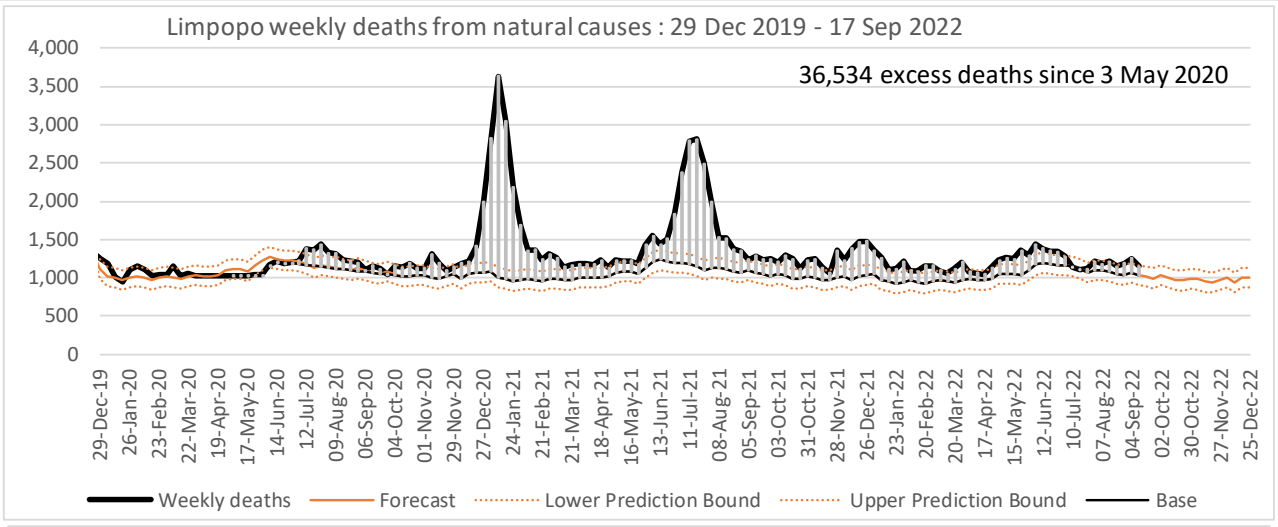

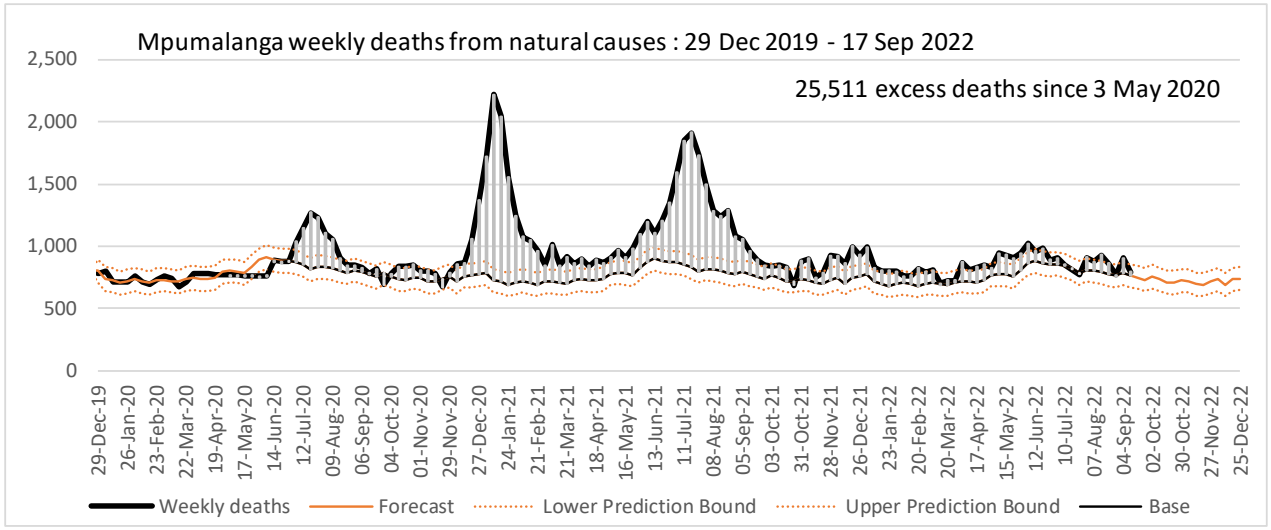

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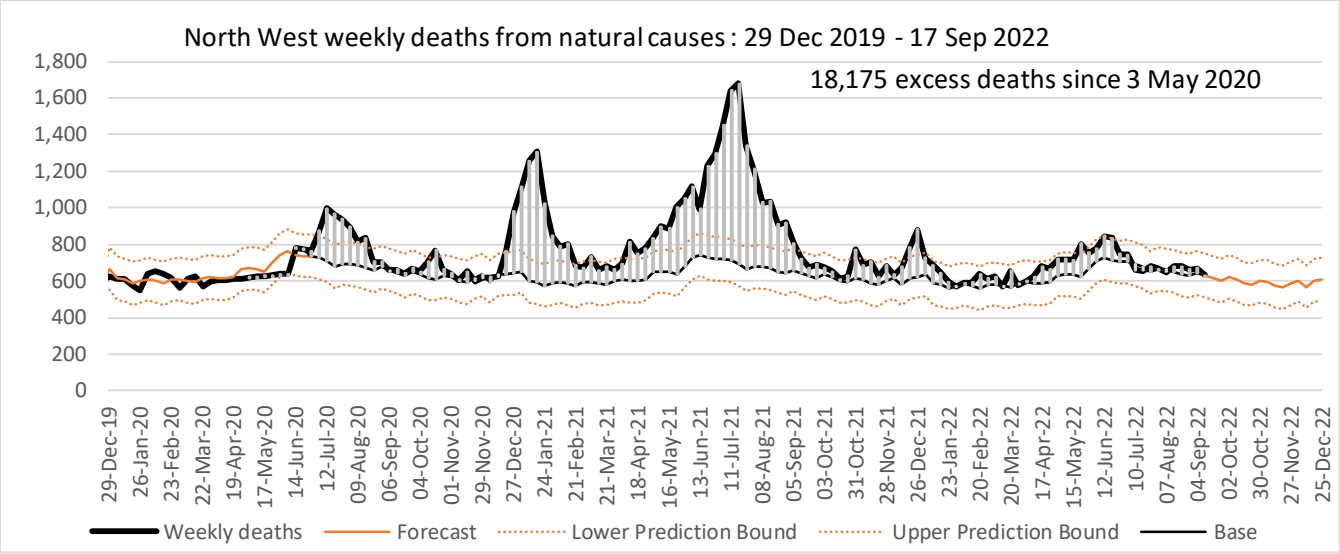

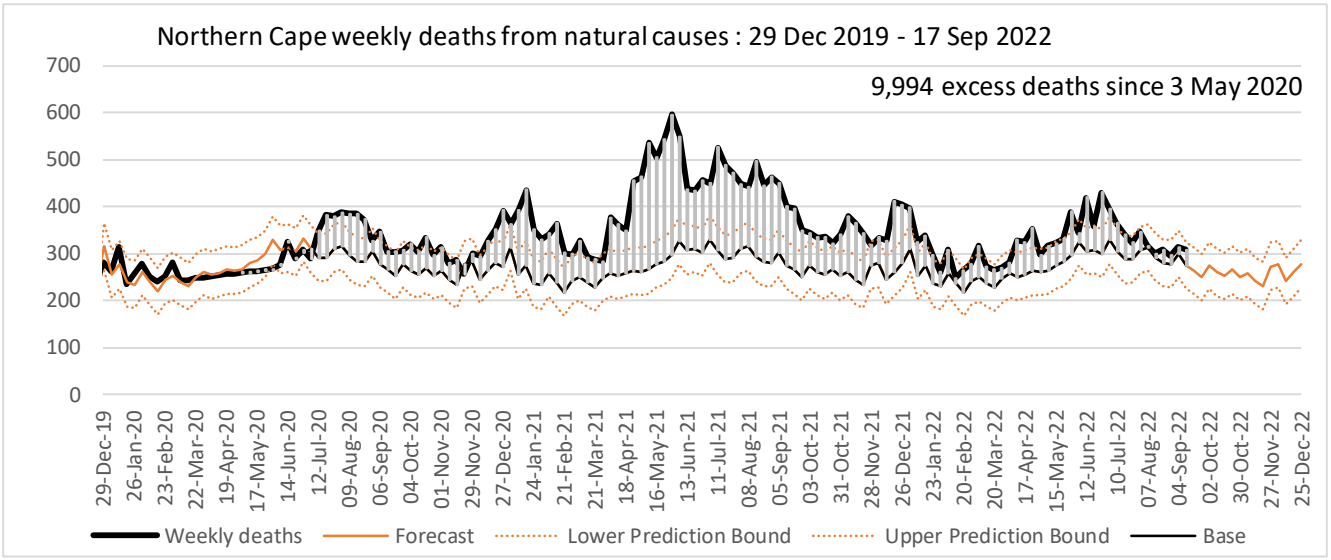

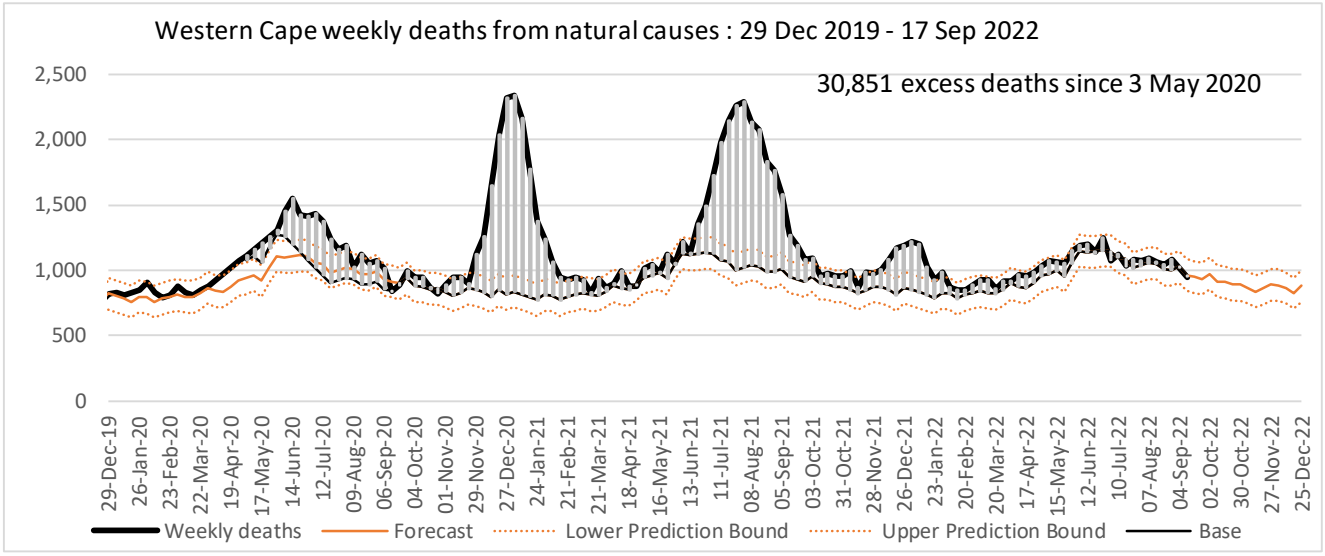

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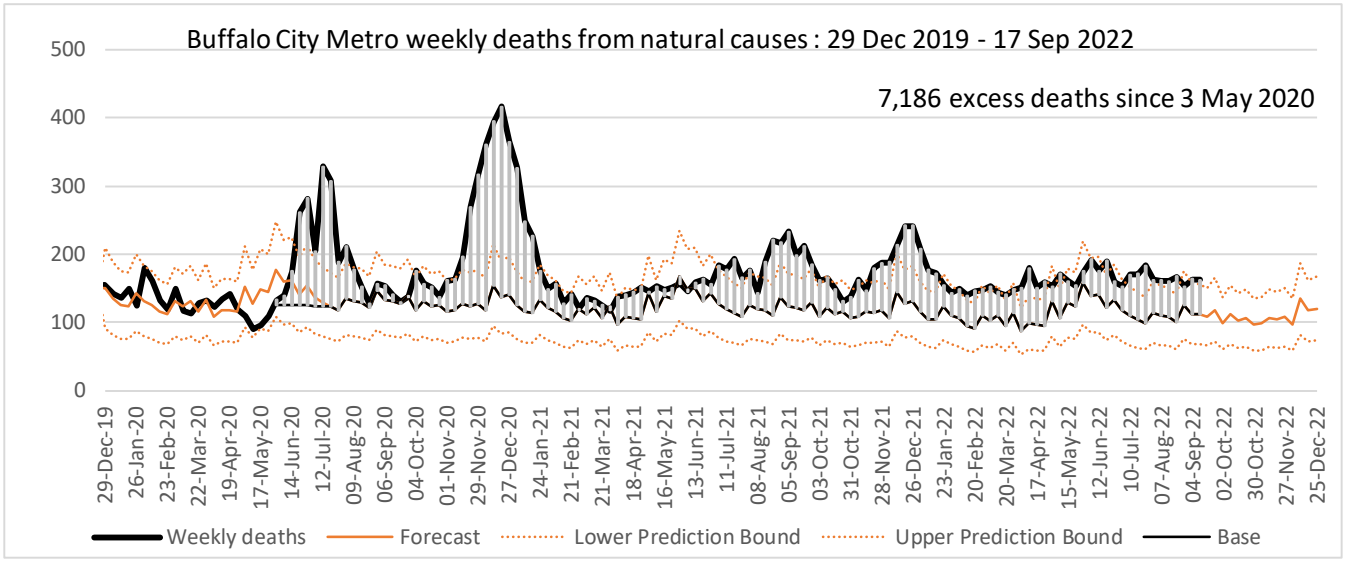

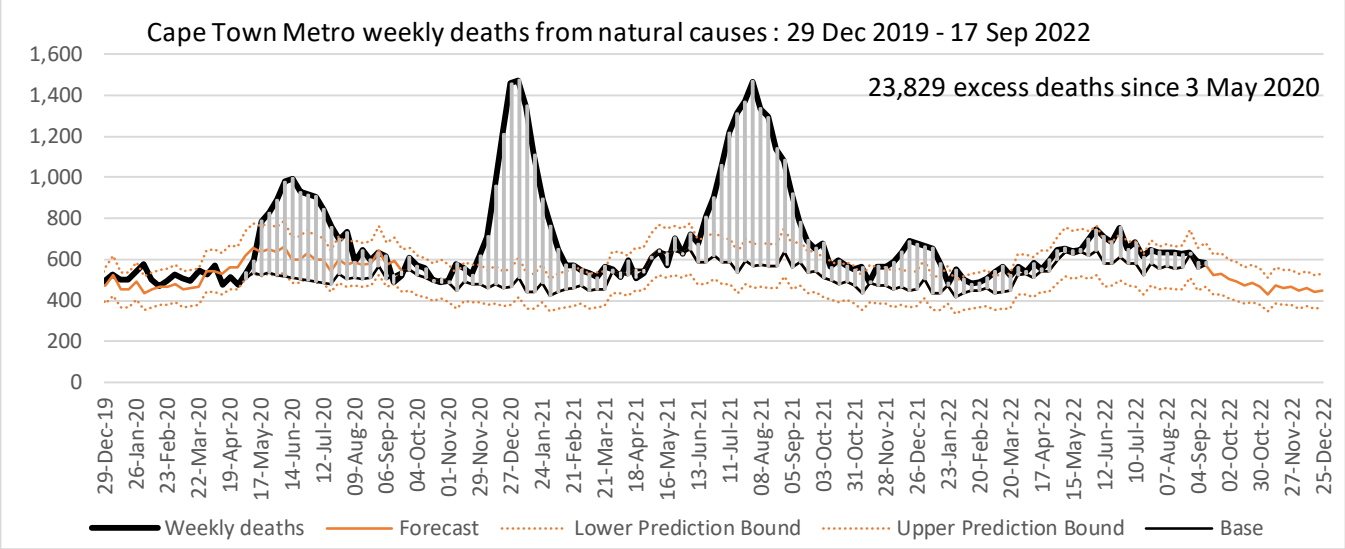

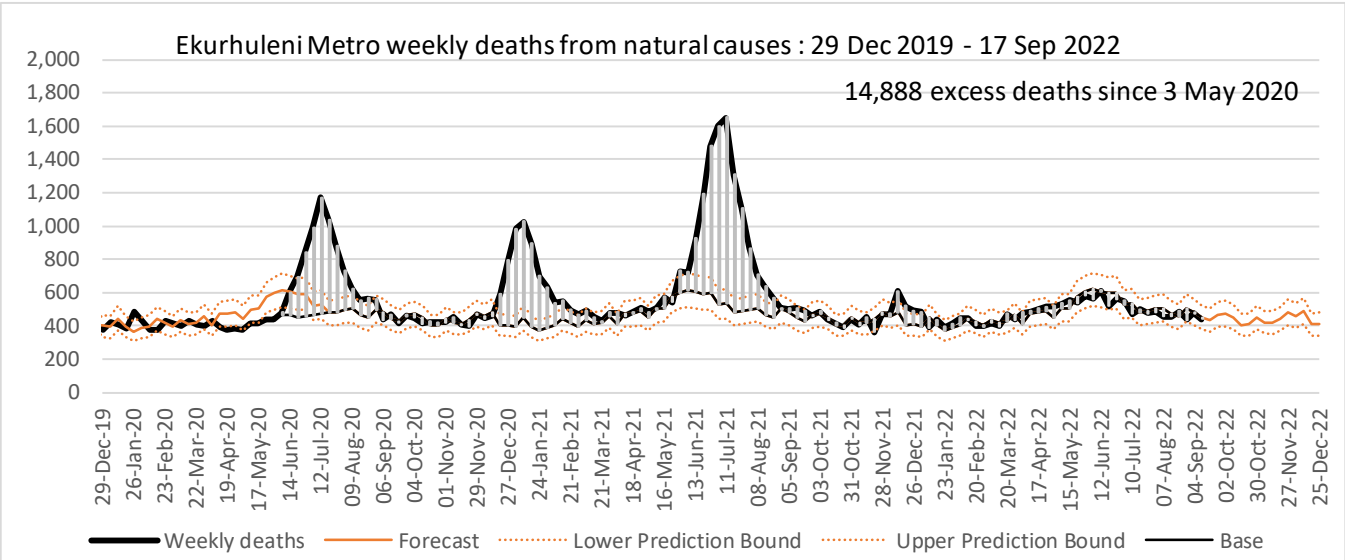

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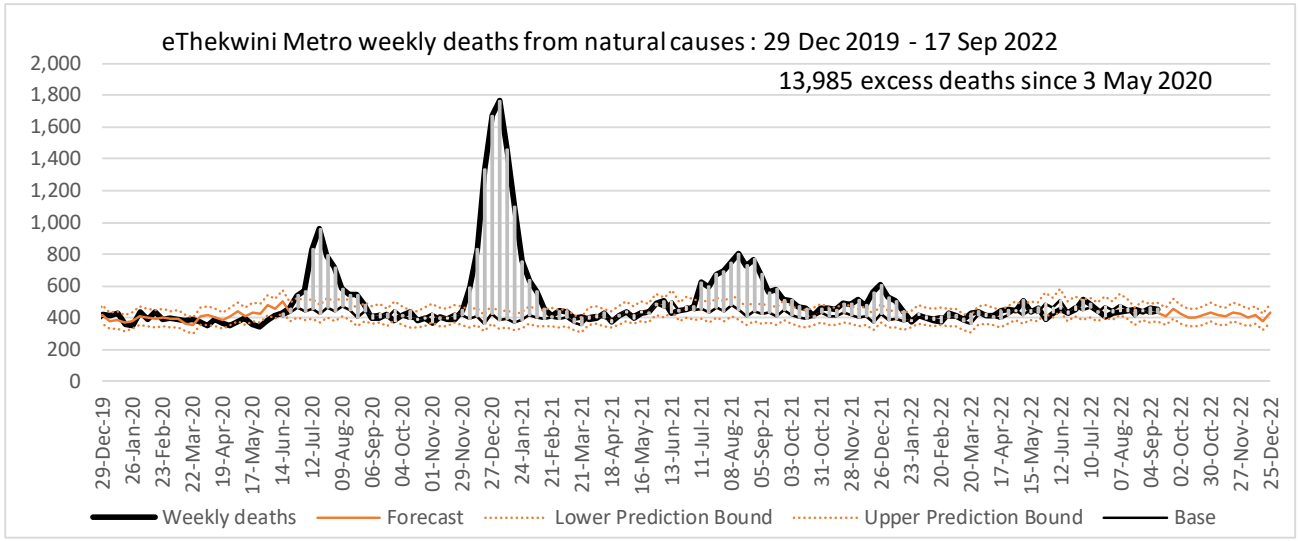

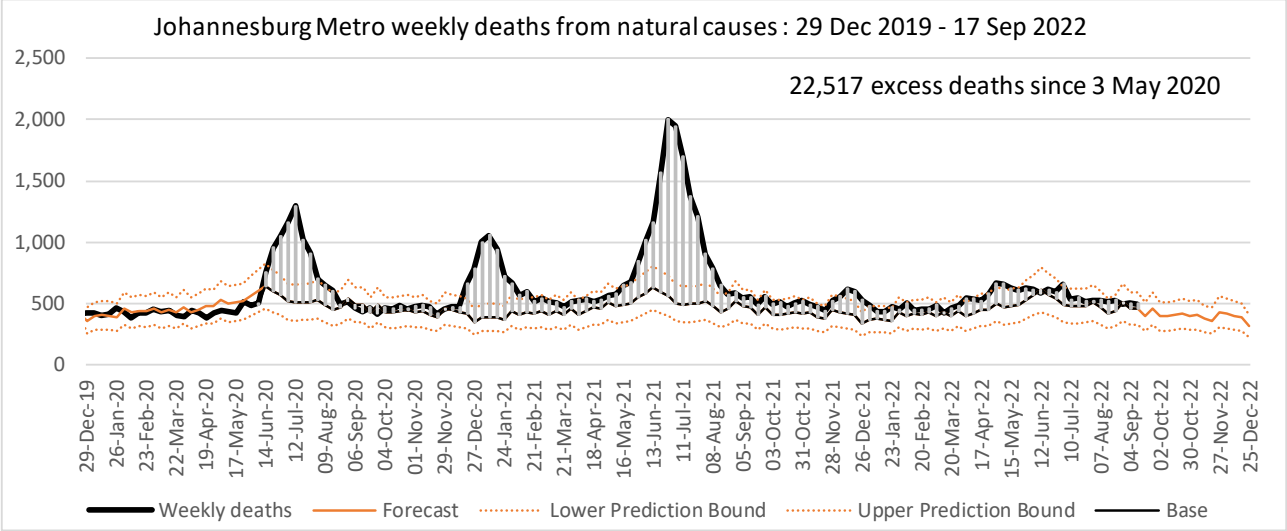

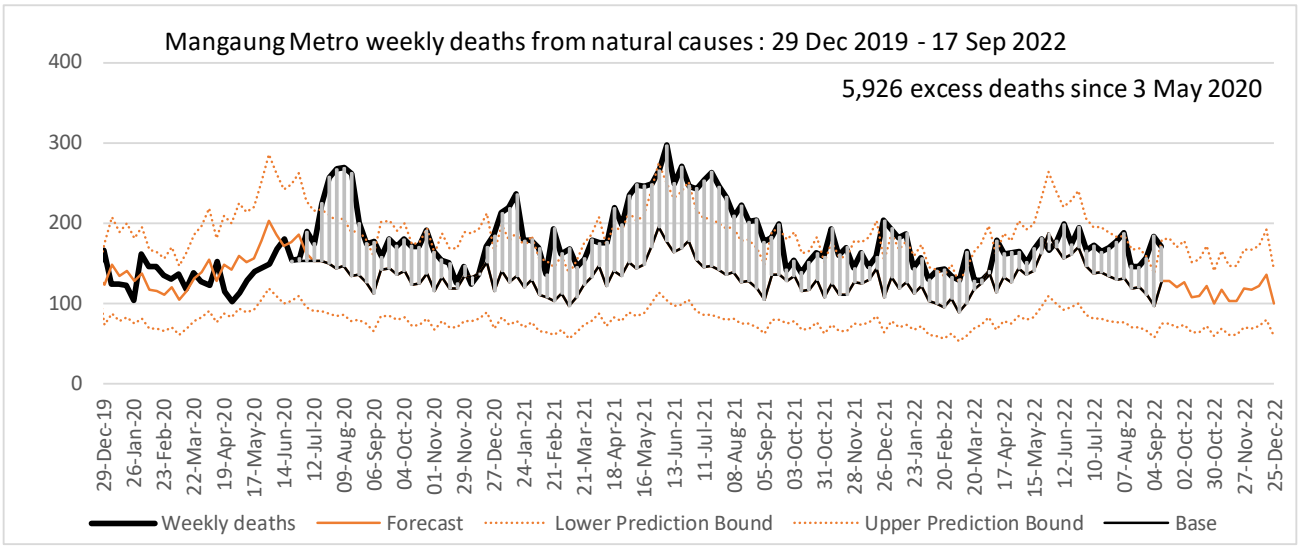

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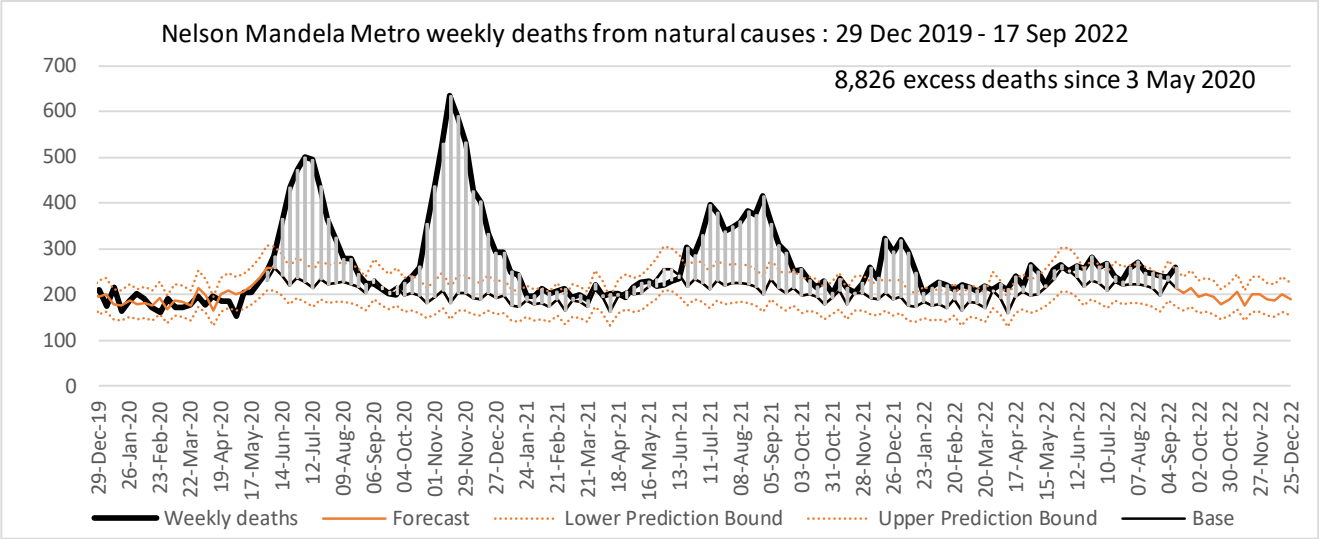

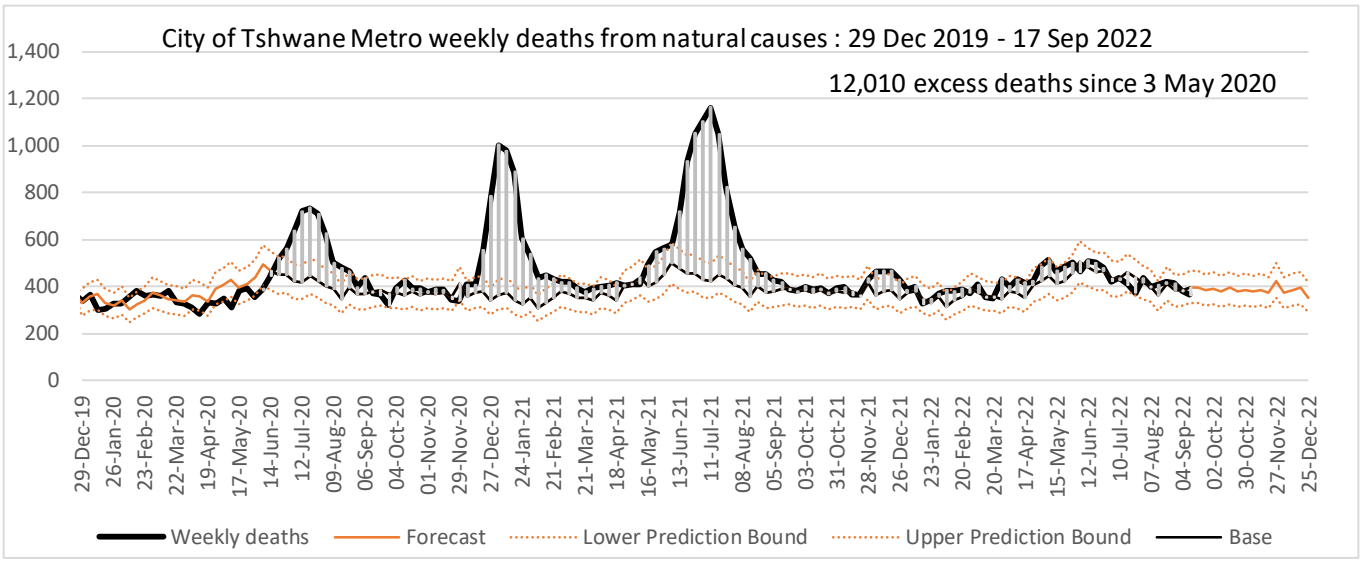

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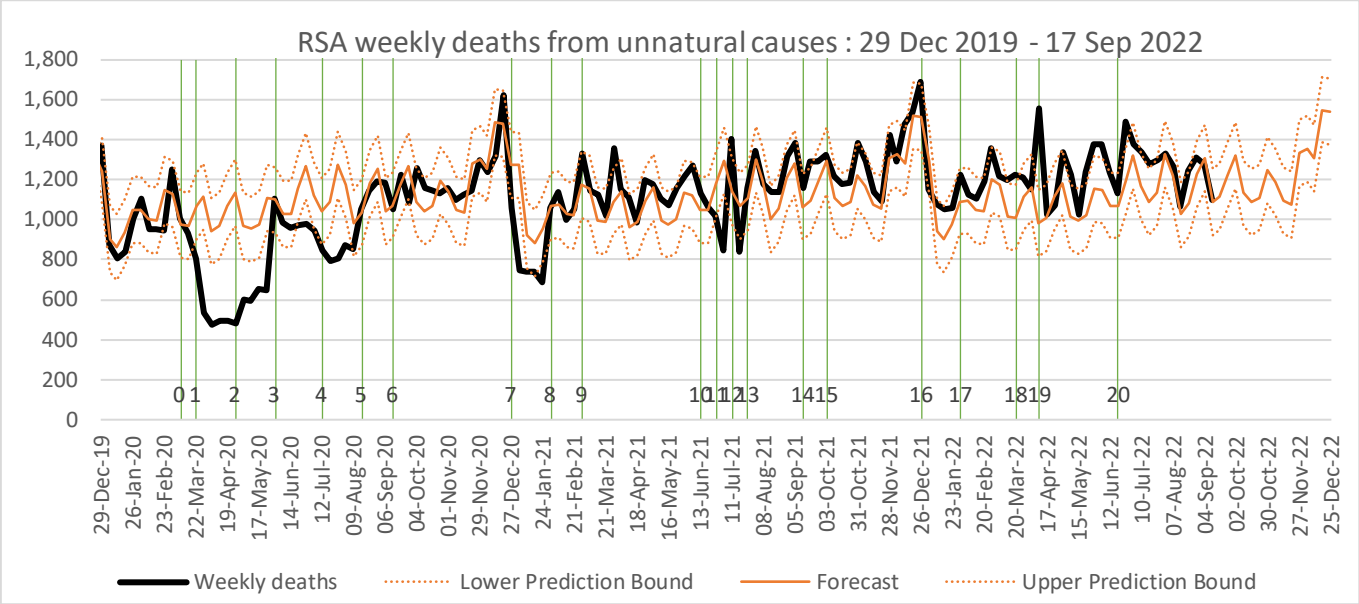

Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations. As only a quarter to a third of unnatural deaths in the most recent week are processed at the time of the survey, the estimate for the most recent week is quite uncertain.

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, curfew 9pm-4am
12	Week of unrest in KZN and GT
13	Week lockdown changed to level 3 advanced (alcohol 4 days/w, curfew 10pm-4am)
14	Week lockdown changed to level 2 advanced (alcohol 5 days/w, curfew 11pm-4am)
15	Week lockdown changed to level 1 advanced (no alcohol post 11pm, curfew 12pm-4am, large gatherings)
16	Week lockdown level 1 advanced (removed limits on alcohol & curfew, allowed larger gatherings)
17	Week lockdown level 1 advanced (allowed full school attendance, reduced isolation & quarantine requirements)
18	Week lockdown level 1 advanced (no masks outdoors, larger gathering permitted, no travel testing for vaccinated)
19	KZN floods
20	All COVID restrictions lifted on 22 June