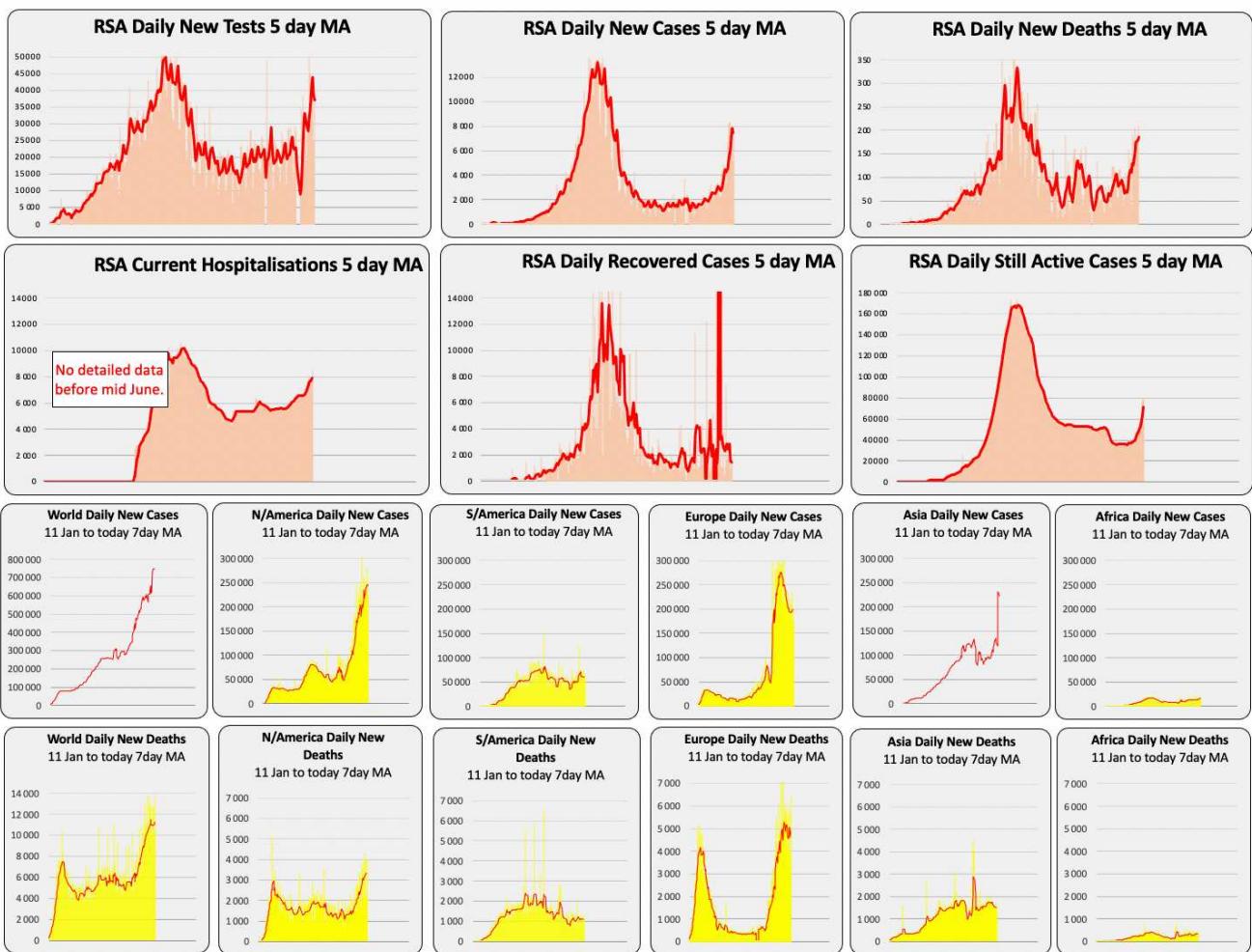
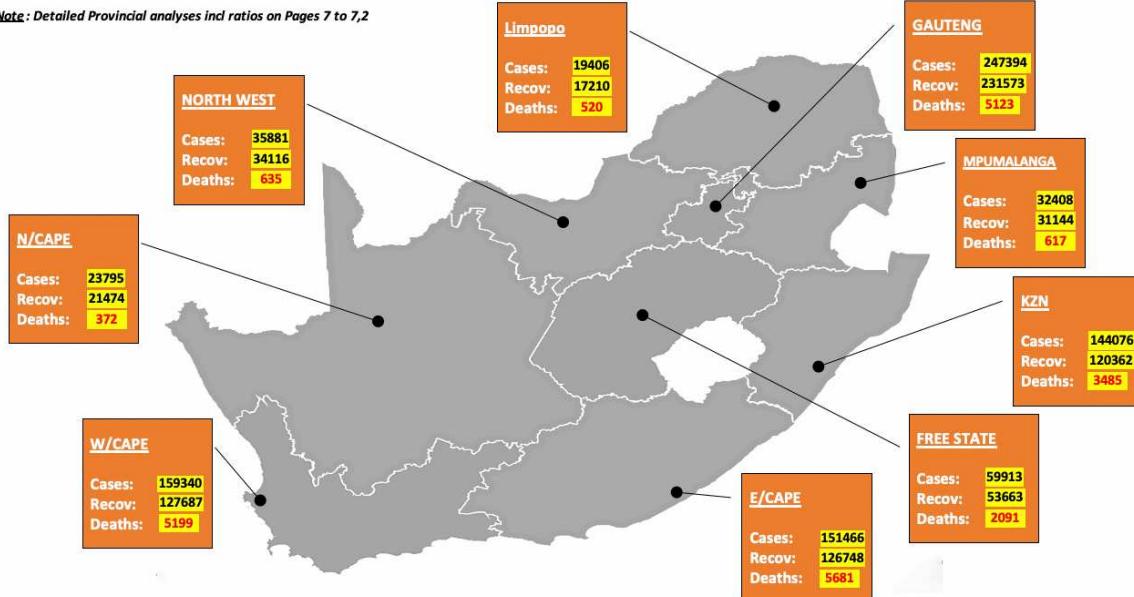
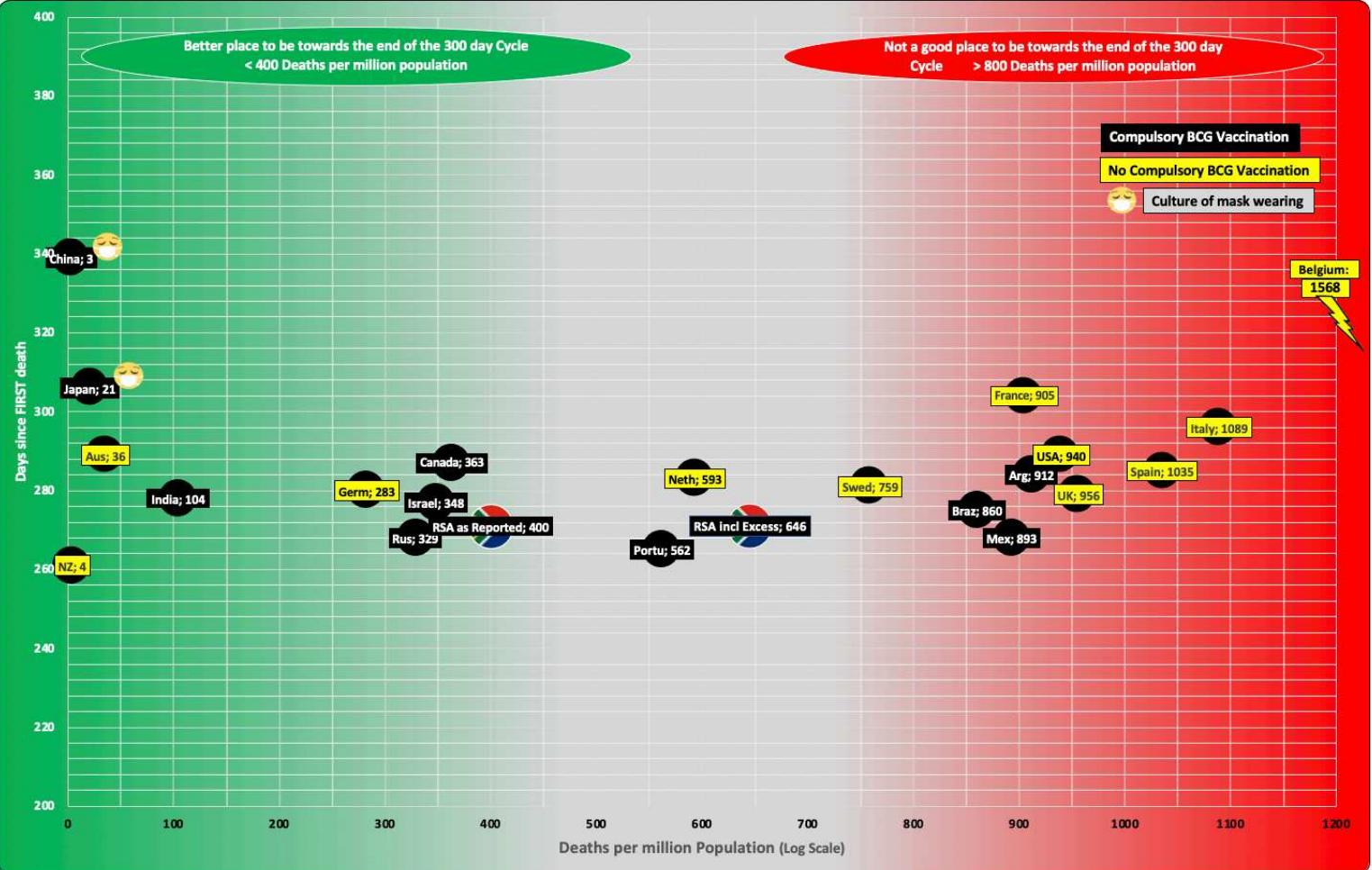


Note: Detailed Provincial analyses incl ratios on Pages 7 to 7,2

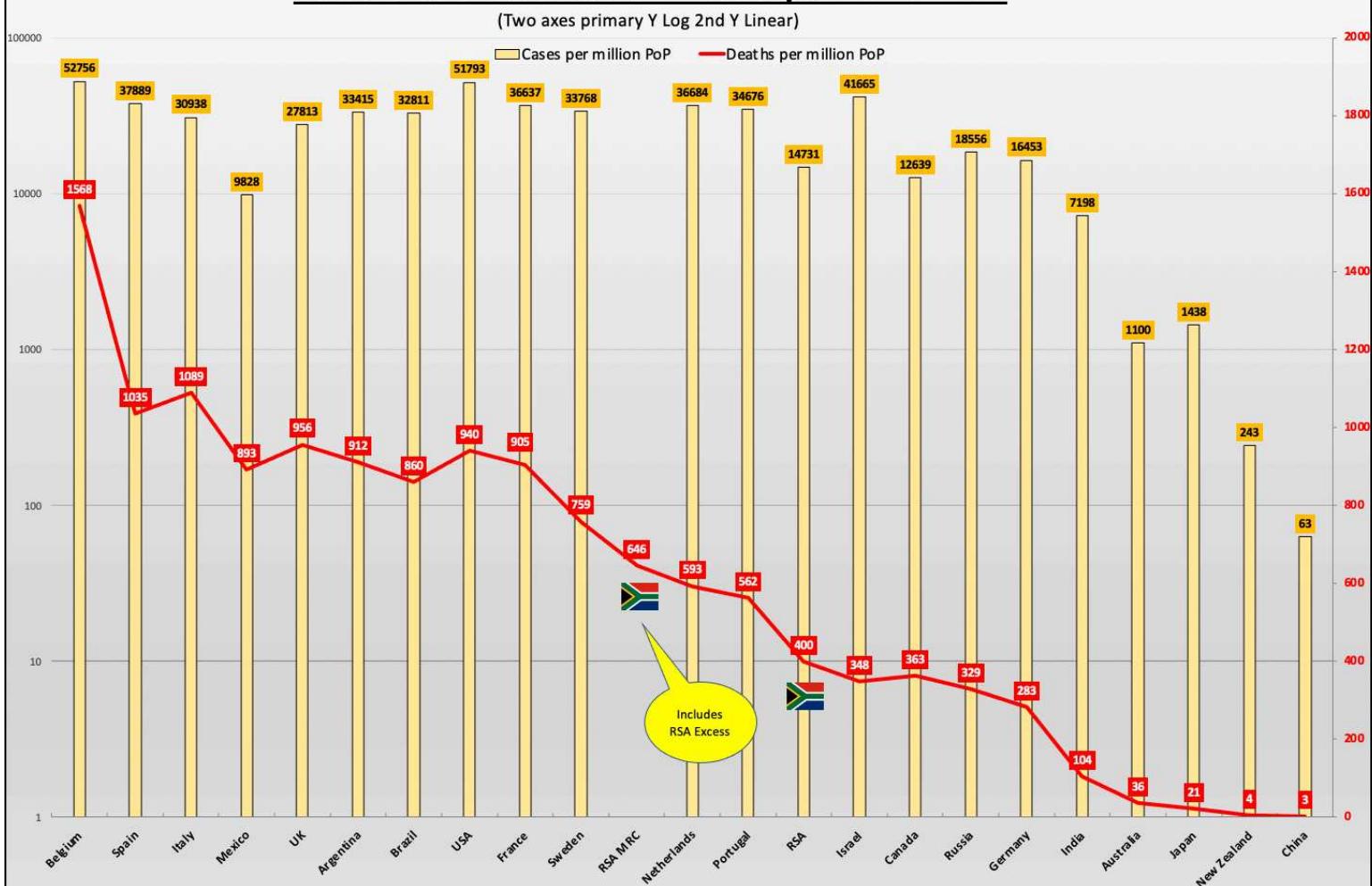


# Covid Reported Deaths per million Population & Days since 1st Covid Death

## Page 2



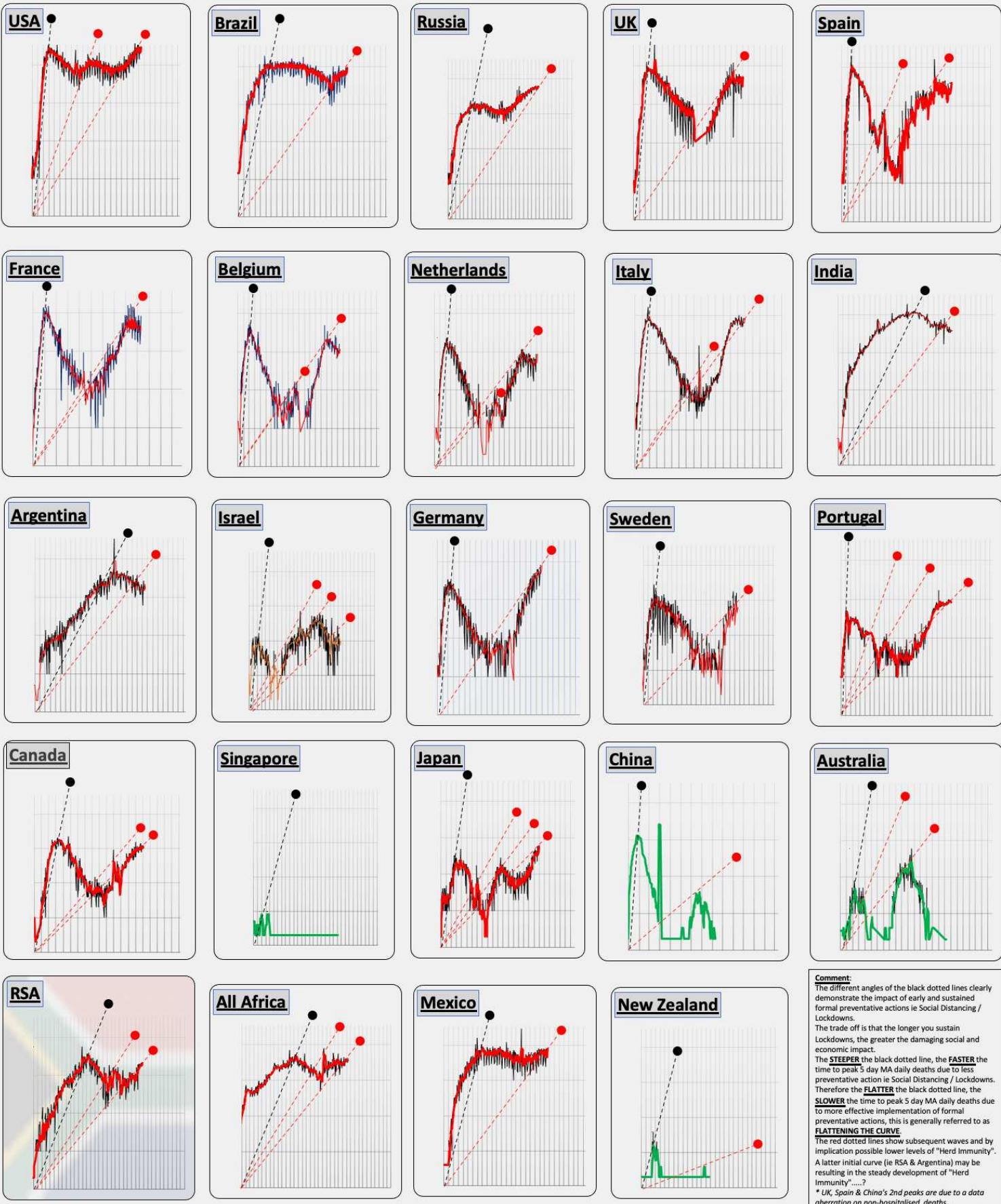
### Current Cum Cases & Cum Deaths per million PoP



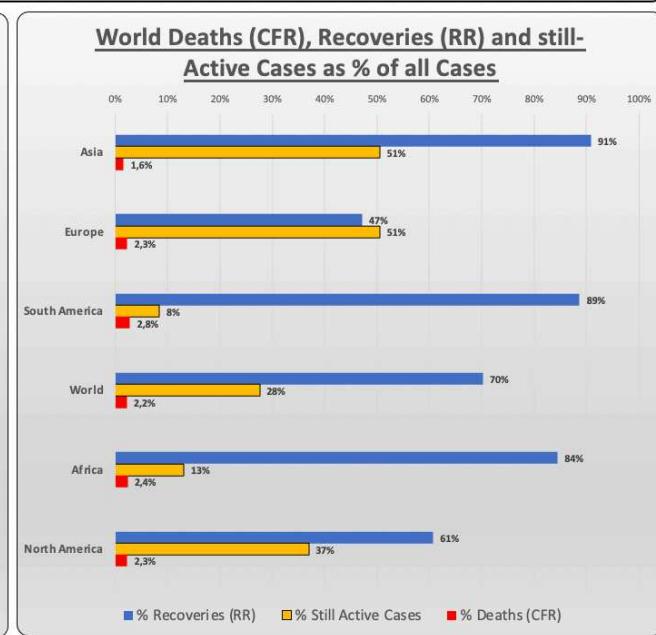
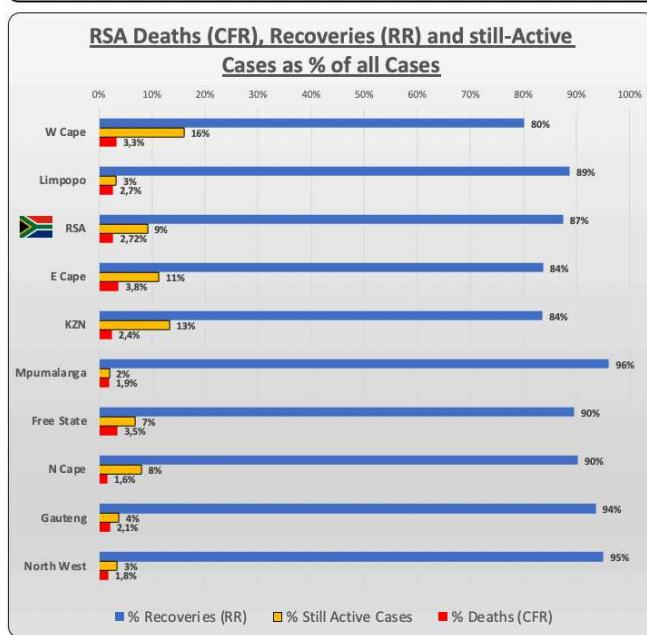
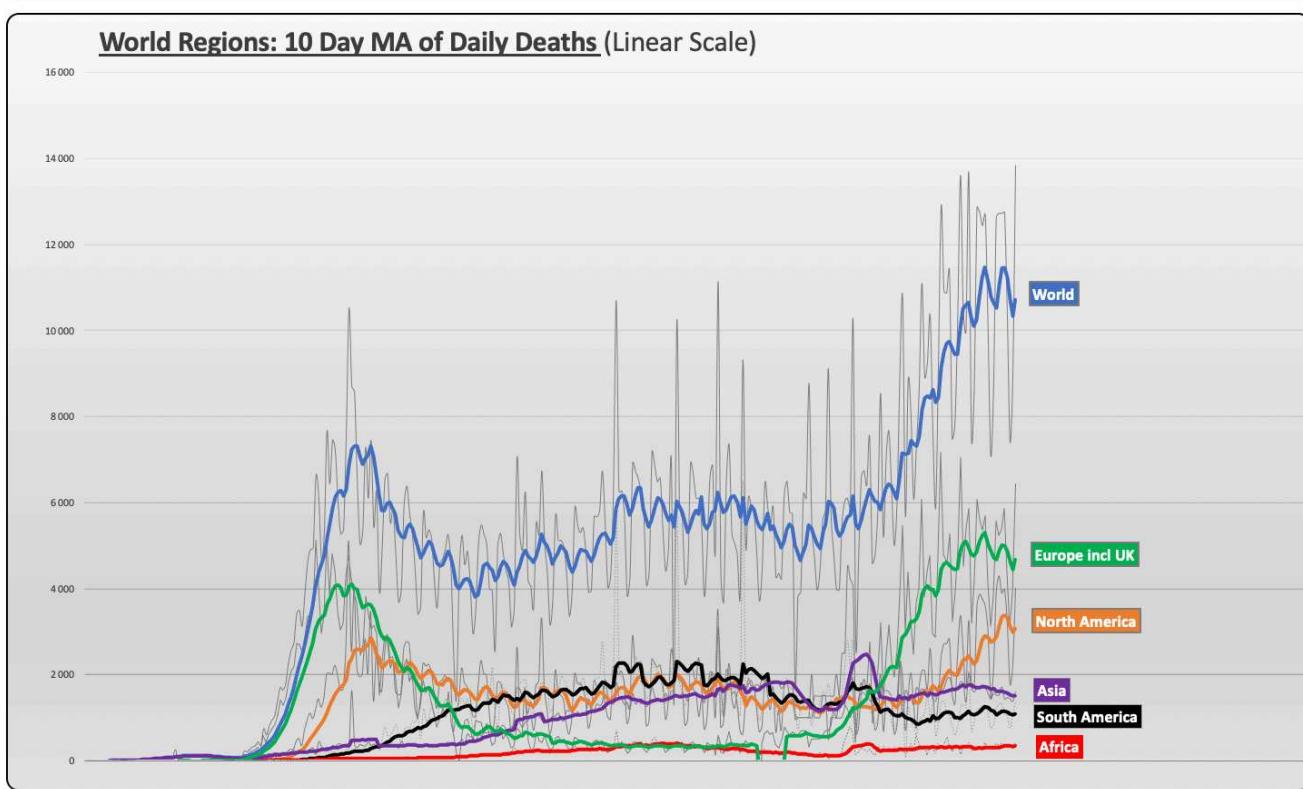
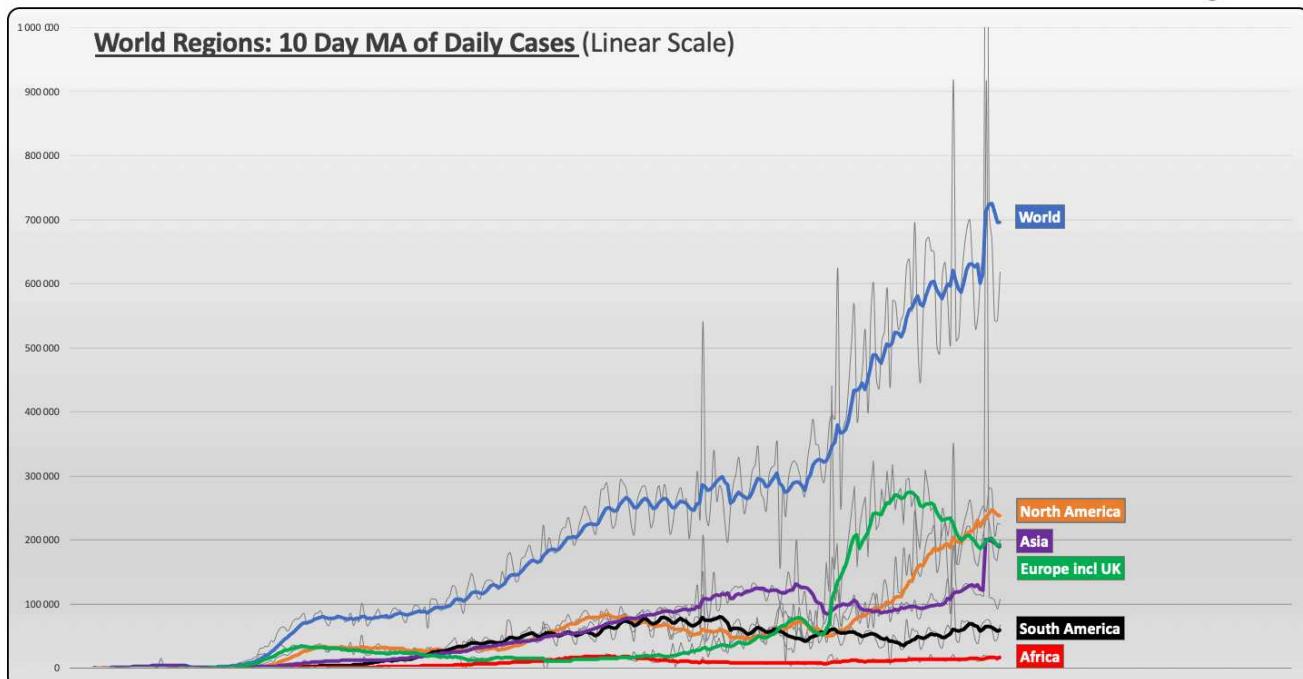
## Daily Deaths Curves & Rate of Onset and next Wave "Inclinometers"

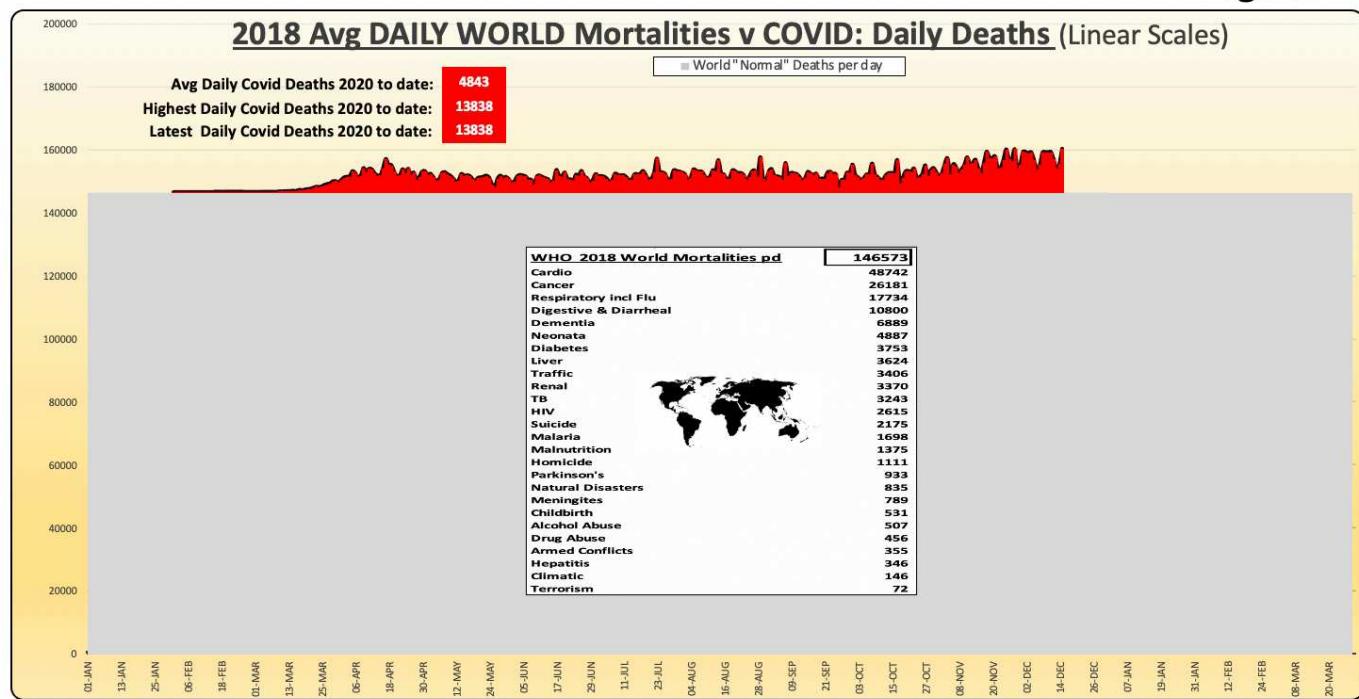
5 day MA Trendline from date of 1st death (all on Log Scale)

- Peaked but spiking again
  - Passed peak but could rebound OR next wave
  - Well past peak, unlikely to rebound
- |   |                 |
|---|-----------------|
| ● | Onset/1st wave  |
| ● | 2nd & 3rd waves |



**Comment:**  
The different angles of the black dotted lines clearly demonstrate the impact of early and sustained formal preventative actions ie Social Distancing / Lockdowns.  
The trade off is that the longer you sustain Lockdowns, the greater the damaging social and economic impact.  
The STEEPER the black dotted line, the FASTER the time to peak 5 day MA daily deaths due to less preventative action ie Social Distancing / Lockdowns. Therefore the FLATTER the black dotted line, the SLOWER the time to peak 5 day MA daily deaths due to more effective implementation of formal preventative actions, this is generally referred to as FLATTENING THE CURVE.  
The red dotted lines show subsequent waves and by implication possible lower levels of "Herd Immunity". A latter initial curve (ie RSA & Argentina) may be resulting in the steady development of "Herd Immunity".....?  
\* UK, Spain & China's 2nd peaks are due to a data aberration on non-hospitalised deaths.



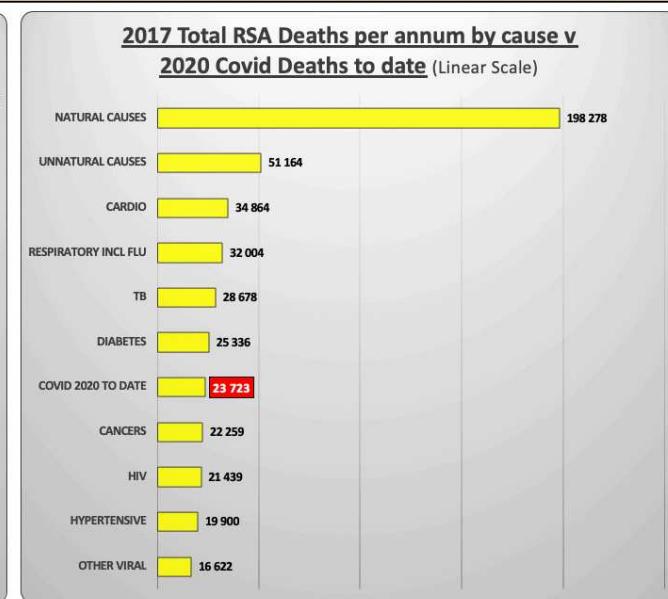
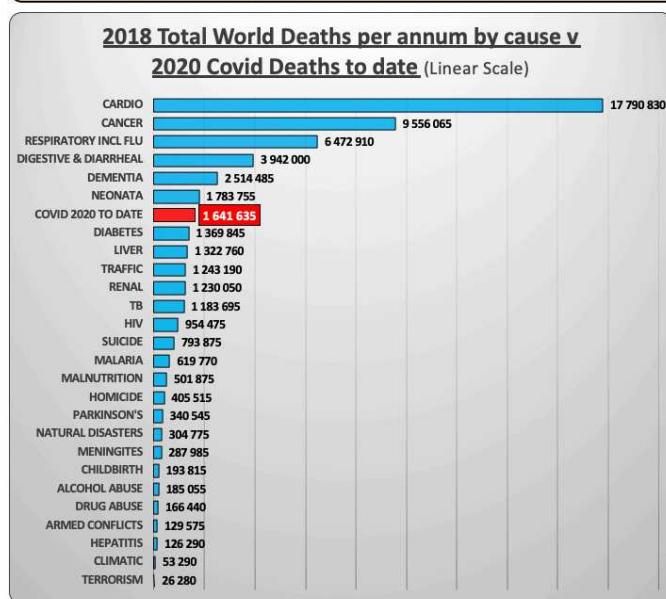
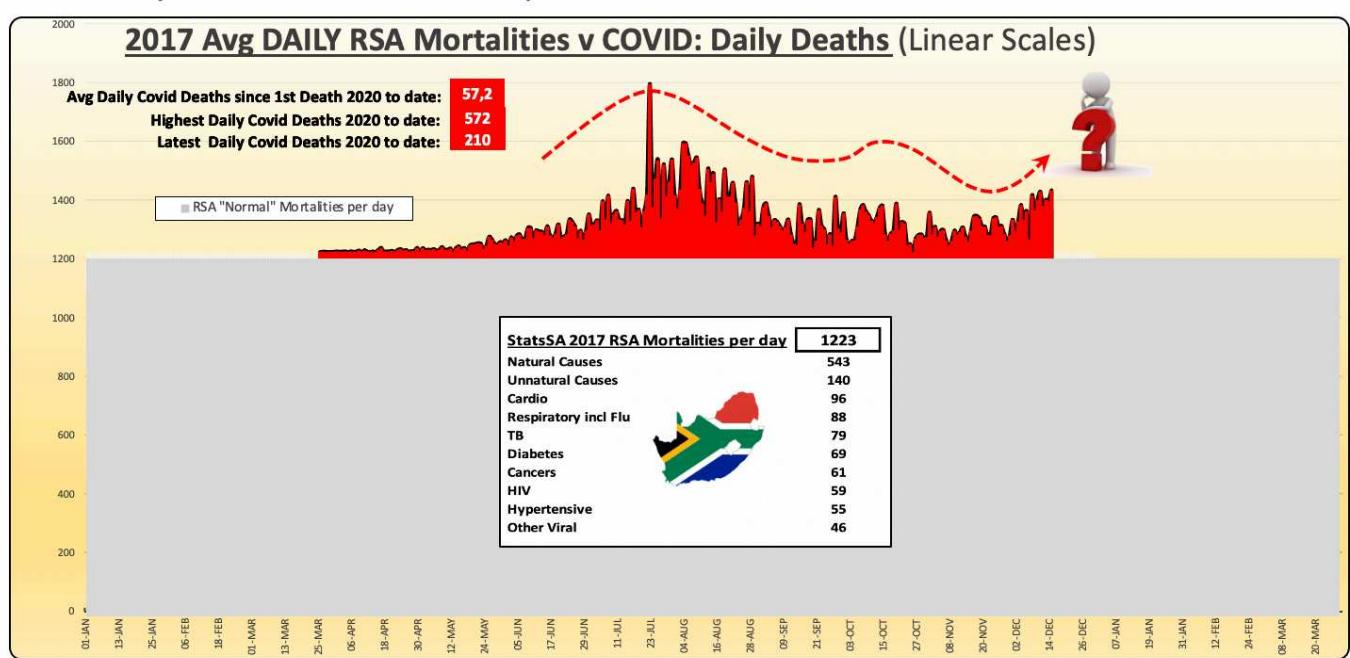


The two graphs WORLD (above) and RSA (below) attempt to put the number of Covid Deaths into some sort of perspective graphically.

The big GREY blocks are TOTAL Daily Avg Deaths from ALL causes over a full calendar year.

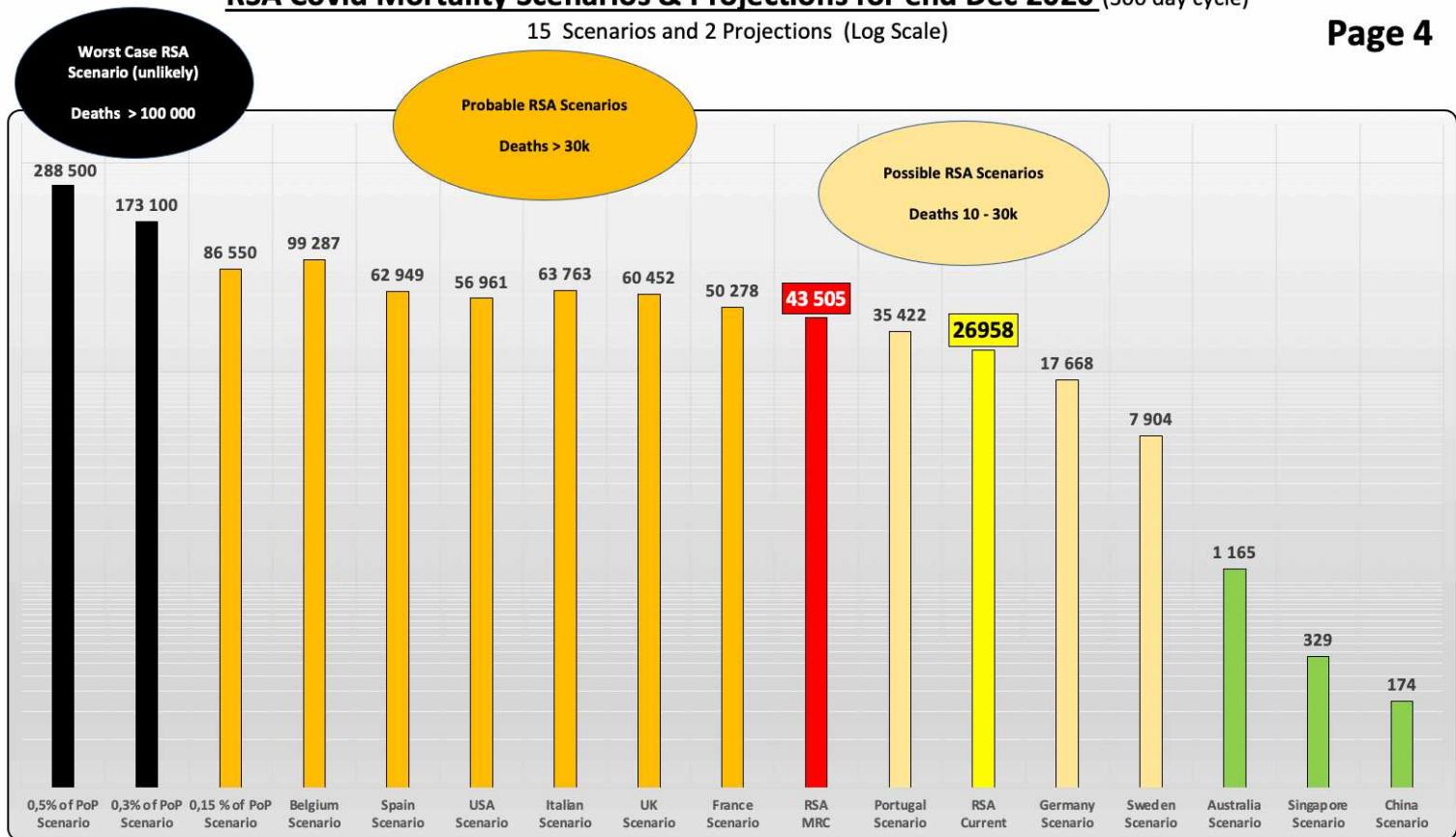
The RED area/lines on top of the Grey blocks are the INCREMENTAL Actual Daily Deaths due to Covid.

Obviously some of the Covid Deaths will "overlap" with the "normal" Deaths due to comorbidities.



# RSA Covid Mortality Scenarios & Projections for end Dec 2020 (300 day cycle)

Page 4



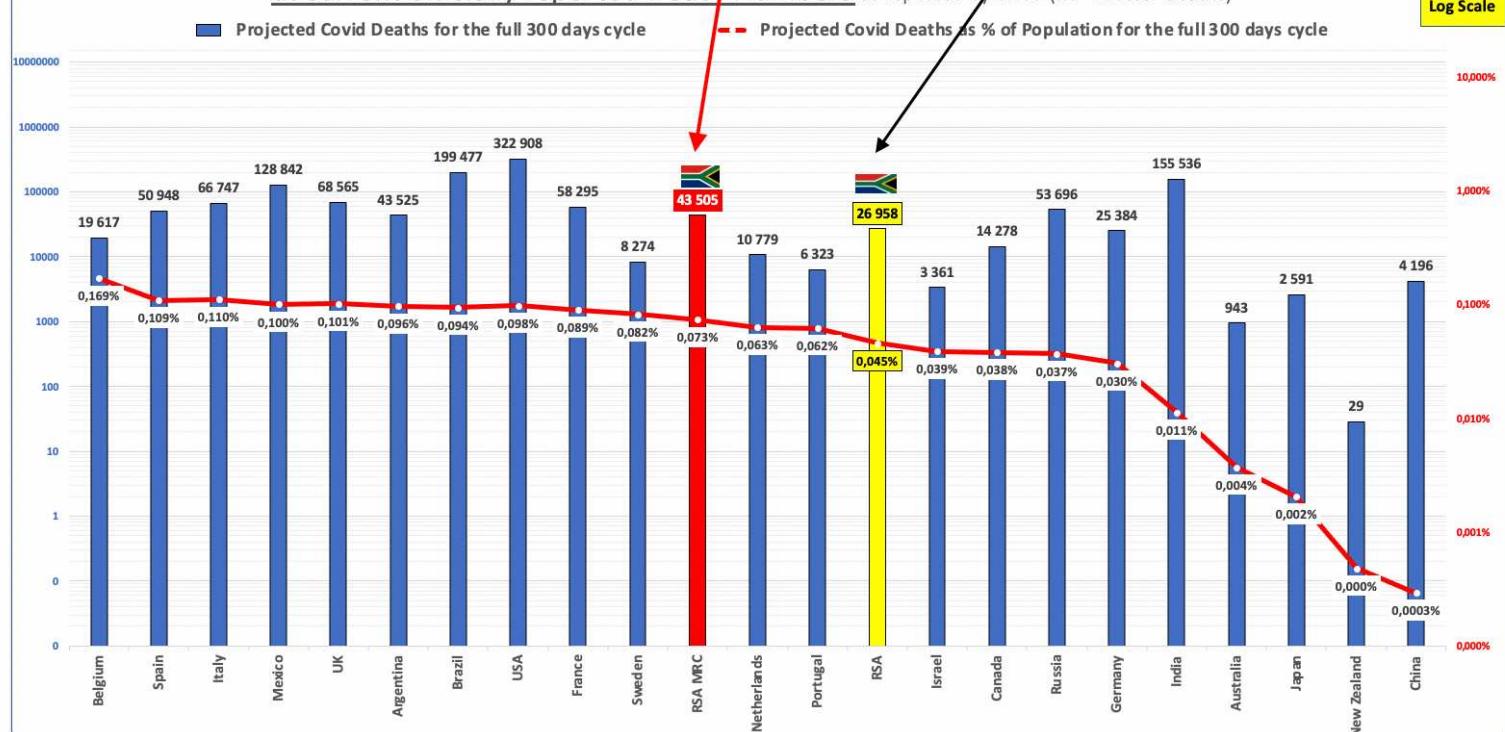
**Key:**

All Scenarios duly adjusted for population size and for the different timelines into the deemed 300 day pandemic cycle.

This projection uses the SA Medical Research Council data on "Excess Deaths". The assumption is that 90% of their reported Excess Deaths are probably due to Covid. The ratios are updated bi-weekly by the MRC but I apply these ratios to the official stats on a daily basis for this projection.

This number is simply the avg daily Deaths as reported to date x 300 (deemed cycle).

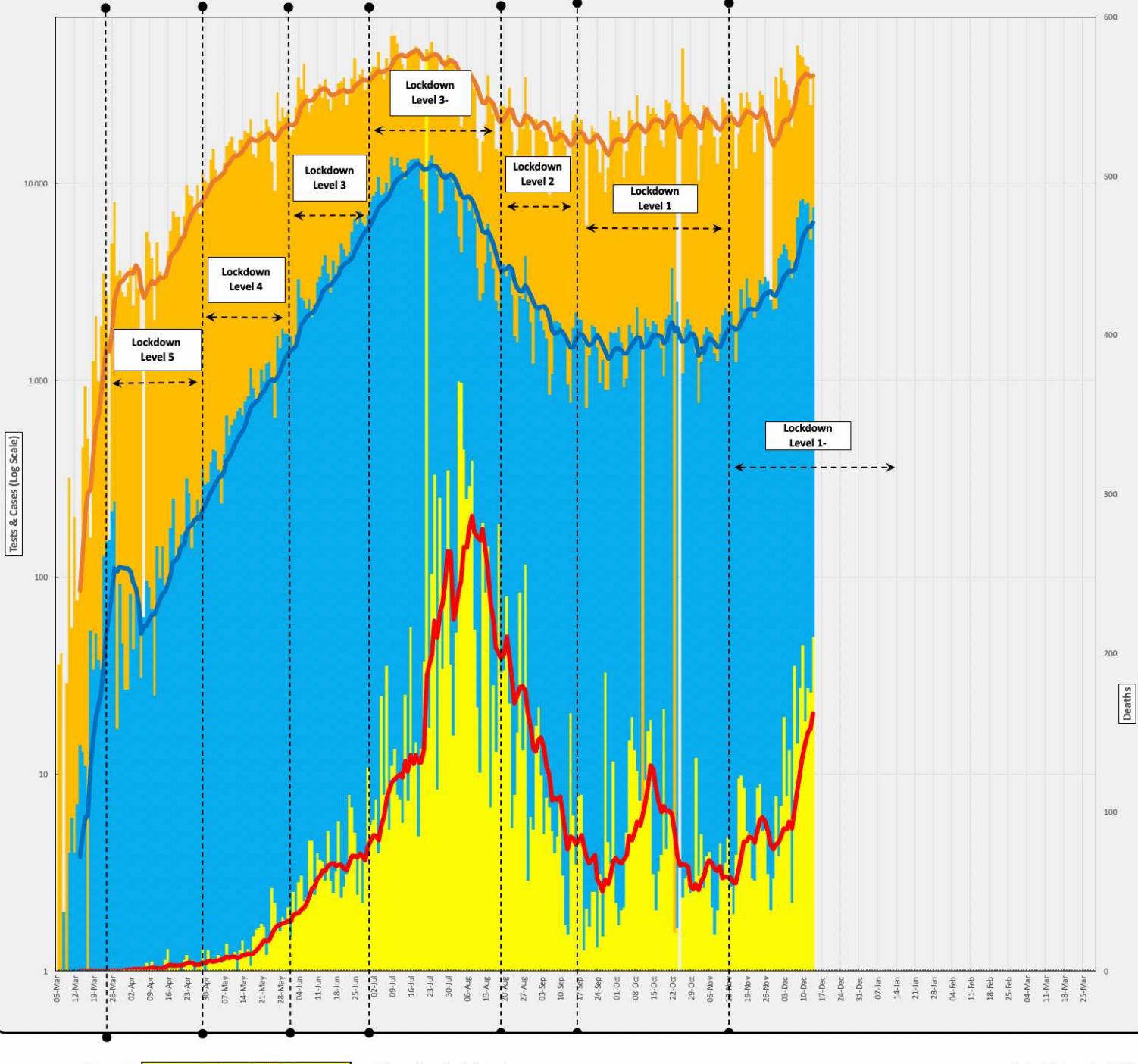
## Projected Deaths by end Dec 2020 per country and % Deaths per Country Populations at current officially reported Death Numbers as reported by WHO (no "Excess" deaths)



Note: Above Mortality %'s are overall projected mortality of the populations (PMR), NOT deaths of only those infected (CFR).

RSA Daily Testing v Daily Cases (Log Scale y-axis) v Daily Deaths (Non Log 2nd Y-axis)

■ Daily Tests ■ Daily Cases ■ Daily Deaths ■ 10 per. Mov. Avg. (Daily Tests) ■ 10 per. Mov. Avg. (Daily Cases) ■ 10 per. Mov. Avg. (Daily Deaths)



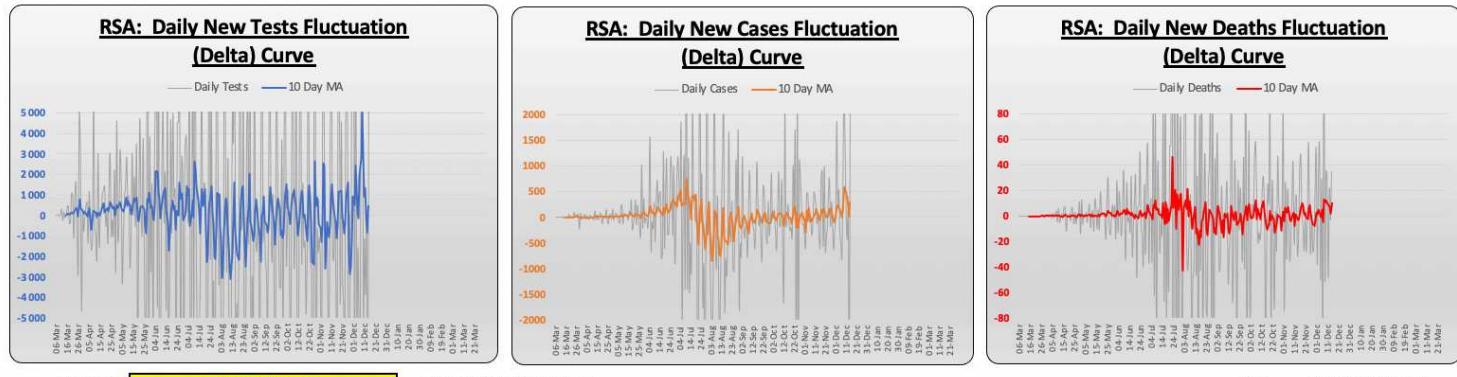
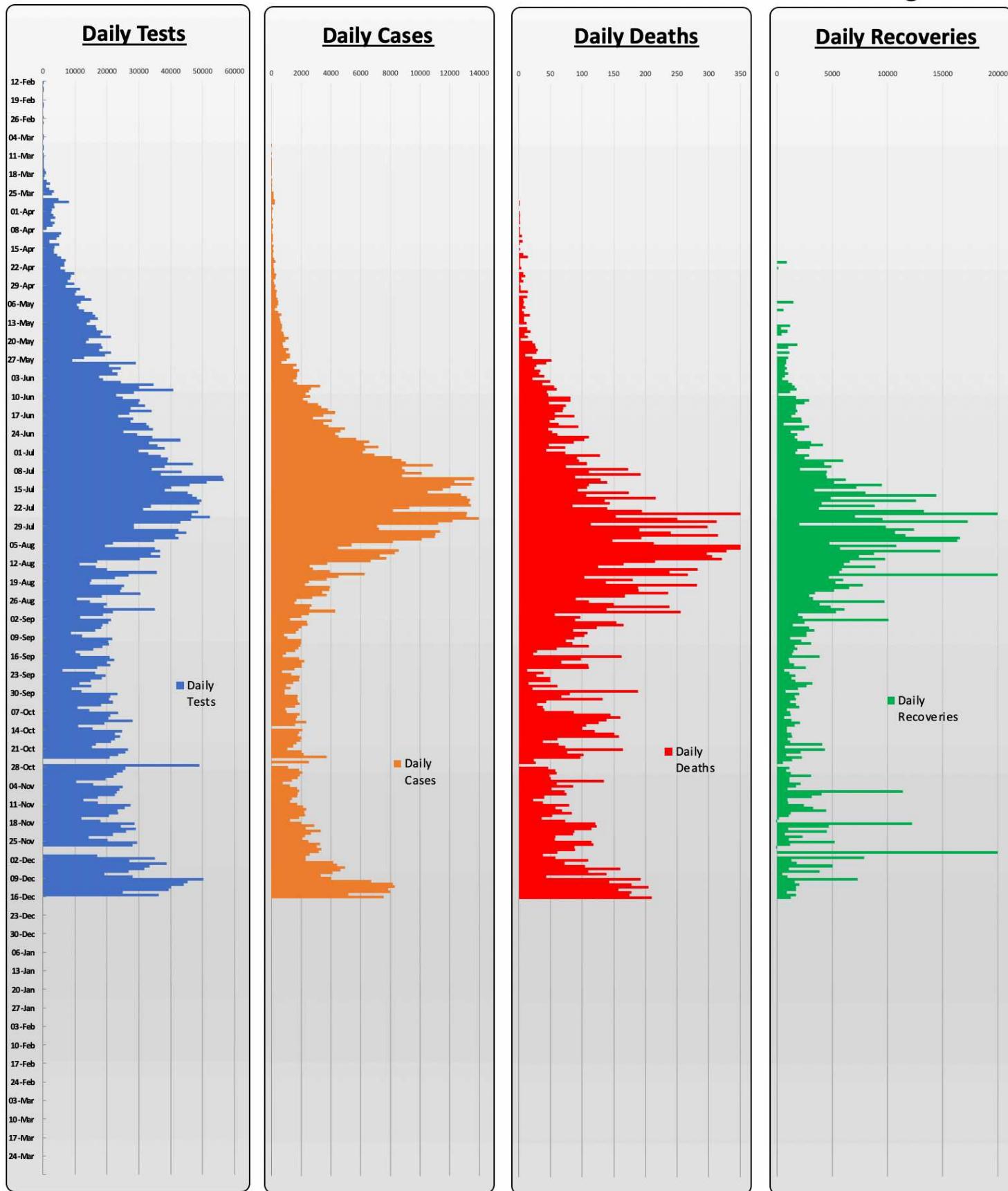
Data as at: 15 December 2020

Unless otherwise indicated

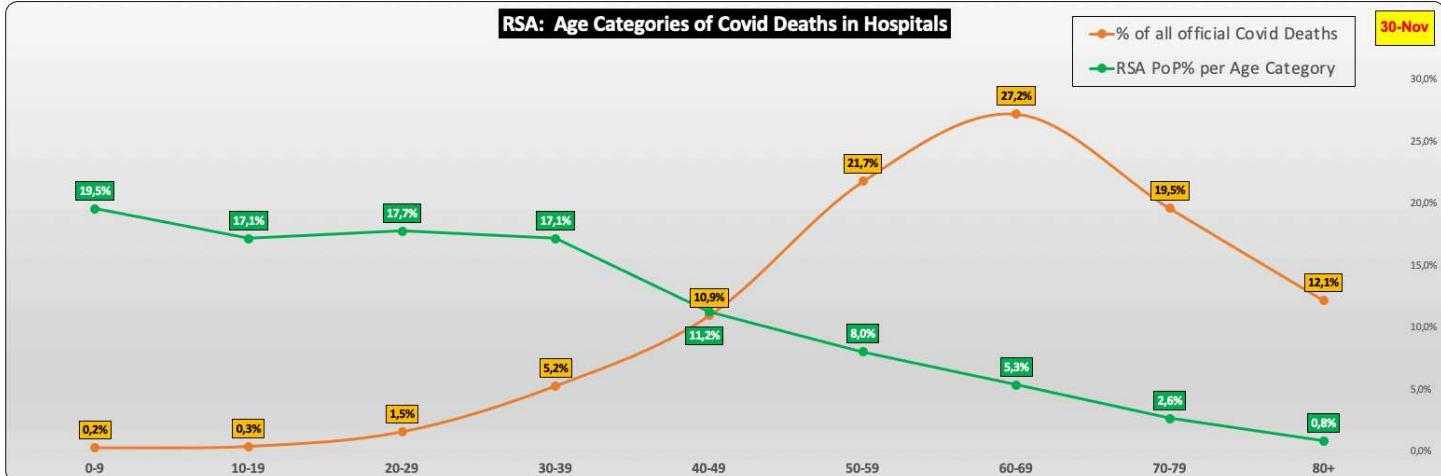
hdg 16 December 2020

# RSA Daily Raw Data Trackers

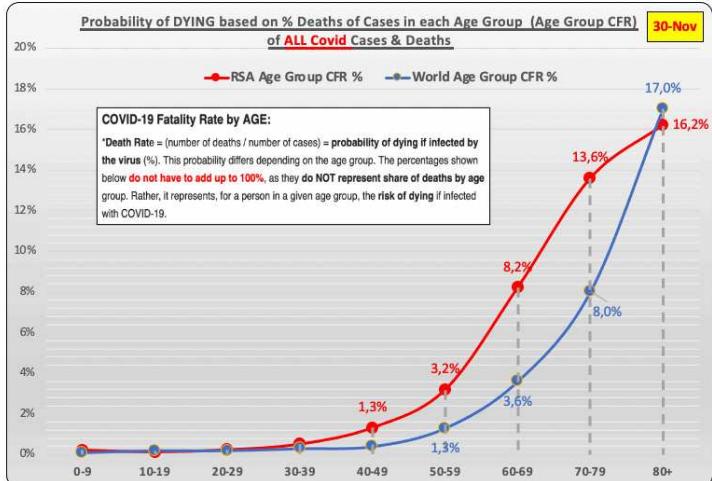
Page 5.1



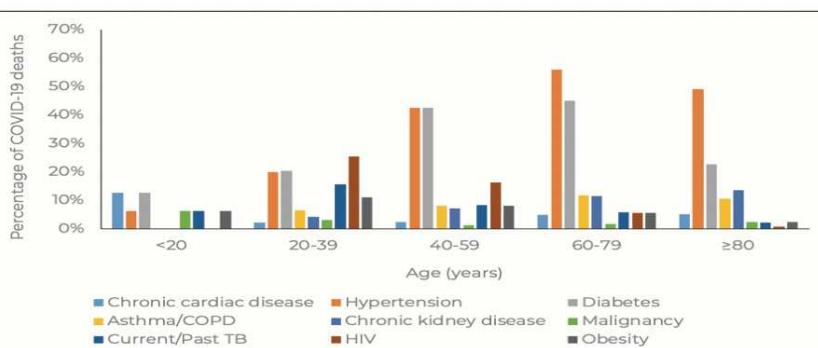
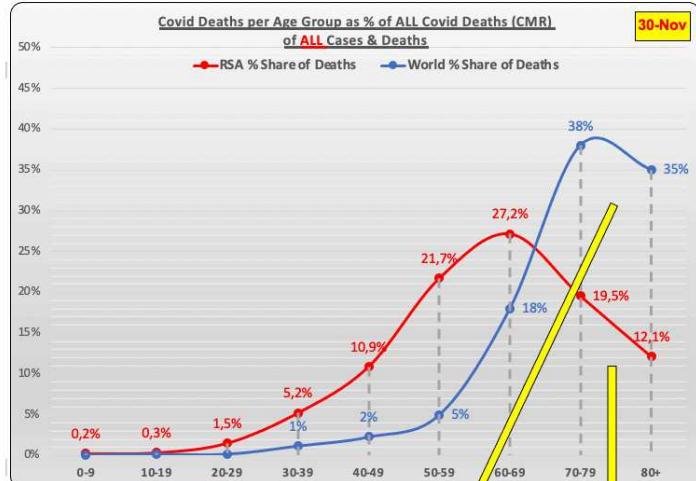
## RSA: Age Categories of Covid Deaths in Hospitals



## Probability of DYING based on % Deaths of Cases in each Age Group (Age Group CFR) of ALL Covid Cases & Deaths

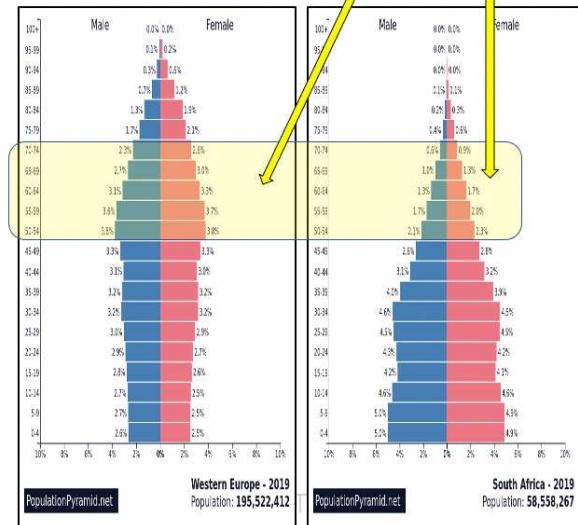


## Covid Deaths per Age Group as % of ALL Covid Deaths (CMR) of ALL Cases & Deaths

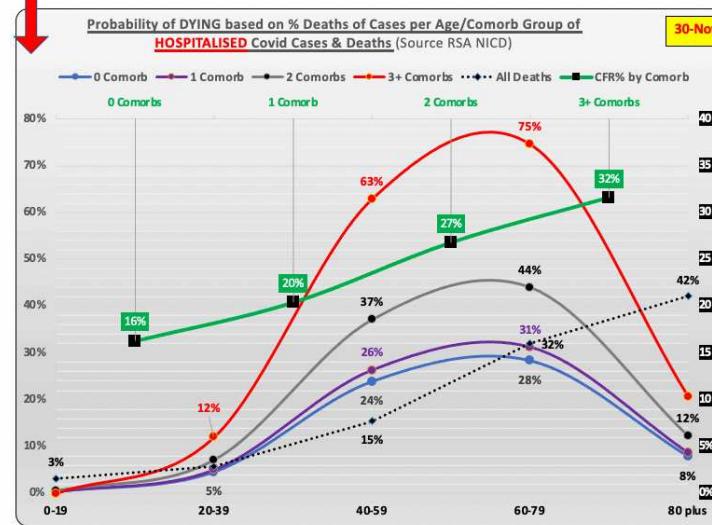


## COVID-19 Fatality Rate by AGE:

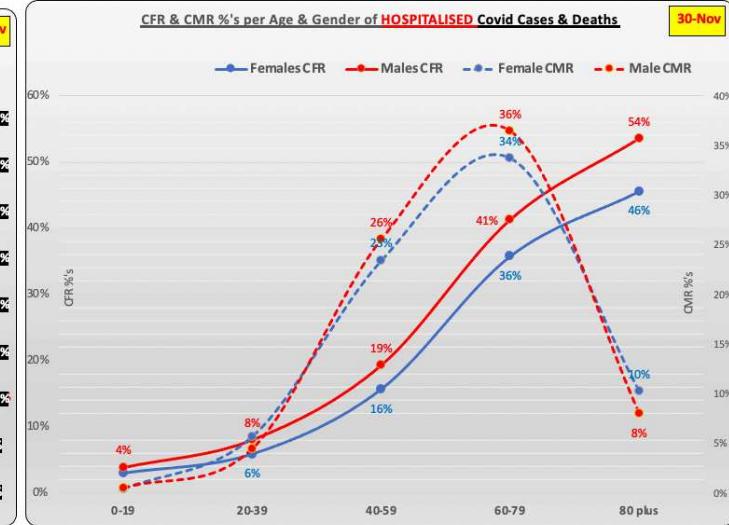
\*Death Rate = (number of deaths / number of cases) = probability of dying if infected by the virus (%). This probability differs depending on the age group. The percentages shown below do not have to add up to 100%, as they do NOT represent share of deaths by age group. Rather, it represents, for a person in a given age group, the risk of dying if infected with COVID-19.



## Probability of DYING based on % Deaths of Cases per Age/Comorb Group of HOSPITALISED Covid Cases & Deaths (Source RSA NICD)



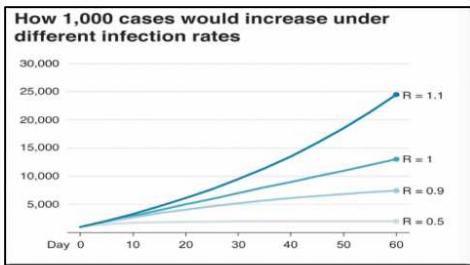
## CFR & CMR %'s per Age & Gender of HOSPITALISED Covid Cases & Deaths



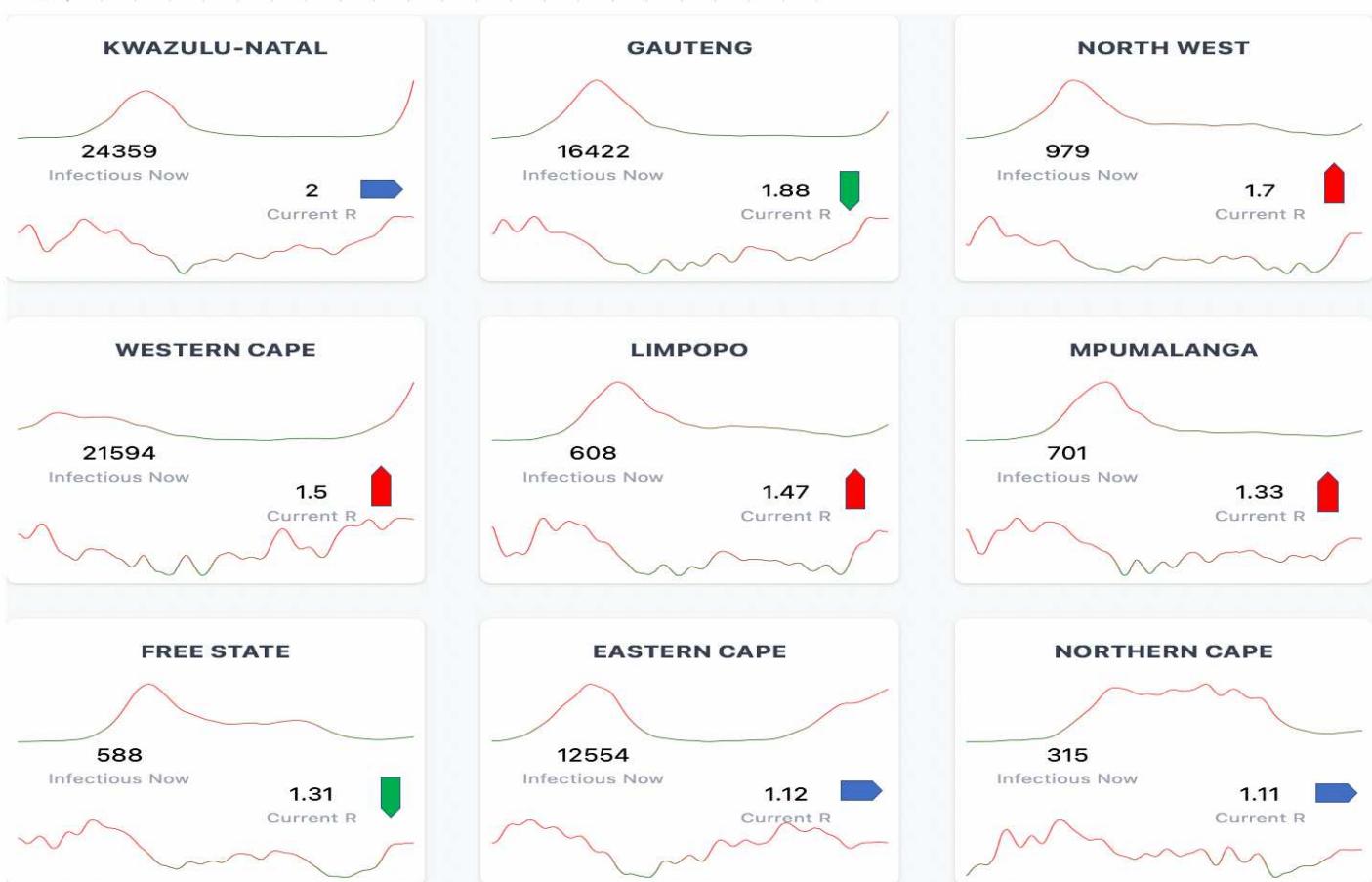
The Reproduction Number, R, derived from Currently Infectious estimates, see below



An  $R_0$  below 1 suggests that the number of cases is shrinking, possibly allowing societies to open back up. An  $R_0$  above 1 indicates that the number of cases is growing, perhaps necessitating renewed lockdowns or other measures.

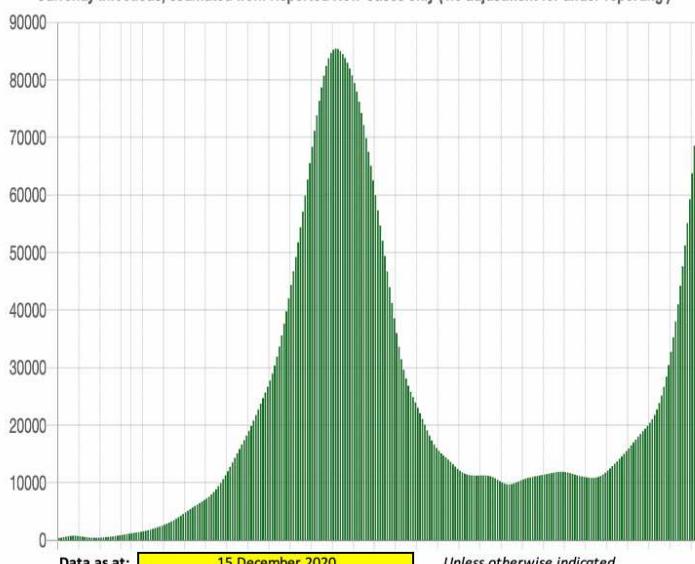


Movement from previous day



Rt graphs from: <https://reproduction.live/world/ZA>

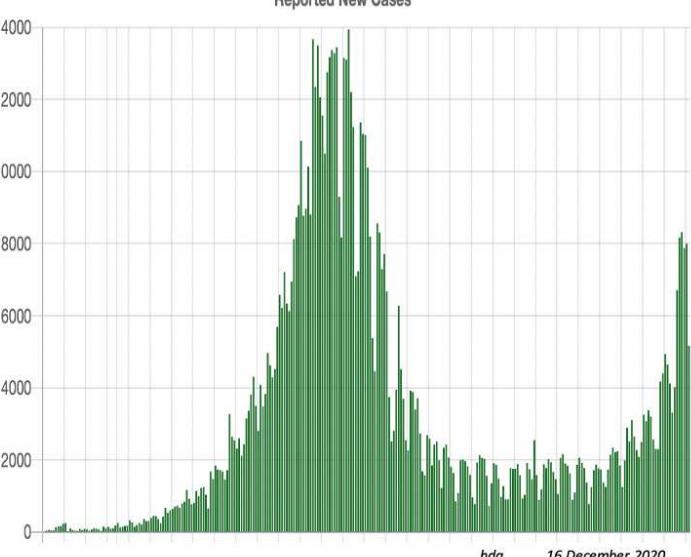
Currently Infectious, estimated from Reported New Cases only (no adjustment for under-reporting)



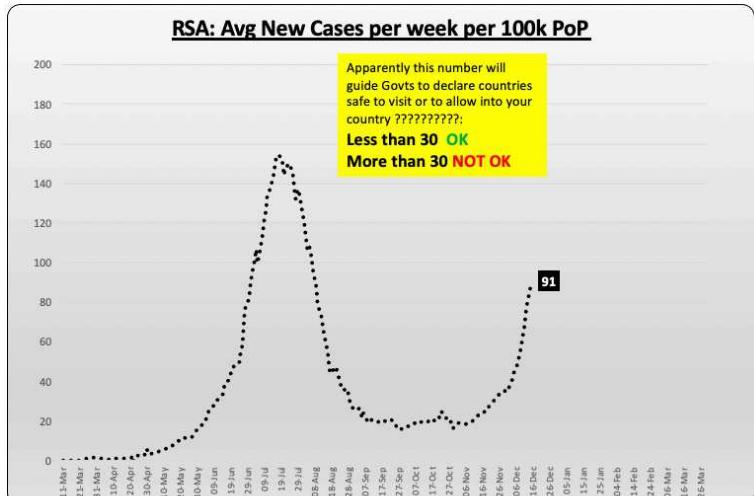
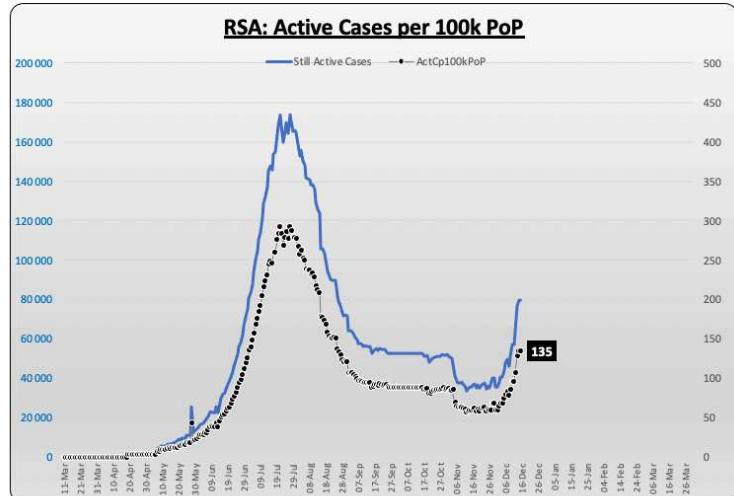
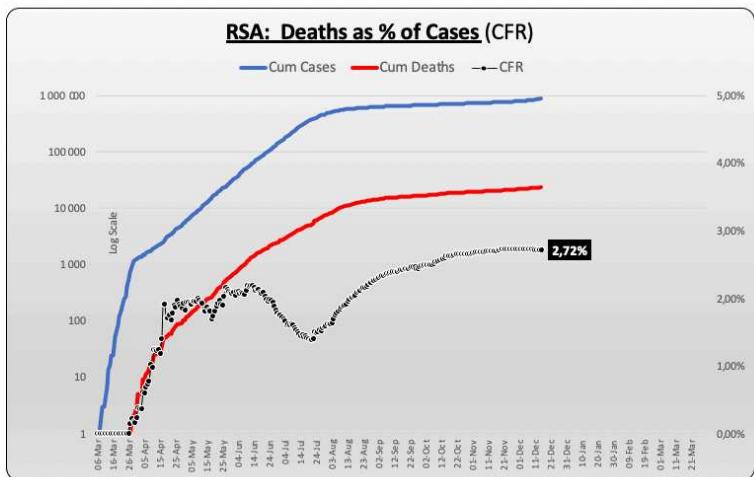
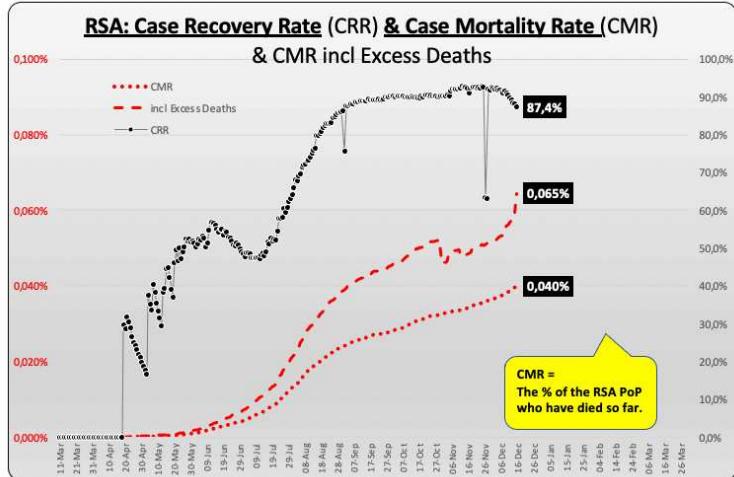
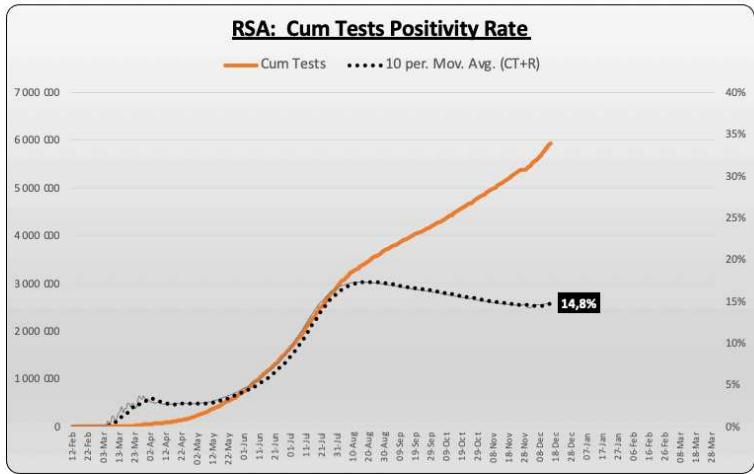
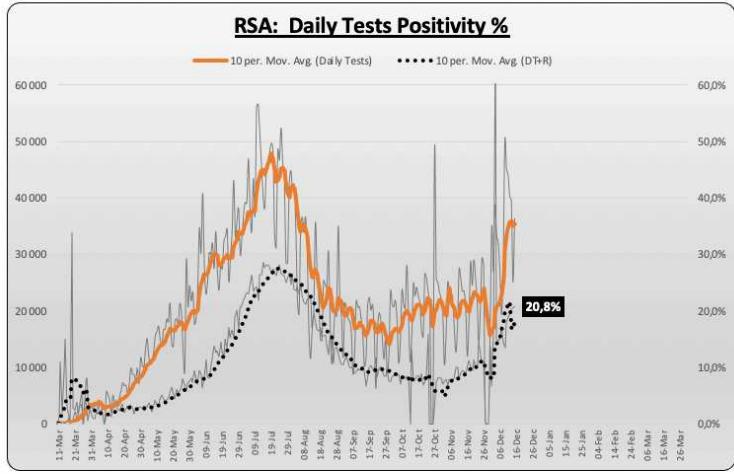
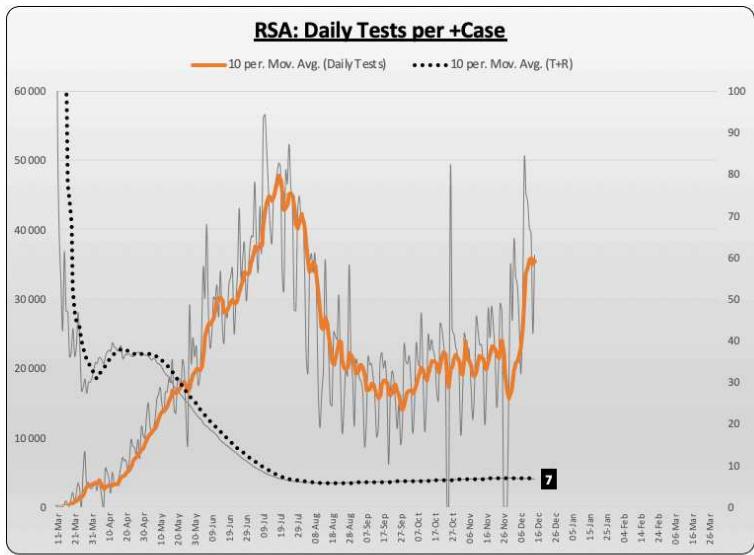
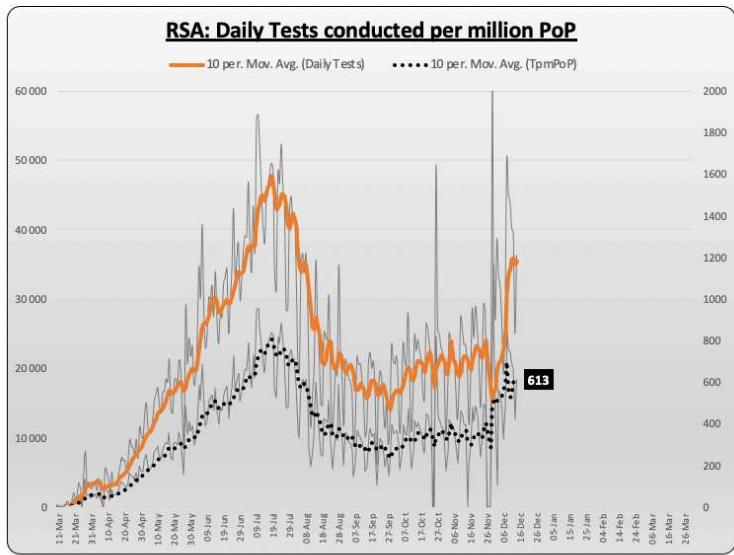
Data as at: 15 December 2020

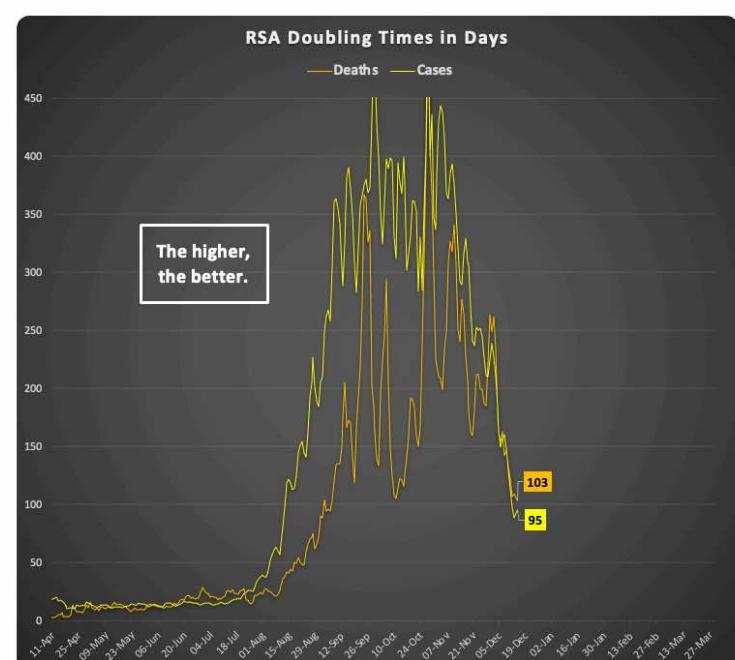
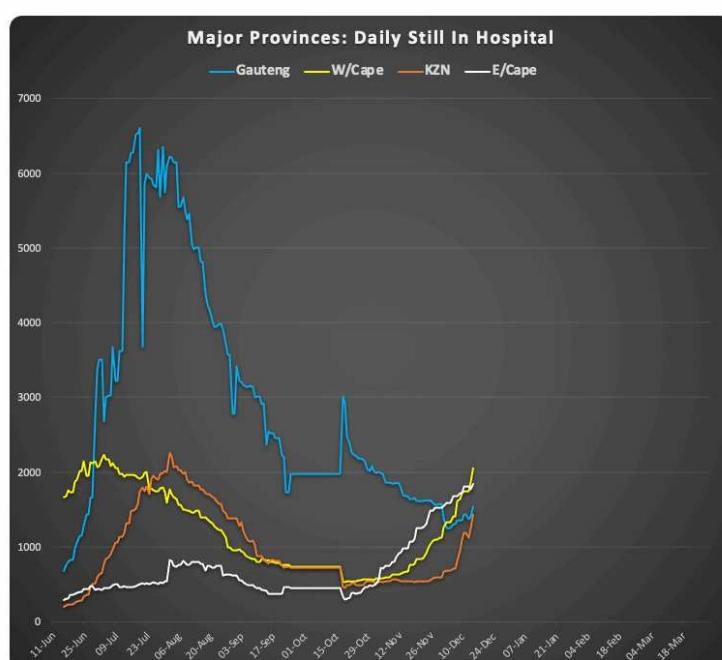
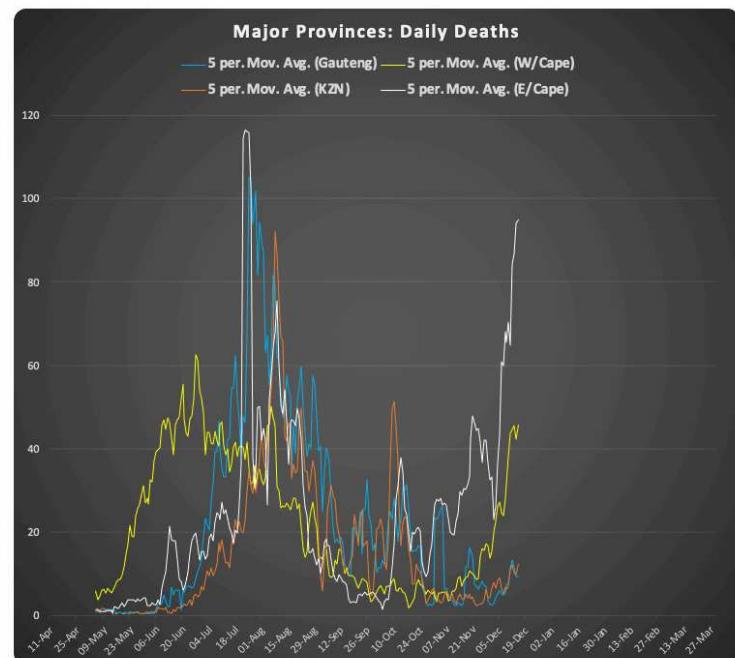
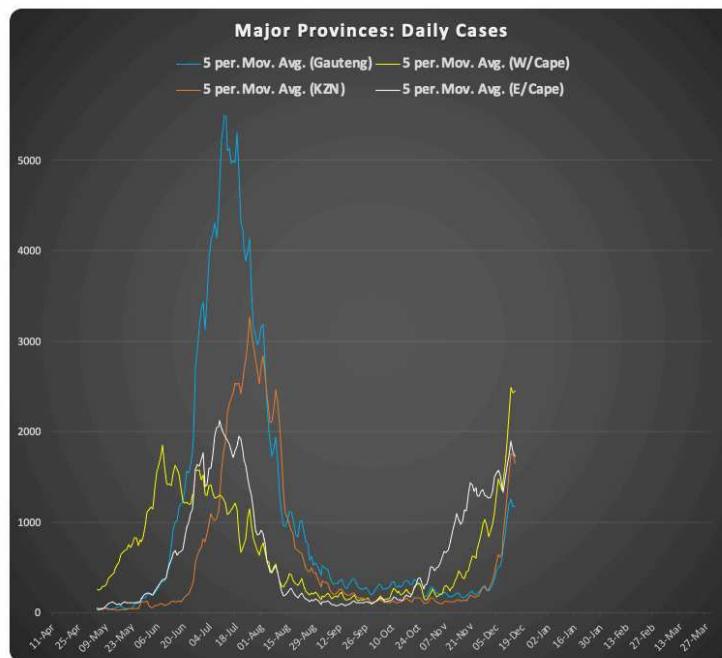
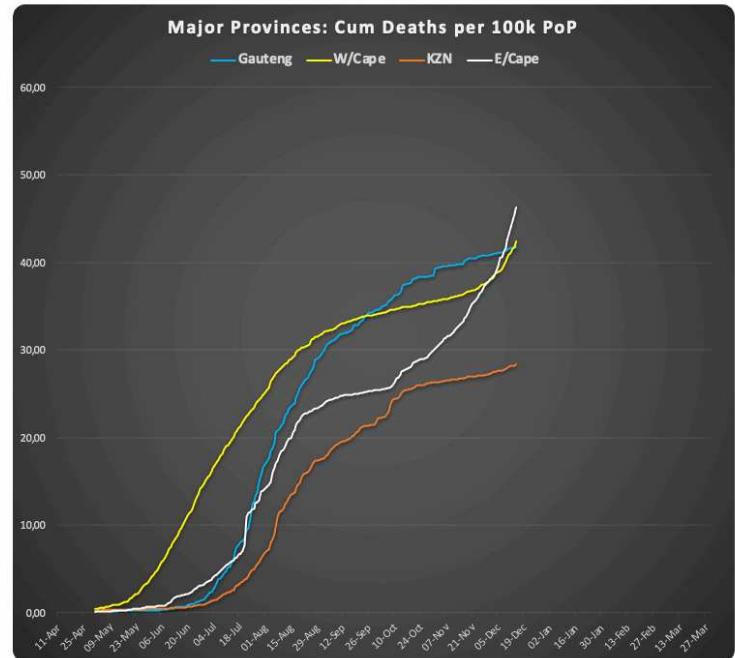
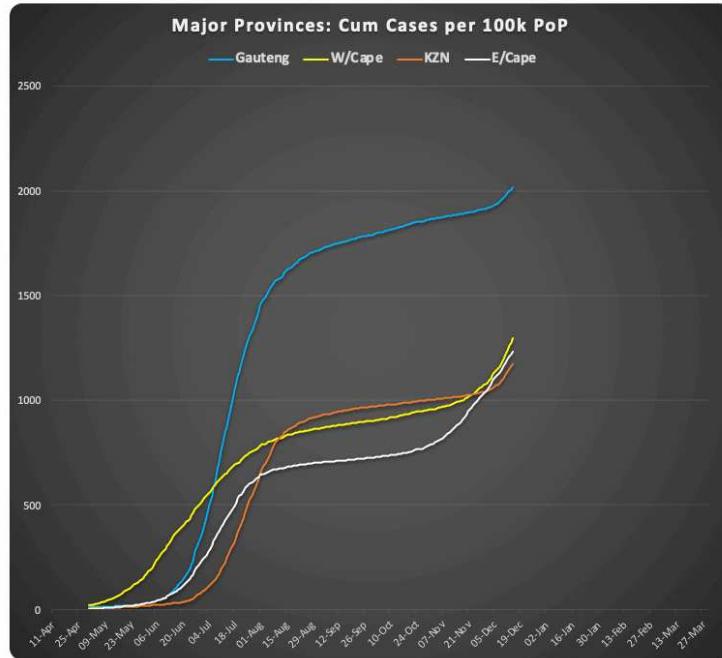
Unless otherwise indicated

Reported New Cases

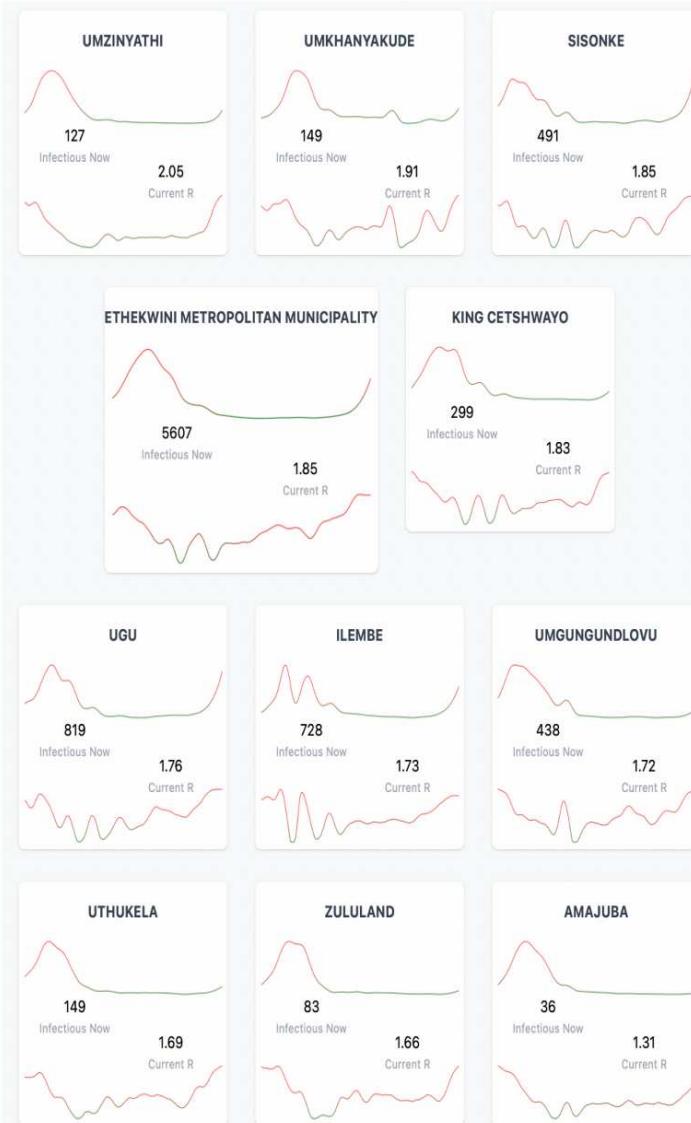


16 December 2020

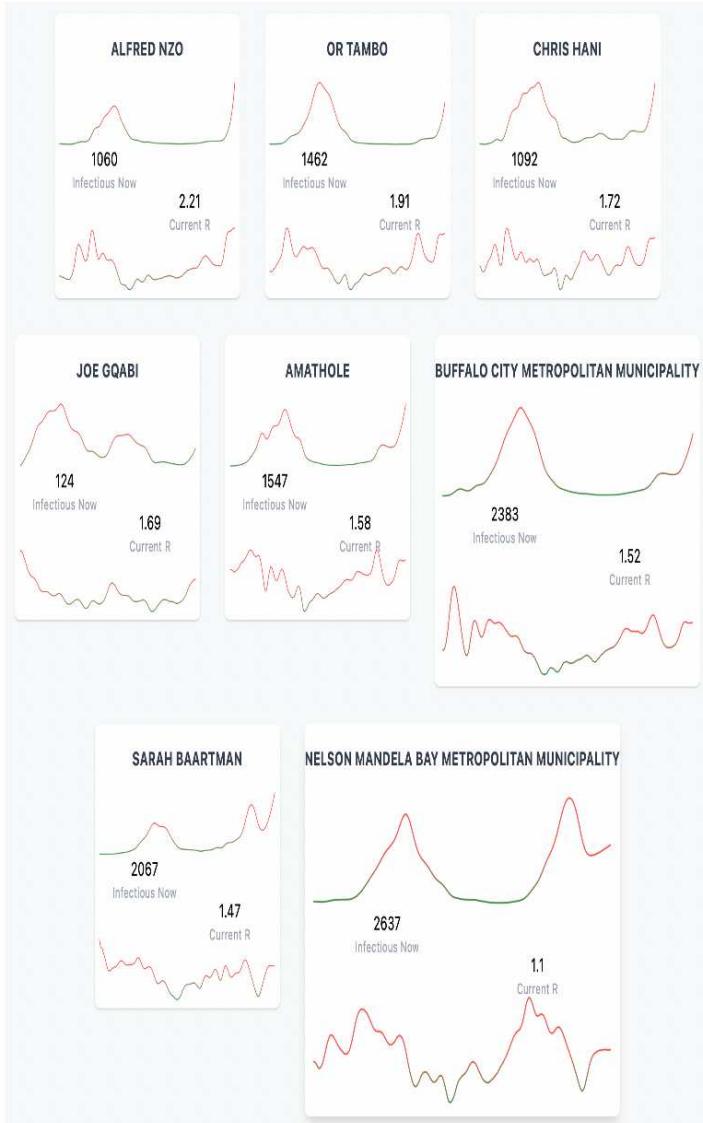




## KwaZulu-Natal: R ≈ 2



## Eastern Cape: R ≈ 1.12



## Daily Cases - Gauteng Districts

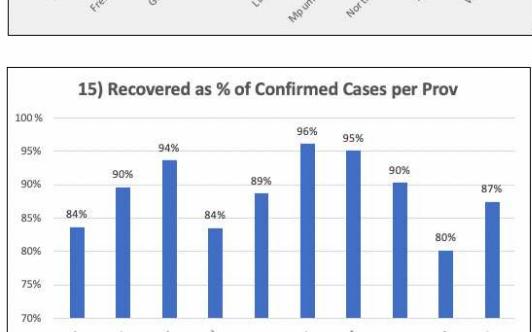
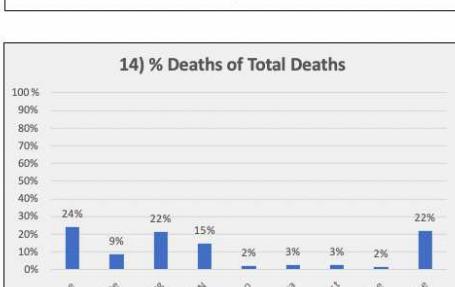
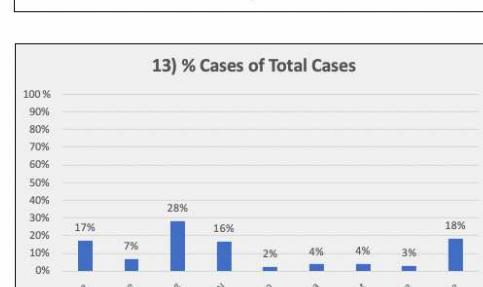
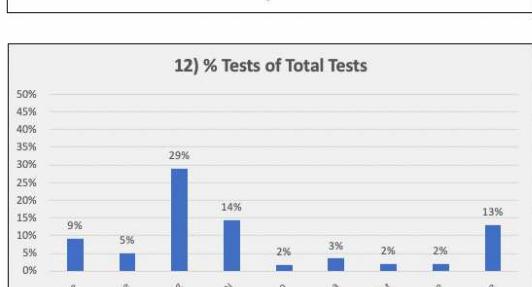
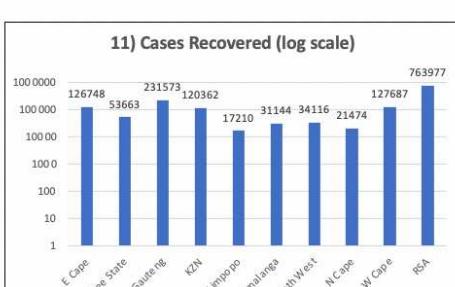
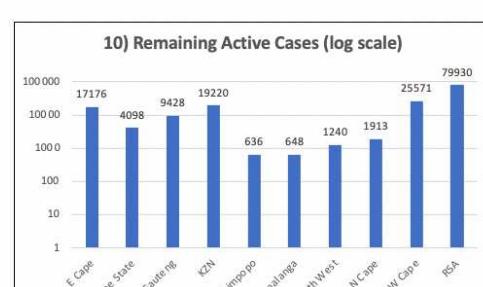
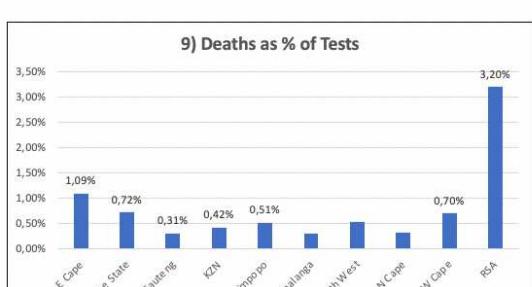
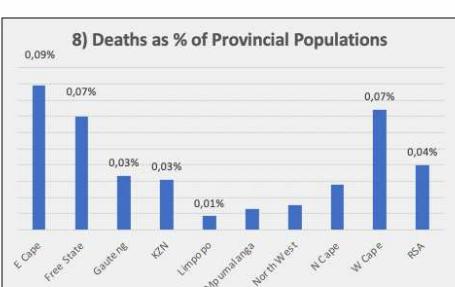
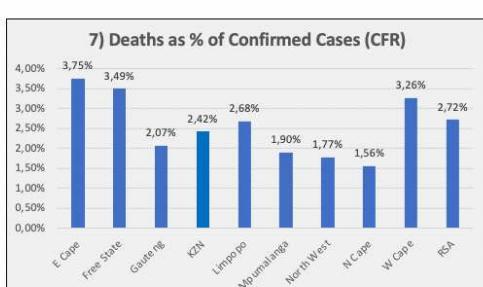
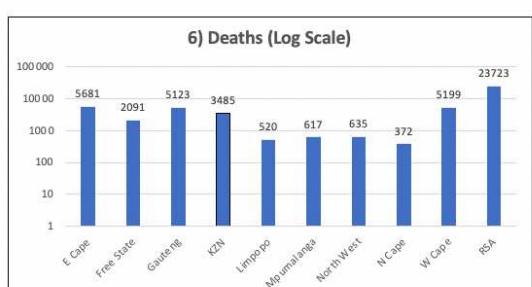
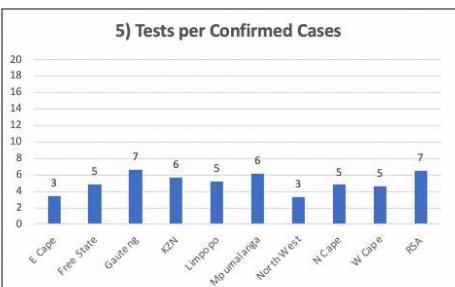
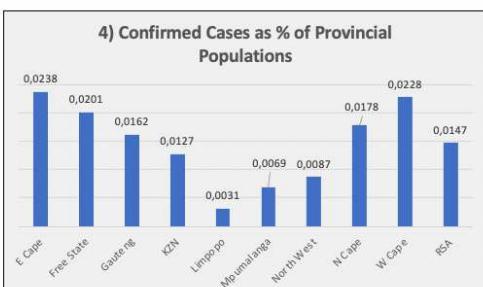
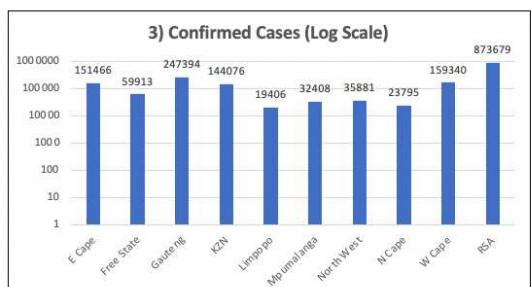
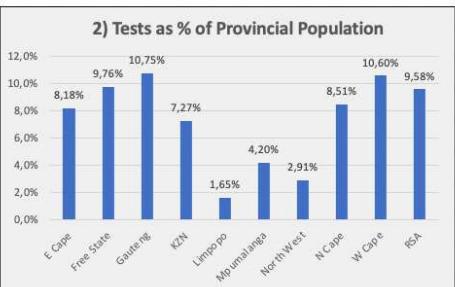
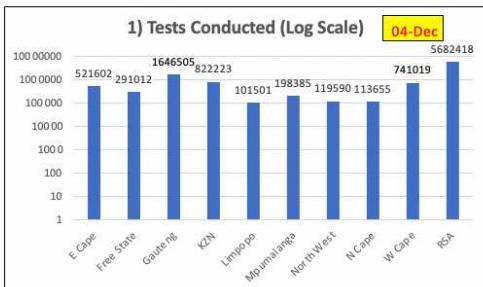
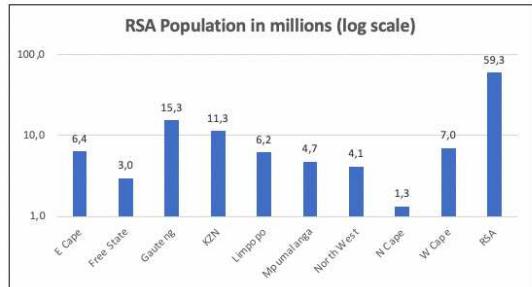


## Western Cape: R ≈ 1.5



# RSA Covid Stats: National & Provincial Analysis

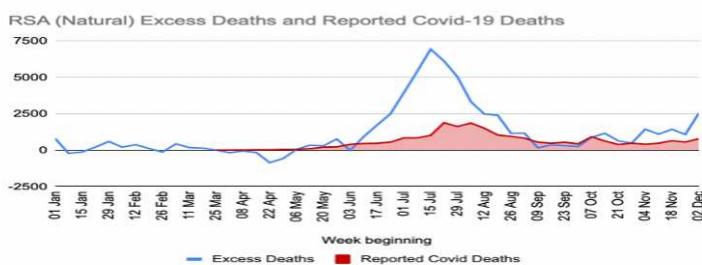
Page 6



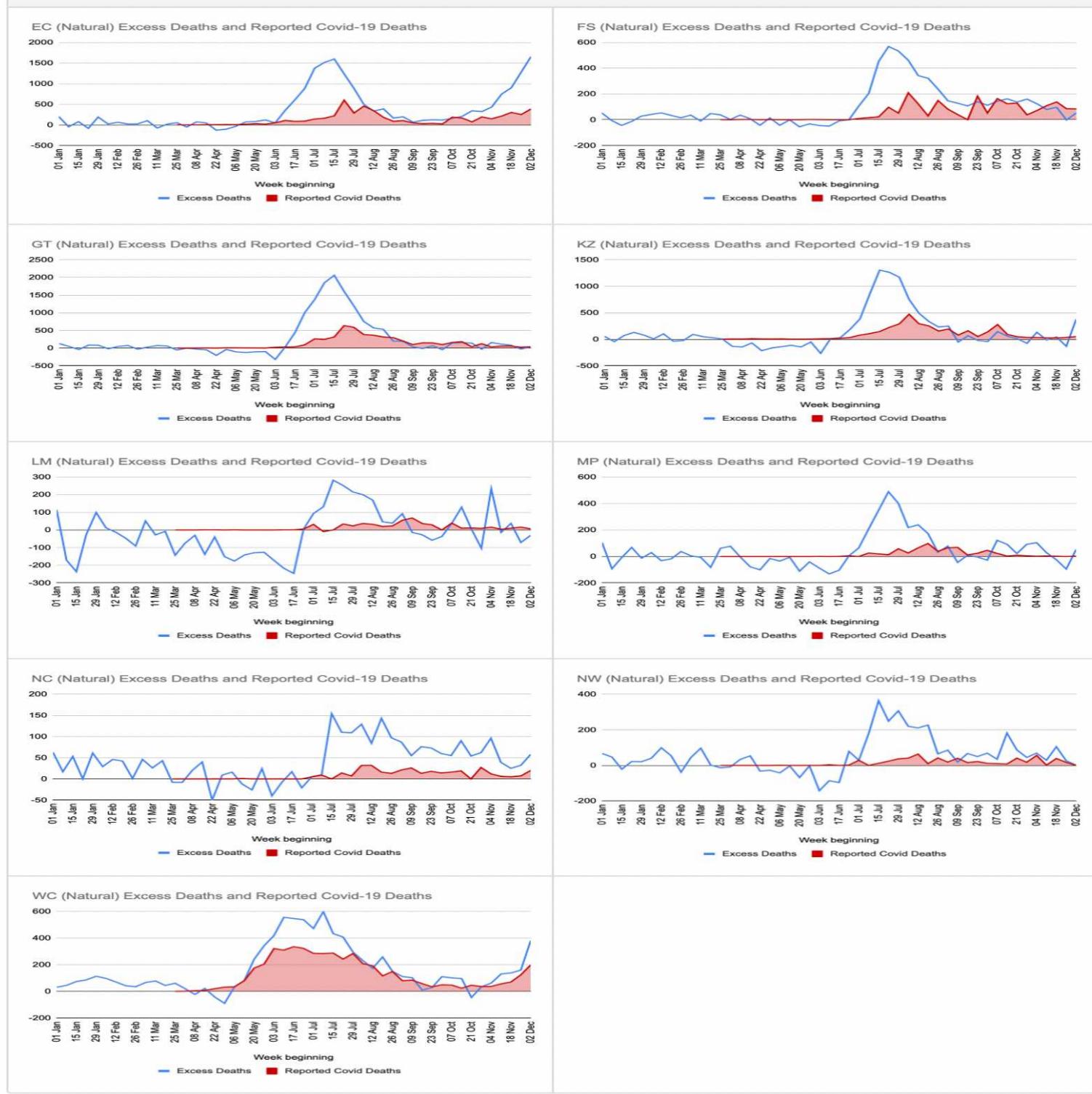
# RSA Excess Deaths as per SA Medical Research Council

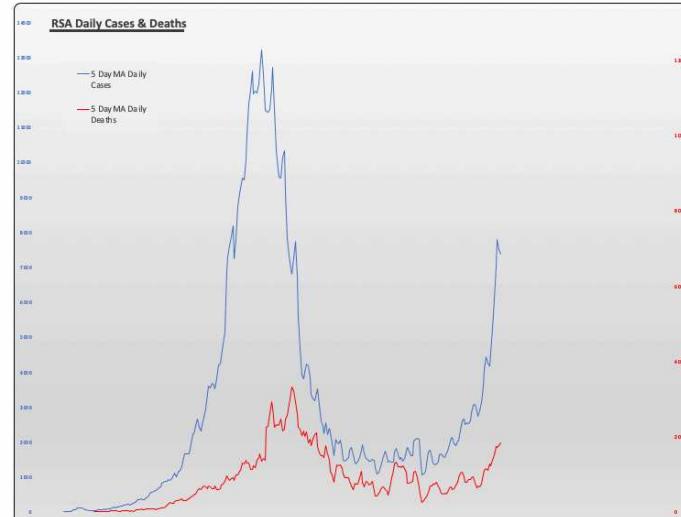
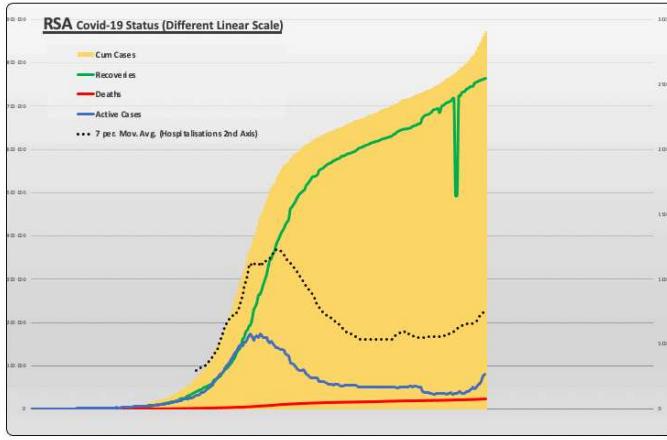
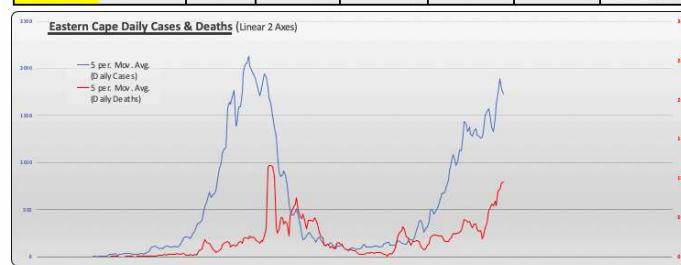
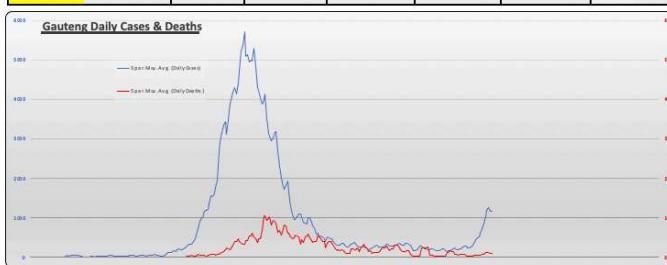
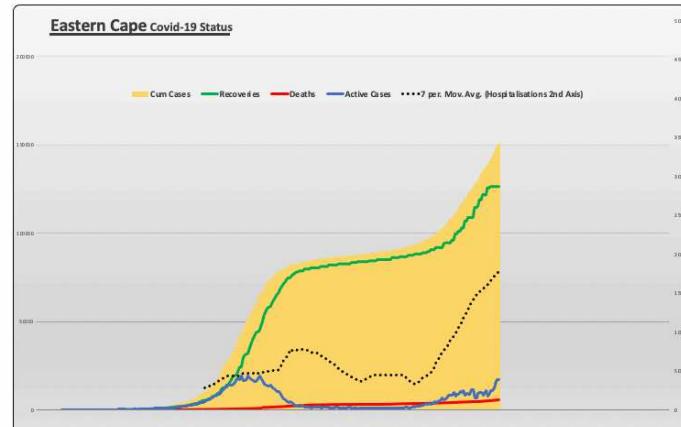
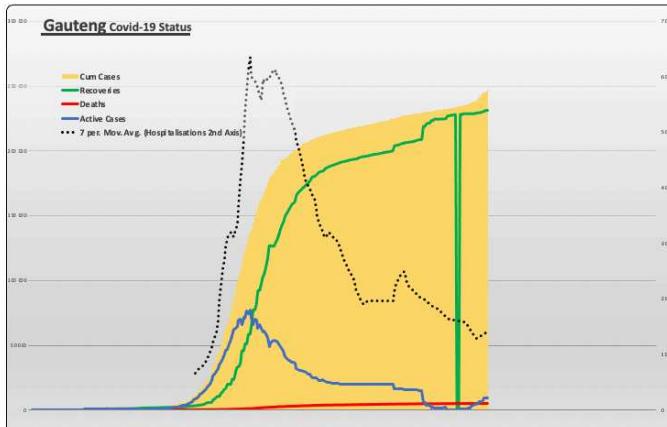
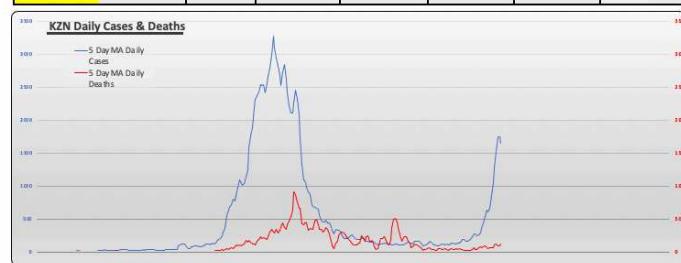
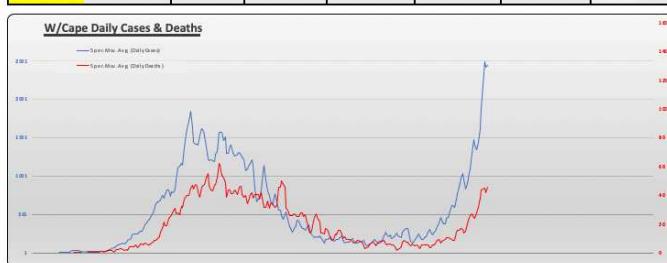
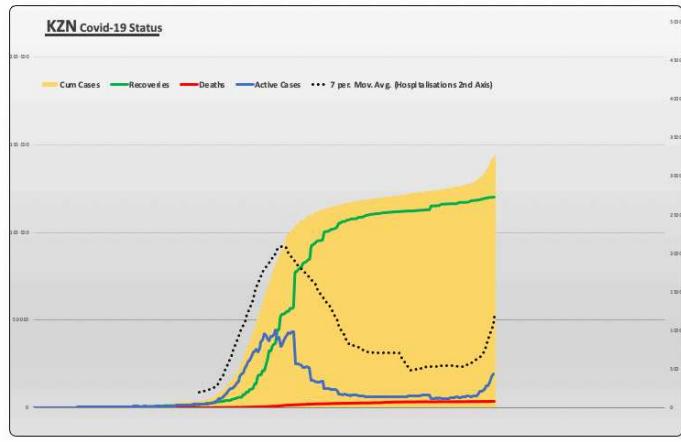
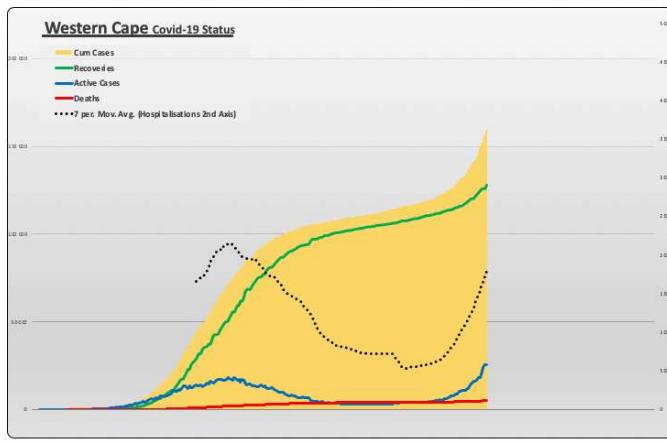
Page 6.1

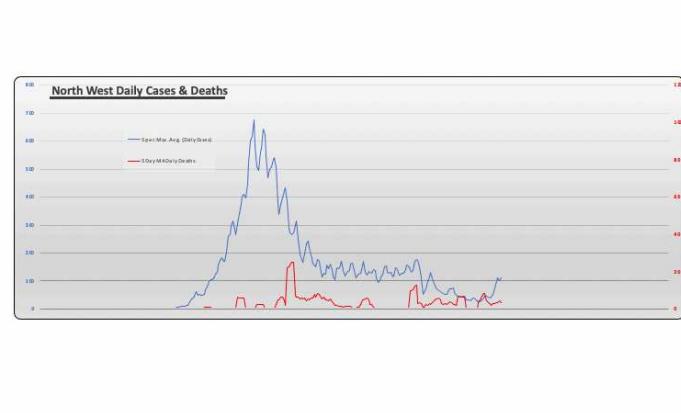
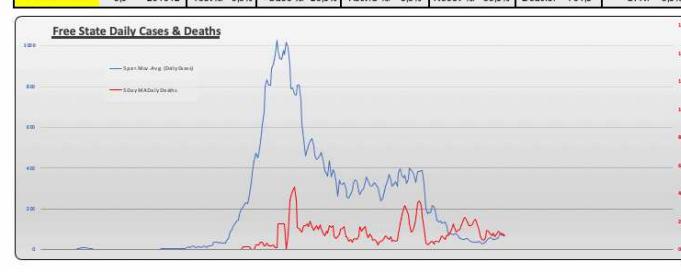
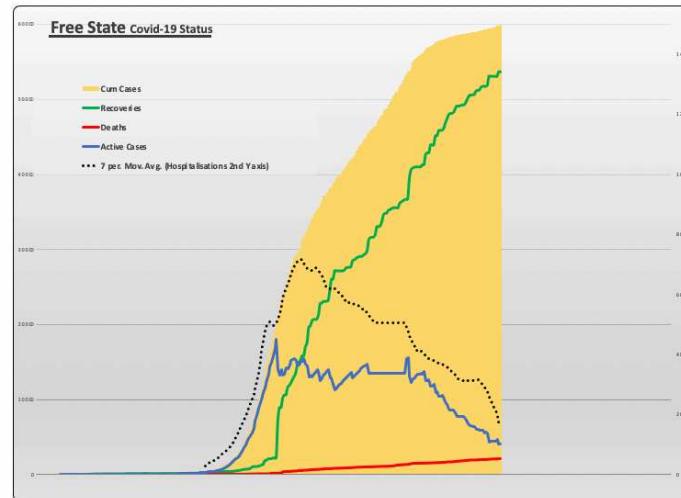
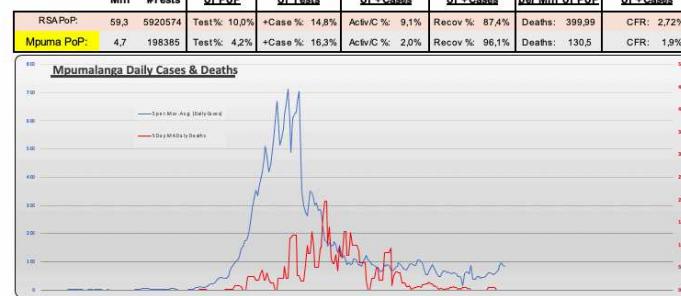
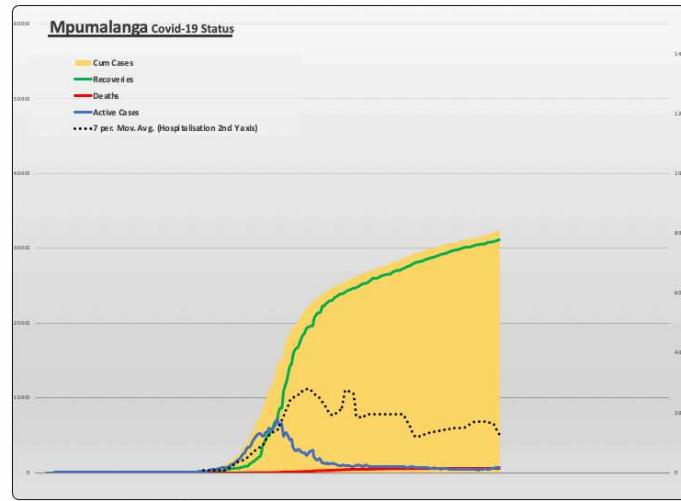
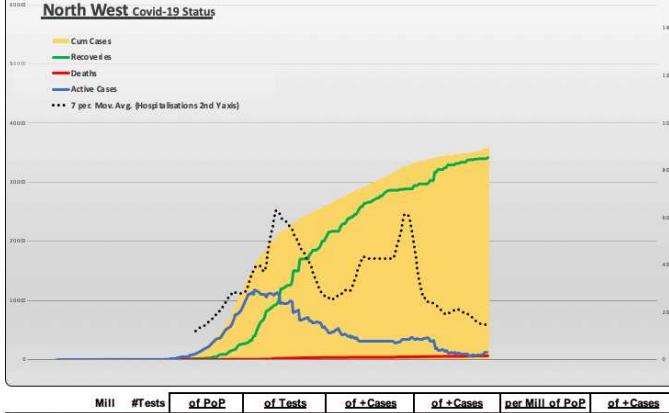
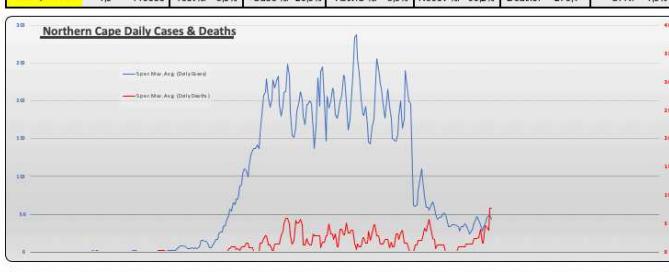
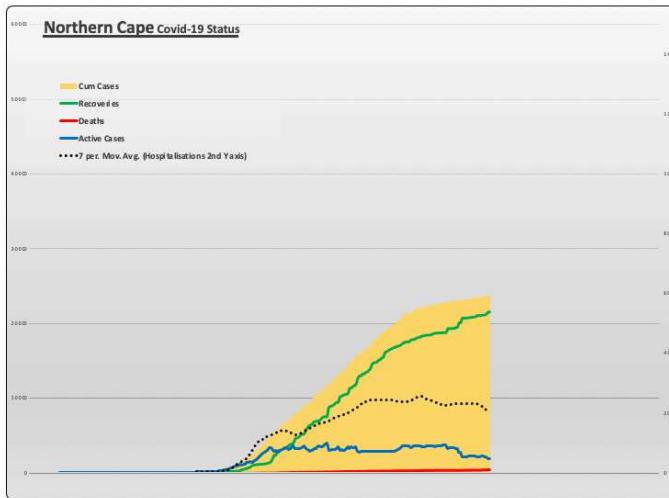
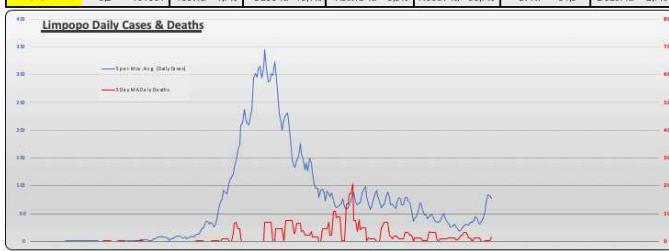
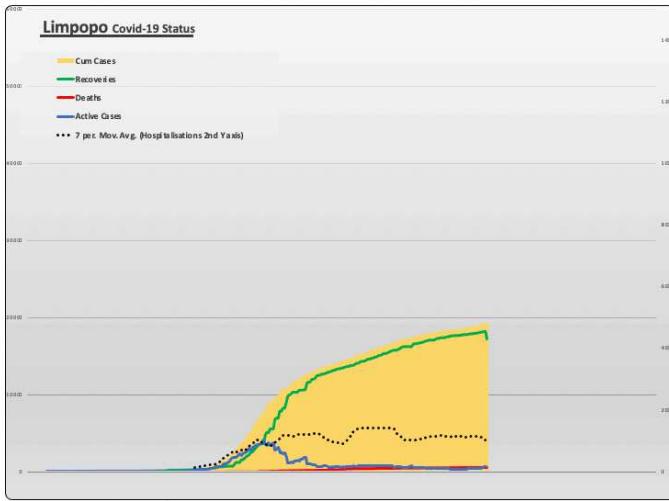
One approach to aid understanding of the emerging COVID-19 mortality is to compare the estimated weekly excess deaths with the number of COVID-19 deaths reported by the Minister of Health as shown in the figure below. This comparison is hampered to some degree by the fact that the excess deaths are classified by week in which the death occurred; the reported COVID-19 deaths are classified by date the numbers are reported to the Department. If all excess natural deaths were due to COVID-19, and all COVID-19 deaths were perfectly identified and reported, the two series would be identical. The number of estimated excess deaths has begun to decrease, consistent with the trend in the number of confirmed COVID-19 deaths. Although more data are needed on the underlying causes of death, this observation is strongly supportive that a significant proportion of the current excess mortality being observed in South Africa is likely to be attributable to COVID-19.



## Provinces







## Food for Thought....

