



# Sentinel hospital surveillance for COVID-19

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 **NATIONAL INSTITUTE FOR  
COMMUNICABLE DISEASES**

Division of the National Health Laboratory Service

# Purpose

- Aim: to monitor trends in COVID-19 admissions and describe the epidemiology of COVID-19 in hospitalised patients in South Africa
  - Clinical: to describe the epidemiology of the outbreak, including the age, sex, race and comorbidity profile of patients who required hospital admission and developed severe disease. This can be used to inform policy decisions regarding targeted preventive and control measures in specific groups of the population.
  - Programmatic: to describe the distribution of hospital admissions between provinces and between the public- and private-health sectors; and to describe treatment in intensive care units (ICU), requirements for supplemental oxygen and invasive ventilation. This can be used to inform healthcare managers at all levels in both health sectors, to anticipate resource demands and to plan for resource allocation.



# **DATA COLLECTION**



# Variables collected on the DATCOV

- Demographic: age sex, race
- Comorbidities: hypertension, diabetes, HIV, etc
- Complications: ARDS, kidney failure
- Treatment: steroids, high flow oxygen, ventilation
- Setting of care: ICU, high care, general ward
- Outcomes: Discharged, transferred, died

# Current Data Flow

## Bulk Uploads

6 Private Hospital Groups



All WC public hospitals



## Online Platform

34 public hospitals  
35 private hospital



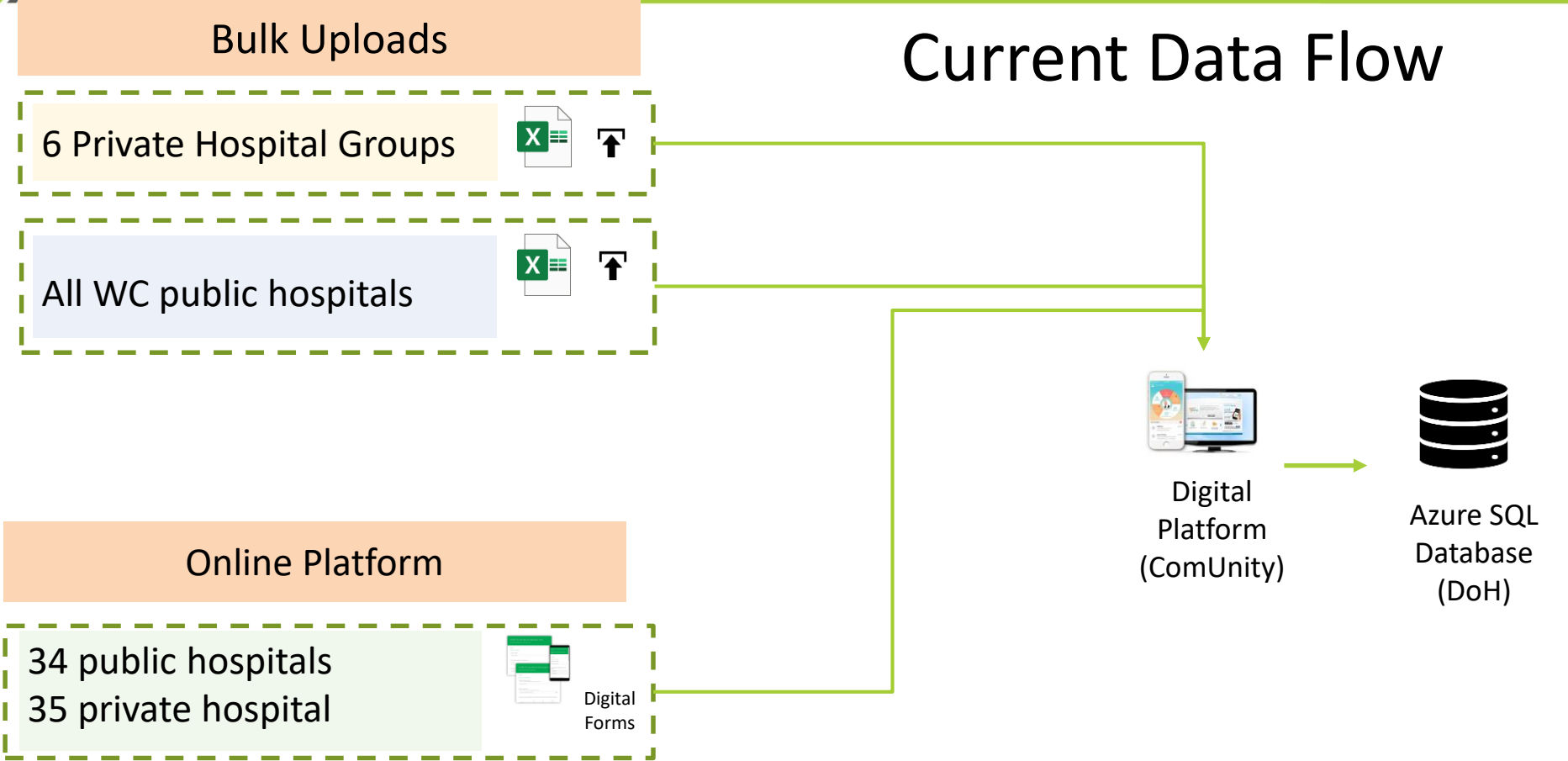
Digital Forms



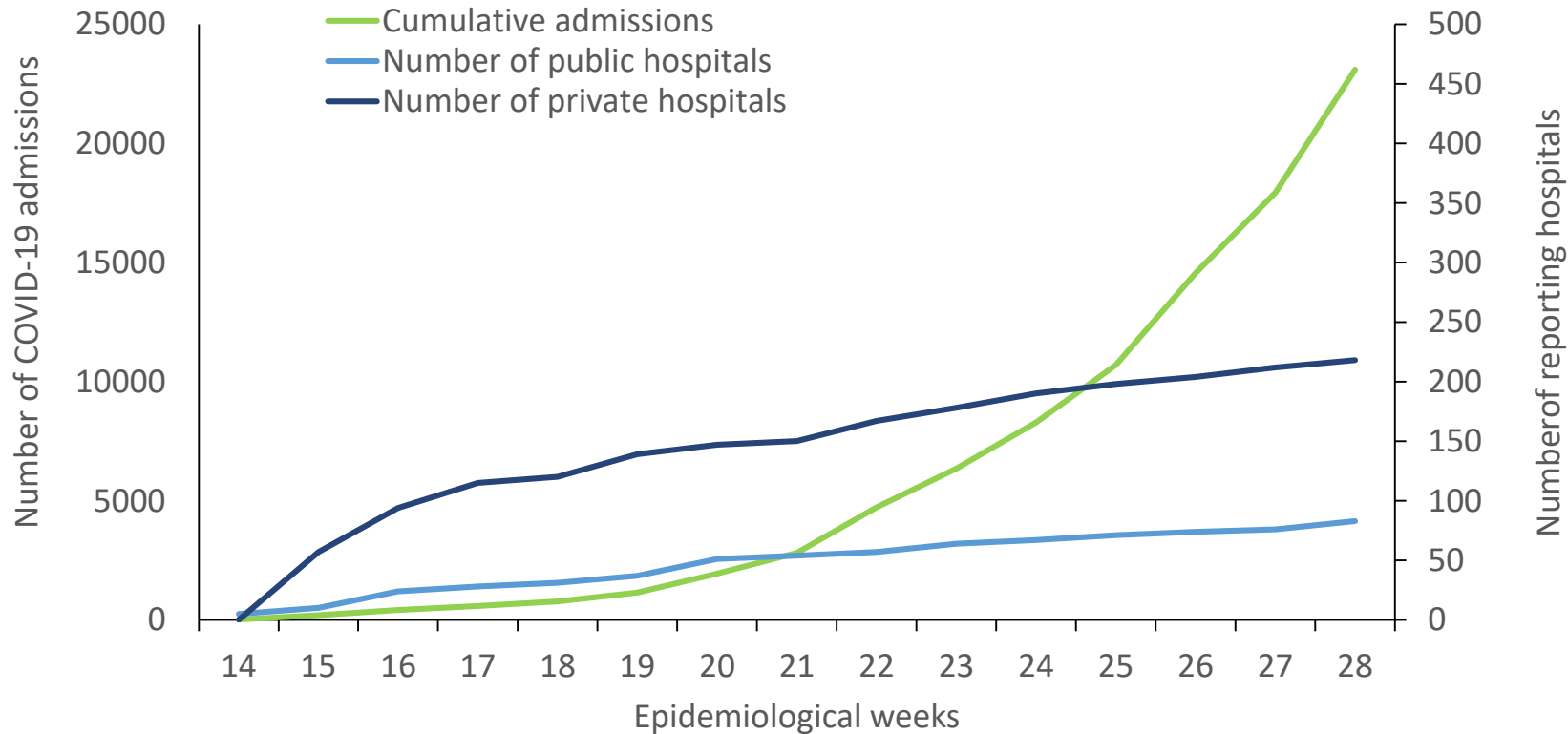
Digital Platform (ComUnity)



Azure SQL Database (DoH)



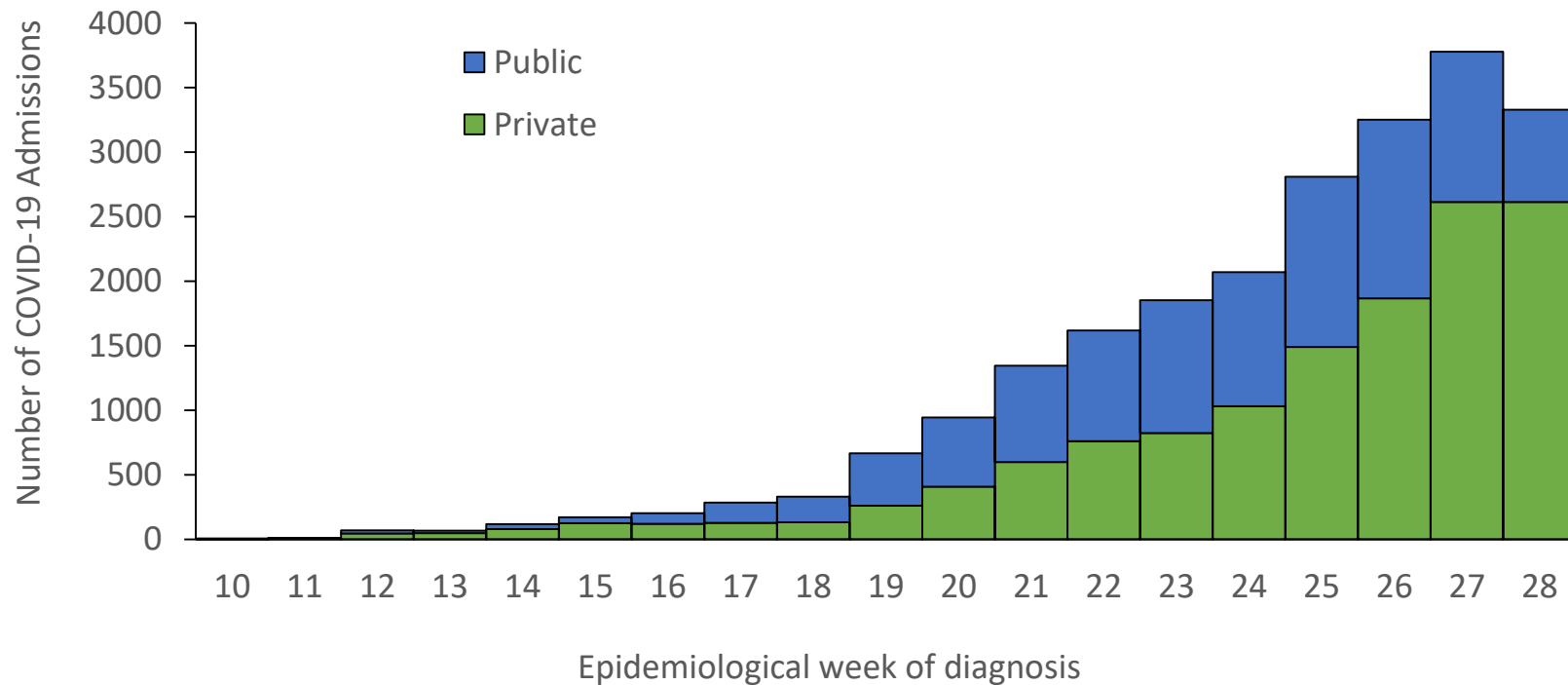
# Cumulative numbers of reporting hospitals and COVID-19 admissions, South Africa, 5 March – 12 July 2020





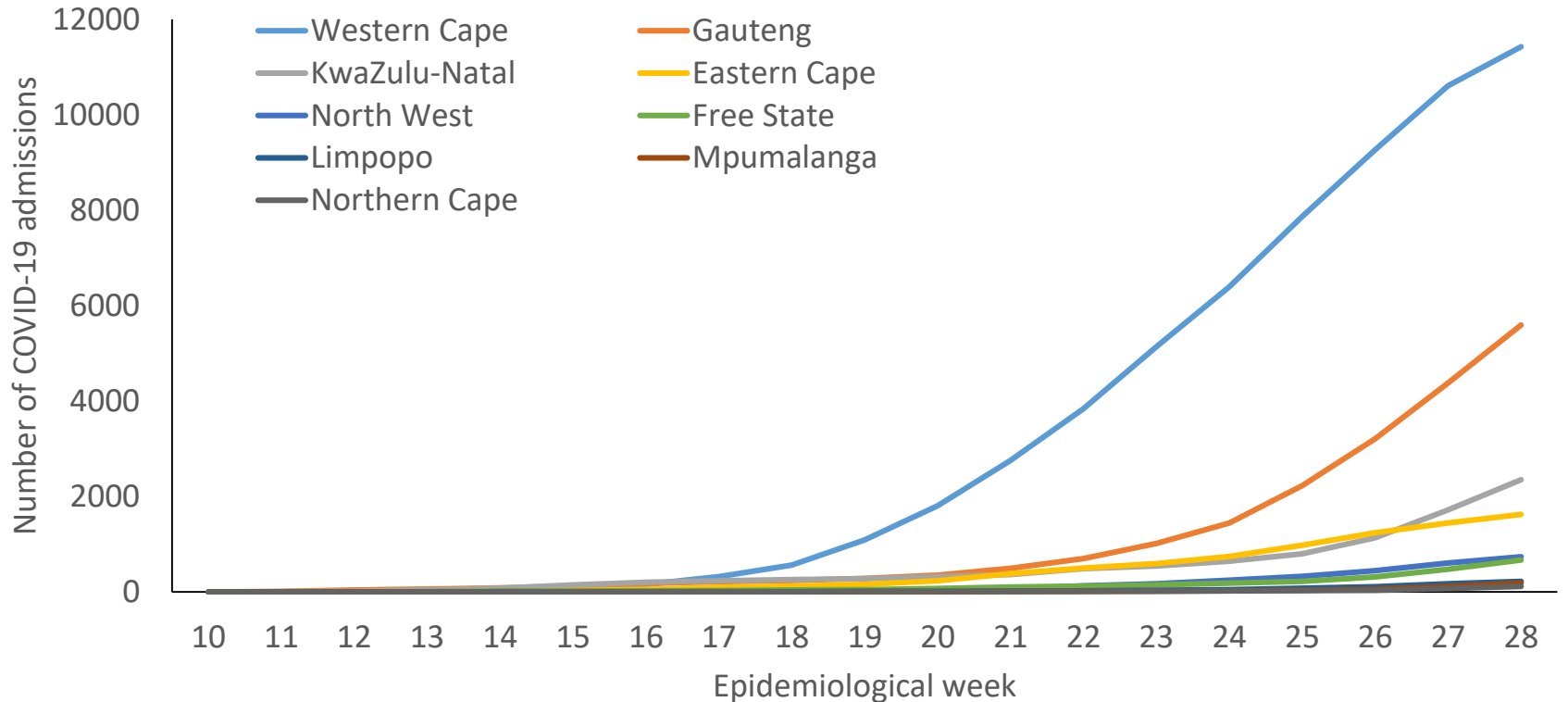
**DATA ANALYSIS: 12 JULY 2020**

# Number of reported COVID-19 admissions by health sector and epidemiologic week of diagnosis, South Africa, 5 March-12 July 2020, n=23104

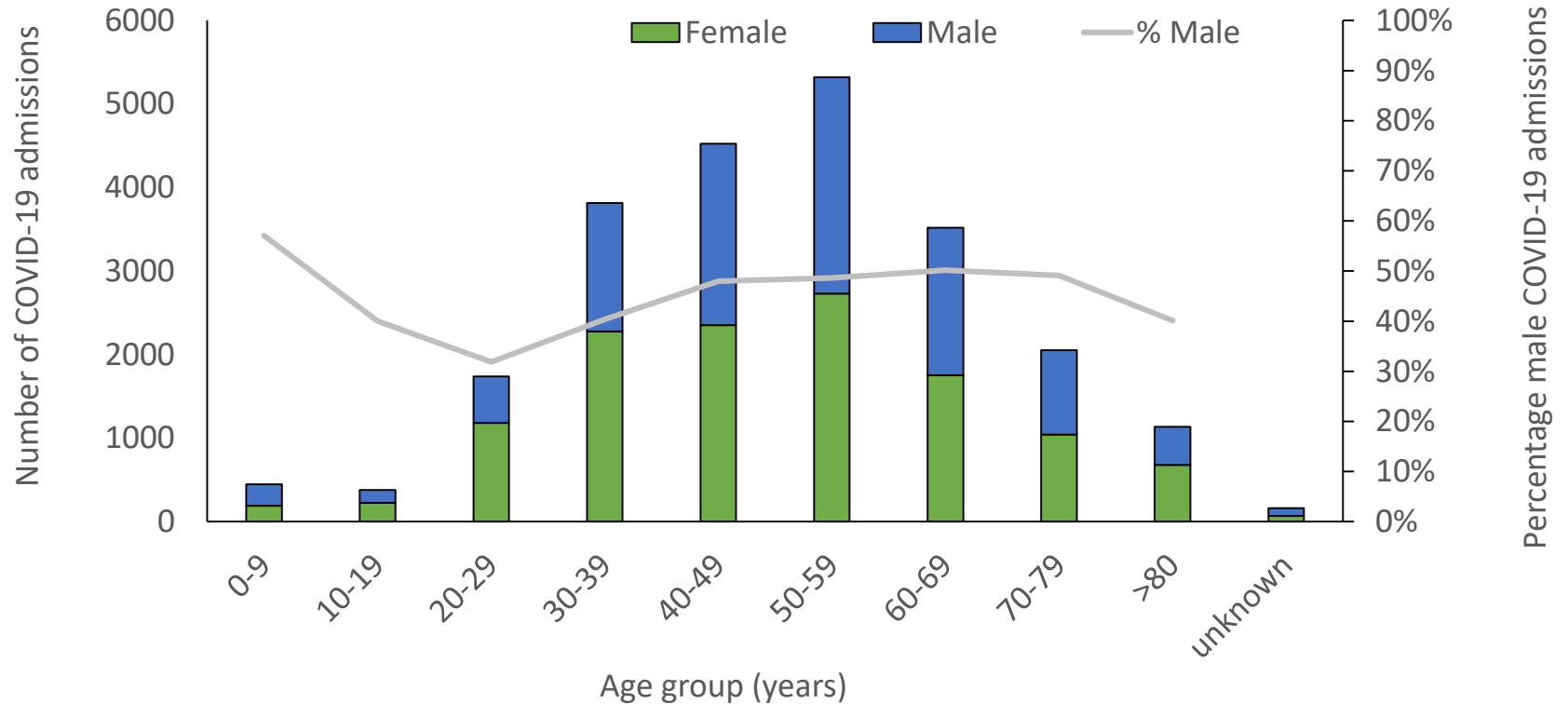




# Cumulative numbers of reported COVID-19 admissions, by province and epidemiological week of diagnosis, South Africa, 5 March-12 July 2020, n=23104



# Number of reported COVID-19 admissions by age and gender, and percentage male, South Africa, 5 March-12 July 2020, n=23104



Reported comorbid diseases among COVID-19 admissions reporting at least one comorbid disease, South Africa, 5 March-12 July 2020, n=11156 (48%)

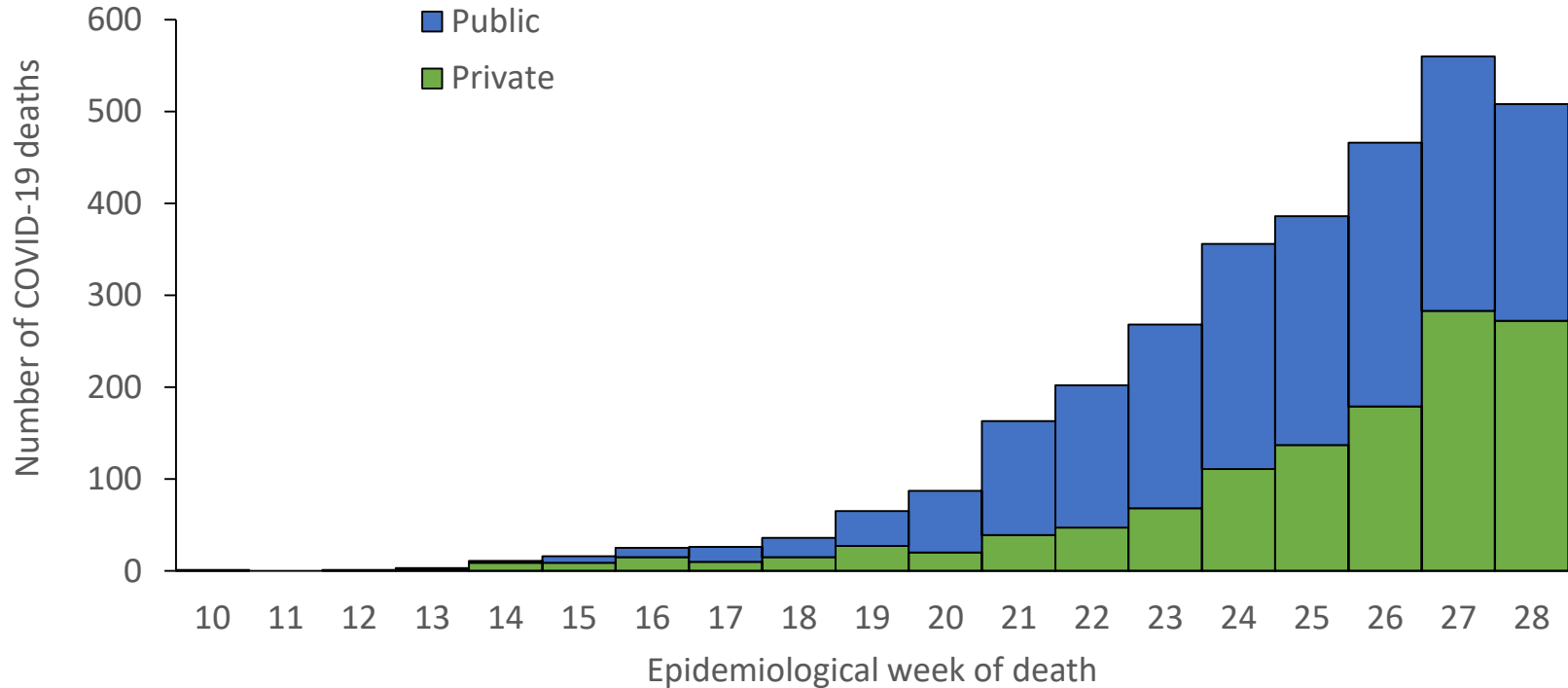
Comorbid disease	n	%
Hypertension	6678	60%
Diabetes mellitus	5439	49%
Chronic cardiac disease	464	4%
Chronic pulmonary disease/ Asthma	1659	15%
Chronic renal disease	826	7%
Malignancy	153	1%
HIV	1989	18%
Active TB	400	4%
Previous history of TB	930	8%

Outcomes of reported COVID-19 admissions, South Africa, 5 March-12 July  
2020, n=23104

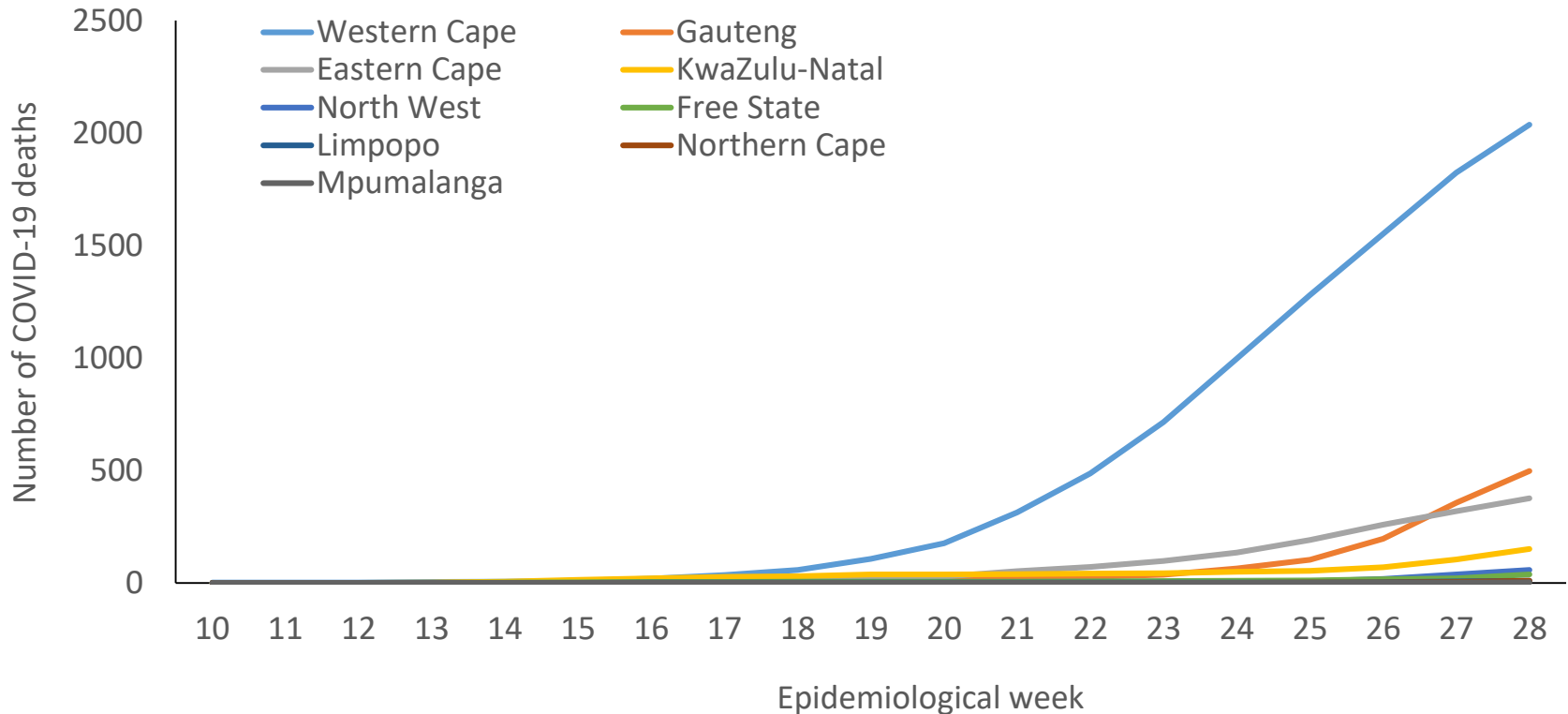
Outcomes	n	%
Discharged alive	13607	59
Transferred out	253	1
Died	3212	14
Currently in hospital	6032	26

The case fatality ratio (CFR) for 16,819 admissions with an outcome (died or discharged) was 19%

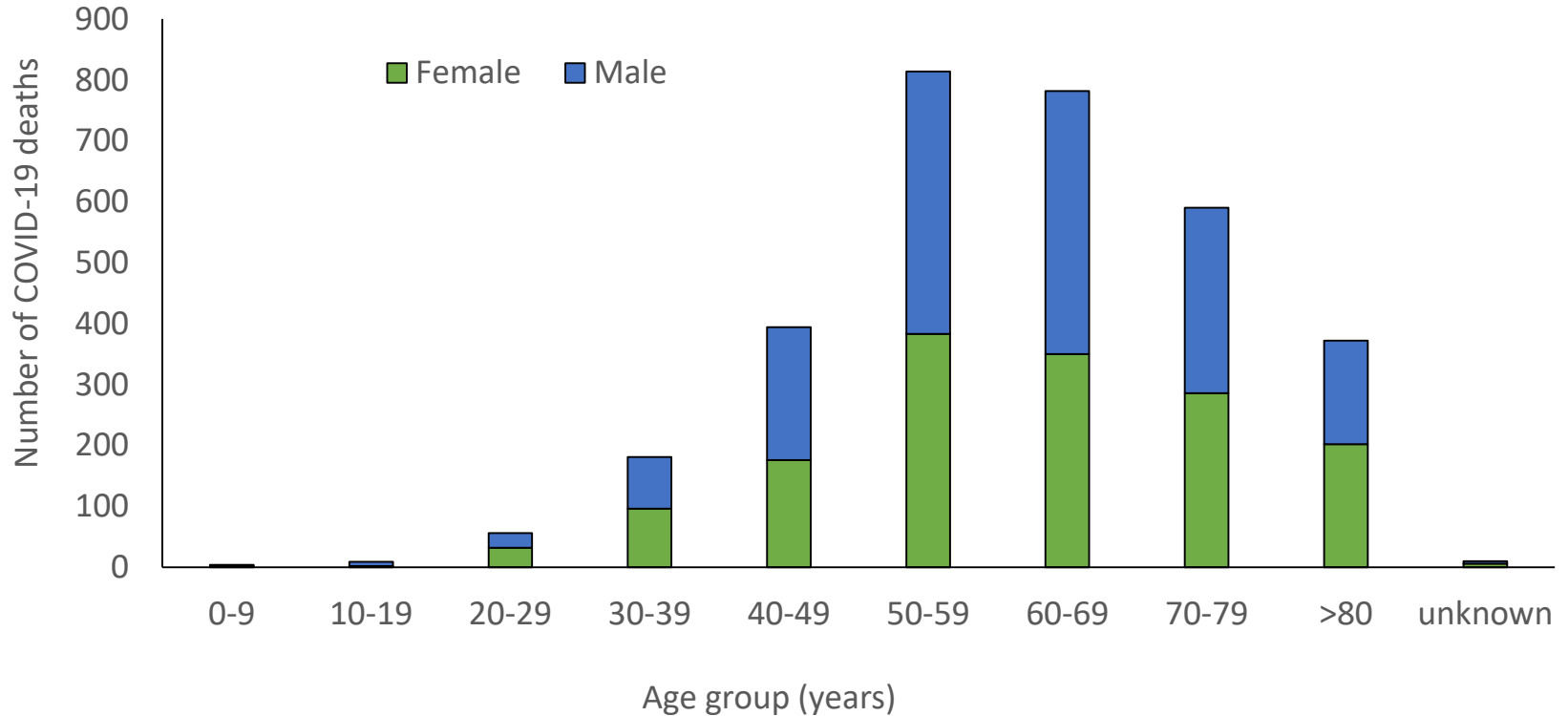
# Number of COVID-19 deaths reported per week by health sector, epidemiological week, South Africa, 5 March-12 July 2020, n=3212



# Cumulative numbers of reported COVID-19 deaths, by province and epidemiological week of death, South Africa, 5 March-12 July 2020, n=3212



# Number of reported COVID-19 deaths by age and gender, South Africa, 5 March-12 July 2020, n=3212



# Factors associated with mortality

- Older age
- Male sex
- Multimorbidity
- Comorbidities
  - Hypertension
  - Diabetes
  - Chronic cardiac disease
  - Chronic renal disease
  - Malignancy
  - HIV
  - Tuberculosis
- Important findings
  - HIV and TB associations
  - Paediatric admissions and deaths
  - Deaths in <65 years with no comorbidity
- Data not available/ incomplete
  - Obesity: where recorded, 209/438 (47.7%) died
  - Newly diagnosed versus pre-existing
  - Level of control (Diabetes, etc)
  - HIV: viral load, CD4
  - Older age versus wellness/ frailty





# **DISCUSSION**

# Value of surveillance

- Provides real-time data, summary reports daily, detailed analysis weekly
- Address knowledge gap
  - many publications about the profile of COVID-19 in high-income countries
  - still many unknowns in the South African setting
- Using surveillance platform to address questions (data for action)
  - Who are most at risk?
  - What guidelines for patients with NCDs and HIV/TB?
  - What guidelines for management of COVID-19 in high risk groups?
  - What therapeutics work?
  - Where should resources be targeted?



# Limitations

- Sentinel surveillance does not include all hospitals and therefore may not be truly representative of hospital admissions for COVID-19 throughout South Africa.
- DATCOV only reports hospital-based admissions and deaths and therefore does not include deaths occurring outside hospitals.
- Data quality dependent on information submitted by healthcare institutions.



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