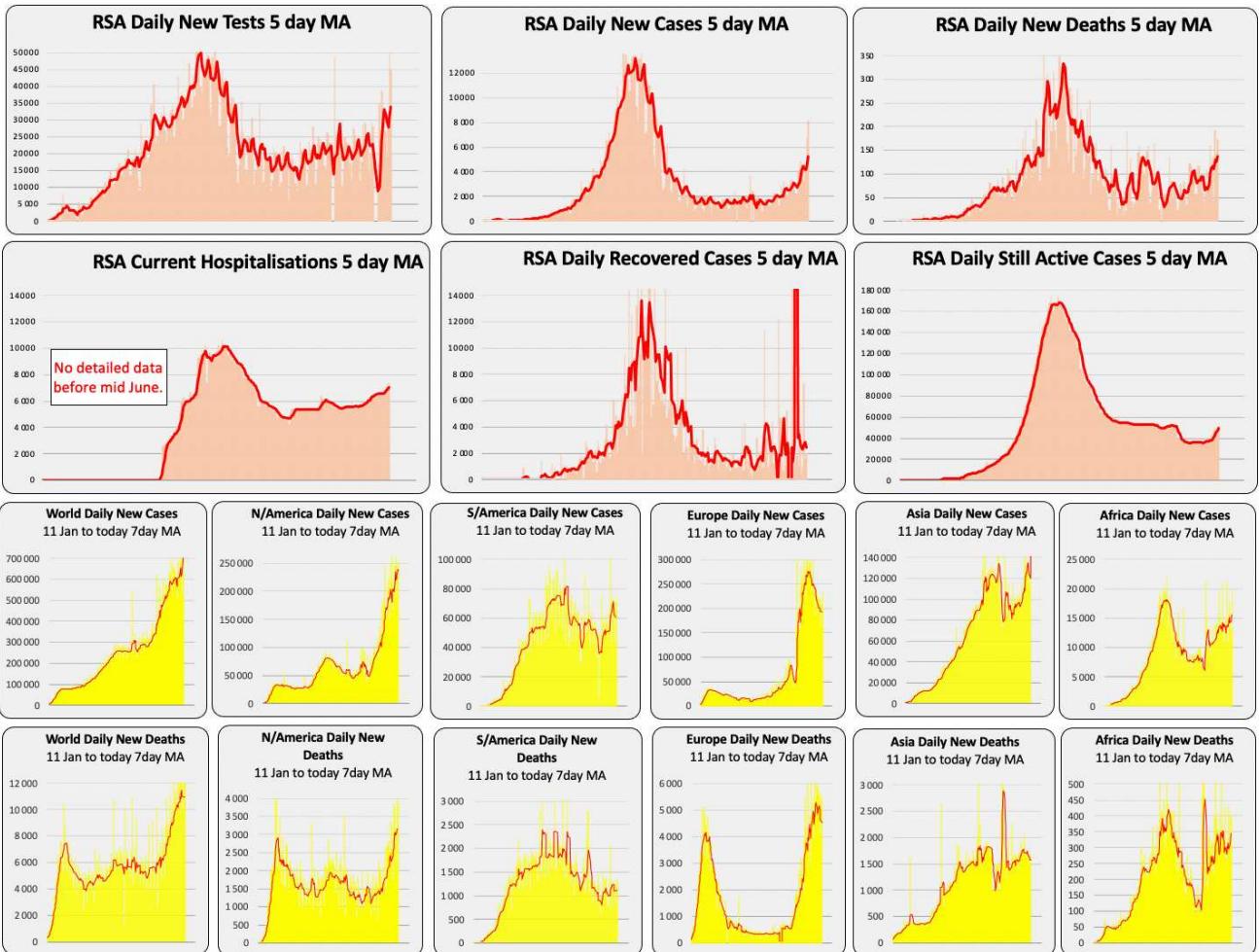
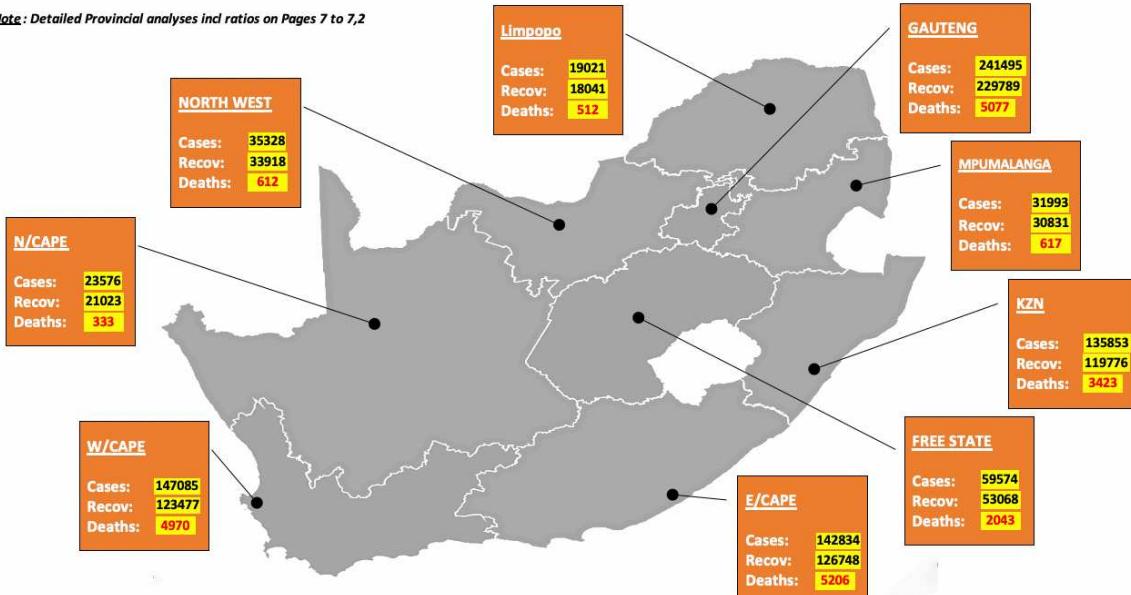


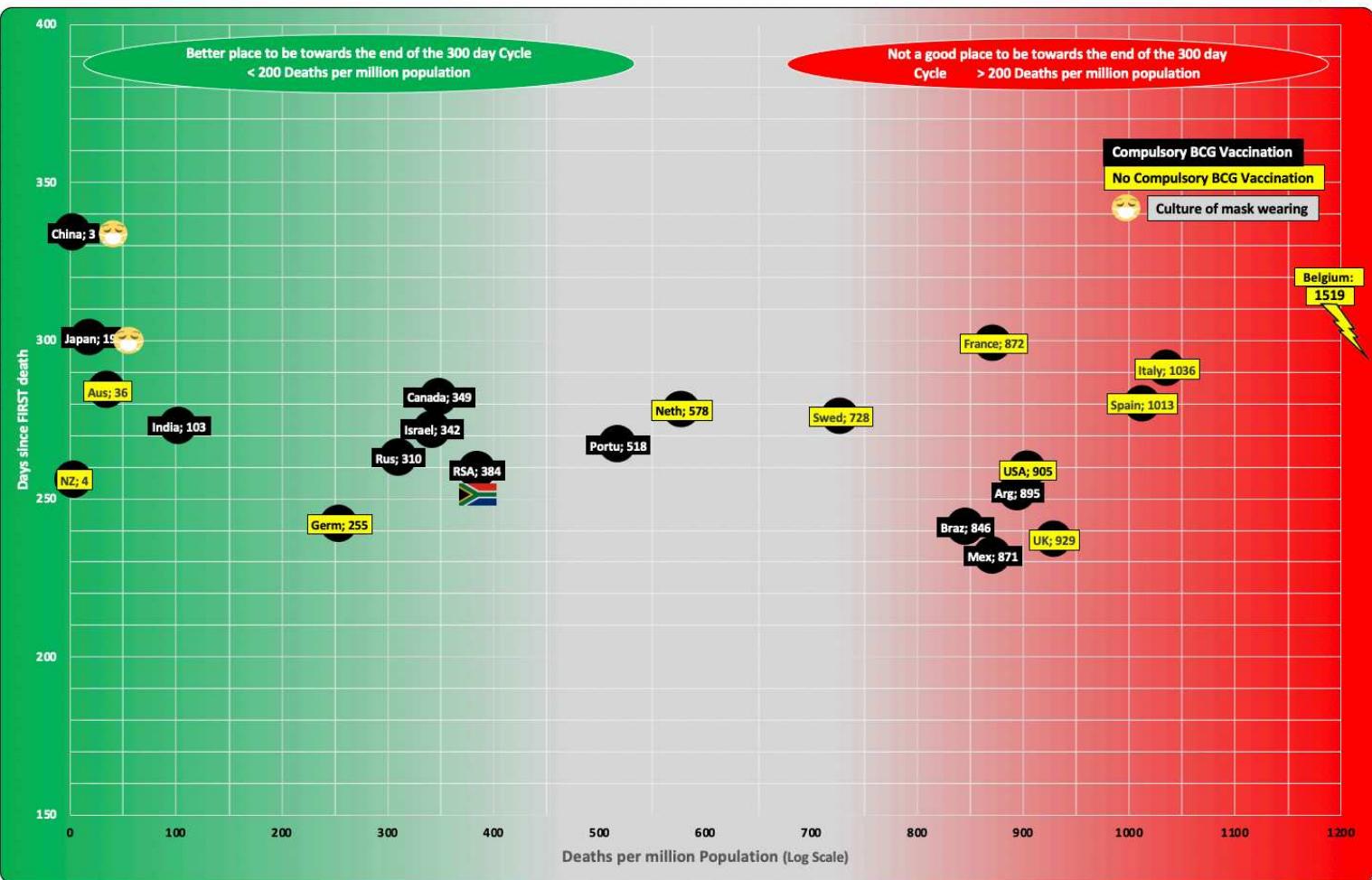
Cum +Cases		Daily Change		RSA COVID-19 DASHBOARD			% +Cases who Died (CFR)	Cum Recoveries	
836 759		8 160		RSA COVID-19 DASHBOARD			2,72%		
Active +Cases		+Cases per mill PoP	Deaths per mill PoP	11 December 2020			% of RSA PoP who Died (CMR)		
51 320	14 109	384,3		Cum Deaths ↑			0,0384%		
Deaths Avg Age	Deaths Min Age	Deaths Max Age		22 793 173			Deaths Median Age		
61,7	0,2	105		Cases Deaths			63,2		
Female : 58,2% 49,5% Male : 41,8% 50,5% 30-Nov									

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



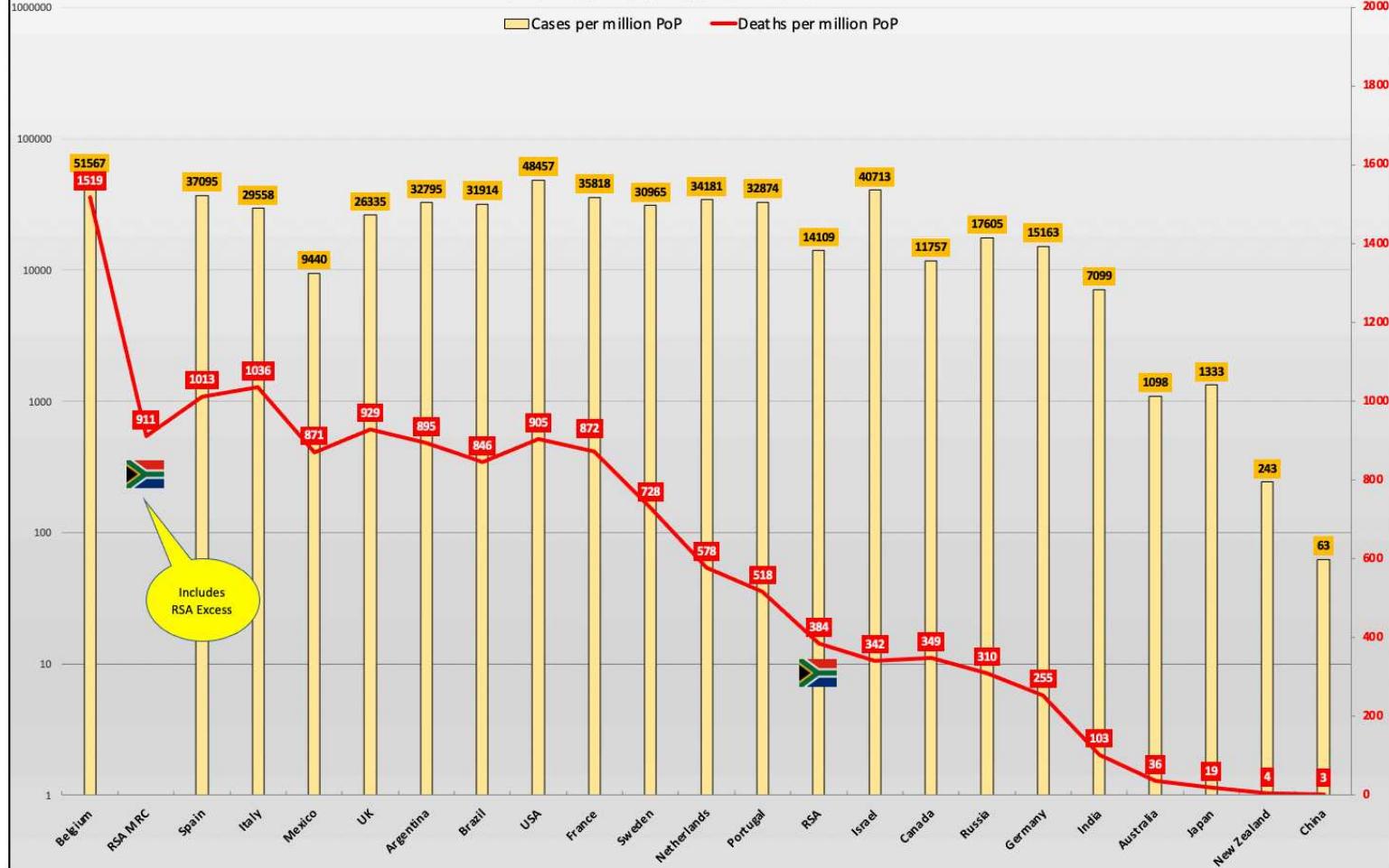
Covid Reported Deaths per million Population & Days since 1st Covid Death

Page 2



Current Cum Cases & Cum Deaths per million PoP

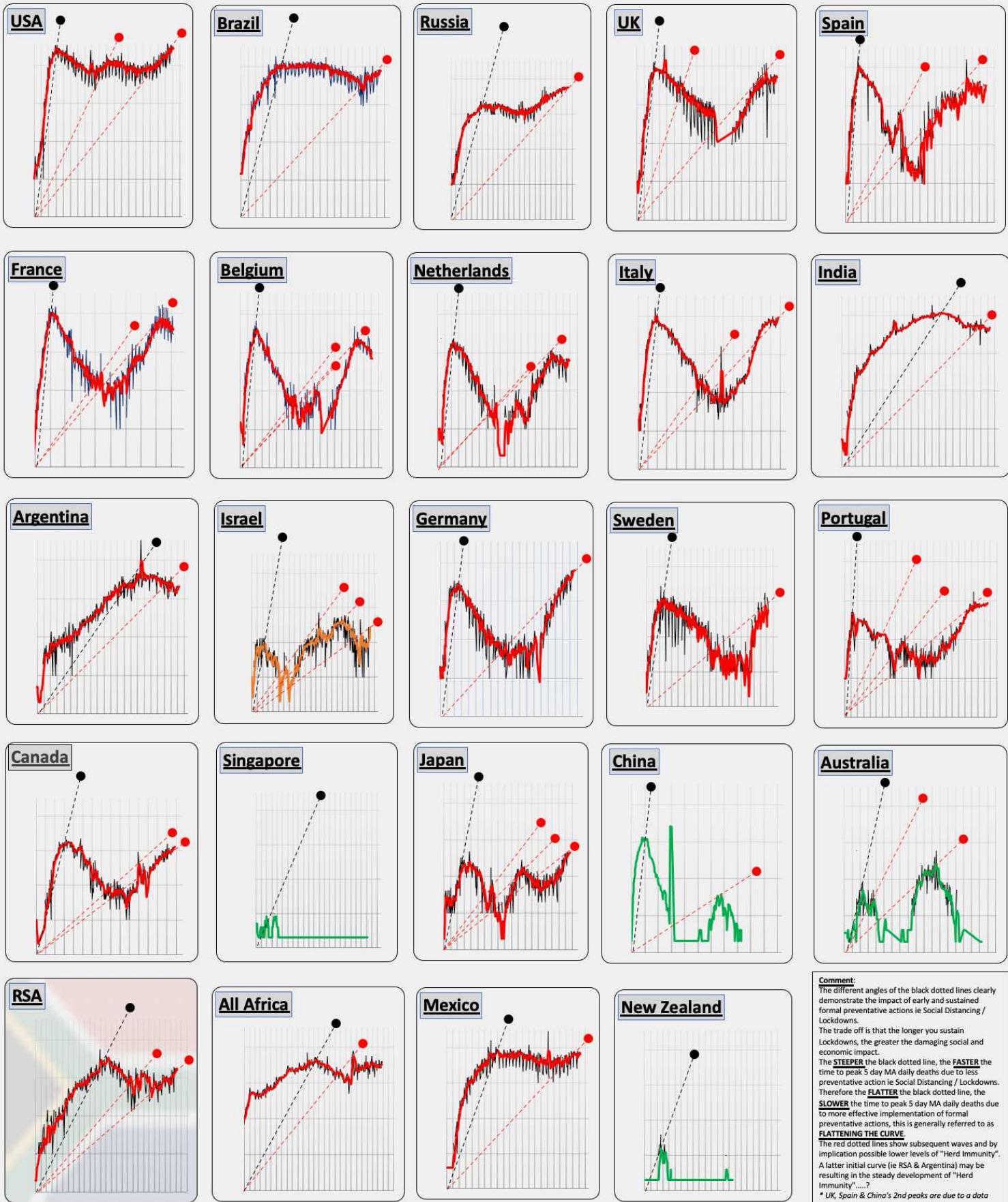
(Two axes primary Y Log 2nd Y Linear)



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
● Onset/1st wave	- - - 2nd & 3rd waves



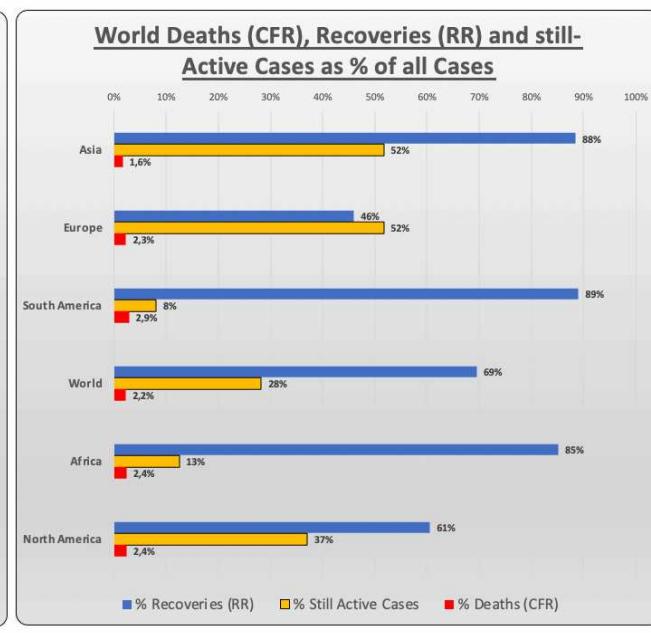
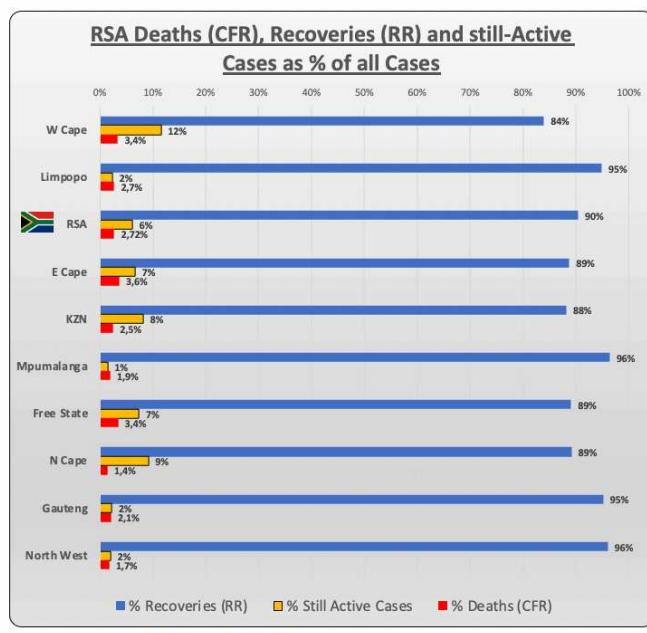
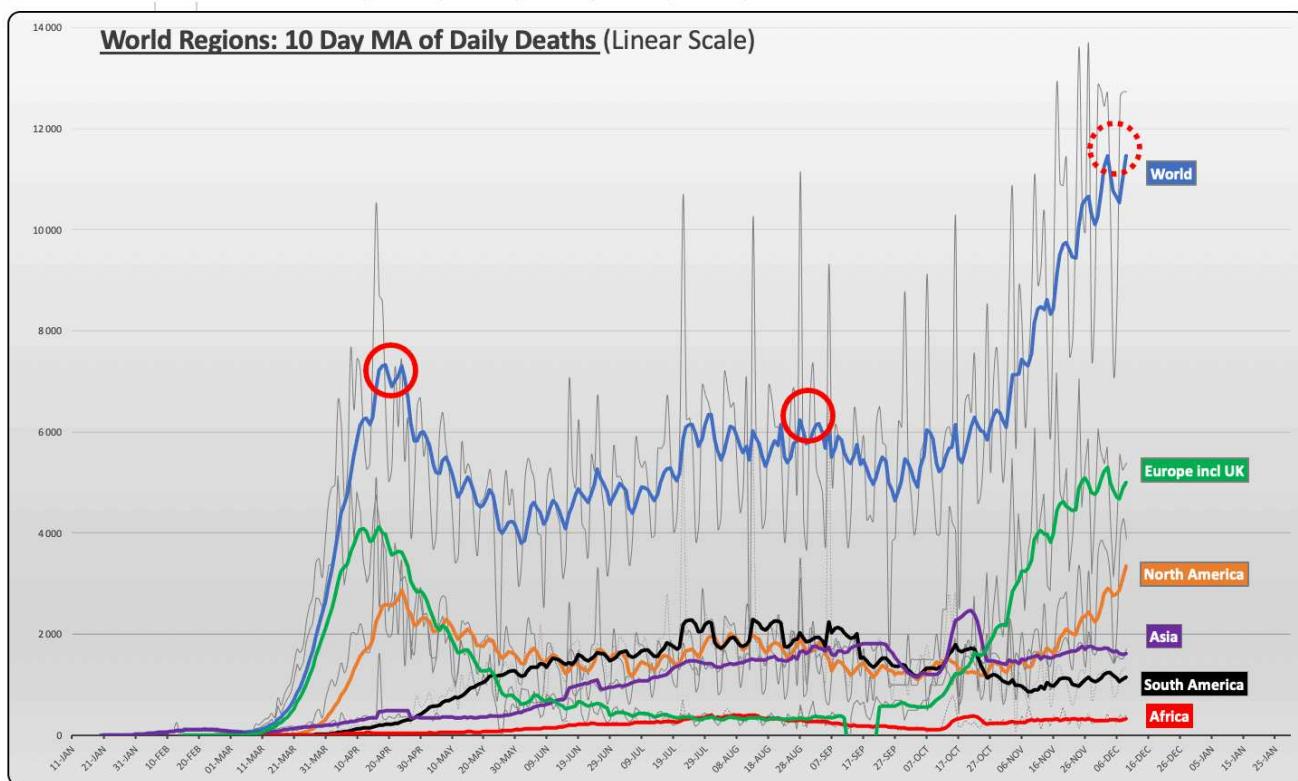
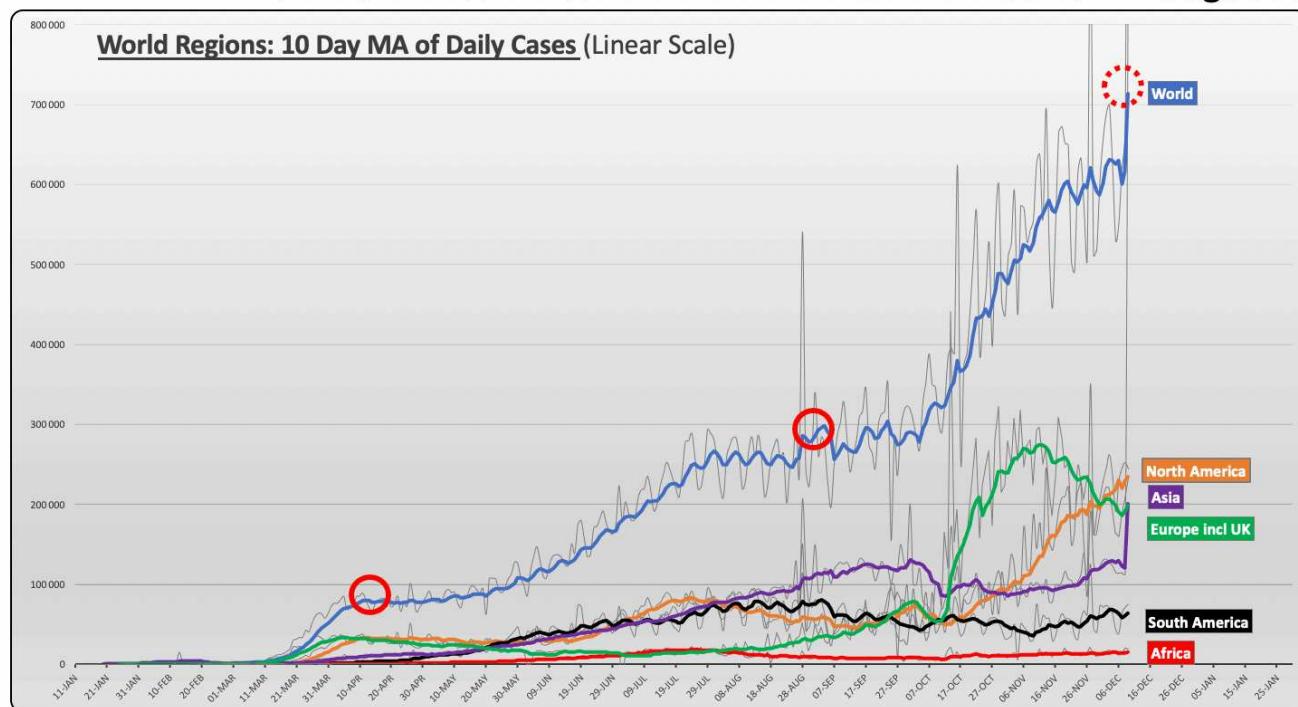
Comment:
The different angles of the black dotted lines clearly demonstrate the impact of early and sustained formal preventative actions ie Social Distancing / Lockdowns.

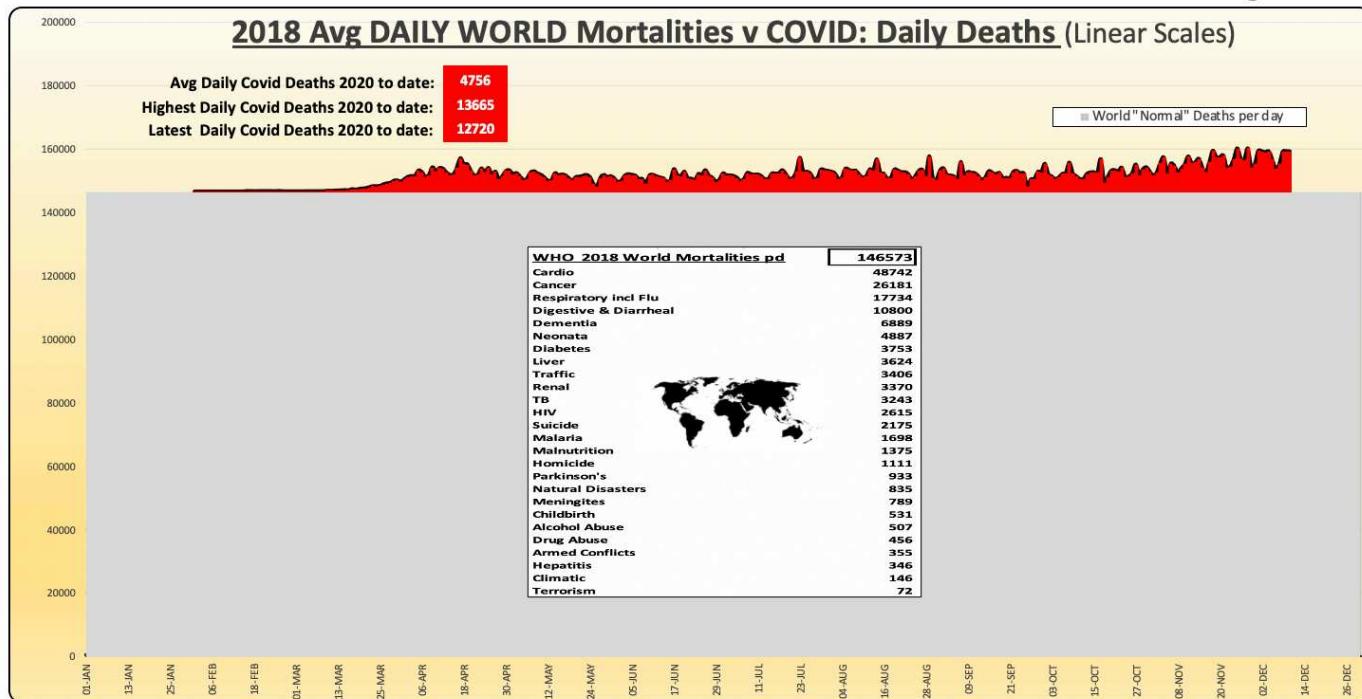
The trade off is that the longer you sustain Lockdowns, the greater the damaging social and economic impact.

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.



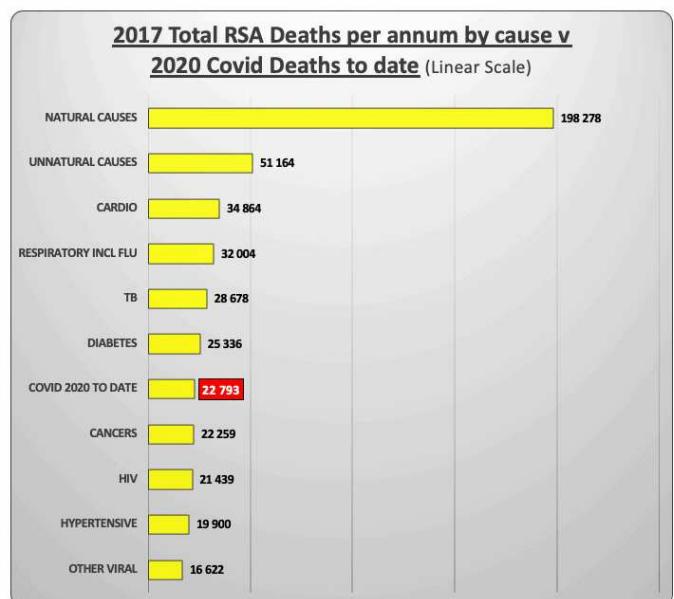
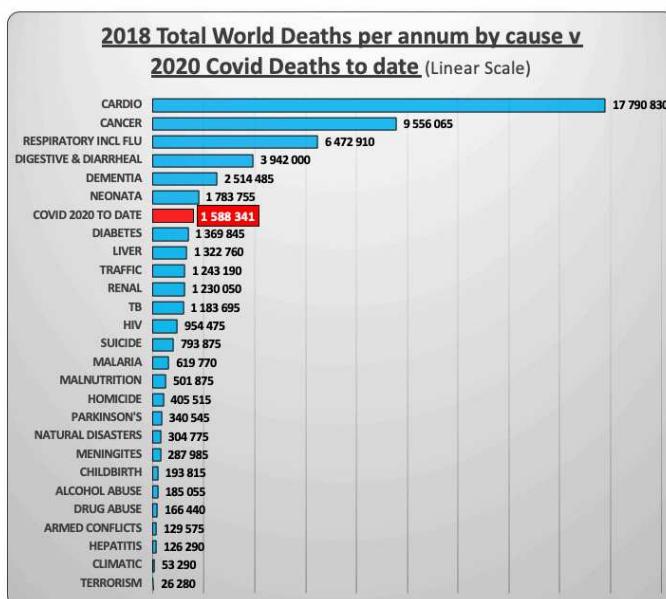
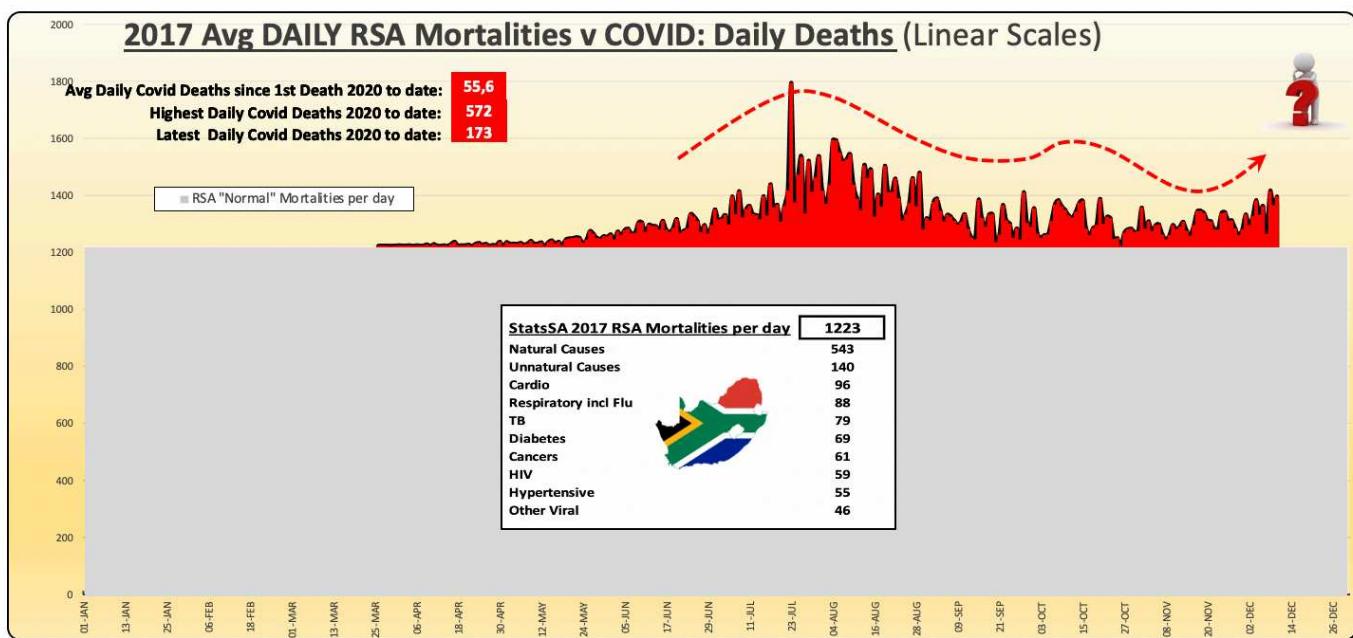


The two graphs WORLD (above) and RSA (below) attempt to put the number of Covid Deaths into some sort of perspective graphically.

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.

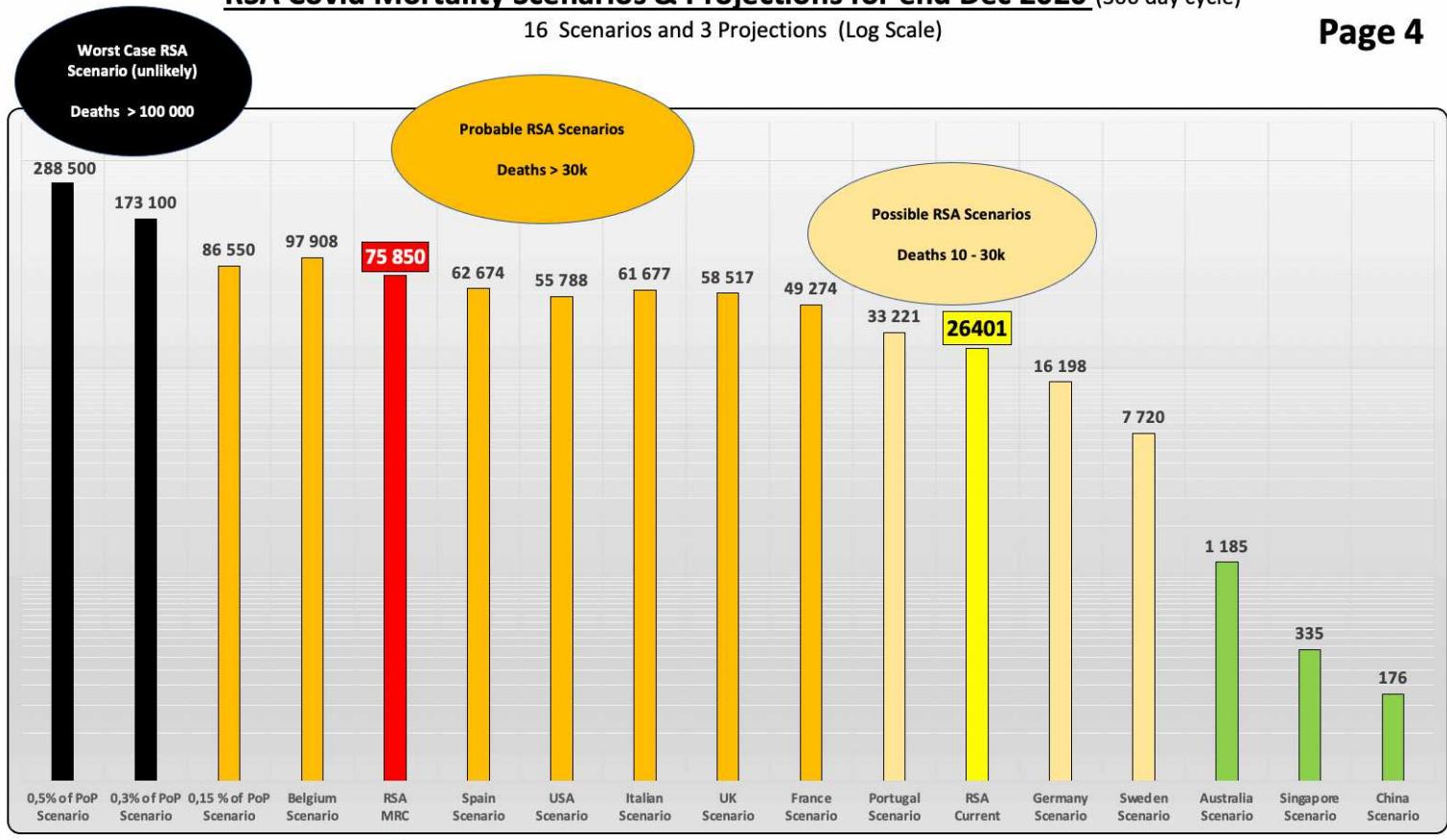
Obviously some of the Covid Deaths will "overlap" with the "normal" Deaths due to comorbidities.



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

16 Scenarios and 3 Projections (Log Scale)

Page 4



Key:

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

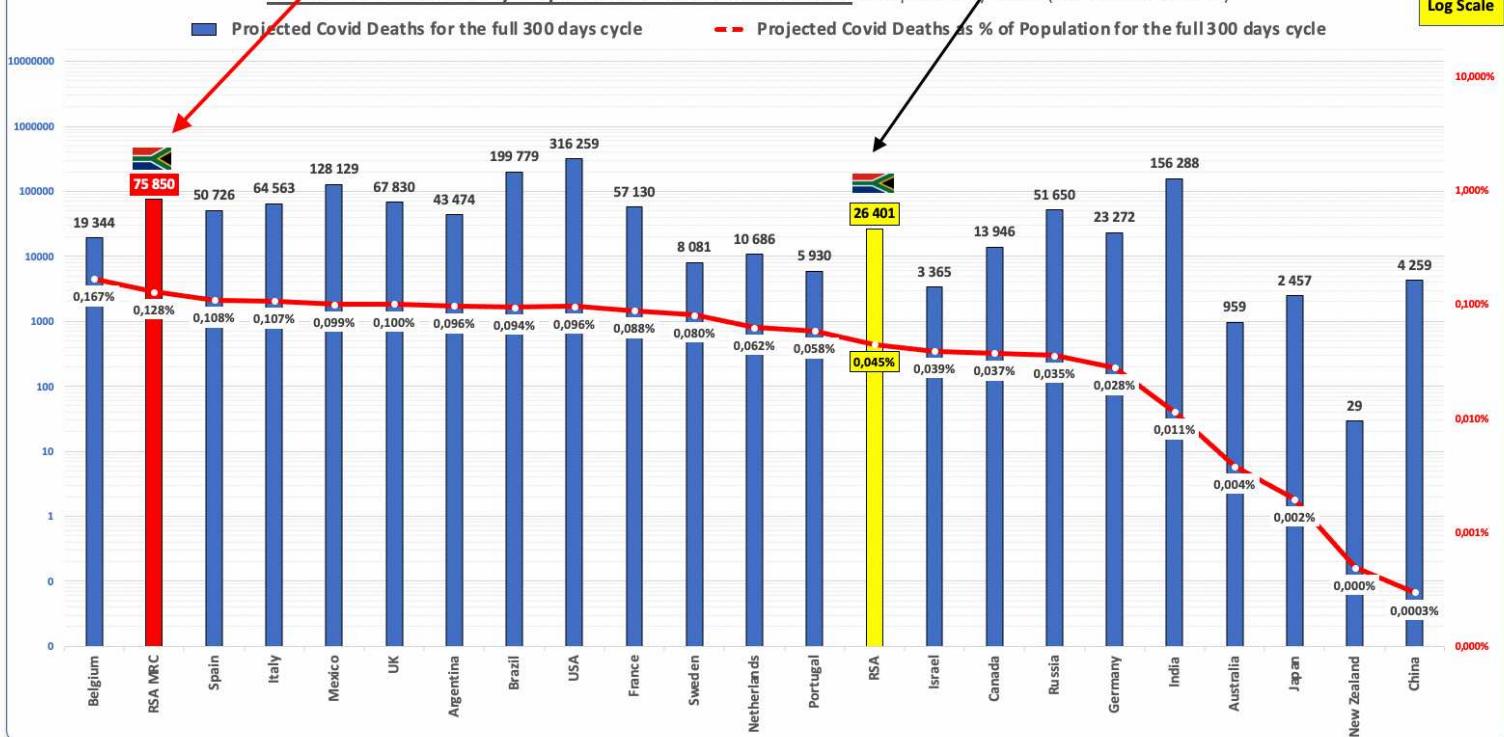
This projection uses the SA Medical Research Council data on "Excess Deaths". The assumption is that 90% of their reported Excess Deaths are probably due to Covid. The ratios are updated bi-weekly by the MRC but I apply these ratios to the official stats on a daily basis for this projection.

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)

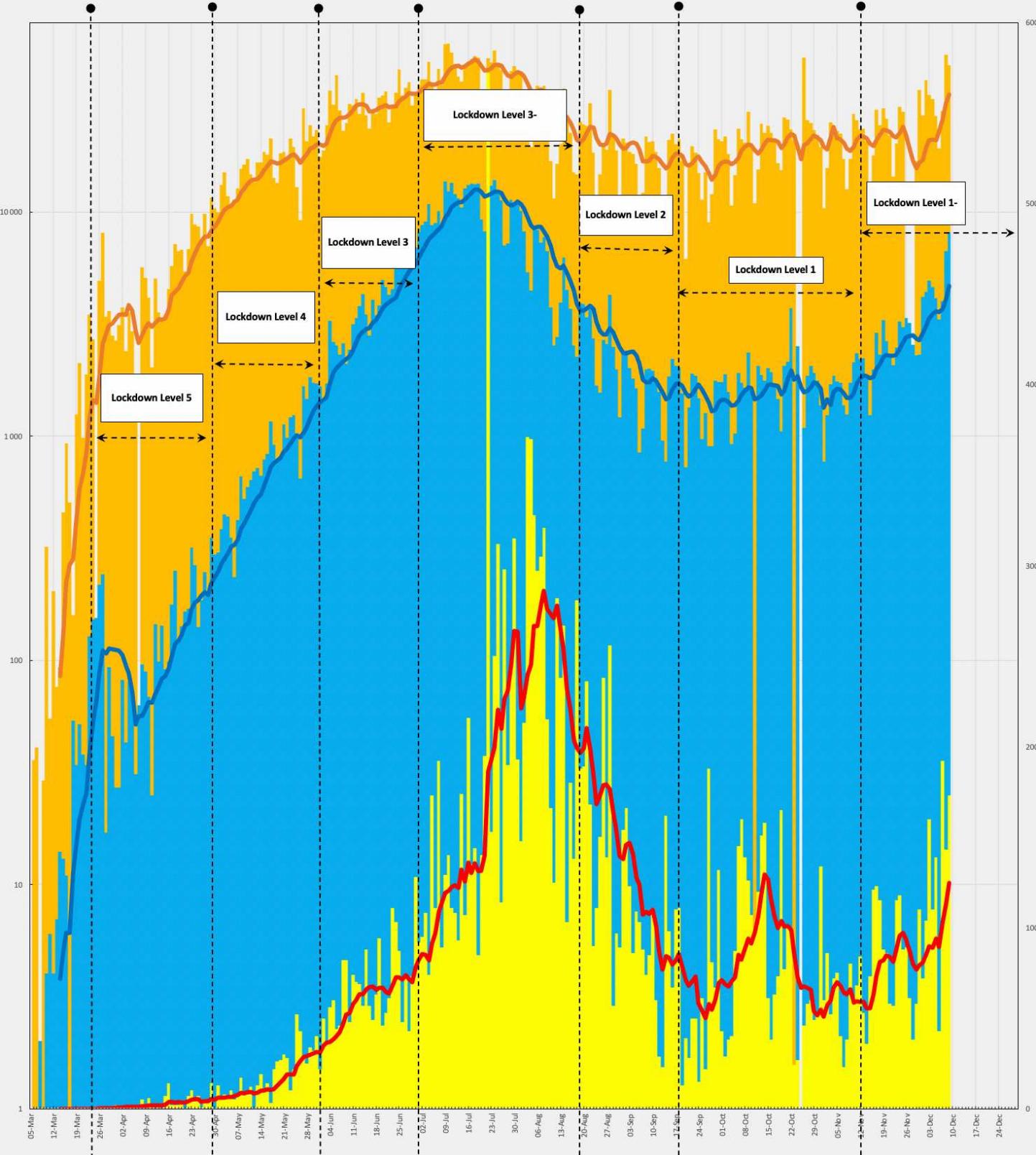
Log Scale



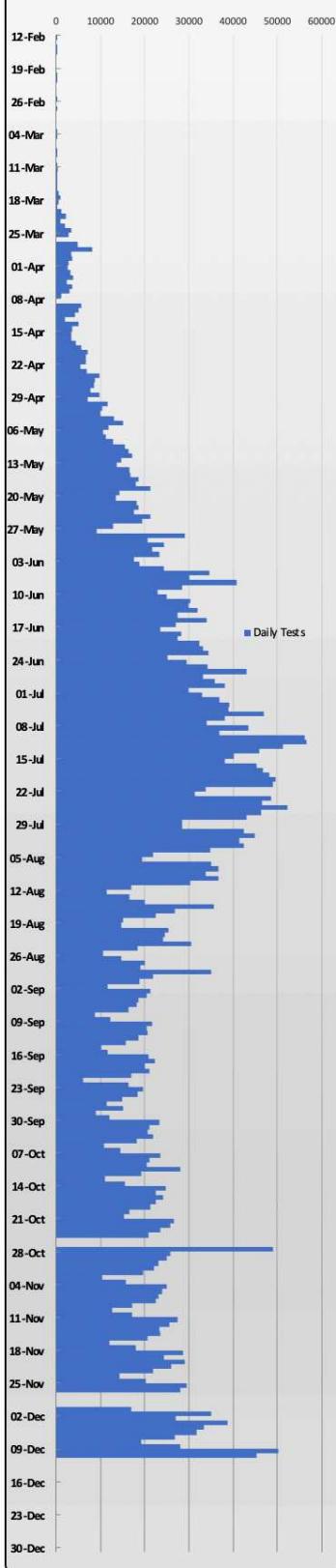
Note: Above Mortality %'s are overall projected mortality of the populations (PMR), NOT deaths of only those infected (CFR).

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

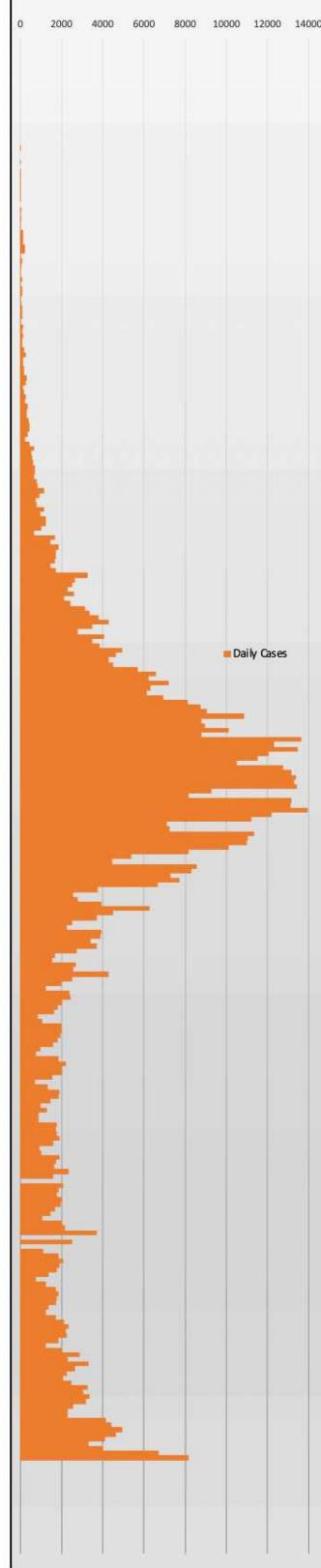
■ Daily Tests ■ Daily Cases ■ Daily Deaths ■ 10 per. Mov. Avg. (Daily Tests) ■ 10 per. Mov. Avg. (Daily Cases) ■ 10 per. Mov. Avg. (Daily Deaths)



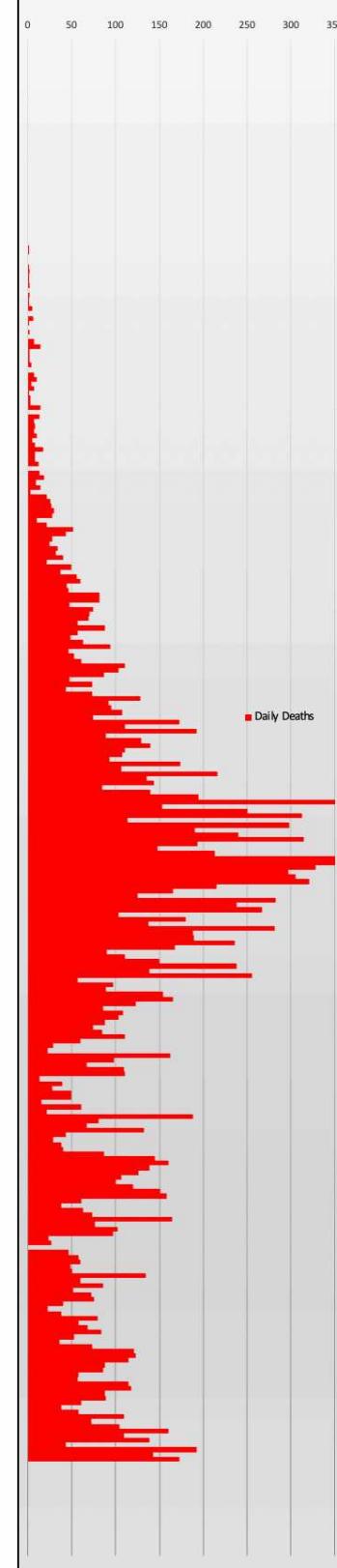
Daily Tests



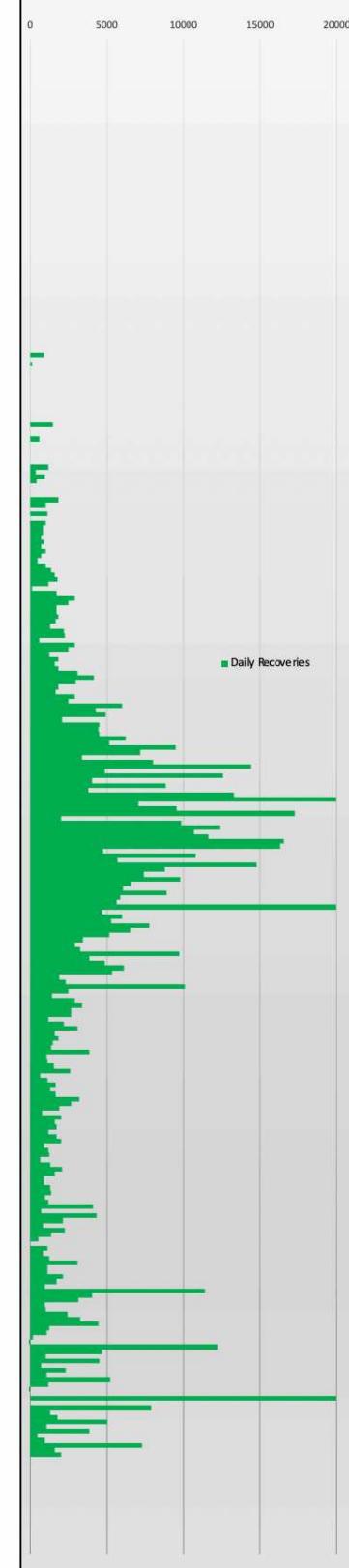
Daily Cases



Daily Deaths

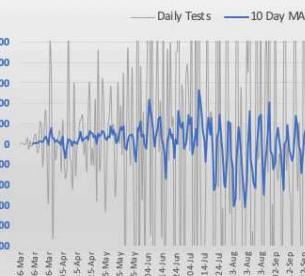


Daily Recoveries



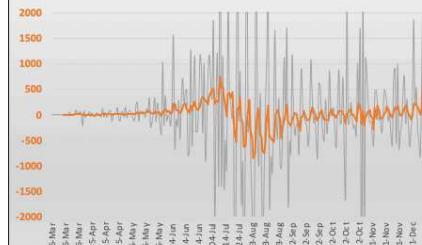
RSA: Daily New Tests Fluctuation (Delta)

Curve



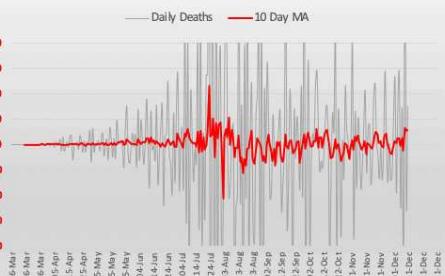
RSA: Daily new Cases Fluctuation (Delta) Curve

Daily Cases 10 Day MA



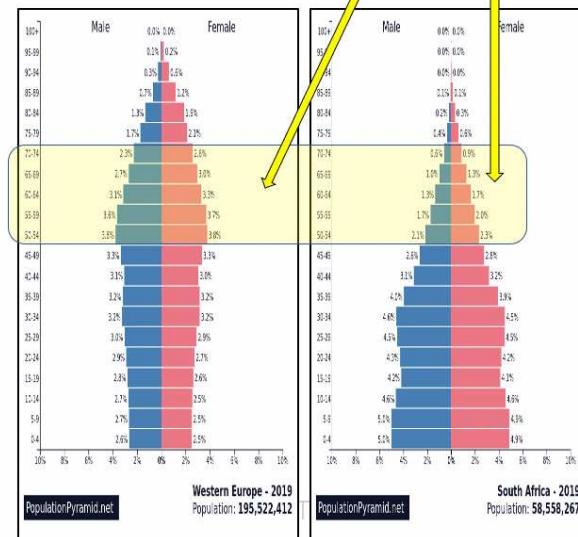
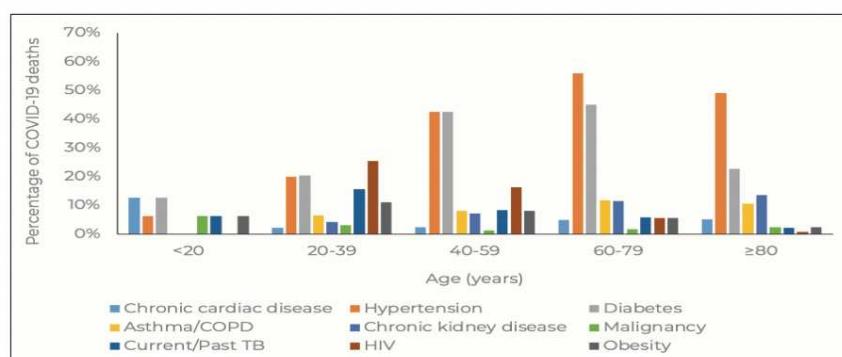
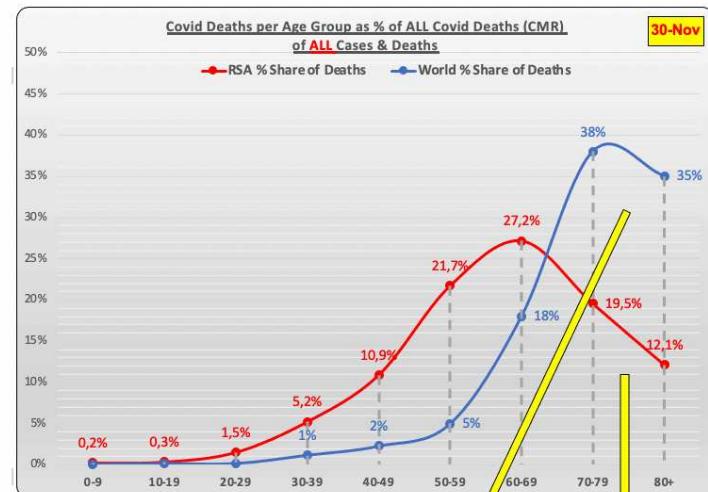
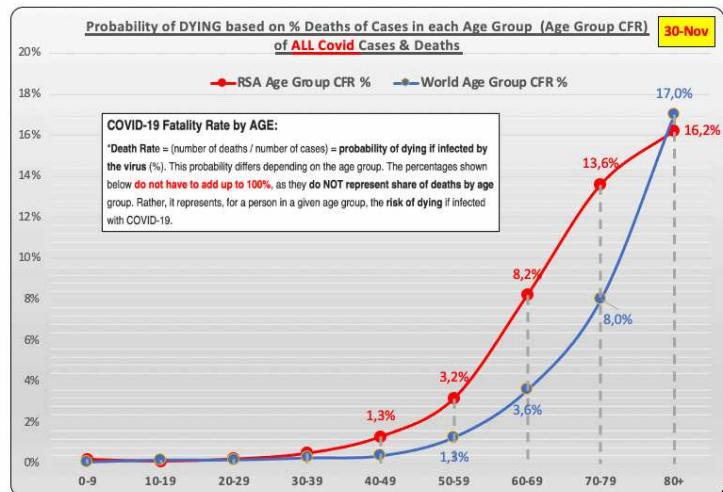
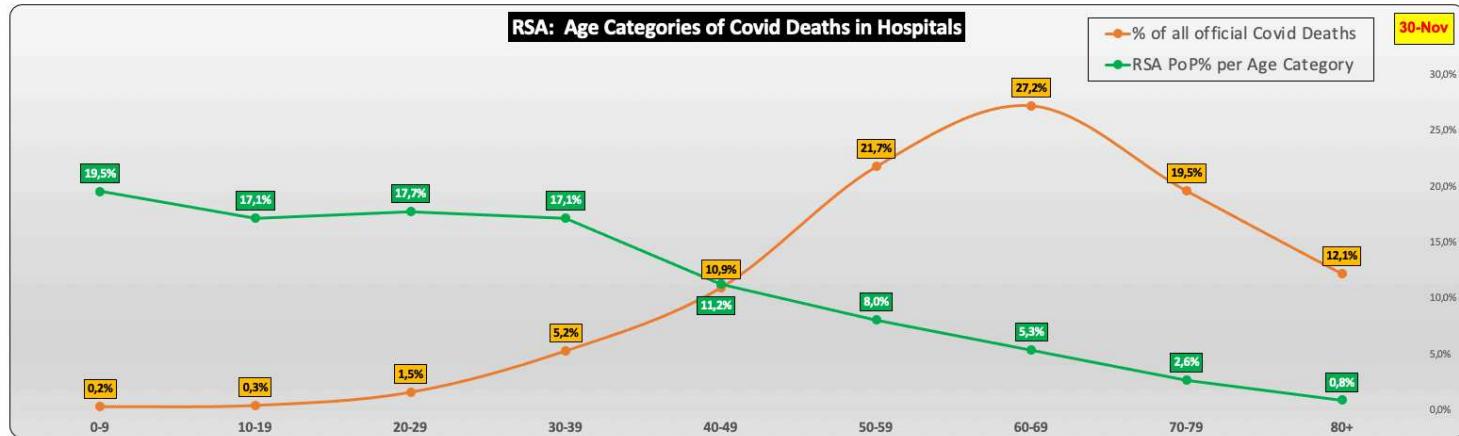
RSA: Daily New Deaths Fluctuation (Delta) Curve

Curve



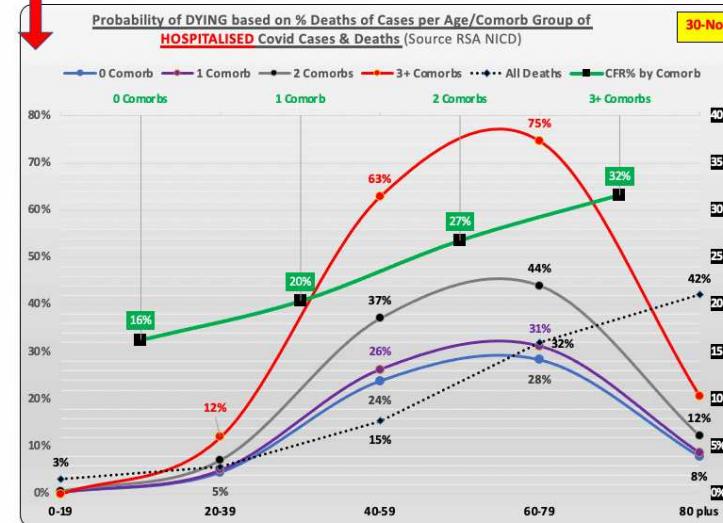
RSA Age & Gender Stats

RSA: Age Categories of Covid Deaths in Hospitals



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.

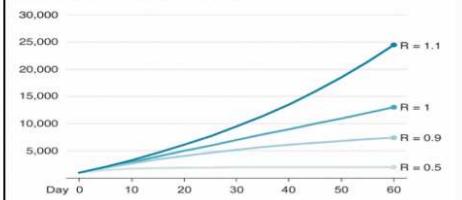


The Reproduction Number, R, derived from Currently Infectious estimates, see below

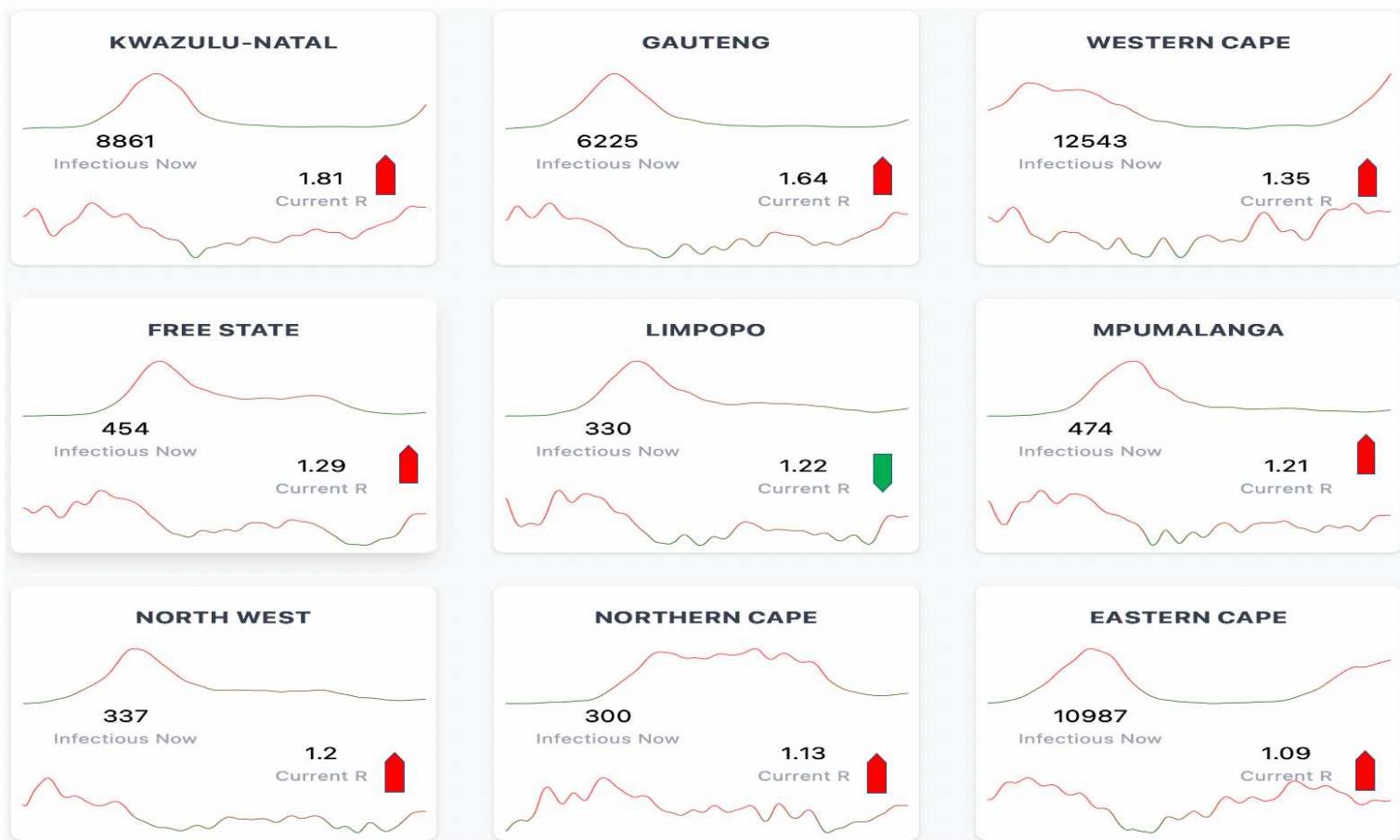


An R_t below 1 suggests that the number of cases is shrinking, possibly allowing societies to open back up. An R_t above 1 indicates that the number of cases is growing, perhaps necessitating renewed lockdowns or other measures.

How 1,000 cases would increase under different infection rates

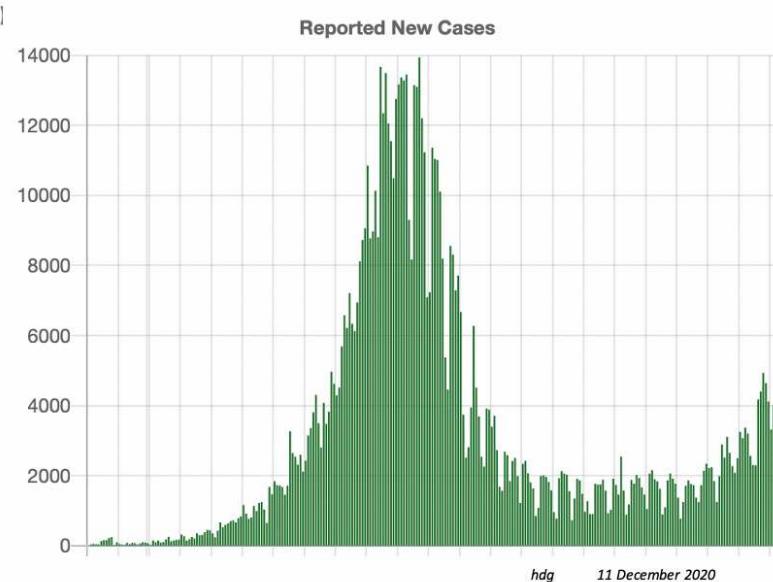
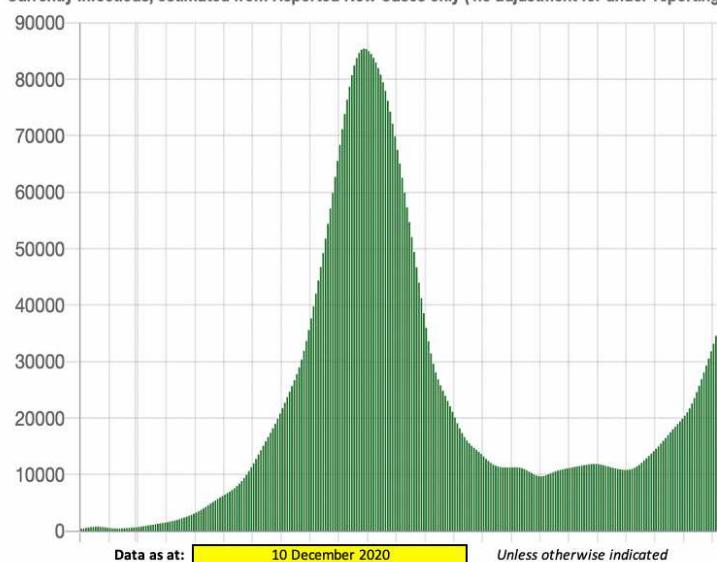


Movement from previous day

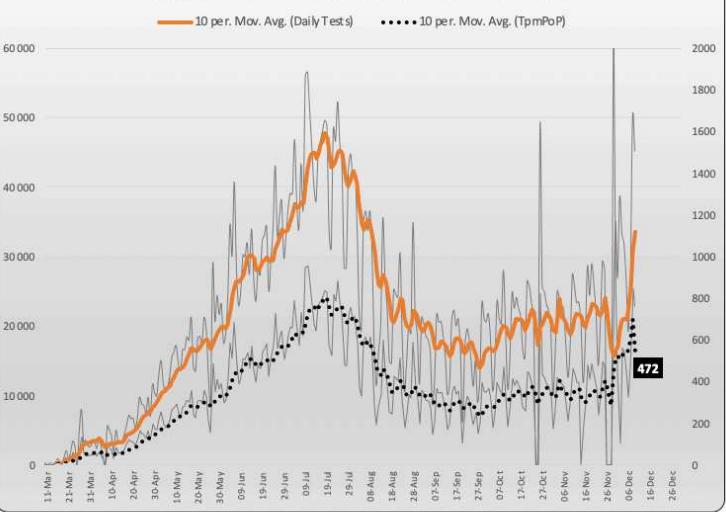


Rt graphs from: <https://reproduction.live/world/ZA>

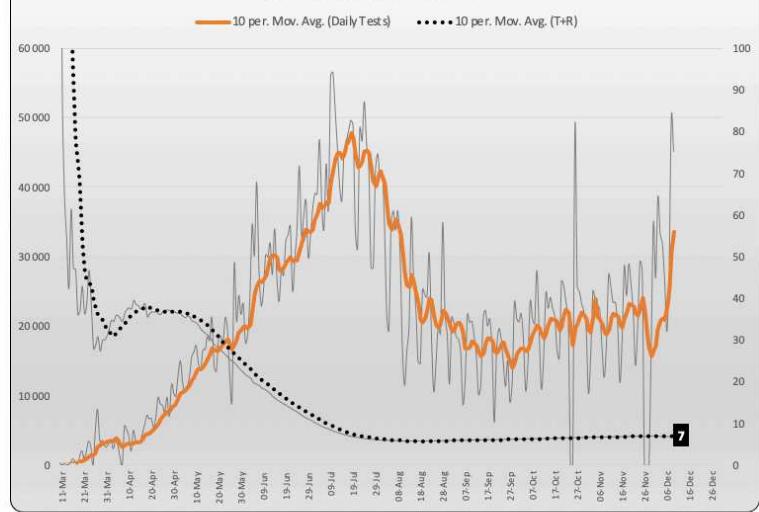
Currently Infectious, estimated from Reported New Cases only (no adjustment for under-reporting)



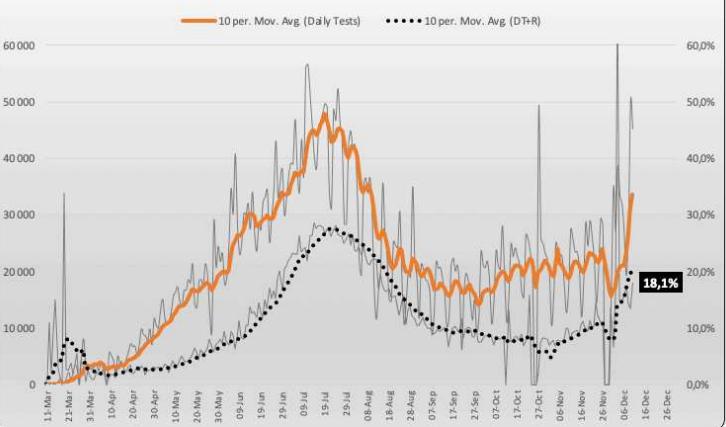
RSA: Daily Tests conducted per million PoP



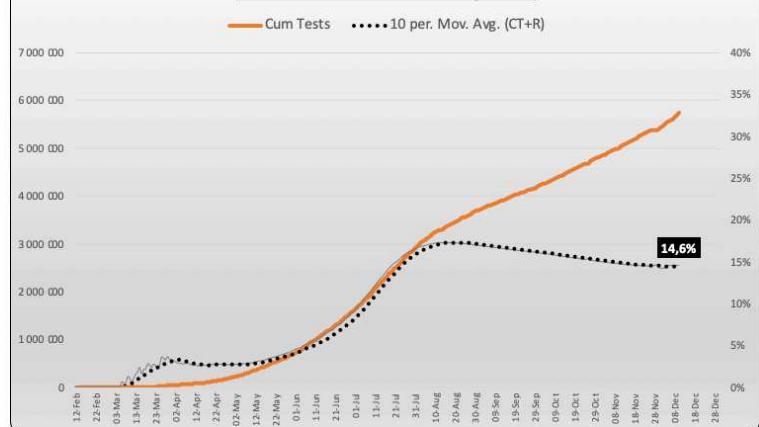
RSA: Daily Tests per +Case



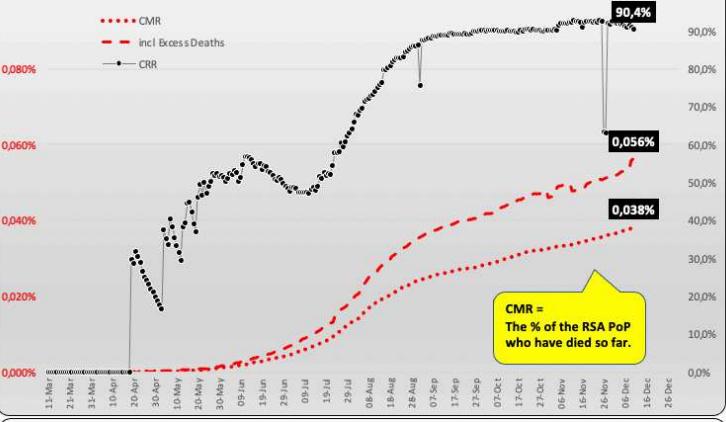
RSA: Daily Tests Positivity %



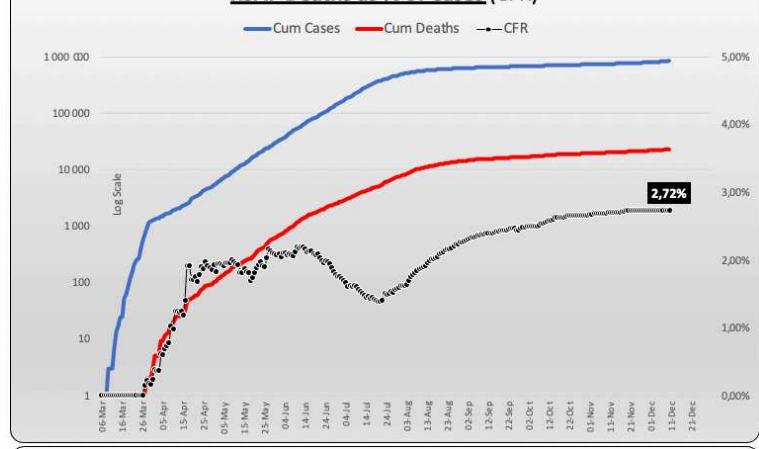
RSA: Cum Tests Positivity Rate



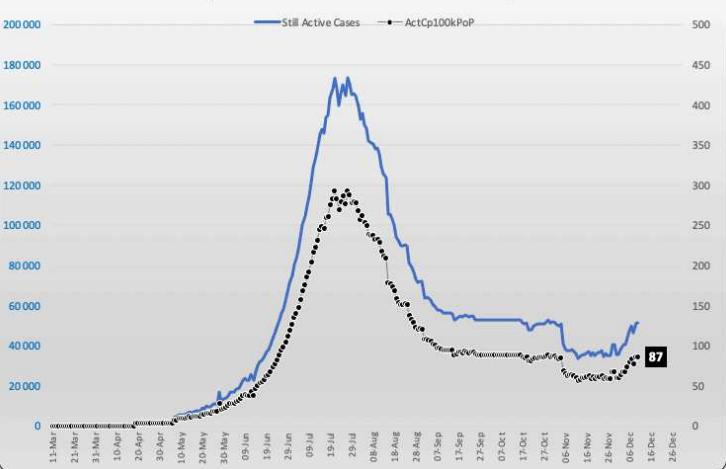
RSA: Case Recovery Rate (CRR) & Case Mortality Rate (CMR) & CMR incl Excess Deaths



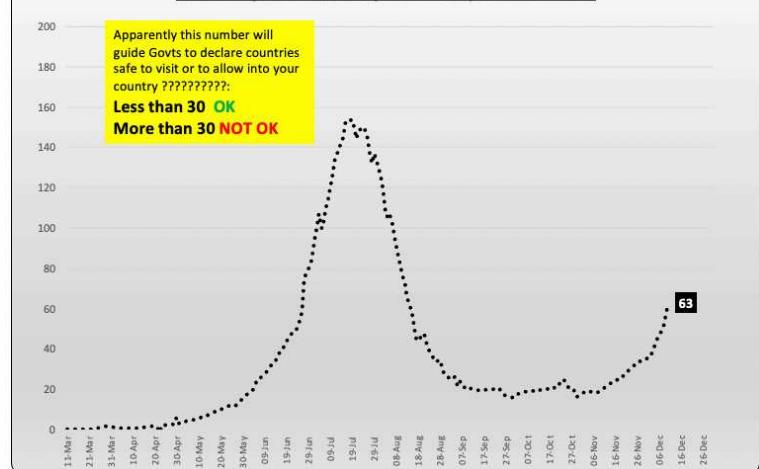
RSA: Deaths as % of Cases (CFR)



RSA: Active Cases per 100k PoP



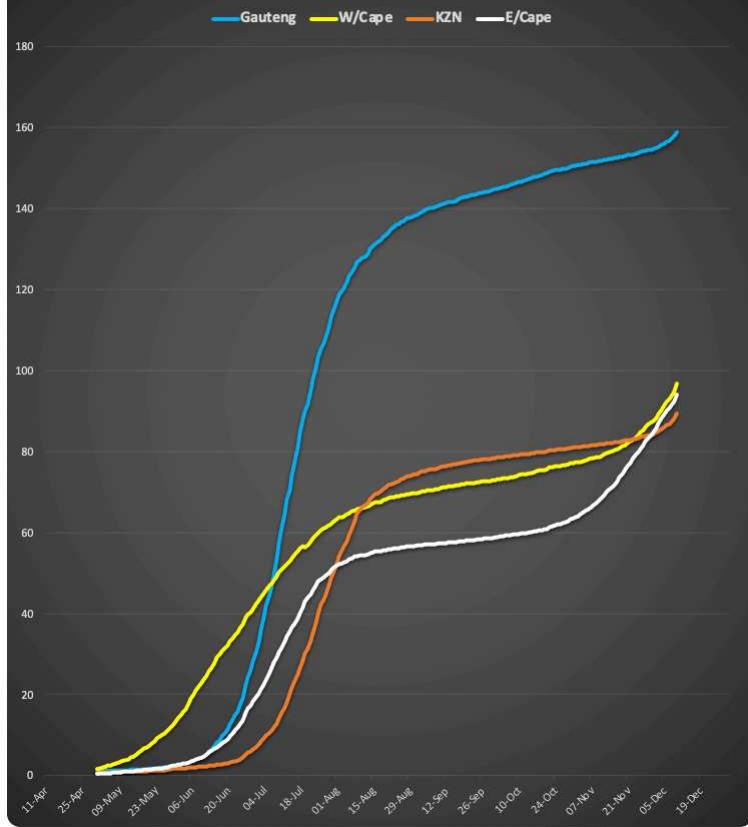
RSA: Avg New Cases per week per 100k PoP



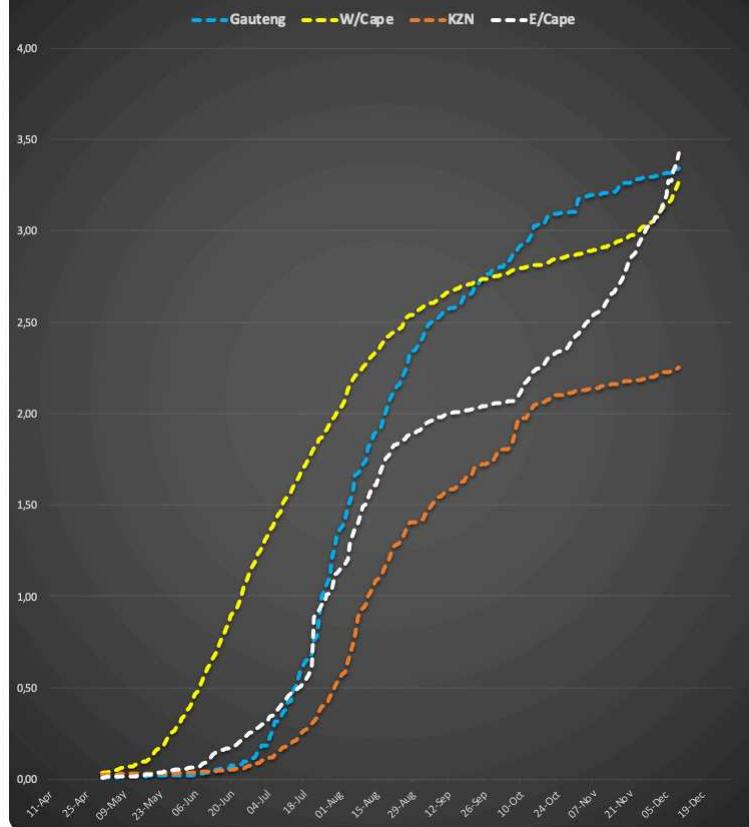
RSA Major Provinces Key Data Sets

Page 5.5

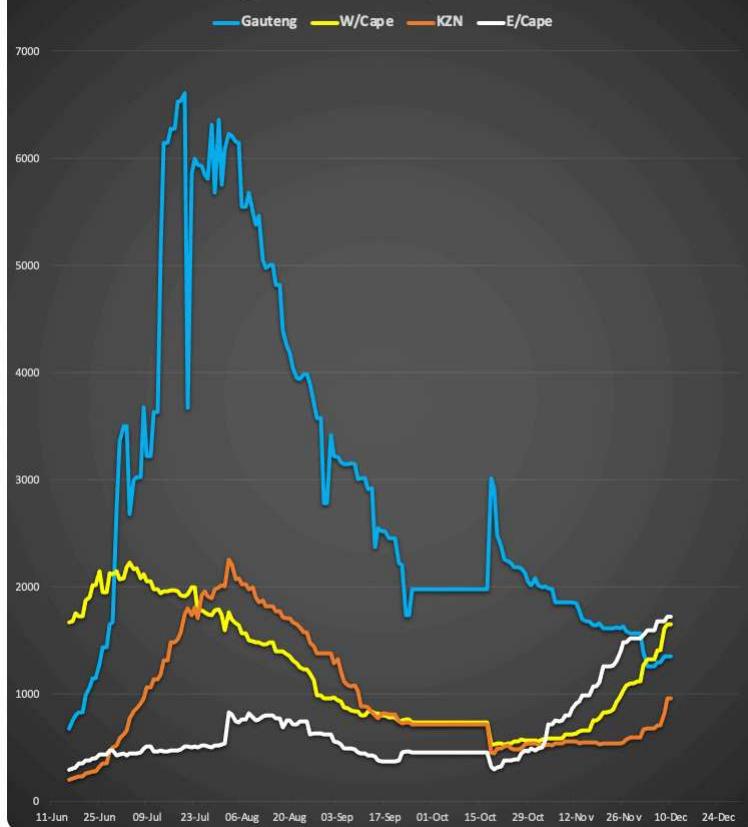
Major Provinces: Cum Cases per 100k PoP



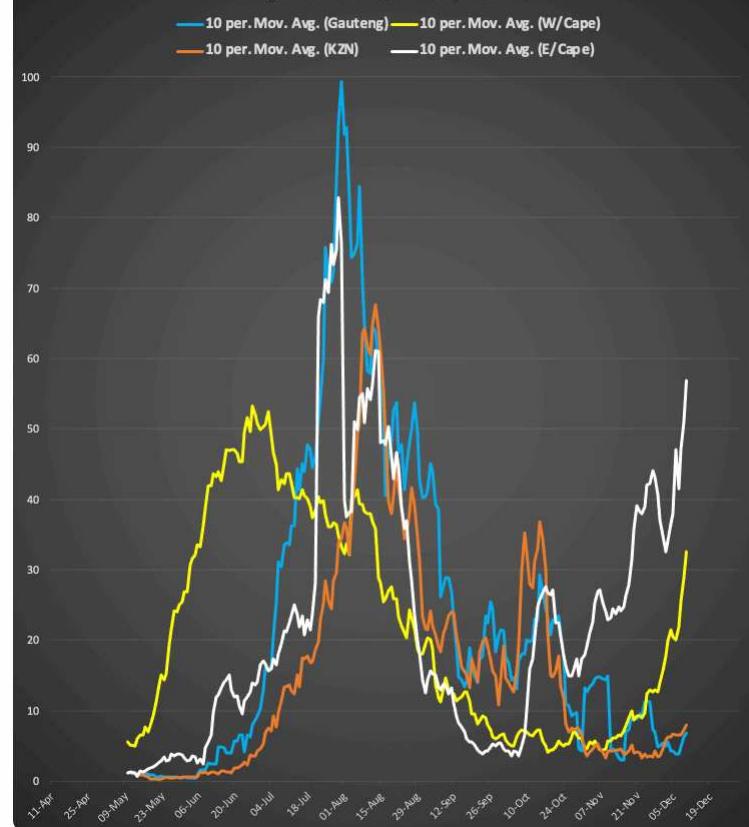
Major Provinces: Cum Deaths per 100k PoP



Major Provinces: Hospitalisations



Major Provinces: Daily Deaths



Data as at:

10 December 2020

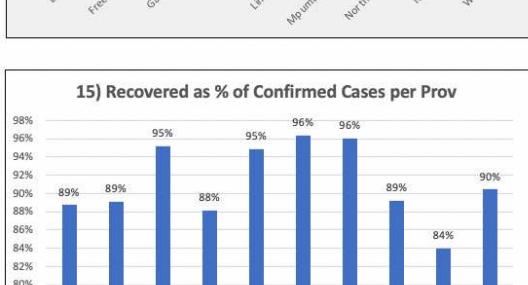
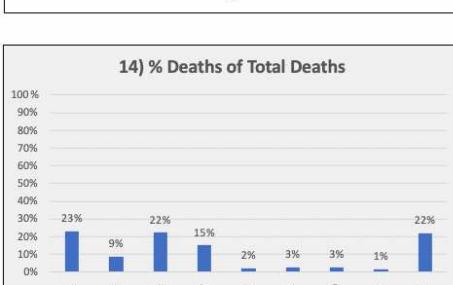
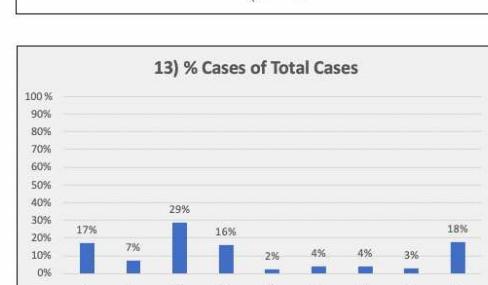
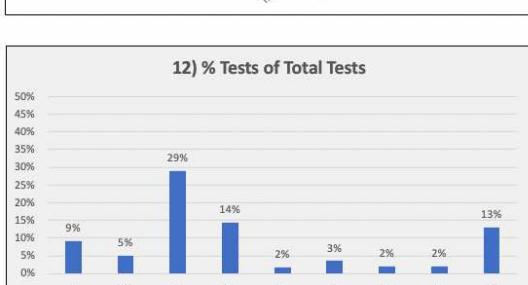
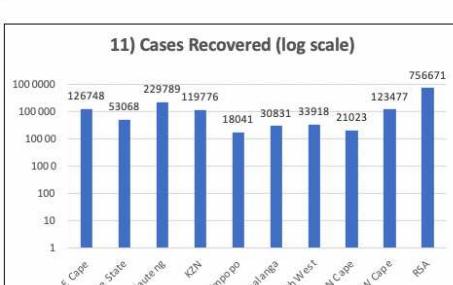
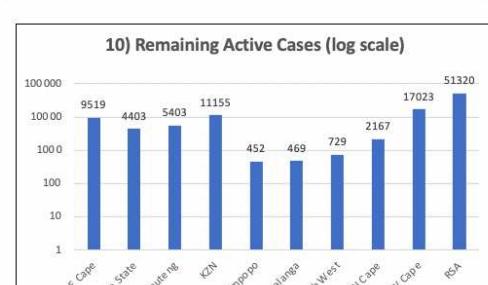
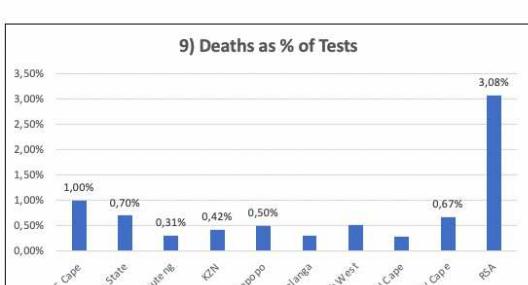
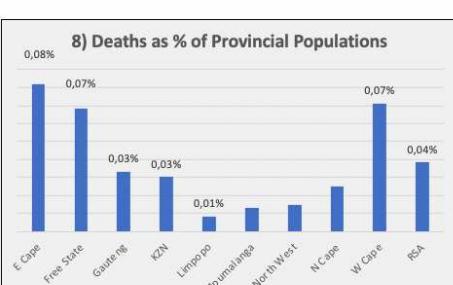
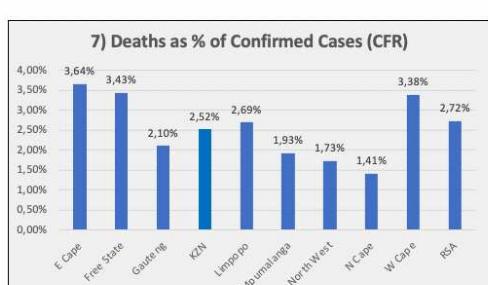
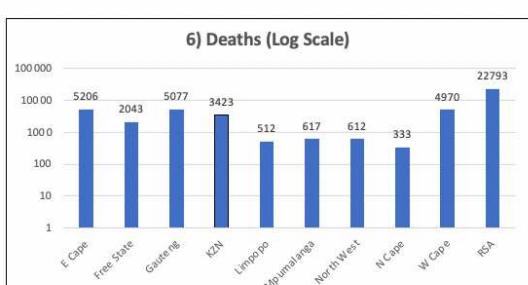
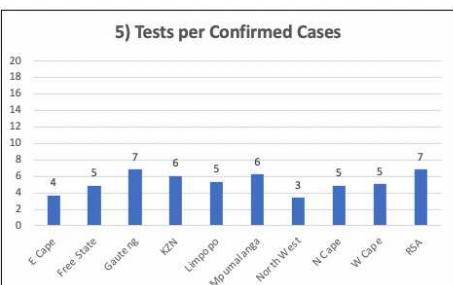
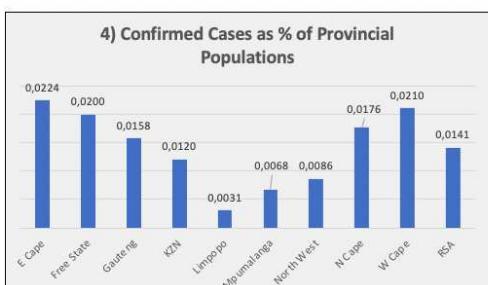
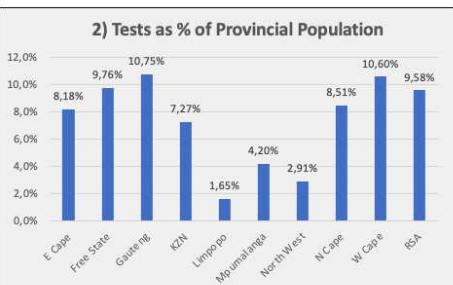
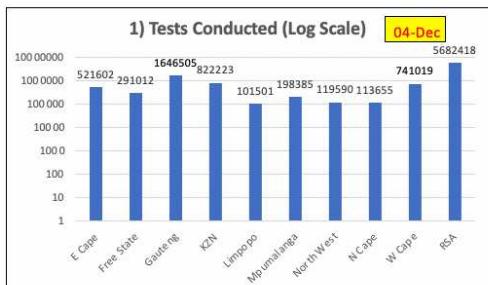
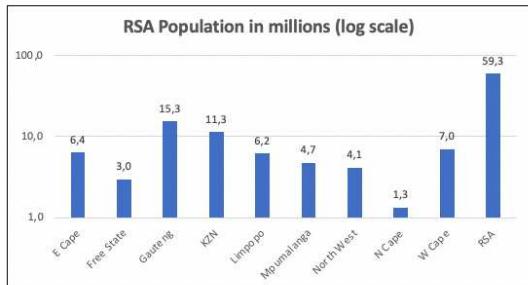
Unless otherwise indicated

hdg

11 December 2020

RSA Covid Stats: National & Provincial Analysis

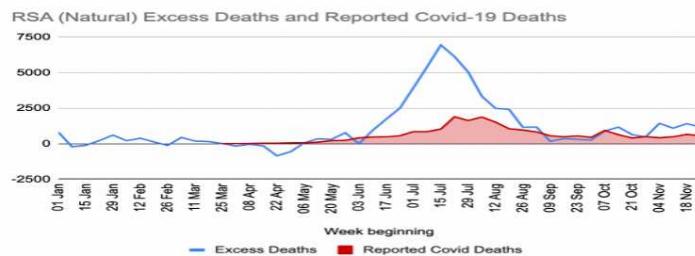
Page 6



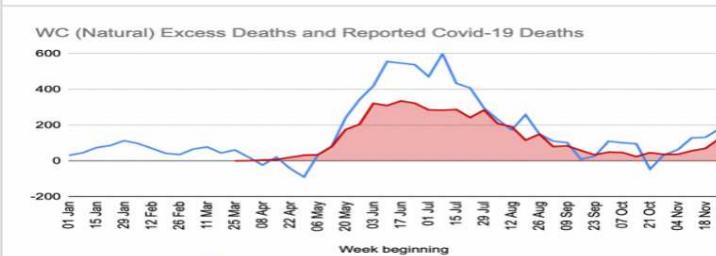
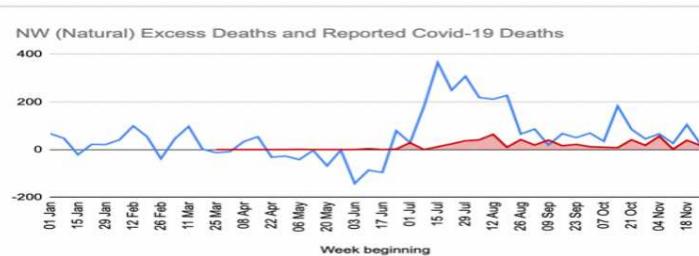
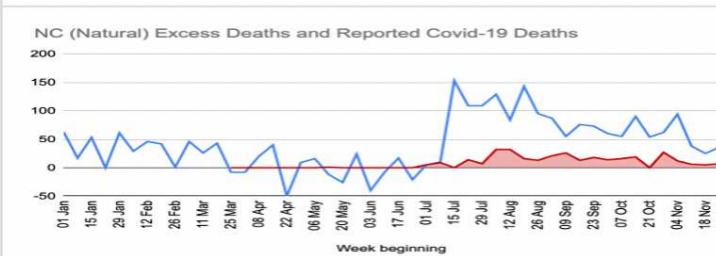
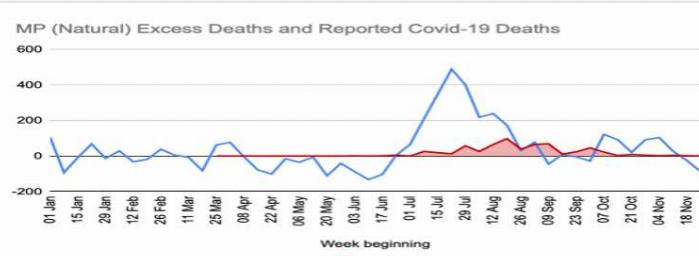
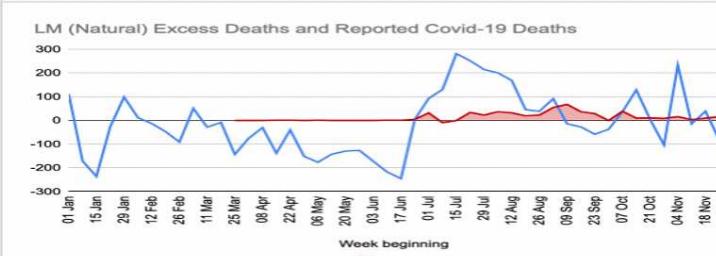
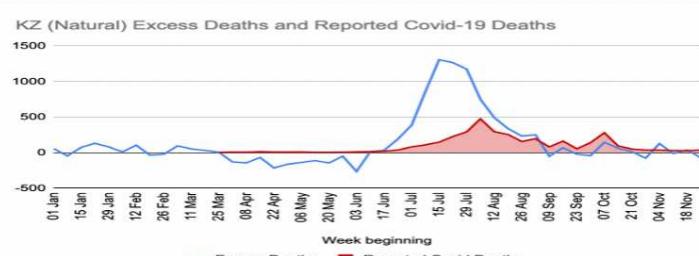
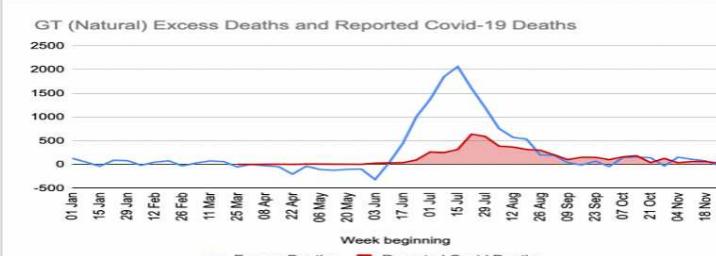
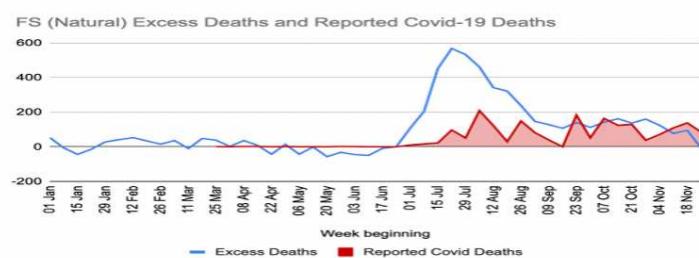
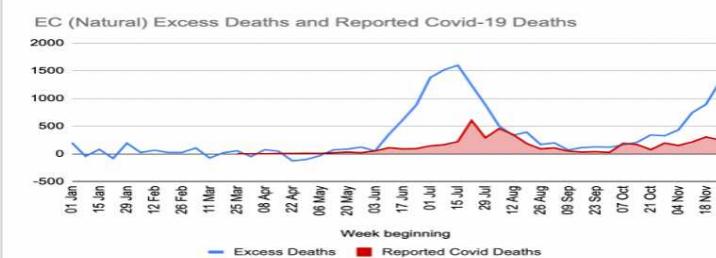
RSA Excess Deaths as per SA Medical Research Council

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



Data as at:

18 November 2020

hdg 11 December 2020

