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BETTER TOGETHER.

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?

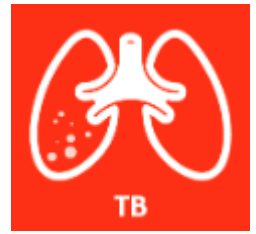
Known risk factors from other settings

√ Older age
√ Male sex

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

? Tuberculosis

? HIV



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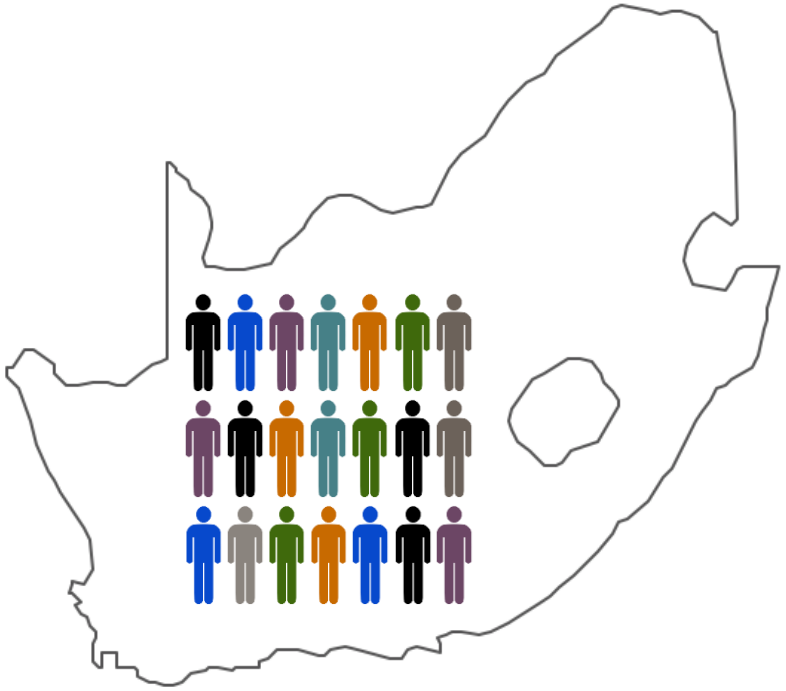

Some risk factors for death may be linked to each other e.g. diabetes and overweight

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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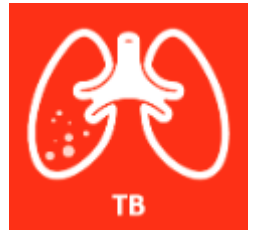
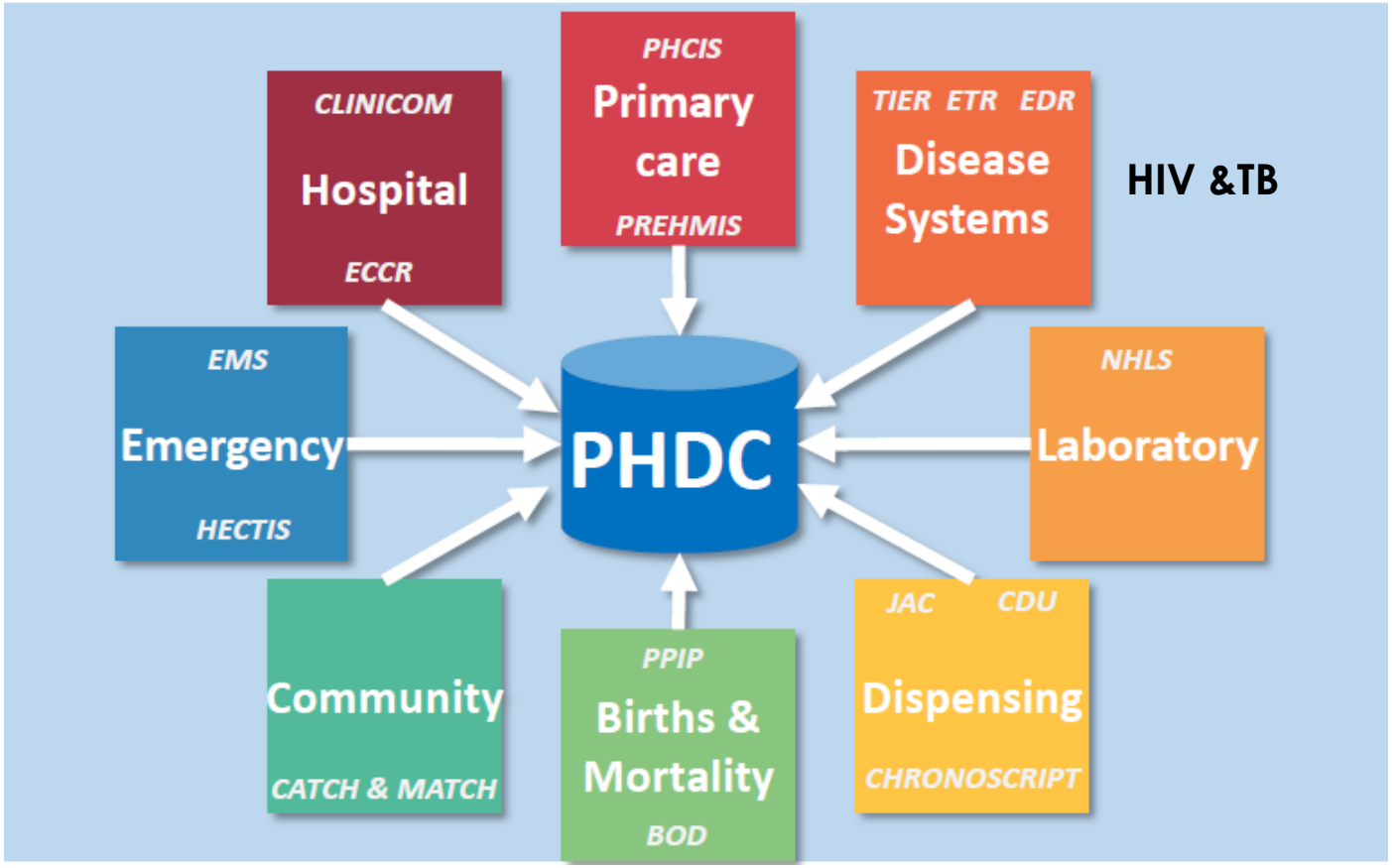


Western Cape routine public sector data to look at risk of COVID-19 death



Unique identifier used across all systems

Data brought together in Provincial Health Data Centre

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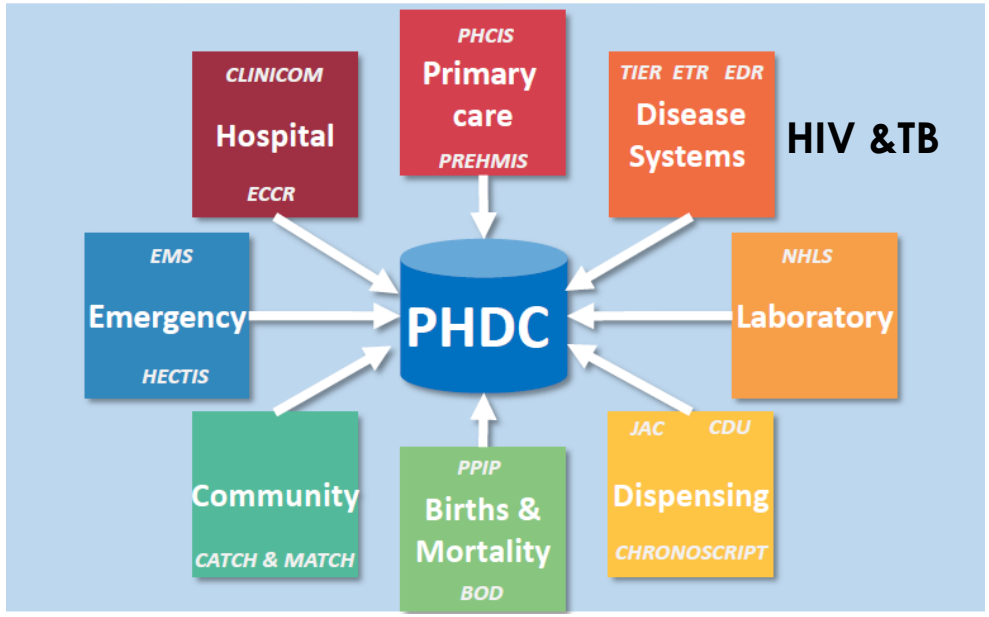

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Comorbidities inferred from lab tests, medication received

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

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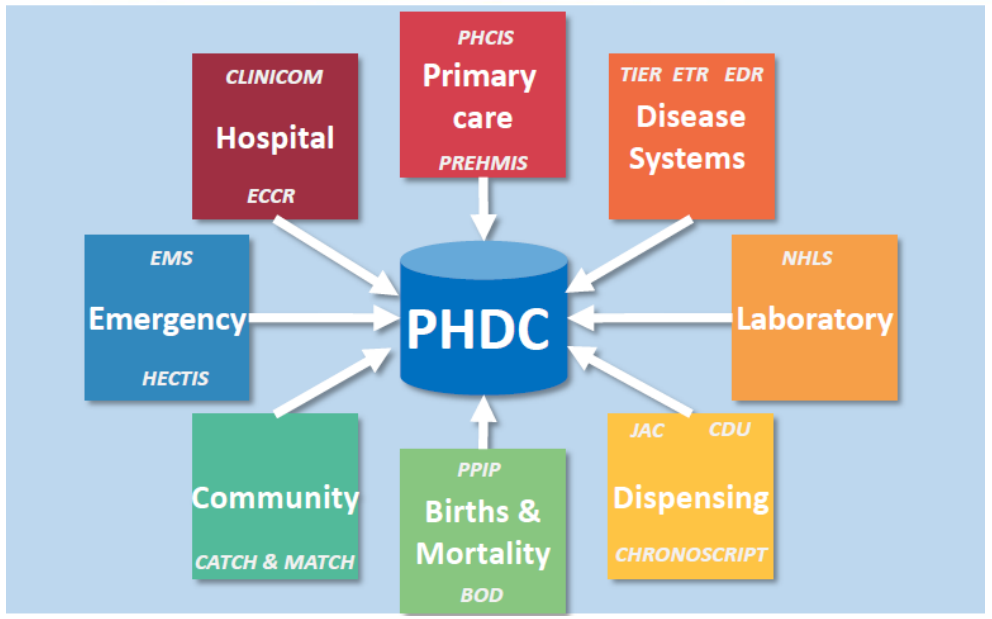

- **Factors associated with COVID-19 death in all adult public sector patients >20 years of age** (3.5 million patients "active" in the public health system)

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What are the chances of dying from COVID-19 for different risk factors?

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
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Tuberculosis		
never tuberculosis	1	
previous tuberculosis	1,41	1,05; 1,90
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negative	1	
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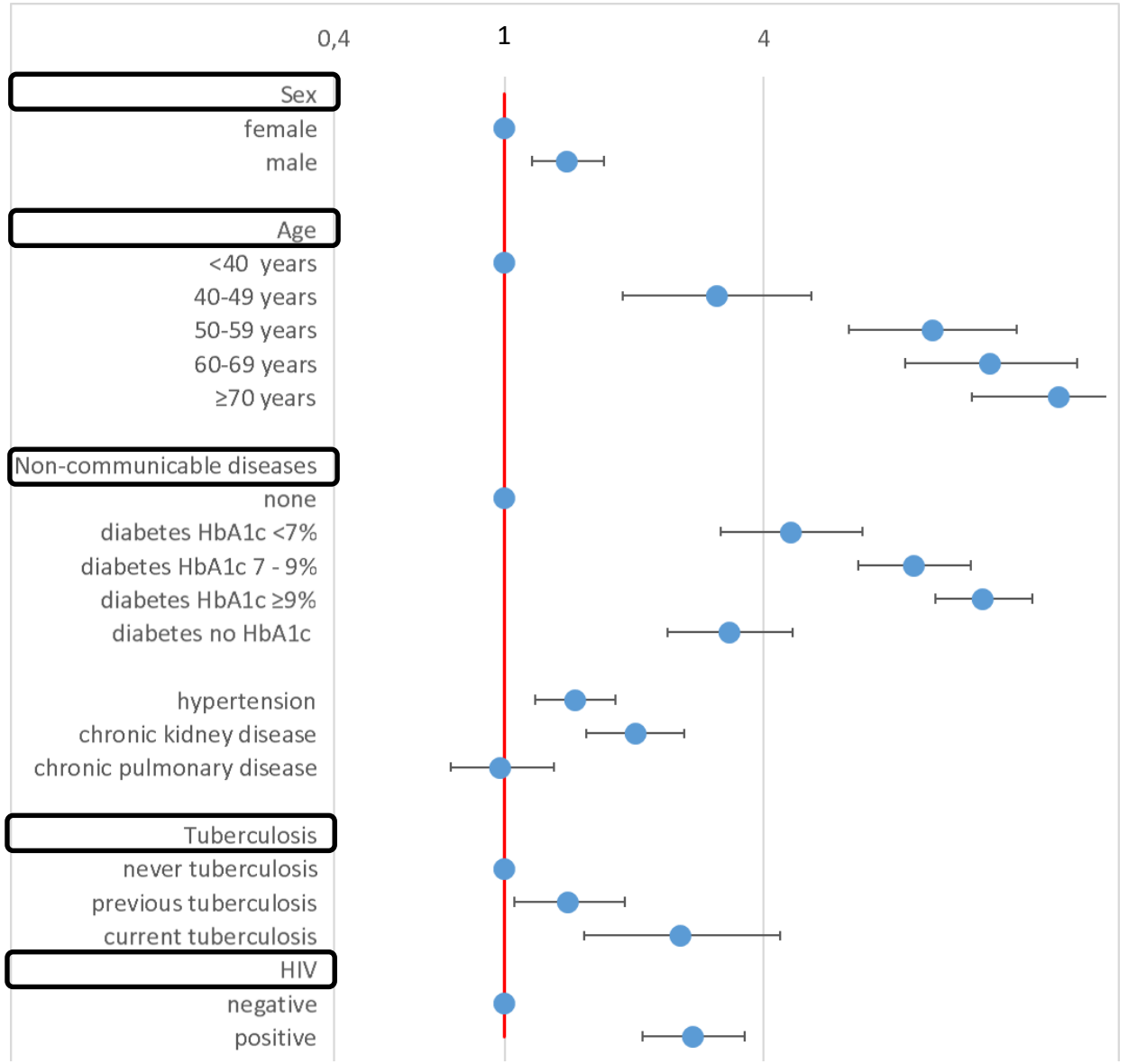

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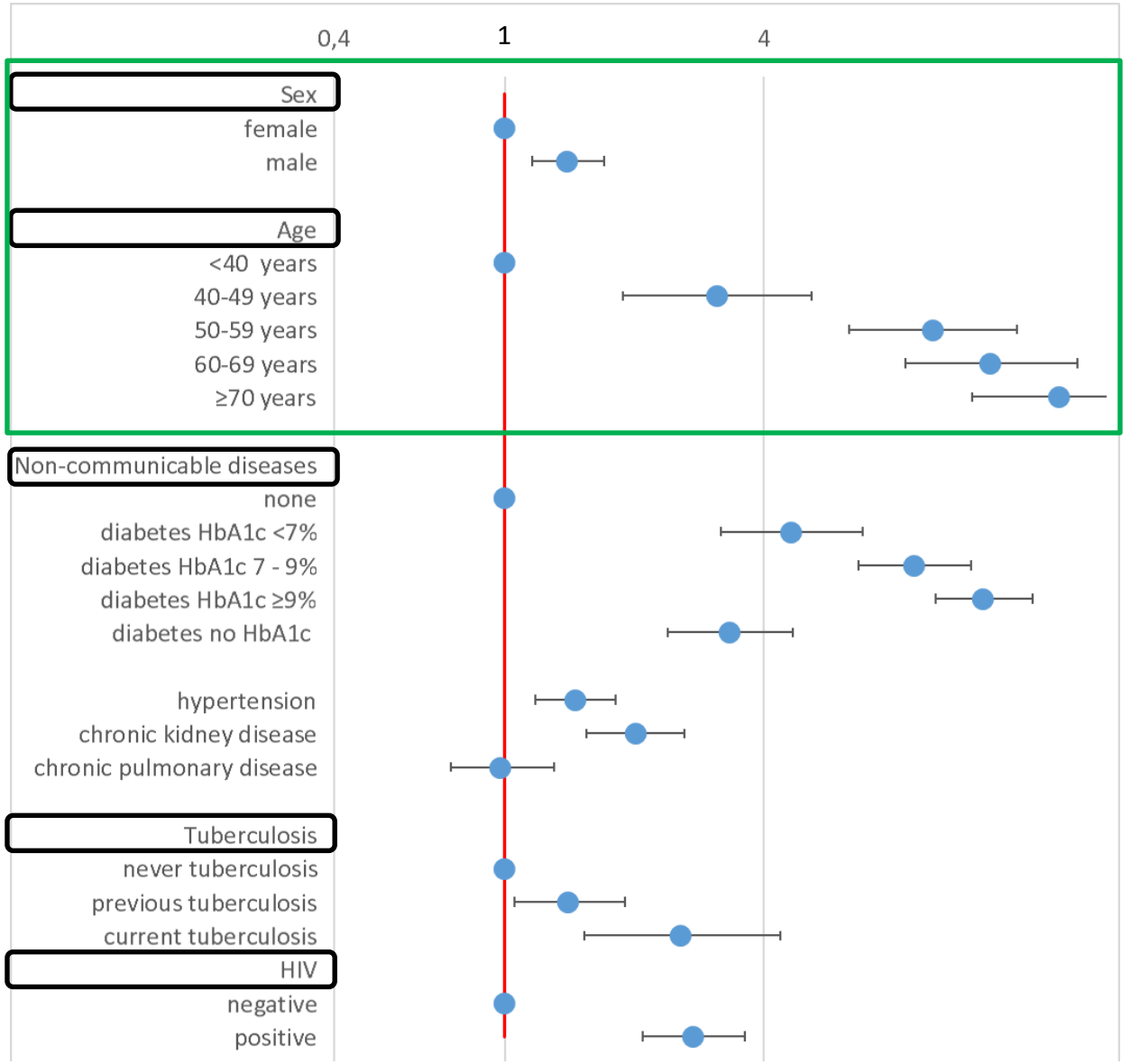

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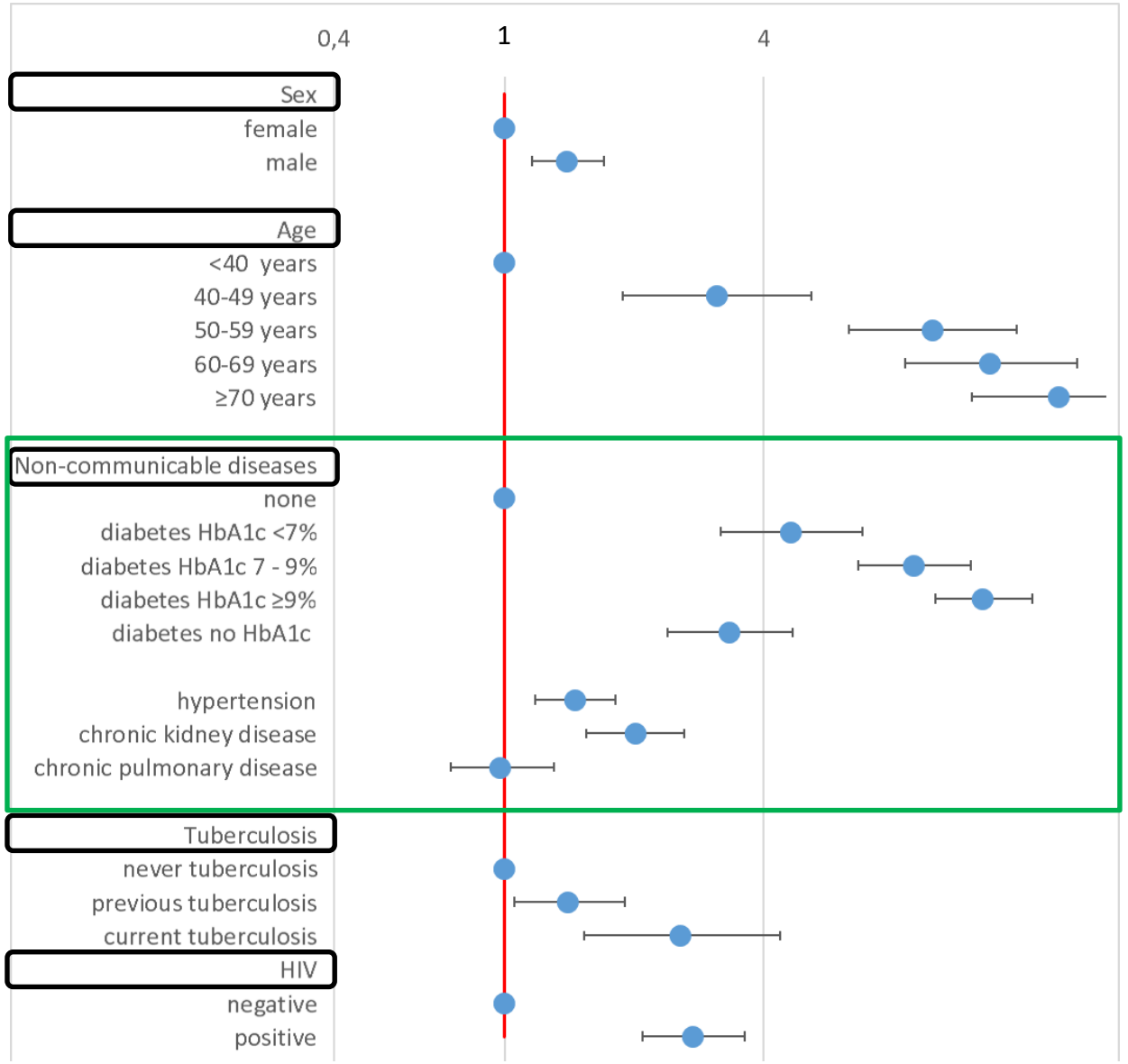

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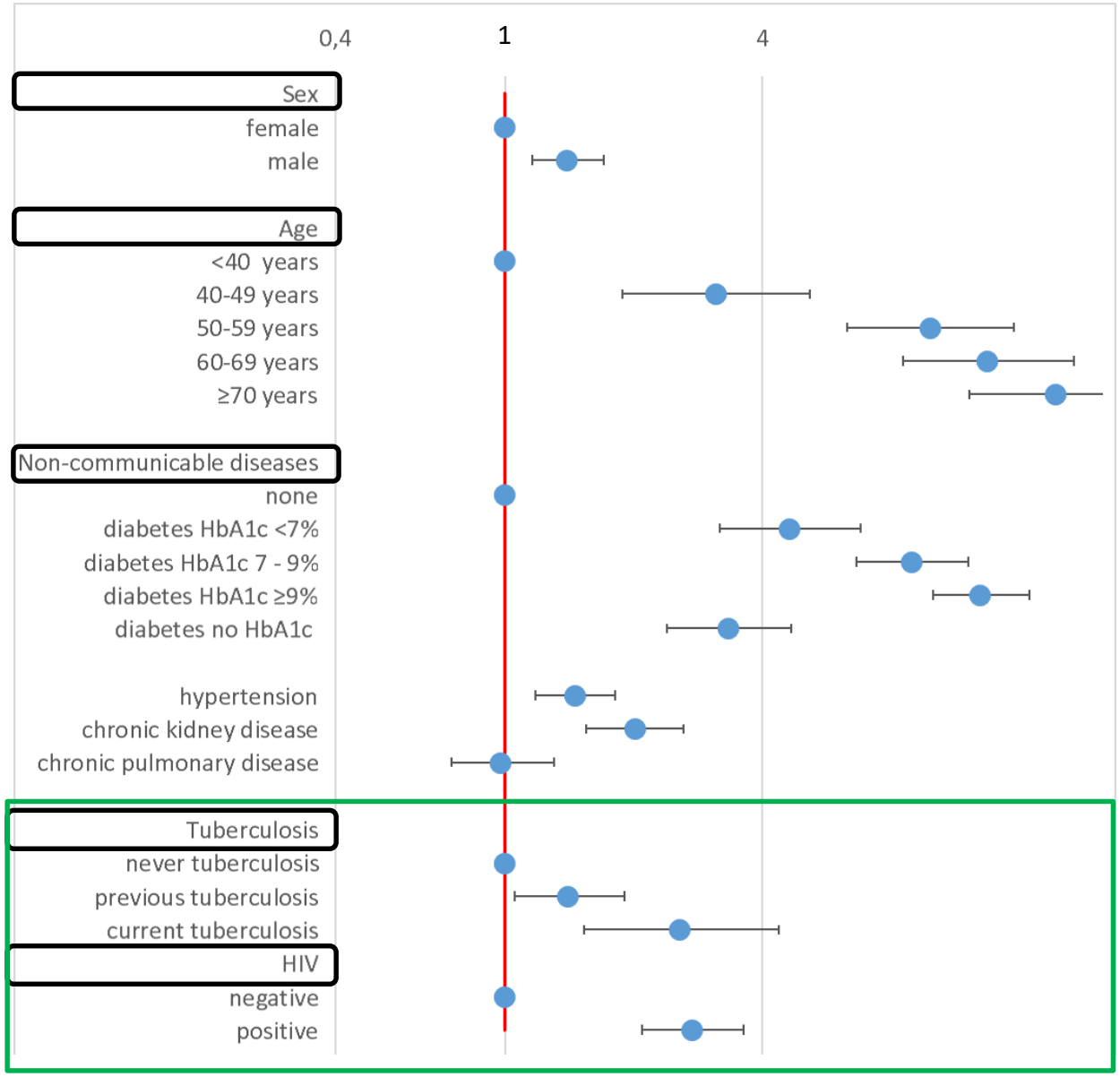

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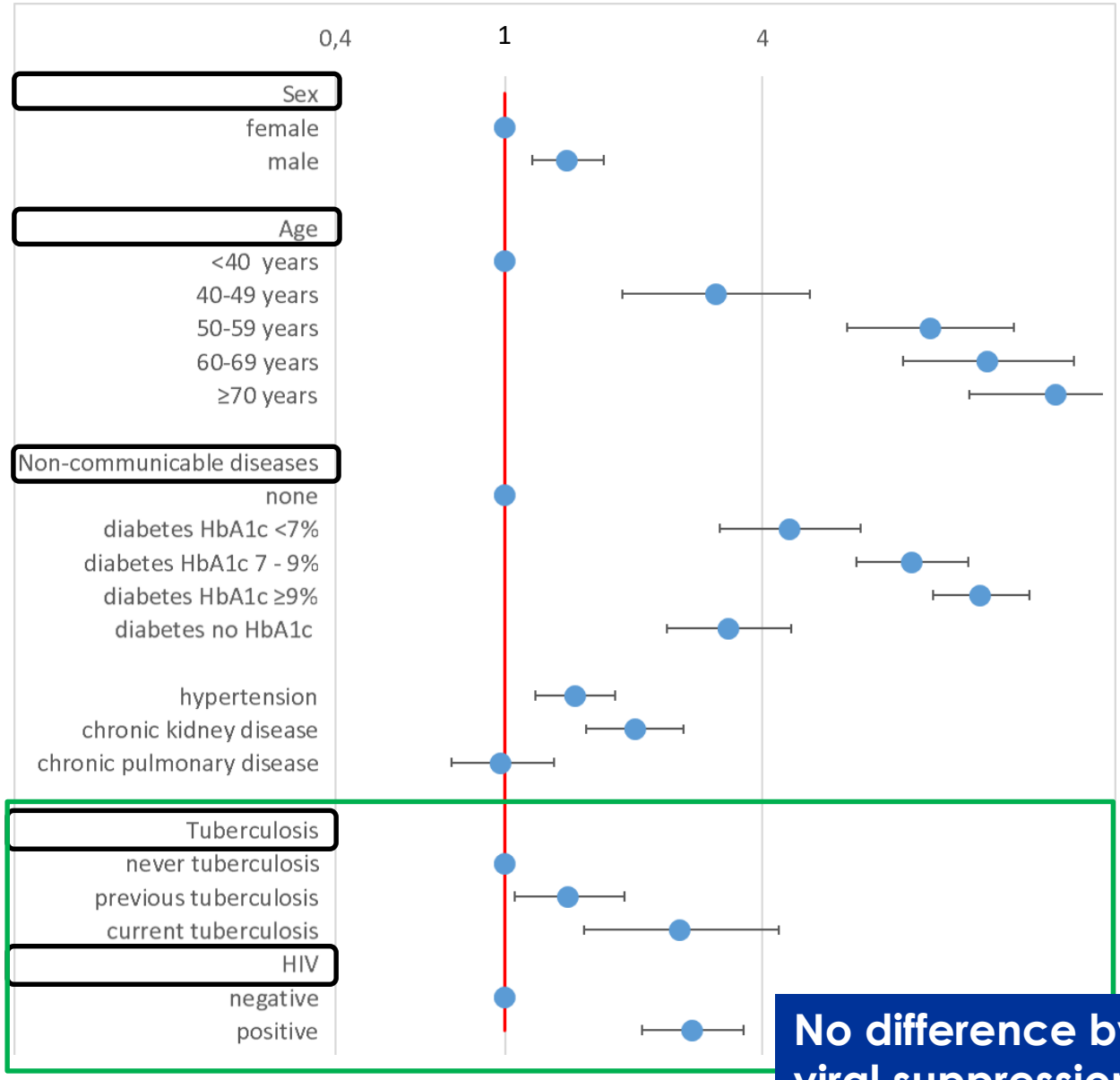
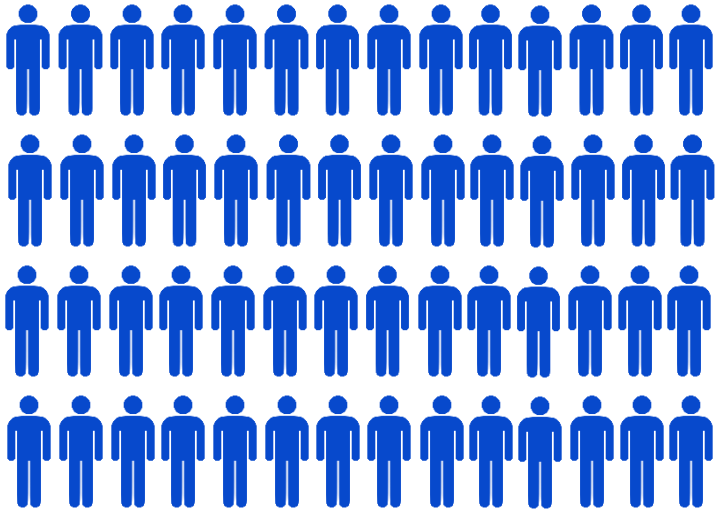


No difference by viral suppression

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:



52 to diabetes

9 to kidney disease

12 to HIV

19 to high blood pressure

2 to current TB

4 to previous TB

Standardized mortality ratios (SMR)

actual number of COVID-19 deaths in people with HIV

vs.

expected 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**

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Thank you

Western Cape Department of Health Outbreak Response Team

Western Cape Health Care Workers

Western Cape Provincial Health Data Centre

Thembisa Model: Leigh Johnson

Patients

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