



# **MONITORING MORTALITY AND EXCESS DEATHS IN SOUTH AFRICA**

*PRESENTATION TO WEBINAR ON  
THE DEMOGRAPHIC IMPACT OF COVID-19  
21 OCTOBER 2020*

**DEBBIE BRADSHAW**

BURDEN OF DISEASE RESEARCH UNIT

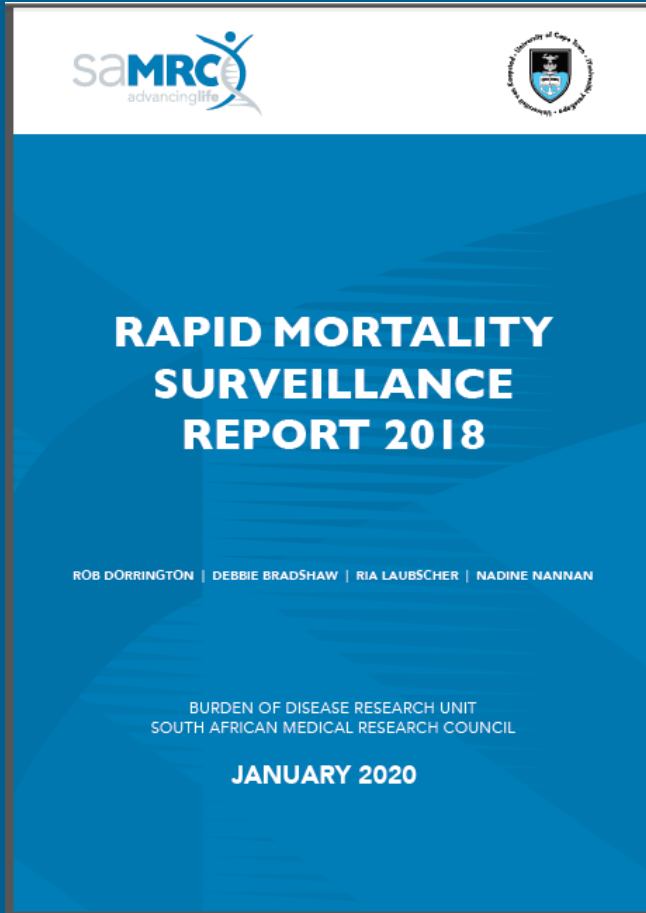


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## BACKGROUND

- South Africa has a well established civil registration and vital statistics system
- In the past 25 years, completeness of death registration has improved but there are challenges with the quality of cause of death information
  - ~ 14.2 % are ill-defined natural causes
  - ~ 16.3 % are not-sufficiently specified as underlying cause
    - extensive mis-attribution of HIV/AIDS deaths
    - incomplete information about manner of death for injuries
- Annual cause of death report takes about 3 years to be released

# RAPID MORTALITY SURVEILLANCE



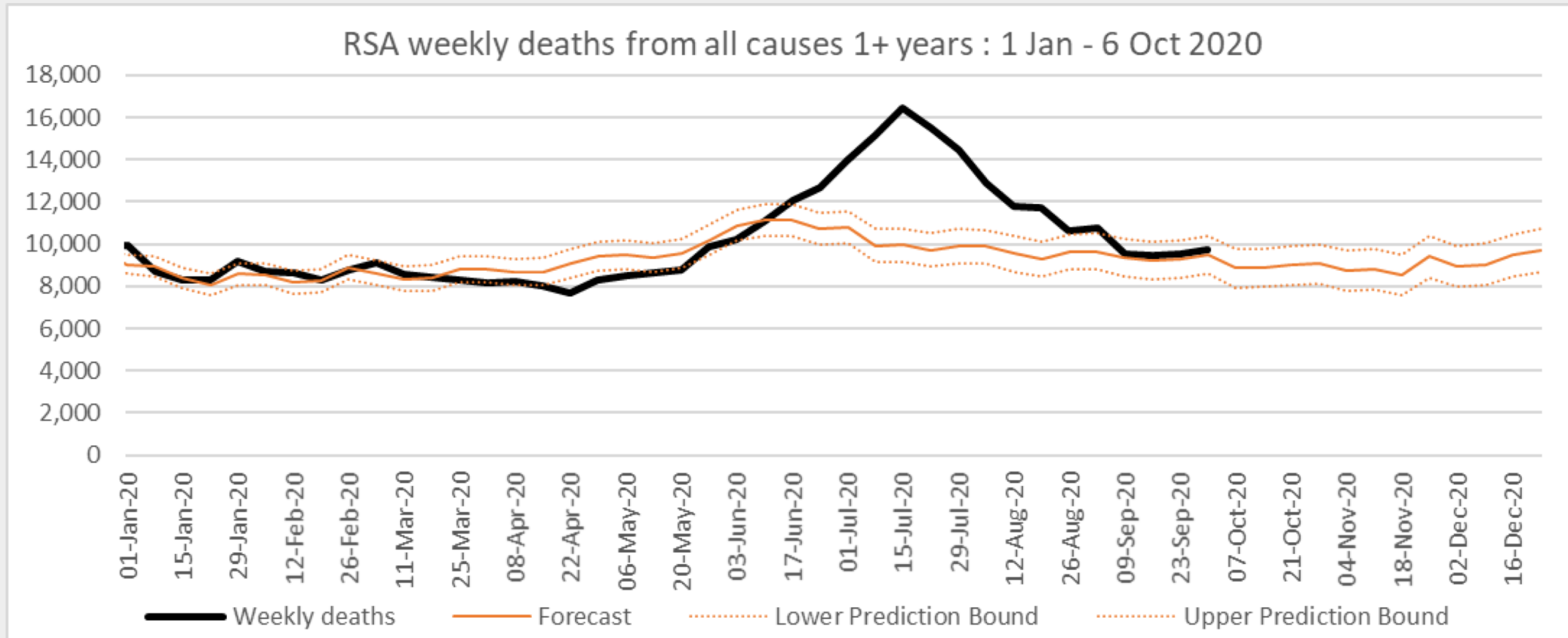
- SAMRC obtains data for the deaths registered on the National Population Register from the Department of Home Affairs on a monthly basis since 2001
- Completeness of registration is estimated, after additional data are obtained from NDOH and Stats SA - *ongoing analyses of completeness based on death distribution methods, comparison with direct and indirect estimates from censuses and surveys*
- Annual Rapid Mortality Report gives empirical estimates of mortality indicators for the country such as life expectancy, infant and under-5 mortality rate etc.

# FROM ANNUAL TO WEEKLY RMS

- With COVID-19 in mind, we investigated the pattern of weekly data up till end Feb 2020 => high proportions registered within 2 weeks of death
- Requested DHA to provide data on a weekly basis during March
- The number of deaths changes during the year => estimated the predicted weekly numbers of deaths using time series analysis from previous two years after adjusting for completeness of registration
- Estimate the deaths in the last week that are still to be registered

# The number of weekly deaths peaked in the week 15-22 July 2020

- Black line shows the weekly number of deaths in 2020
- Orange line shows the number predicted from historical data with bounds of uncertainty – a lower bound and upper bound



# EXCESS MORTALITY

Used in epidemiology and public health to measure the mortality impact of a crisis when not all causes of death are known.

The World Health Organization defines '**EXCESS MORTALITY**' as:

*“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.”*

## Belgium



## Brazil



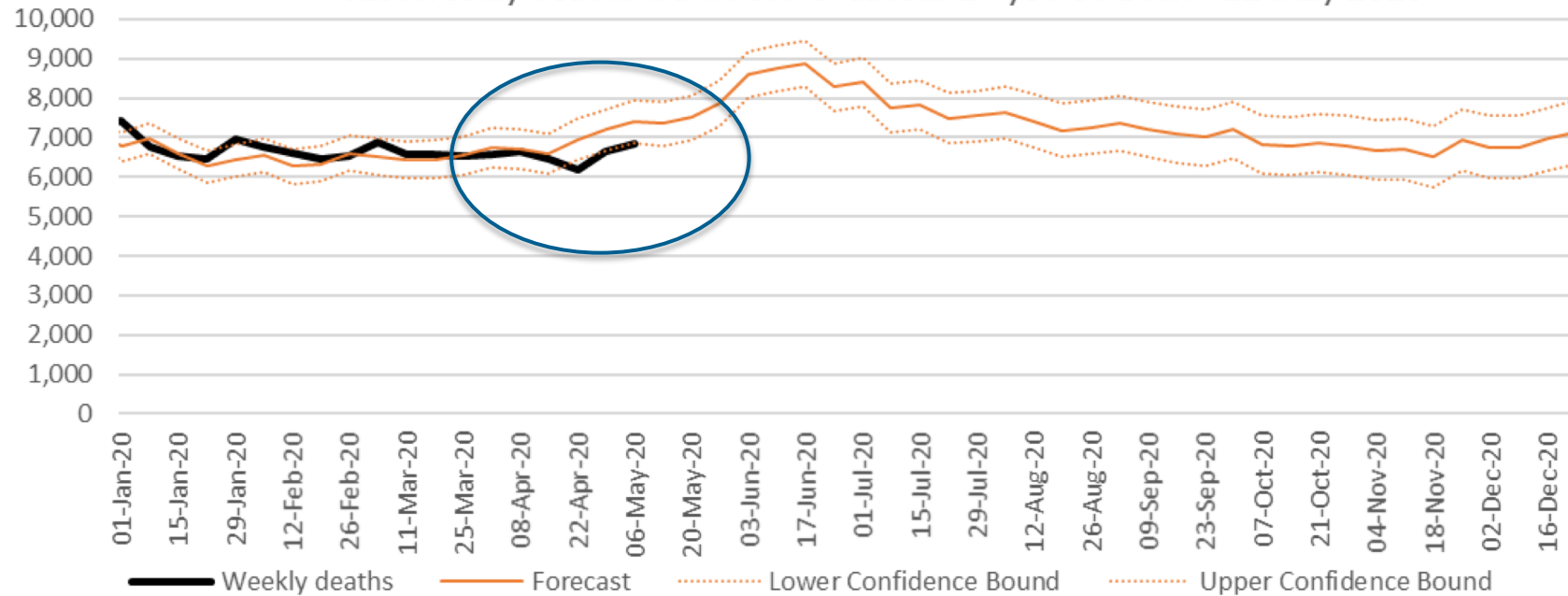
Number of deaths per week from all causes, 2020 vs recent years:

Shading indicates total excess deaths during outbreak

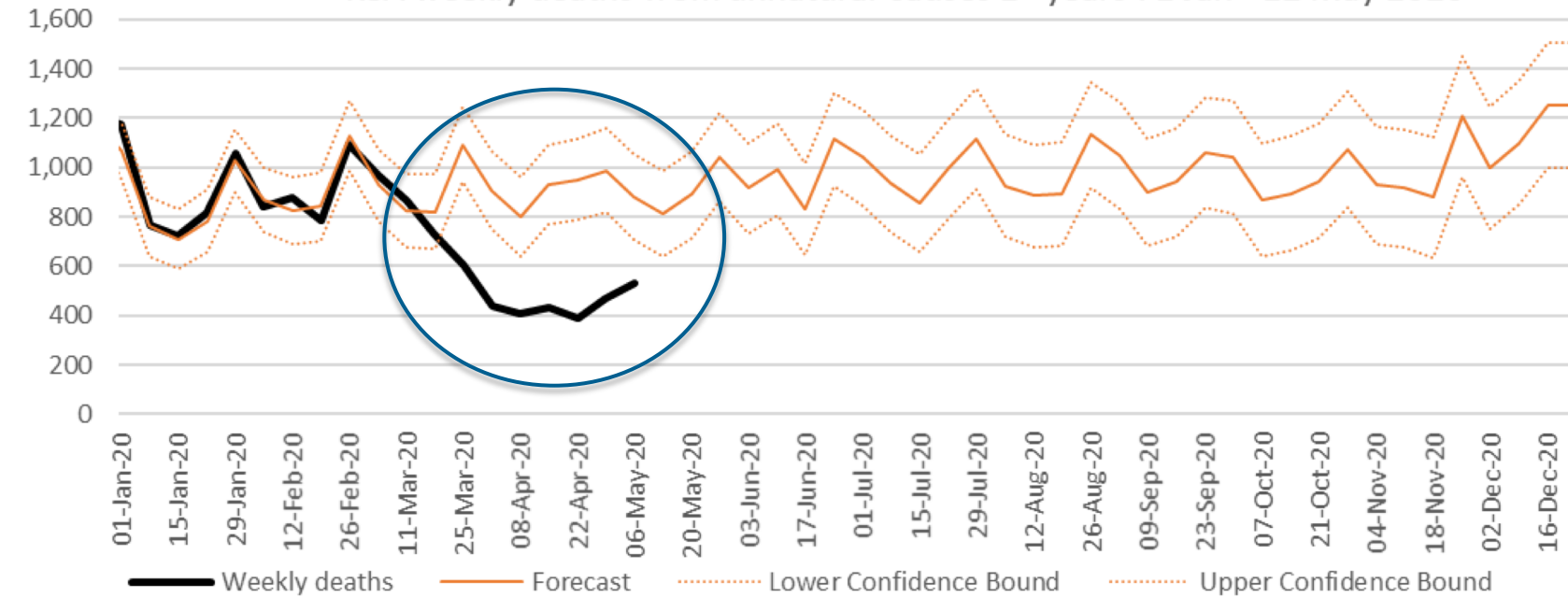
FT Visual & Data Journalism team AUGUST 20 2020



### RSA weekly deaths from natural causes 1+ years : 1 Jan - 12 May 2020



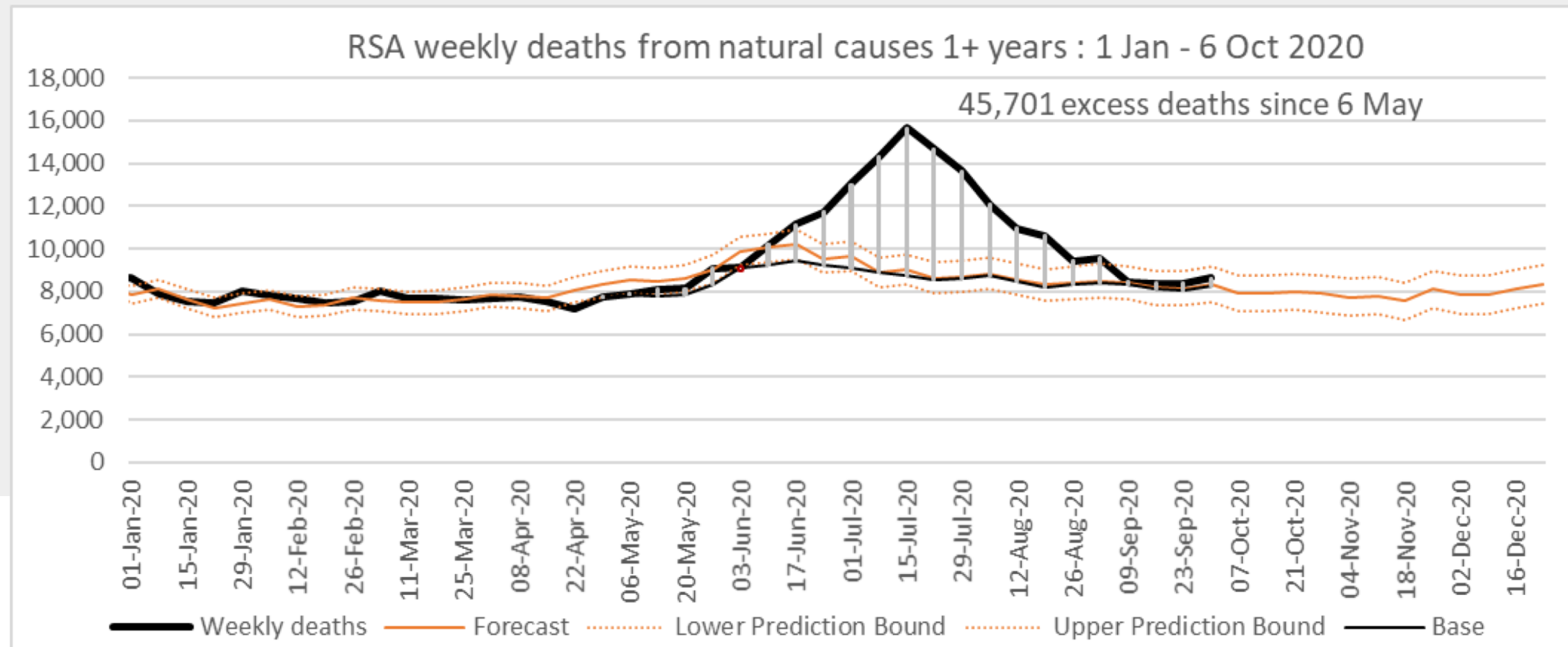
### RSA weekly deaths from unnatural causes 1+ years : 1 Jan - 12 May 2020





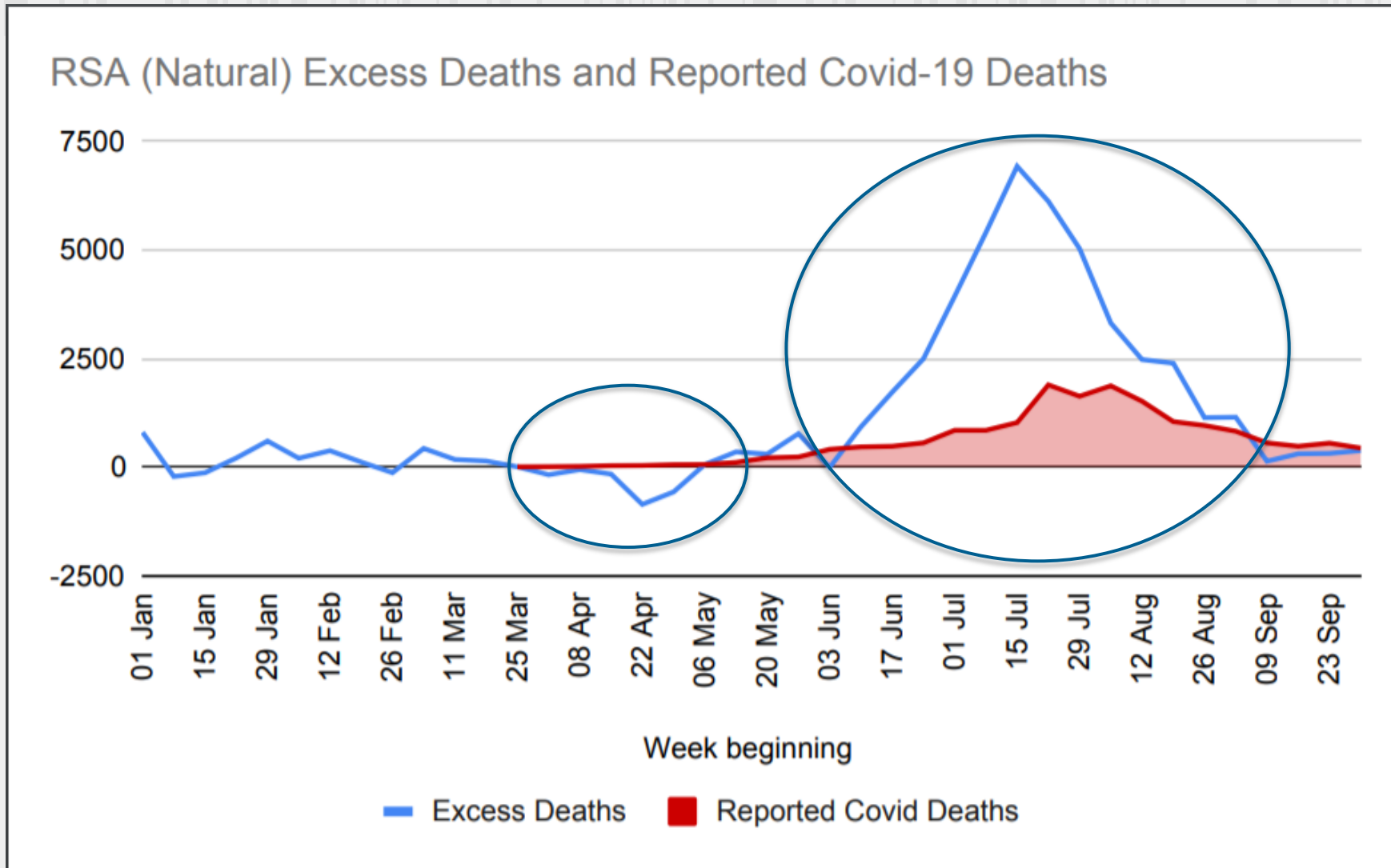
# Excess natural deaths using adjusted baseline to account for lower deaths during lockdown:-

- Base set to continue parallel to the predicted, at the level before confirmed COVID-19 deaths were identified
- Transitioned to meet the predicted level after the winter peak
- This measure of excess deaths aims to identify natural deaths that might have resulted from the direct and indirect effects of COVID-19

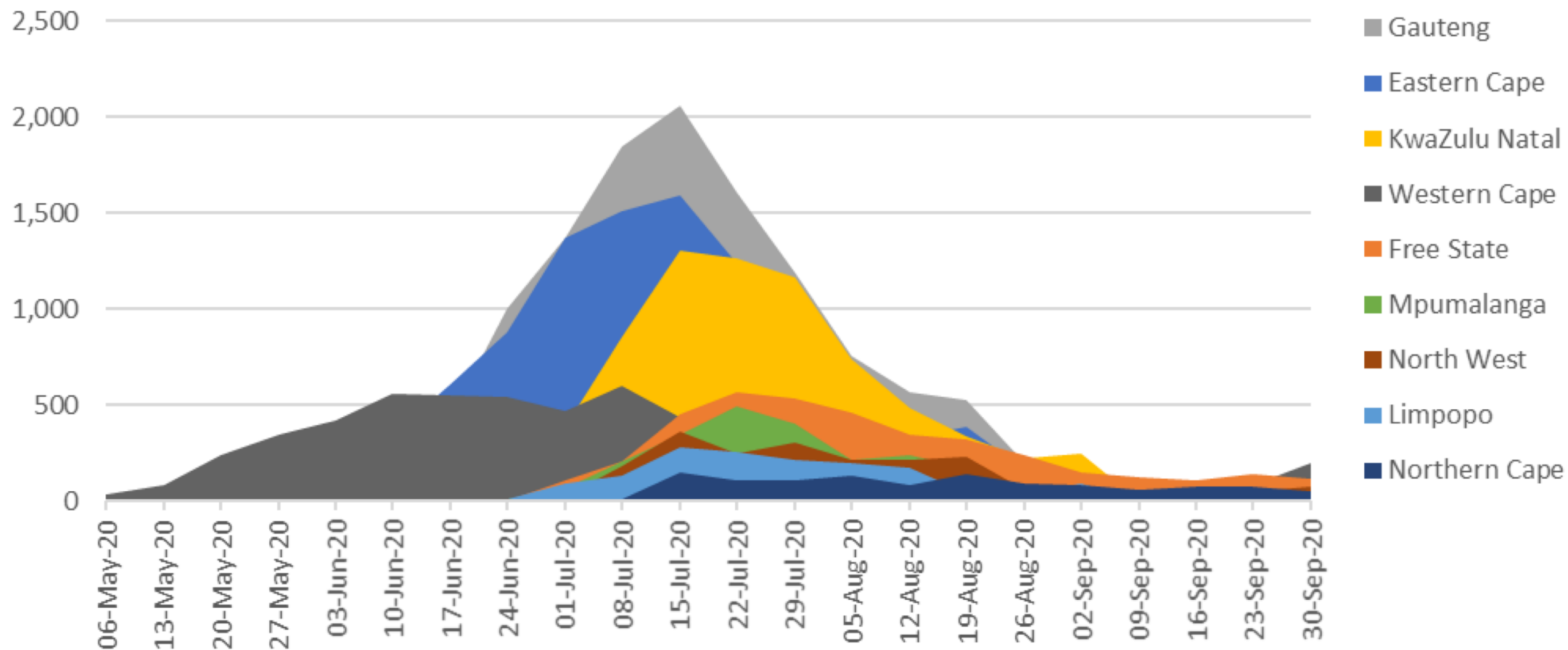


## WEEK 40: 30 SEP – 6 OCT 2020

Source	Cumulative Number
Confirmed COVID-19 deaths	16,664
Excess natural deaths vs revised base	45,701
Excess natural deaths vs forecast	40,373



## Weekly excess natural deaths by province 6 May - 6 Oct 2020

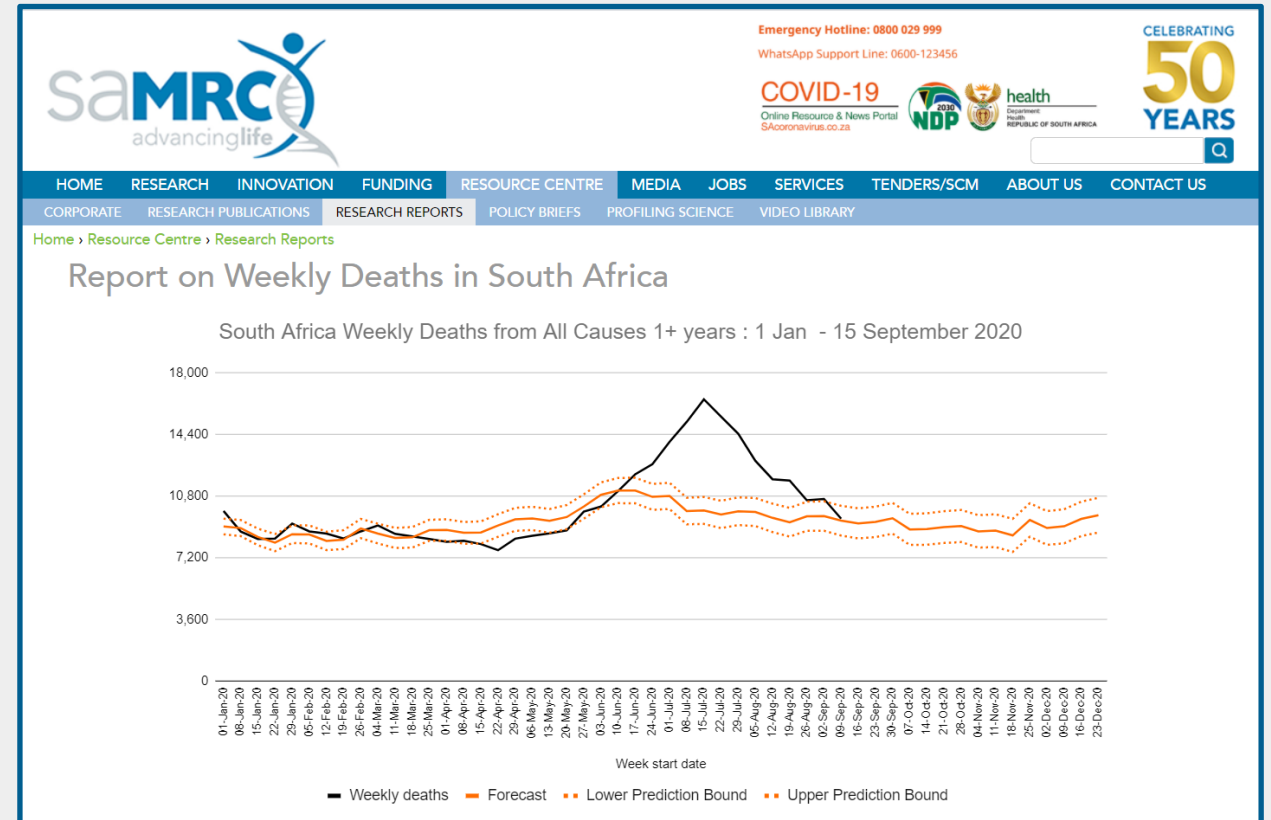


# CONCLUSIONS

- There are world-wide challenges with COVID-19 data related to the availability of laboratory infrastructure and testing kits, the testing strategy as well as reporting protocols - **sub-Saharan Africa is particularly disadvantaged** with limited laboratory infrastructure and limited mortality data systems
- Weekly tracking of deaths in **near real-time** has provided South Africa with an important “**bird’s eye view**” of the pandemic to supplement other data - and indicates that the confirmed COVID-19 deaths understate the true impact of the pandemic
- **Additional information** is required to establish whether the excess deaths are due to COVID-19, an overburdened health service, fear of using the health service or the a consequence of stringent lockdown – but the temporal correspondence across provinces and age pattern of excess deaths suggest a large proportion are likely related to COVID-19

# Acknowledgments

- Ria Laubscher for data management and analysis
- Prof Rob Dorrington and Prof Tom Moultrie for demographic analysis
- Department of Home Affairs are thanked for providing data



<https://www.samrc.ac.za/reports/report-weekly-deaths-south-africa>