

# PRIVATE CONSULTATIONS SURVEILLANCE EPIDEMIC THRESHOLD REPORT

SOUTH AFRICA WEEK 16 2021

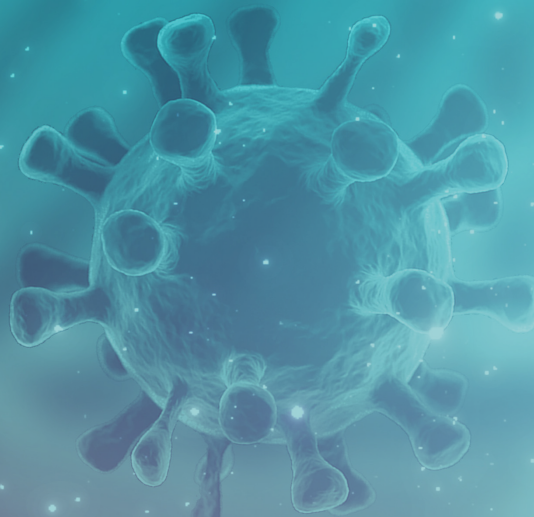
 NATIONAL INSTITUTE FOR  
COMMUNICABLE DISEASES  
Division of the National Health Laboratory Service

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## HIGHLIGHTS: WEEK 16

- Total number of respiratory hospitalisations peaked for the second time in week 1 of 2021 at higher levels than the first and decreased since.
- The percentage of respiratory hospitalisations and GP consultations amongst children <5 years, increased over the past months, possibly related to increasing circulation of RSV and/or other respiratory viruses.
- The percentage of respiratory emergency department and general practitioner visits increased during the second wave, more markedly so in emergency department visits (vs general practitioner) and adults (vs children).
- Similar trends were observed in all provinces evaluated, differences by province should be interpreted with caution due to low numbers in some provinces.



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## PROGRAMME DESCRIPTIONS

Inpatient data from a large national private hospital group and outpatient data from a general practitioner network linked to the same hospital group were received for the last week. Data were obtained from eight provinces (Eastern Cape, Free State, Gauteng, Limpopo, KwaZulu-Natal, Mpumalanga, North West, Western Cape). Sufficient numbers for province-level reporting were available for four of these (bold). Consultations and admissions were coded based on discharge diagnosis using the International Classification of Diseases and Related Health Problems, 10th revision (ICD-10). Data were analysed using the indicator: All respiratory and confirmed or suspected COVID-19 (J00-J99 & U07.1 & U07.2)/Total consultations. Data on the indicator Pneumonia and Influenza (J10-J18)/Total consultations are available on request but were not included in this report.

Data were categorised in the following age groups: All ages, <5 years, 5-19 years, 20-49 years, ≥50 years

### Epidemic Threshold

Thresholds were calculated using the Moving Epidemic Method (MEM), a sequential analysis using the R Language, available from: <http://CRAN.R-project.org/web/package=mem>, designed to calculate the duration, start and end of the annual influenza epidemic. MEM uses the 40th, 90th and 97.5th percentiles established from historical data (2015-2019 for inpatients, 2016-2019 for outpatients) to calculate thresholds of activity, defined as follows:

- Epidemic threshold: Median of weekly values for all baseline years
- Low activity: Between epidemic threshold including 40th percentile
- Moderate activity: Between 40th and 90th percentile
- High activity: Between 90th and 97.5th percentile
- Very high activity: 97.5th percentile and above

Hospitalization data for recent weeks are adjusted for delayed reporting (diagnosis codes assigned on discharge delayed for prolonged hospitalisations). Adjustment accounts for the probability of being admitted, but not yet discharged at the time of data drawdown using the age- and syndrome-specific probability distribution of duration of admission obtained from all hospitalizations that occurred during 2015-2019 and applied to weeks reported.

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## INTERPRETATION OF DATA PRESENTED IN THIS REPORT

Total admissions reduced from week 13 of 2020 when lockdown was implemented and have remained below pre-lockdown levels.

Total respiratory admissions increased peaking by week 29 reaching approximately double the level before the lockdown after which numbers decreased. In week 49 of 2020 numbers started to increase again, peaking in week 1 of 2021, since which numbers have decreased. The proportion of admissions coded as confirmed COVID-19 (out of suspected) increased from week 15 of 2020, peaked at ~ 79% in week 31, decreased for 13 weeks, after which it increased reaching a peak of 95% in week 1 of 2021, since when it has been decreasing, and is currently <25%. Peak numbers of respiratory admissions and admissions coded as COVID-19 in the second wave exceeded peak numbers in the first wave.

Total and respiratory outpatient (general practitioner) consultations reduced from week 13 of 2020. Respiratory consultations peaked in week 28, after which it gradually decreased. The proportion of general practitioner consultations coded as confirmed COVID-19 (out of suspected) peaked in week 34 at 34% after which it decreased for 14 weeks before increasing again, peaking at 34% in week 2 of 2021.

Total and respiratory emergency department consultations reduced from week 13 of 2020. Respiratory consultations recovered to levels slightly lower than those preceding the lockdown from week 26. The proportion of emergency department consultations coded as confirmed COVID-19 (out of suspected) increased from week 15, peaked at 80% in week 30, declined for 10 weeks, increased again peaking at 96% in week 2 of 2021. Peak numbers of respiratory emergency department consultations and consultations coded as COVID-19 in the second wave exceeded peak numbers in the first wave.

Proportion of admissions respiratory or suspected COVID-19 overall remained below threshold until week 21 of 2020, increased rapidly peaking in week 29 and was in low threshold from week 36 to 49, peaking for the

second time in week 53 and has been in low threshold since week 6. By age group, percent admissions respiratory or suspected COVID for 0-4 years, remained below threshold throughout both waves, but has been increasing over the past months and is currently in low threshold. Among individuals aged 5-19 years, percent admissions mainly remained below threshold with brief increase to low/moderate activity during weeks 27 to 32 and again briefly touching low level of activity in week 53 and week 16 of 2021. Among individuals 20-49 years and ≥50 years, percent respiratory admissions continuously increased from week 13 of 2020, reaching very high level from week 21, dropping since week 29 but increasing to very high level from week 49 and peaking in week 53 at higher levels than in the previous peak, then decreasing, and currently in low threshold.

Proportion of outpatient (general practitioner) consultations respiratory or suspected COVID-19 overall peaked in week 28, dropped below threshold from week 31, and rose above threshold again in week 49, peaking in week 53. Among individuals aged 20-49 years and ≥50 years, percent outpatient visits (general practitioner) breached seasonal threshold in week 25, peaked in week 28 at moderate levels for individuals aged 20-49 years and at low levels for individuals aged ≥50 years, both dropped below threshold, and subsequently increased peaking in week 1 of 2021, currently below threshold. In children <5 years consultations have increased possibly related to increasing circulation of RSV and/or other respiratory viruses, remaining in low/moderate threshold since week 7.

Proportion of emergency department consultations respiratory or suspected COVID-19 peaked in week 28 of 2020, decreased to below threshold, but increased to very high levels peaking in week 53, and decreased to below threshold again. By age group, percent emergency department visits showed similar trends, briefly breached the seasonal threshold in age group 5-19 years and reaching very high levels in individuals aged 20-49 years and ≥50 years, dropped to low threshold, but increased from week 49 with adults

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(20-49 years and  $\geq 50$  years) reaching very high levels exceeding the previous level reached in week 53, and then decreasing, currently below threshold.

Trends in proportion of admissions and outpatient consultations respiratory or COVID varied by province with proportion respiratory inpatients reaching very high levels in all provinces evaluated. The first wave peaked between weeks 27 and 30 in the four provinces evaluated, and the second wave in weeks 49 (Eastern Cape) and 53 in the remaining three provinces. Only in the Eastern Cape did the second wave level not exceed the first wave. The proportion of inpatients in the Eastern Cape are currently below threshold with Gauteng, Kwazulu-Natal and Western Cape in low threshold.

## Limitations

Thresholds are established based on the proportion of respiratory consultations. If numbers of non-respiratory consultations drop substantially because of changes in health-seeking behaviour, this could lead to elevated respiratory proportions. Delays in the coding of consultations may lead to changes in data from previous weeks.

## Assessment

Total numbers of respiratory hospitalisations which peaked in week 29 of 2020 and week 1 of 2021 have decreased and have remained at the inter-peak level for the past two months.

The percentage of hospitalisations coded as respiratory reached the very high level nationally among all ages and among 20-49 and  $\geq 50$ -year age groups at the end of 2020 exceeding peak levels in the first wave, but have decreased to low threshold.

The percentage of emergency department visits and general practitioner visits coded as respiratory also increased during the second wave with more marked changes in the emergency department visits and among individuals aged 20-49 and  $\geq 50$  years.

Similar trends were observed in all provinces evaluated with peak proportions of respiratory admissions in the second wave greater than in the first wave in three of four provinces evaluated.

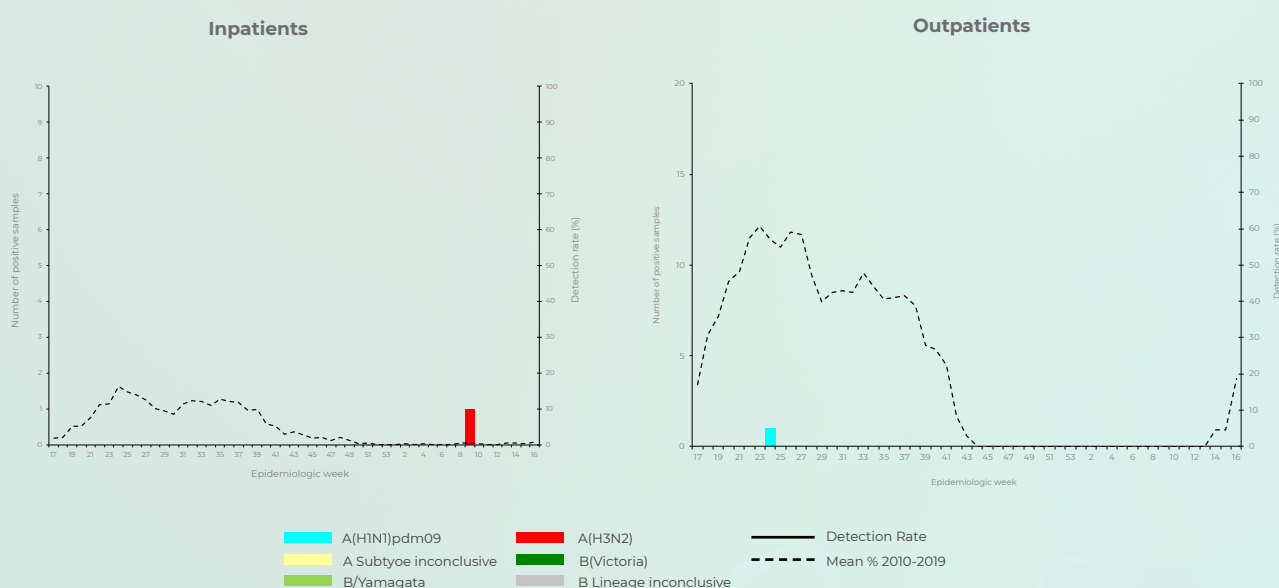
Differences by province and age group should be interpreted with caution due to low numbers in some groups.

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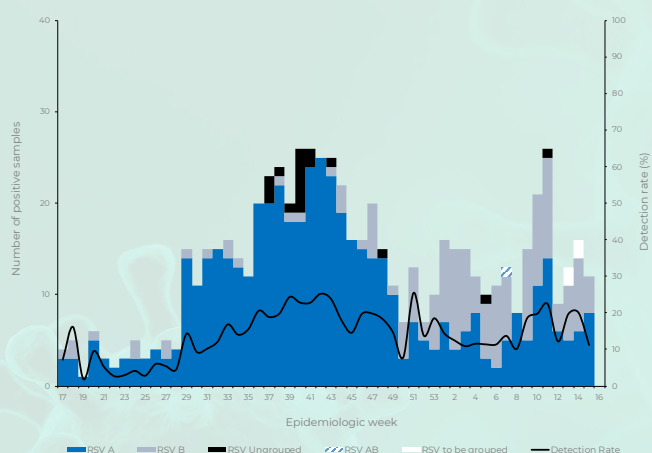
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## DATA FROM VIROLOGIC SURVEILLANCE PROGRAMMES TO AID IN INTERPRETATION OF CONSULTATION TRENDS

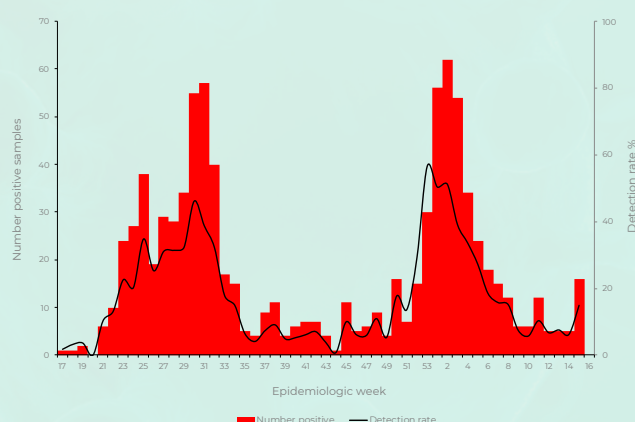
Number of influenza positive samples by subtype/lineage and detection rate by week



Number of respiratory syncytial virus positive by groups and subgroups per week (inpatients) and detection rate per week (inpatients)



Number of SARS-COV-2 positive and detection rate per week (inpatients)



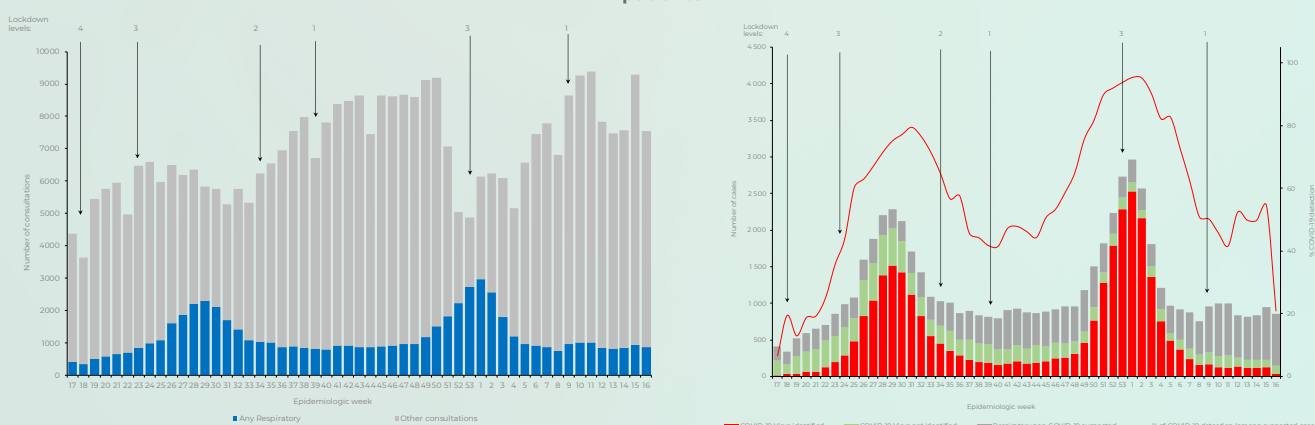
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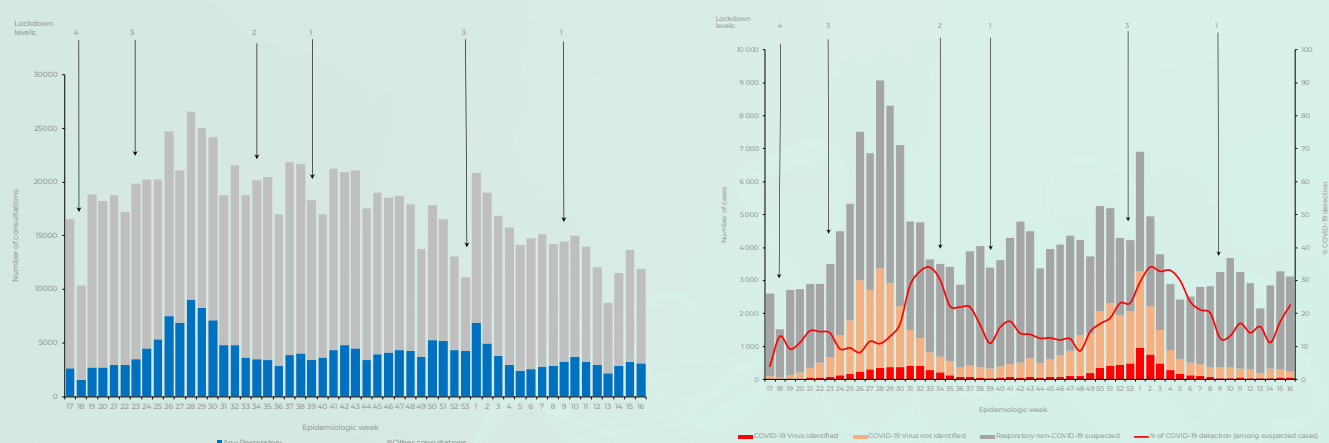
**Number of consultations** - all respiratory including confirmed or suspected COVID-19 and other consultations by week

(ARROWS INDICATE WEEK OF ONSET OF LOCKDOWN LEVEL)

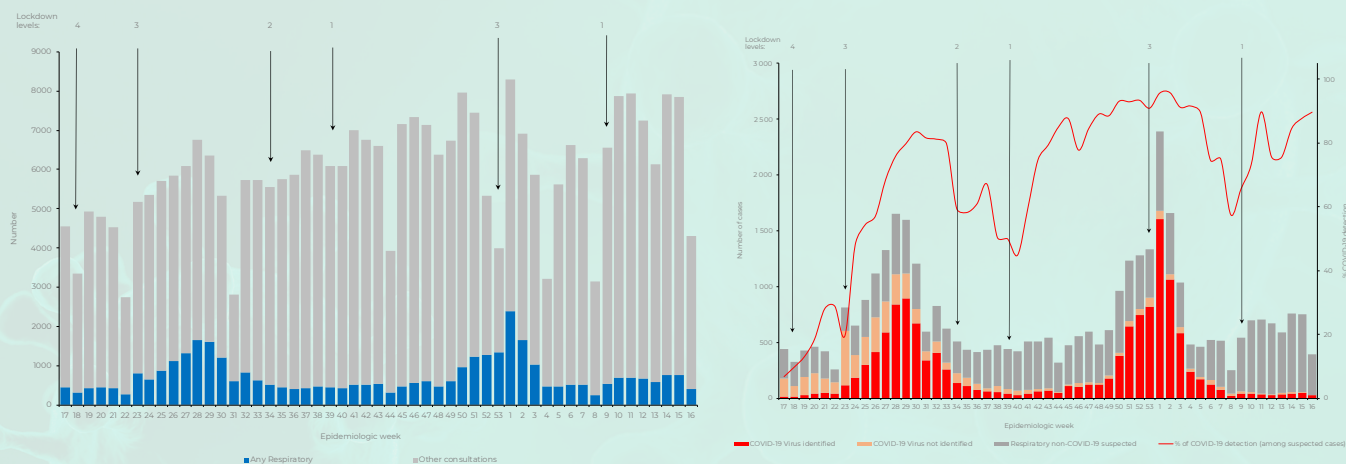
## Inpatients



## Outpatients - General Practitioners



## Emergency department

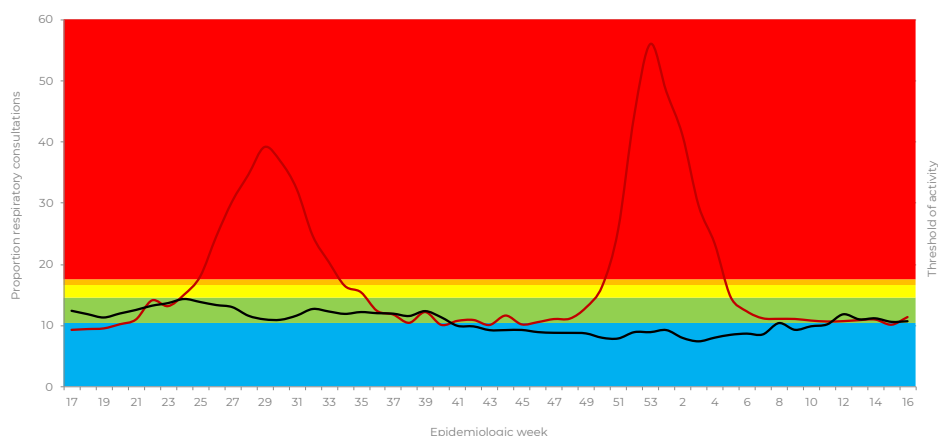


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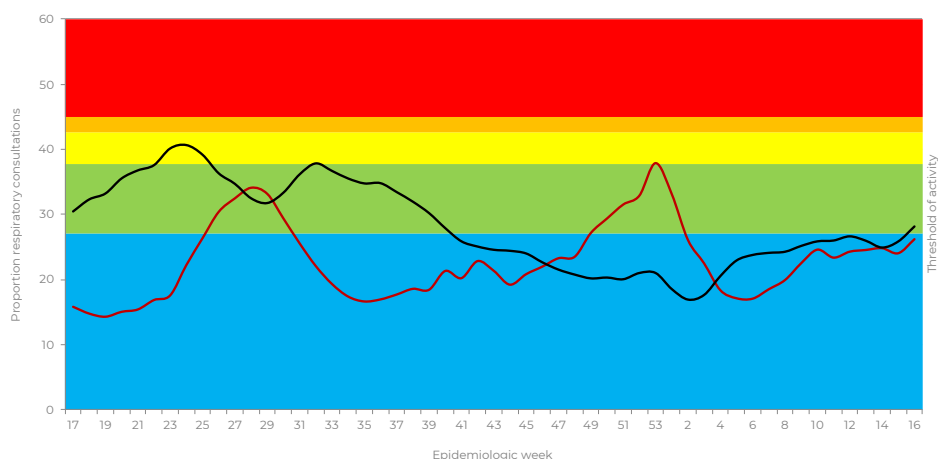
## ALL AGES -

All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators - Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators - Outpatients

### General Practitioners



### Emergency Department



Below threshold
Low
Moderate
High
Very High

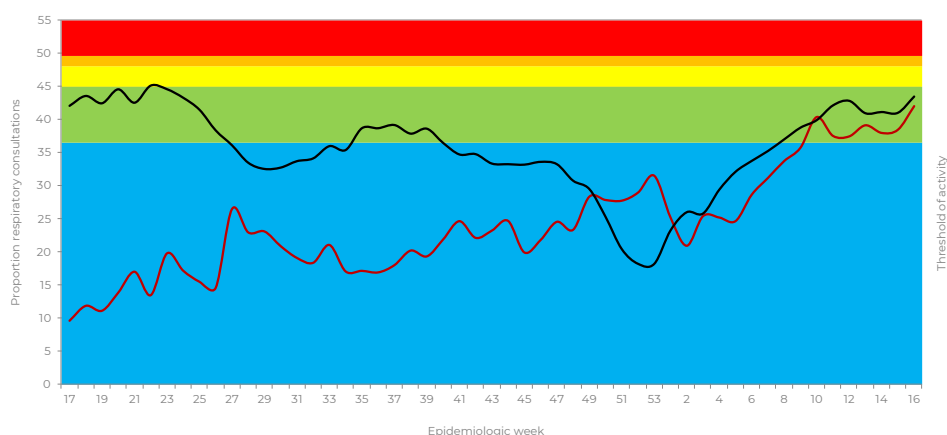
— % All Respiratory
 — Mean % 2015-2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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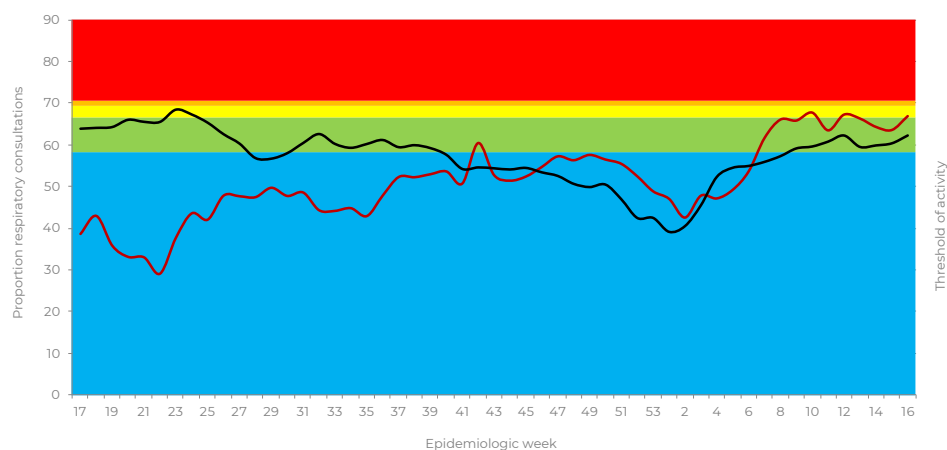
## 0-4 YEARS OF AGE

All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients

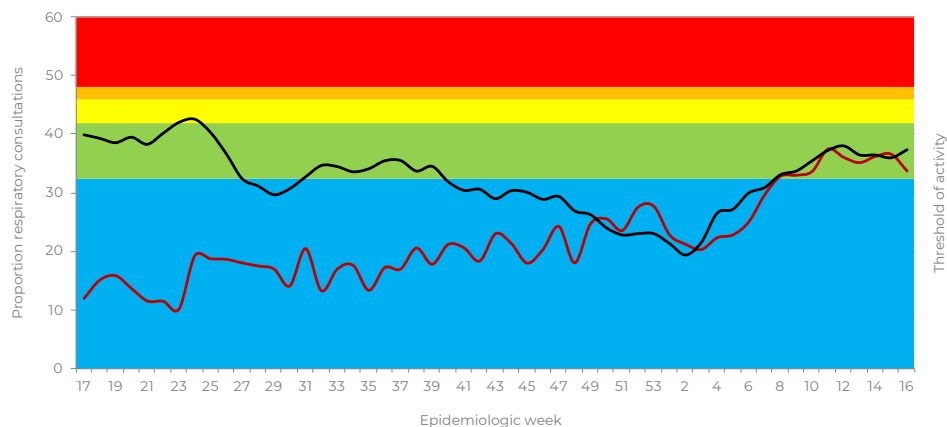


All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients

### General Practitioners



### Emergency Department



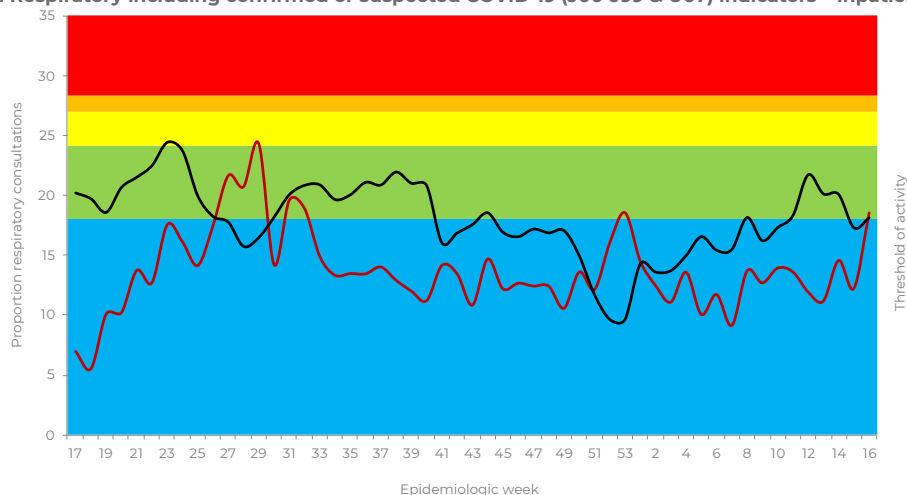
Below threshold Low Moderate High Very High  
 % All Respiratory Mean % 2015- 2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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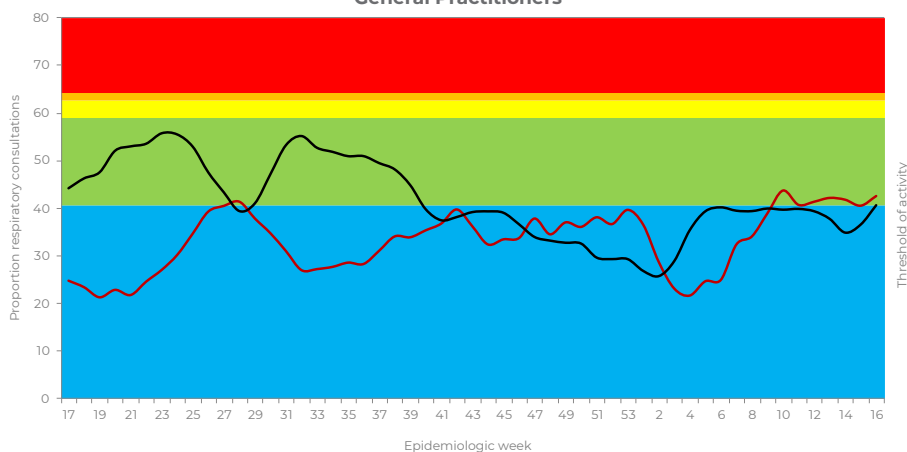
## 5-19 YEARS OF AGE

All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients

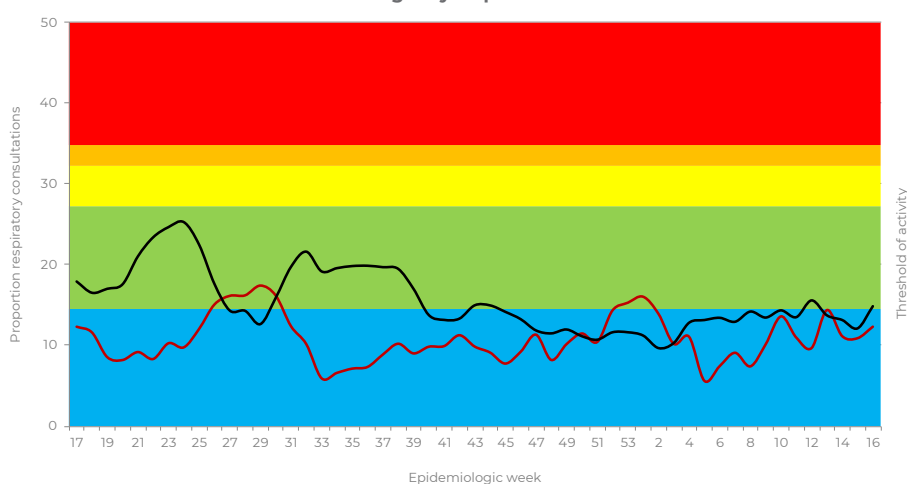


All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients

### General Practitioners



### Emergency Department



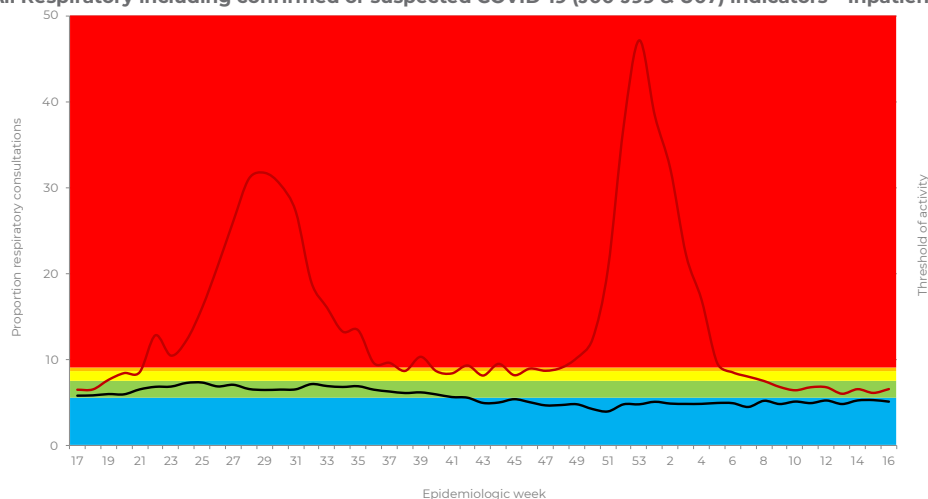
■ Below threshold   
 ■ Low   
 ■ Moderate   
 ■ High   
 ■ Very High  
— % All Respiratory   
— Mean % 2015-2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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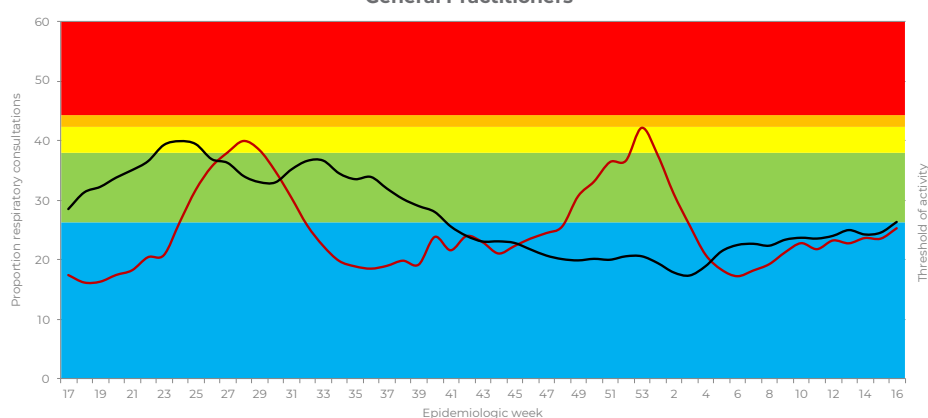
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## 20-49 YEARS OF AGE

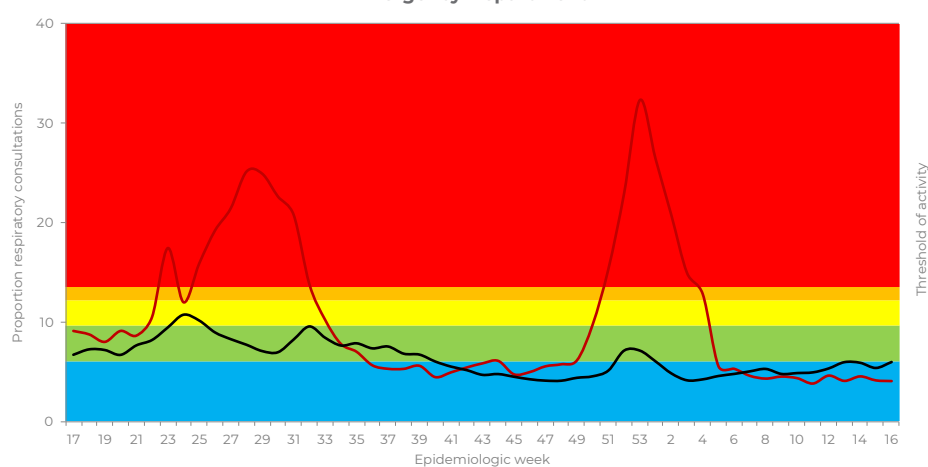
All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients  
General Practitioners



Emergency Department



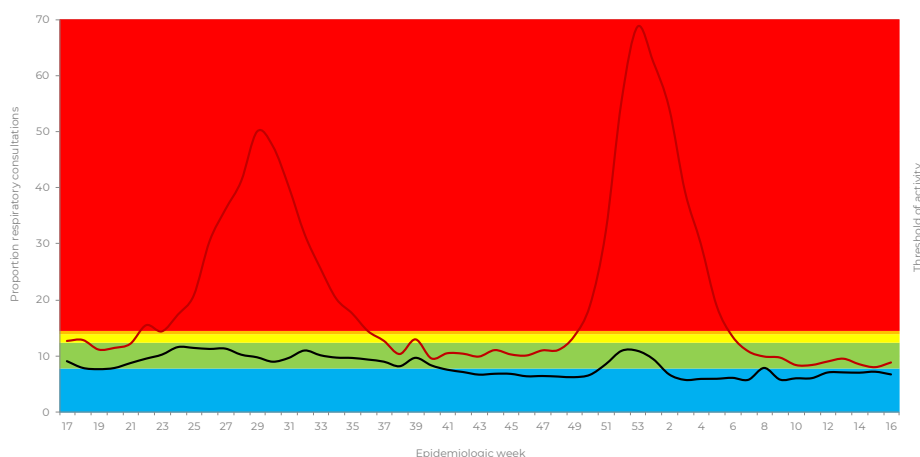
Below threshold Low Moderate High Very High  
— % All Respiratory — Mean % 2015- 2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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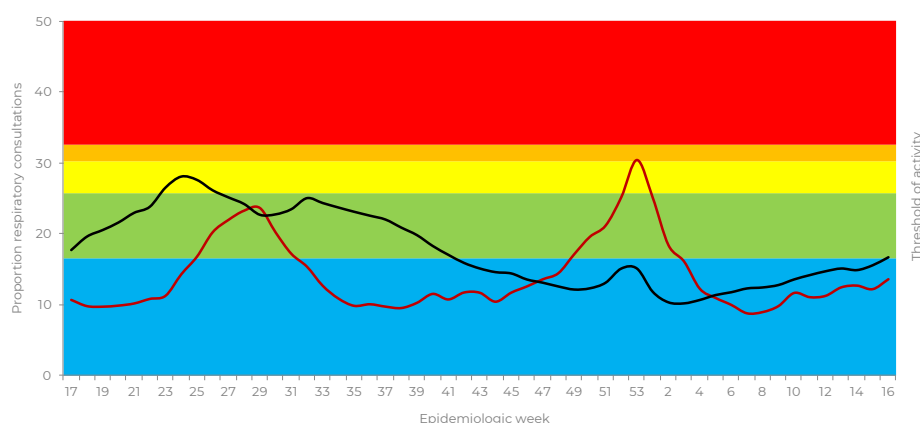
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## ≥50 YEARS OF AGE

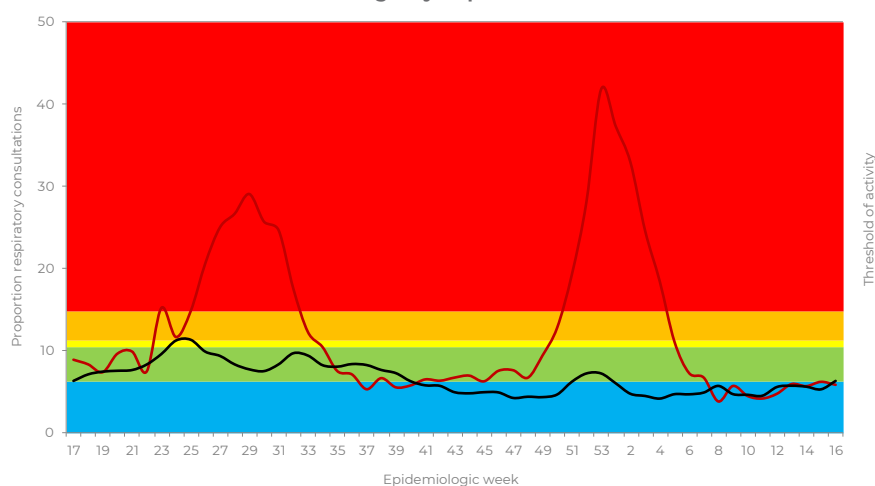
All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients  
General Practitioners



Emergency Department



■ Below threshold   
 ■ Low   
 ■ Moderate   
 ■ High   
 ■ Very High  
— % All Respiratory   
— Mean % 2015- 2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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## EASTERN CAPE PROVINCE

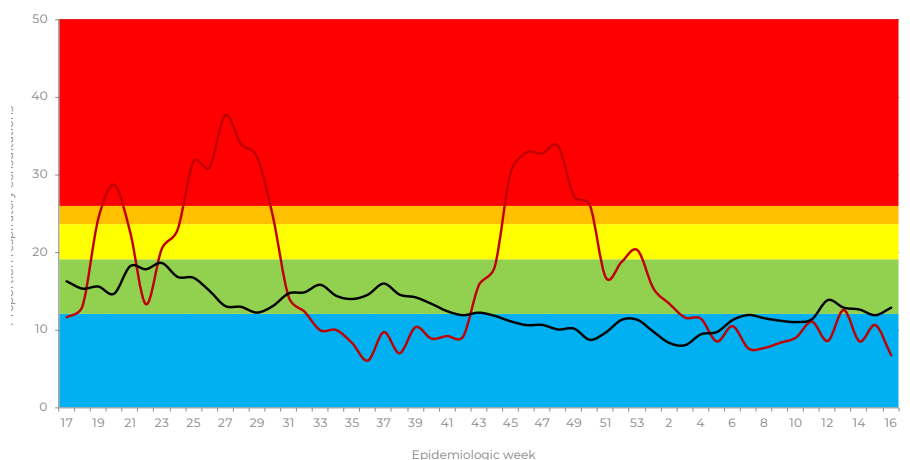
All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients  
General Practitioners



Emergency Department



Below threshold
Low
Moderate
High
Very High

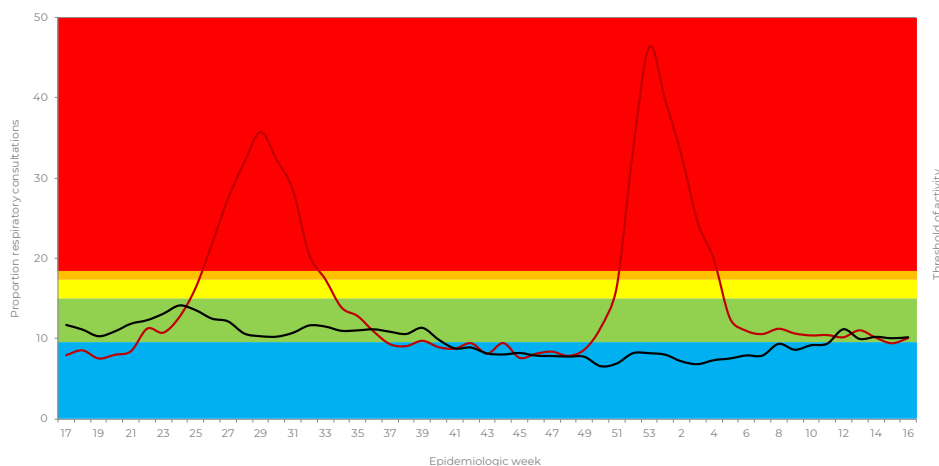
— % All Respiratory   
 — Mean % 2015-2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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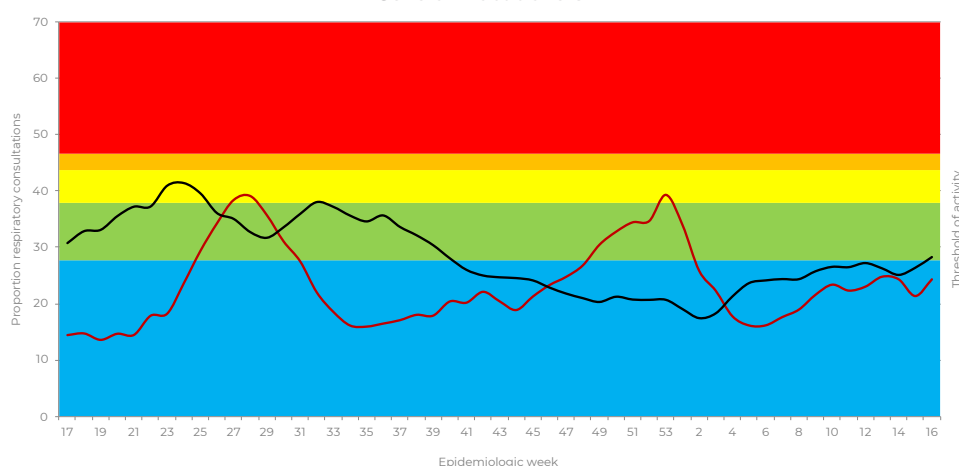
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## GAUTENG

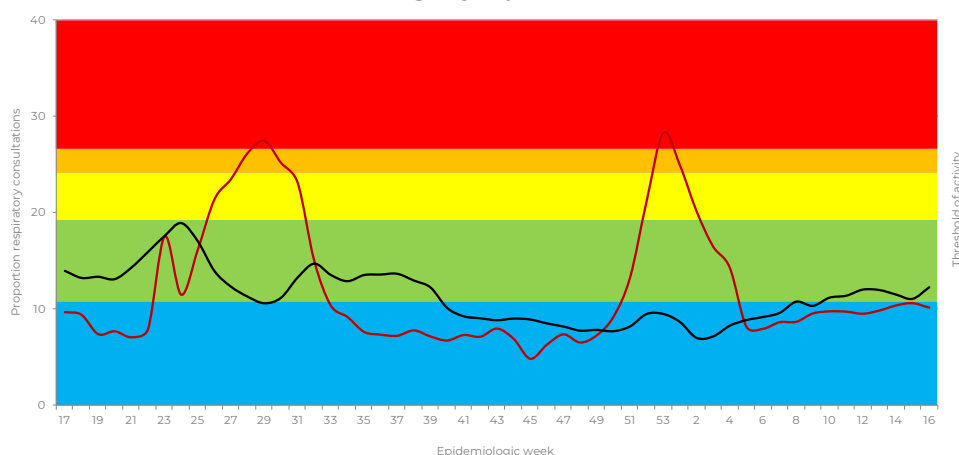
All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients  
General Practitioners



Emergency Department



Below threshold
Low
Moderate
High
Very High

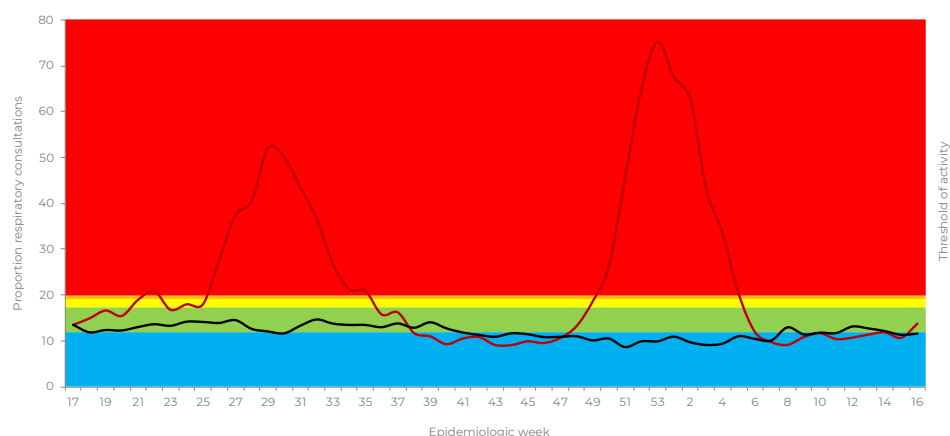
— % All Respiratory
 — Mean % 2015- 2019 (Inpatients/Casualty) 2016-2019 (General Practitioner)

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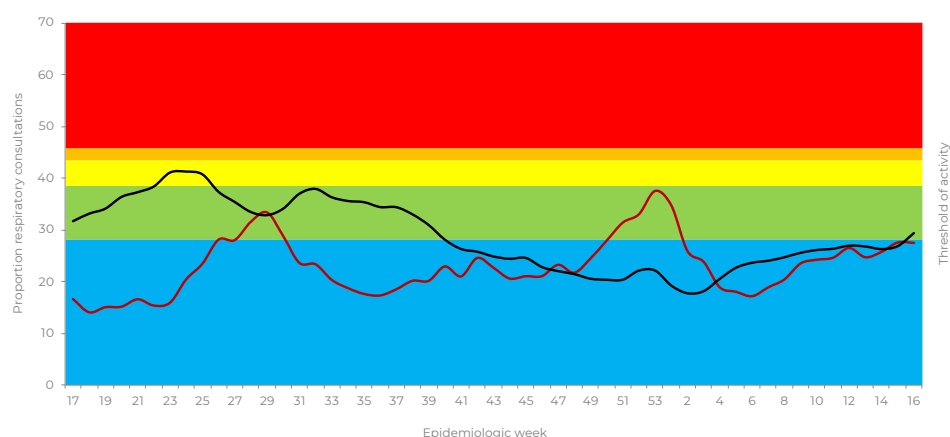
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## KWAZULU-NATAL

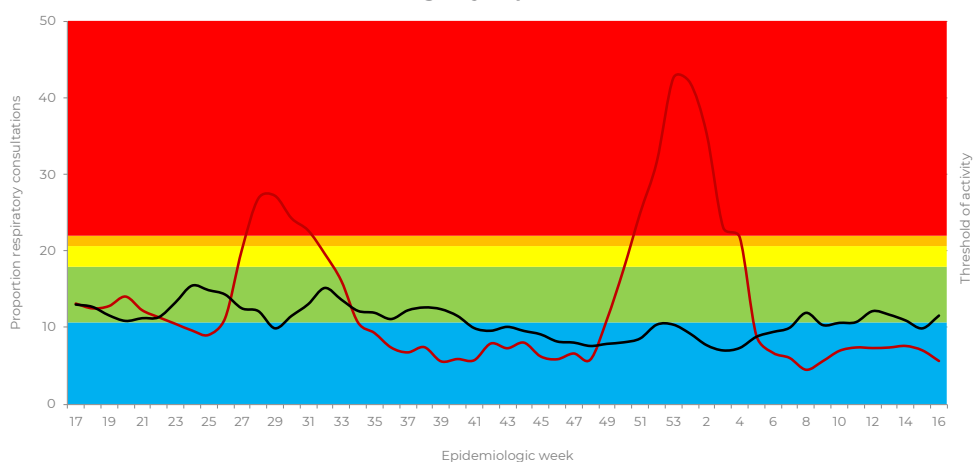
All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients



All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients  
General Practitioners



Emergency Department



Below threshold
  Low
  Moderate
  High
  Very High

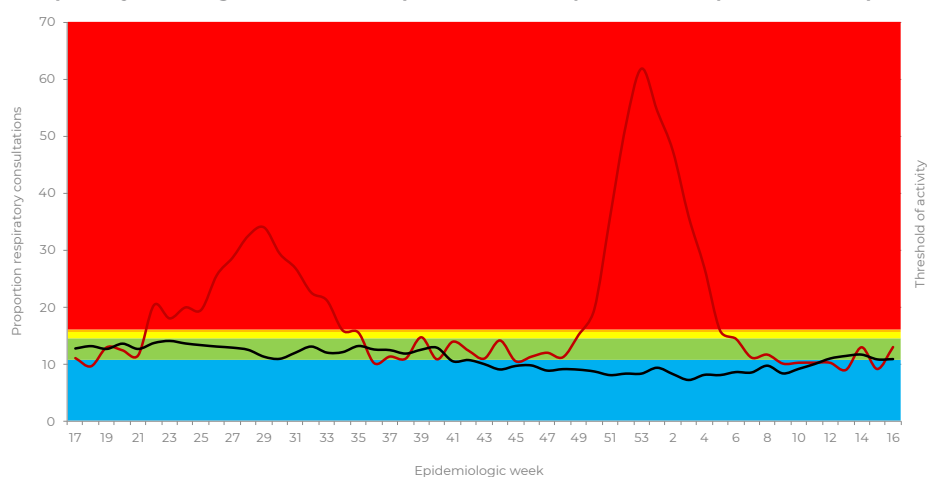
— % All Respiratory
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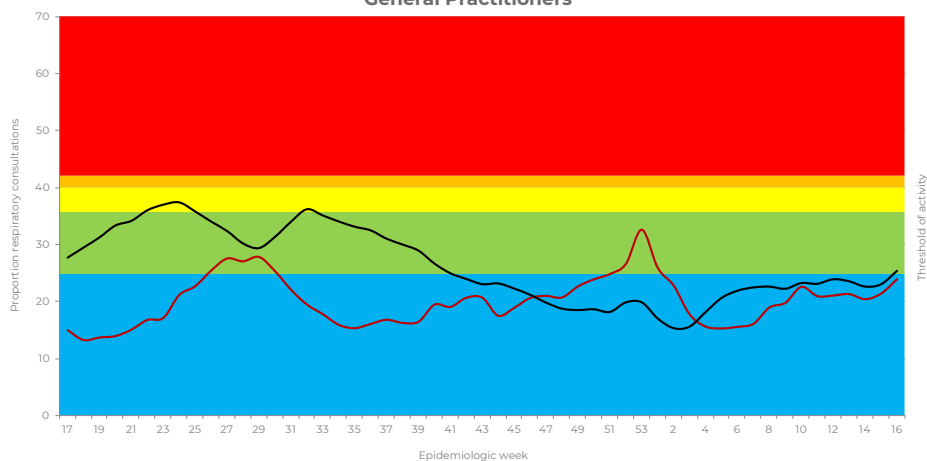
## WESTERN CAPE PROVINCE

All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Inpatients

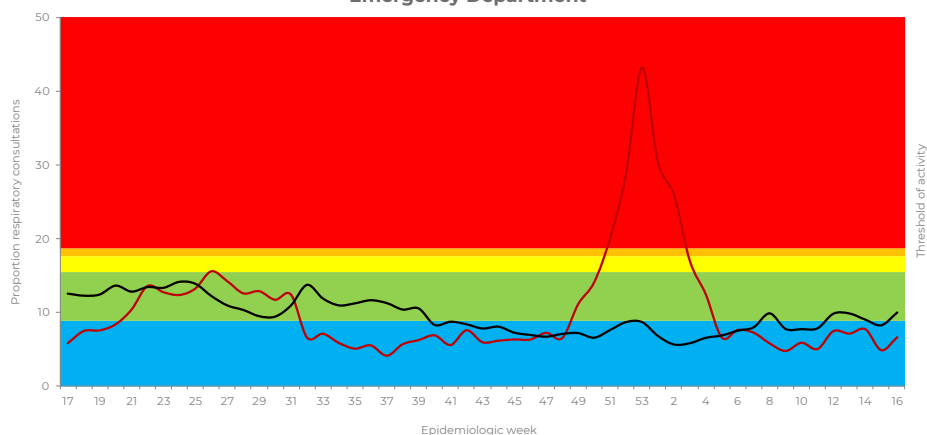


All Respiratory including confirmed or suspected COVID-19 (J00-J99 & U07) indicators – Outpatients

### General Practitioners



### Emergency Department



■ Below threshold   
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## ACKNOWLEDGEMENT

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