An analysis of HIV and co-morbidity profiles for adults accessing health care in Khayelitsha, South Africa

Richard Osei-Yeboah\textsuperscript{1*}, Olina Ngwenya\textsuperscript{2}, Nicki Tiffin \textsuperscript{1,2,3}

\textsuperscript{1}Division of Computational Biology, \textsuperscript{2}Centre for Infectious Diseases Research in Africa, \textsuperscript{3}Centre for Infectious Diseases Epidemiology and Research, University of Cape Town.

21\textsuperscript{st} International Workshop on Adverse Drug Reactions and Comorbidities in HIV, Basel, Switzerland
Introduction

• Increase in life expectancy for people living with HIV (PLHIV) due to success of anti-retroviral therapy in South Africa\textsuperscript{1,2}

• About 7.2 million PLHIV in SA, 9-10\% are >50 yrs, expected to increase to 17\% by 2040\textsuperscript{3,4}

• More than half of all HIV mortalities estimated to result from co-infections and non-infectious co-morbidities rather than AIDS\textsuperscript{5}

\textsuperscript{1}Boull\textsuperscript{e} et al., Plos One Medicine 2014; \textsuperscript{2}Omole et al., S Afr J HIV Med. 2016; \textsuperscript{3}Mojola et al., Social Science & Med. 2015; \textsuperscript{4}Negin et al., AIDS 2012; \textsuperscript{5}Ruzicka et al., BMJ Open 2018.
Underlying questions

• What will be the health needs of the ageing HIV+ population in Africa?

• What are the drivers of co-morbidities in a high HIV/TB population?
Objective

• To explore the HIV co-morbidities profile of patients accessing public health care at Khayelitsha
Methods - Data source and analyses

- Ethics approval: University of Cape Town HREC 482/2019
- Anonymized and de-identified routine health data from Western Cape Provincial Health Data Centre
- Complete longitudinal data of adult (>18 years) healthcare seekers attending a facility in 2016/17 in Khayelitsha district
- Analyses: Univariate and multivariate descriptive statistics
Overview of the Data Centre

Disease monitoring systems (e.g. HIV / TB)
Laboratory and pharmacy data
Hospital and primary care registration systems
Population register
Many other systems

Health information exchange

Clinical viewing
Care cascades and operational reports
Alerting engine (eg. NMC’s)
Management reporting
Epi analyses
Business intelligence
Research support and stewardship

Patient care
Health Systems Strengthening
Academic

Project lead: Andrew Boulle, Health Impact Assessment Directorate, Western Cape Department of Health
Results

Figure 1: Characteristics of health seekers

- 172,937 Adults (>18)
  - Median (IQR) age: 37 (30-48)

- Seeking maternal care
  - 68,931 (55%)

- Females
  - 125,468 (73%)

- Males
  - 47,322 (27%)

- PLHIV
  - 83,162 (48%)

- Maternal HIV+
  - 30,624 (52%)

- Female HIV+
  - 59,164 (71%)

- Male HIV+
  - 23,982 (29%)
# Results

Table 2: Co-morbidities and median age of ascertainment in HIV- and HIV+ health seekers

All p<.001

<table>
<thead>
<tr>
<th>Condition</th>
<th>Count (%)</th>
<th>HIV- Median Age (IQR)</th>
<th>HIV+ Median Age (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>36 897 (21.3%)</td>
<td>37 (28-53)</td>
<td>39 (33-46)</td>
</tr>
<tr>
<td>COPD/Asthma</td>
<td>12 820 (7.4%)</td>
<td>53 (36-64)</td>
<td>43 (35-51)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>45 691 (26.4%)</td>
<td>55 (46-64)</td>
<td>46 (39-54)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>16 979 (9.7%)</td>
<td>57 (48-65)</td>
<td>48 (40-56)</td>
</tr>
<tr>
<td>Chronic Kidney Disease</td>
<td>4 179 (2.4%)</td>
<td>66 (58-74)</td>
<td>50 (42-58)</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>1 180 (1.8%)</td>
<td>57 (45-65)</td>
<td>42 (36-48)</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>784 (0.45%)</td>
<td>58 (44-67)</td>
<td>43 (35-52)</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>691 (0.4%)</td>
<td>51 (38-61)</td>
<td>43 (37-49)</td>
</tr>
<tr>
<td>Mental Health Condition</td>
<td>12 512 (7.2%)</td>
<td>42 (29-57)</td>
<td>39 (32-48)</td>
</tr>
</tbody>
</table>
Results: Co-morbidities clustering in HIV-/+
Discussion & Conclusion

• PLHIV in South Africa are seeking care for various chronic co-morbidities similar to those without HIV

• These chronic co-morbidities are ascertained at a younger age among PLHIV than those without HIV

• Differences between female and male demographics reflect to some extent contraceptive and maternal care access by women in good health\(^6\)

➢ Important to explore whether frequent access to healthcare results in earlier ascertainment of co-morbidities, or PLHIV are in fact developing comorbidities at an earlier age

\(^6\)Abera Abaerei et al., Glob Health Action, 2017
Limitations and Future Research

• Biased routine health data: frequent health seeking behavior and/or already ill
• Data from public facilities only

➢ Age of co-morbidities ascertainment in HIV
  ▪ Time lapse between ascertainment of co-morbidities

➢ Impacts of HIV on co-morbidity treatment response
  ▪ Full response achieved??
Acknowledgements

Supervisor
A/Prof Nicki Tiffin
Contact: nicki.tiffin@uct.ac.za

Travel Fellowship by Cooper Scholarship
(IMP & EACS)

Data Integration Research Group
Tsaone Tamuhla
Themba Mutemaringa
Emmanuel Adonyo
Graeme Glass
Olina Ngwenya
Jon Ambler
Taryn Allie

Thank You

Western Cape Government
Health

Funded by the Intra-Africa Academic Mobility Scheme of the European Union

CBIO
Computational Biology @ UCT

University of Cape Town