

Western Cape Government



Western Cape: COVID-19 and HIV / Tuberculosis

Mary-Ann Davies on behalf of the Western Cape Department of Health

9 June 2020

What predisposes to poor COVID-19 outcomes in South Africa?



Known risk factors from other settings

$\sqrt{\text{Older age}}$ $\sqrt{\text{Male sex}}$

√ Diabetes
√ Cardiac disease
√ Respiratory disease
√ Kidney disease
√ Liver disease
√ Overweight
√ Organ transplant
√ Recently diagnosed cancer

? Tuberculosis

? HIV



What predisposes to poor COVID-19 outcomes in South Africa?



Some risk factors for death may be linked to each other e.g. diabetes and overweight

Disentangle the effects of each individual risk factor

Need data on all these factors and COVID-19 outcomes

Known risk factors from other settings

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? Tuberculosis

? **HIV**



Western Cape routine public sector data to look at risk of COVID-19 death



Unique identifier used across all systems

Data brought together in Provincial Health Data Centre



Western Cape routine public sector data to look at risk of COVID-19 death



Data Beneficiation

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Comorbidities inferred from lab tests, medication received

- Diabetes
- > Hypertension
- Chronic kidney disease
- Chronic respiratory disease/asthma
- > Tuberculosis
- > HIV
- Not overweight/obesity; smoking; socio-economic status

Western Cape routine public sector data to look at risk of COVID-19 death



 Factors associated with COVID-19 death in all adult public sector patients >20 years of age (3.5 million patients "active" in the public health system)



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Patient characteristics	Hazard ratio	95% Confidence Interval		
Sex				
female	1			
male	1,40	1,16; 1,70		
Age				
<40 years	1			
40-49 years	3,12	1,88; 5,17		
50-59 years	9,92	6,34; 15,54		
60-69 years	13,55	8,55; 21,48		
≥70 years	19,53	12,20; 31,26		
Non-communicable diseases				
none	1			
diabetes well controlled (HbA1c <7%)	4,65	3,19; 6,79		
diabetes poorly controlled (HbA1c 7 - 9%)	8,99	6,65; 12,14		
diabetes uncontrolled (HbA1c ≥9%)	13,02	10,06; 16,87		
diabetes – no measure of control	3,34	2,39; 4,68		
hypertension	1,46	1,18; 1,81		
chronic kidney disease	2,02	1,55; 2,62		
chronic pulmonary disease	0,98	0,75; 1,30		
Tuberculosis				
never tuberculosis	1			
previous tuberculosis	1,41	1,05; 1,90		
current tuberculosis	2,58	1,53; 4,37		
HIV				
negative	1			
positive	2,75	2,09; 3,61		

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How much are these factors contributing to COVID-19 deaths in WC?

For every 100 people in the public sector who have died from COVID-19 – we can attribute as follows:





12 to HIV





4 to previous TB

<u>actual</u> number of COVID-19 deaths in people with HIV

VS.

<u>expected</u> number of COVID-19 deaths in people with HIV

if their age- and sex-specific COVID-19 risk of death was the same as in people without HIV

SMR for the increase in COVID-19 death in people with vs. without HIV in Western Cape 2.33 (95% CI: 1.83-2.91)

Across public and private sector, about 8% of COVID-19 deaths due to HIV.



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Conclusions

Older age and comorbidities increase risk of COVID-19 death

• Quantify effect of HIV & TB:

Modest 2 – 2.5 times risk of COVID-19 death associated with HIV and TB

• May be over-estimated if haven't fully disentangled all comorbidities & risks

e.g. overweight and socio-economic status.

- Those with HIV & TB tend to be younger where overall risk of COVID-19 death is low.
- <10% of COVID-19 deaths in our population due to HIV



Western Cape Department of Health Outbreak Response Team

Western Cape Health Care Workers

Western Cape Provincial Health Data Centre

Thembisa Model: Leigh Johnson

Patients

