The development, use and outcomes of HIV hotspot spatial maps in a large community-based HIV counselling and testing (CBCT) programme in five districts, South Africa

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FOUNDATION FOR PROFESSIONAL DEVELOPMENT

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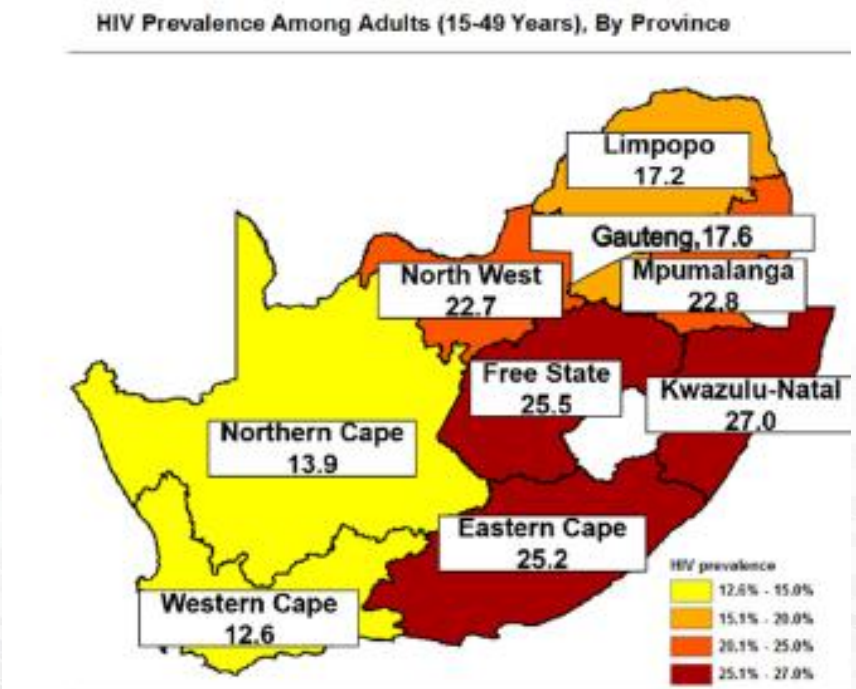
Presentation Outline

- Background
- Methodology
- Results
- Discussion
- Conclusion

Background

HIV in South Africa (SA), Mpumalanga (MP) and Eastern Cape (EC)

- Prevalence: 8m people live with HIV in SA
  - 20.6 percent adults; (females:26.3%; males:14.8%)
- Highest gender disparities in the 20-24 yr band
  - 15.6% women vs 4.8% men
- EC has the 2nd and MP the 4th highest prevalence & are above the national average
- Incidence: 200, 000 people newly infected annually
  - 0.79% (female: 0.93%; males: 0.69%)
- Towards the 90-90-90 goal: 85-71-86

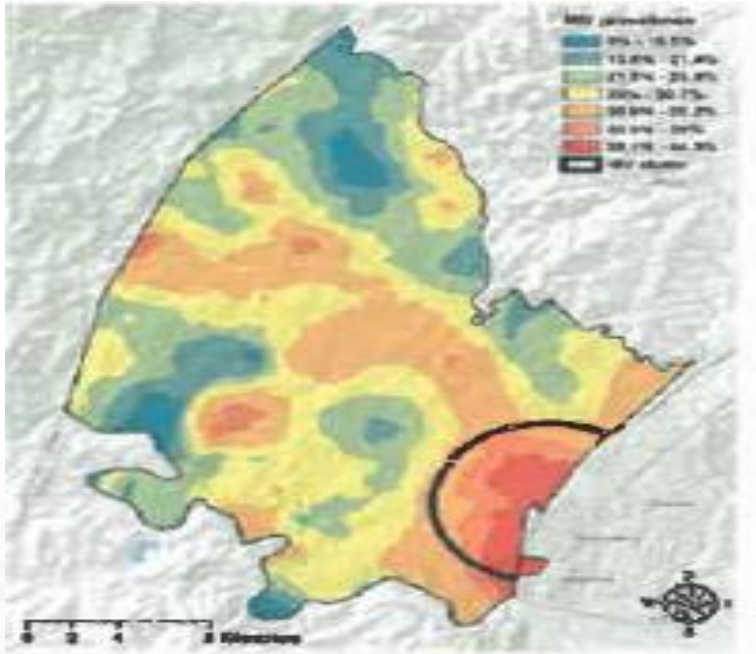


Community-based HIV Counselling and Testing (CBCT)

- CBCT has been implemented in South Africa over the last decade in 13 districts
  - including Nkangala, OR Tambo, Sara Bartman, Chris Hani, Nelson Mandela
- However, targeting local places is needed to enable an effective model of curbing the HIV epidemic ~~is needed~~
  - high prevalence, high risks & concentrated drivers
- Know your **local** Epidemic, Map your **local** Epidemic, Intervene into your **local** Epidemic
- Knowledge of individual, nature and spatial variation is essential

A case for HIV hotspot mapping

- Policy makers and programme implementers require accurate and timely guidance on the status and key epidemiologic drivers of ongoing local transmission to ensure that they maximize the impact of their investments in HIV prevention



Tanser et al. KZN, SA

Geographical Information Systems (GIS)

- GIS is used for disease surveillance, risk analysis, access to health services and planning, and profiling community-health service utilization among other uses
- Increasingly used to identify or show HIV high prevalence areas and people at high risk (Cuadros et al 2013; Hixson et al 2011; Fulcher et al 2005)
- Although it also started a decade ago in South Africa, there still remain a few notable HIV GIS studies – in KwazuluNatal (Tanser et al 2002, 2009, 2012)

Study Aim

To conduct a spatial analysis of high HIV risk places and categories of people considered to be driving the epidemic in Mpumalanga and the Eastern Cape:

- To identify areas of high HIV prevalence or risk defined as hotspots in five districts: Nkangala, OR Tambo, Chris Hani, Nelson Mandela, Sarah Baartman
- To characterise the population at risk in the identified HIV hotspots
- To identify the common drivers of high HIV risk in the hotspots identified
- To develop maps and write a report on HIV hotspots in the five districts

Methodology

Methodology

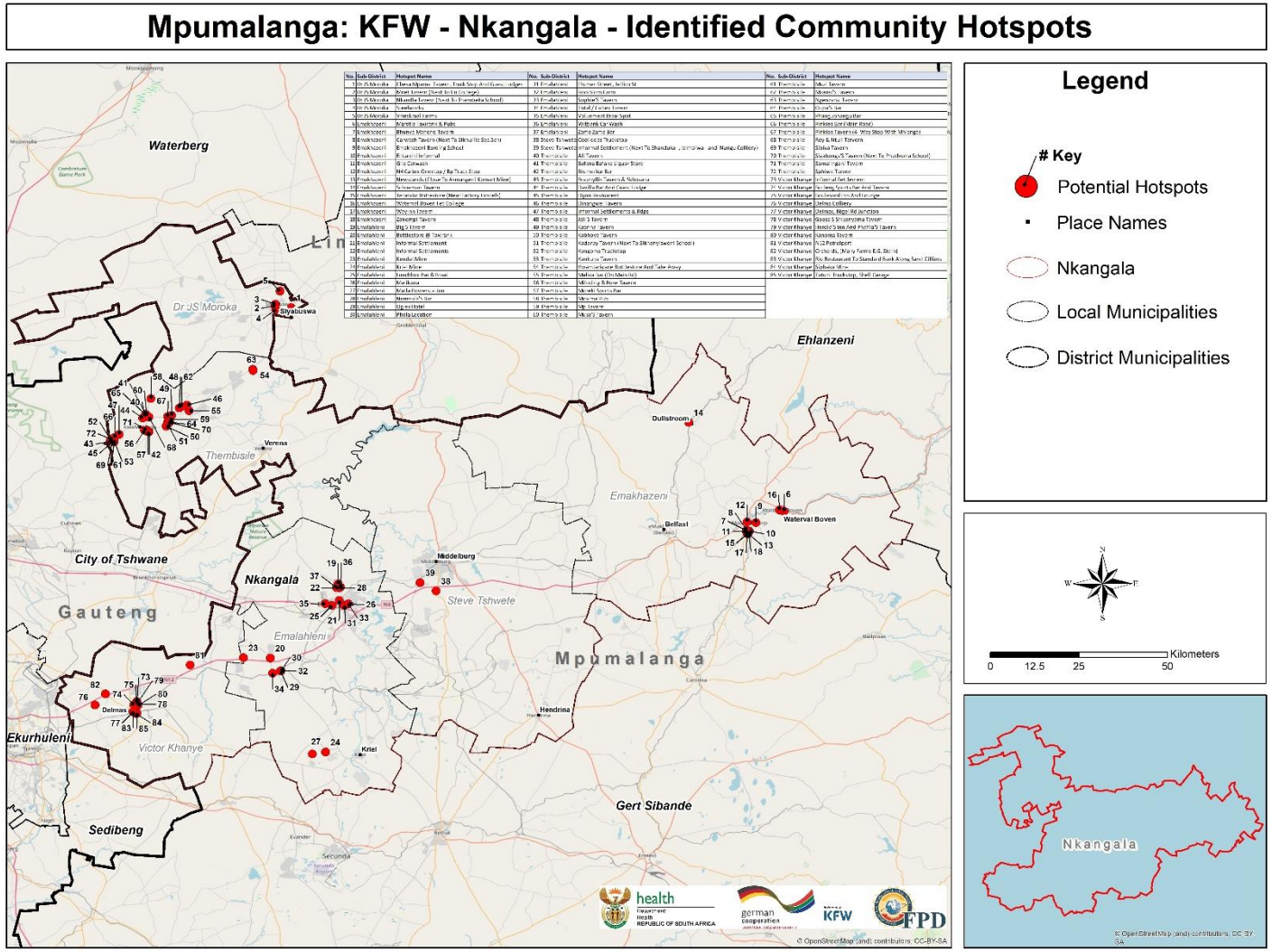
- Mixed methods approach
  - Literature review on hotspots in EC & MP districts & sub districts
  - Zoning the area
  - Key informant interviews
  - GPS point collection
  - CBCT Spatial recording
  - Labelling of the area's risk level

GPS Collection

- Collection tools
  - register
- Collection of GPS coordinates
  - Paper based vs technological approach
- Plotting the test areas on the map
- Joining data
  - By attribute/spatially
- Symbology to convey meaning

Results

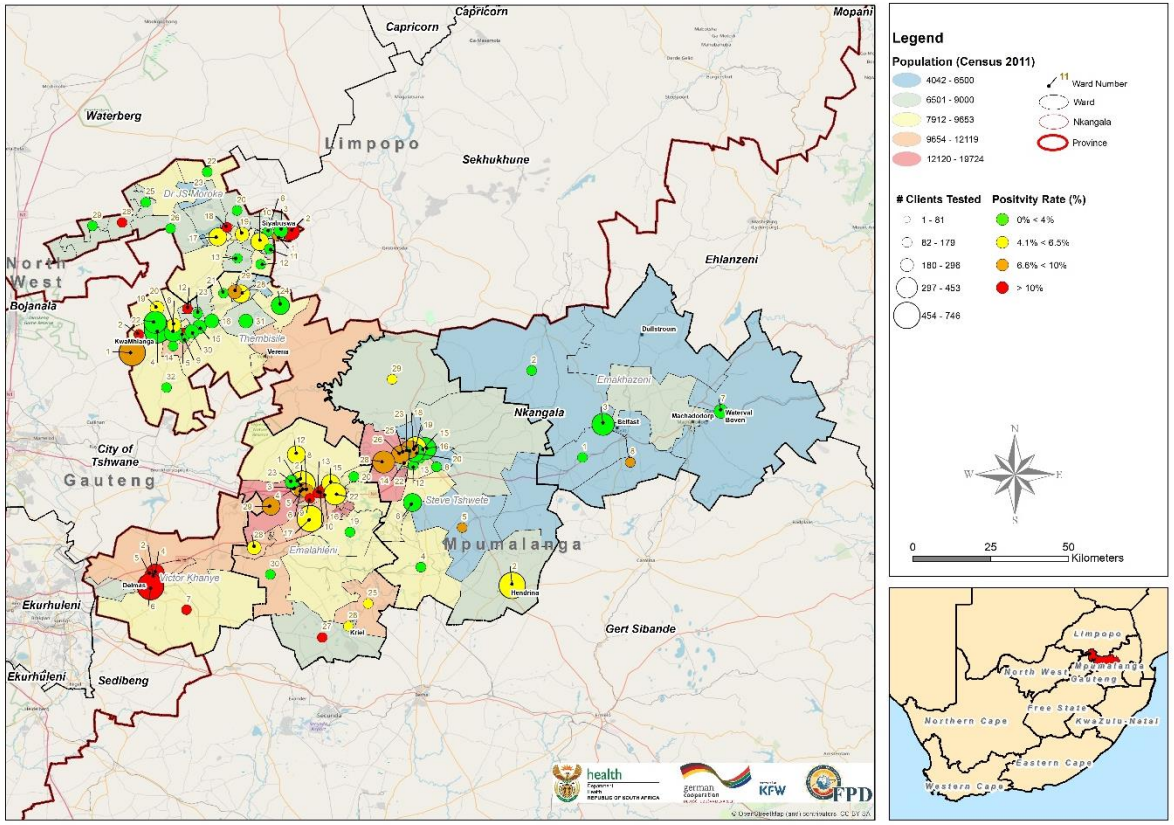
Using hotspot maps to guide testing



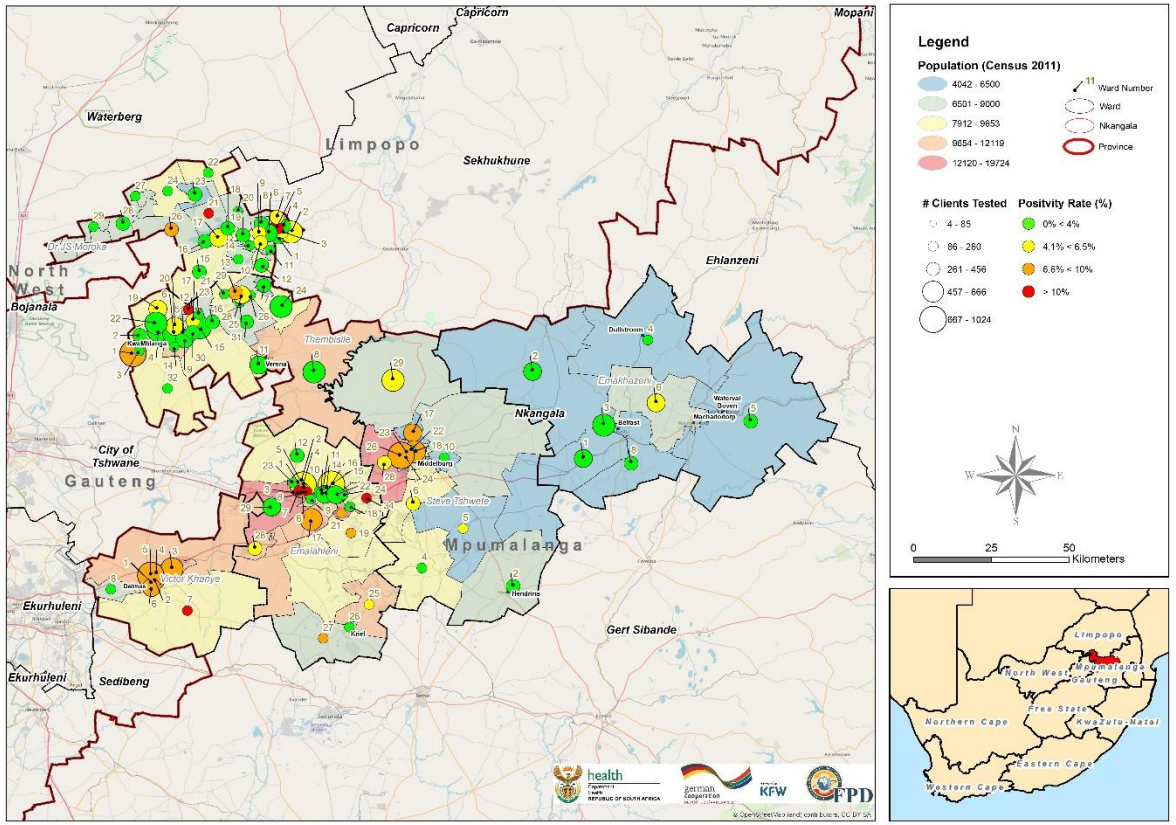
- Based on the literature, KAP study data and the key informant interviews we plotted the potential hotspots

Using hotspot maps to guide testing

Mpumalanga: Nkangala - Population: Hotspot (March - April 2019)

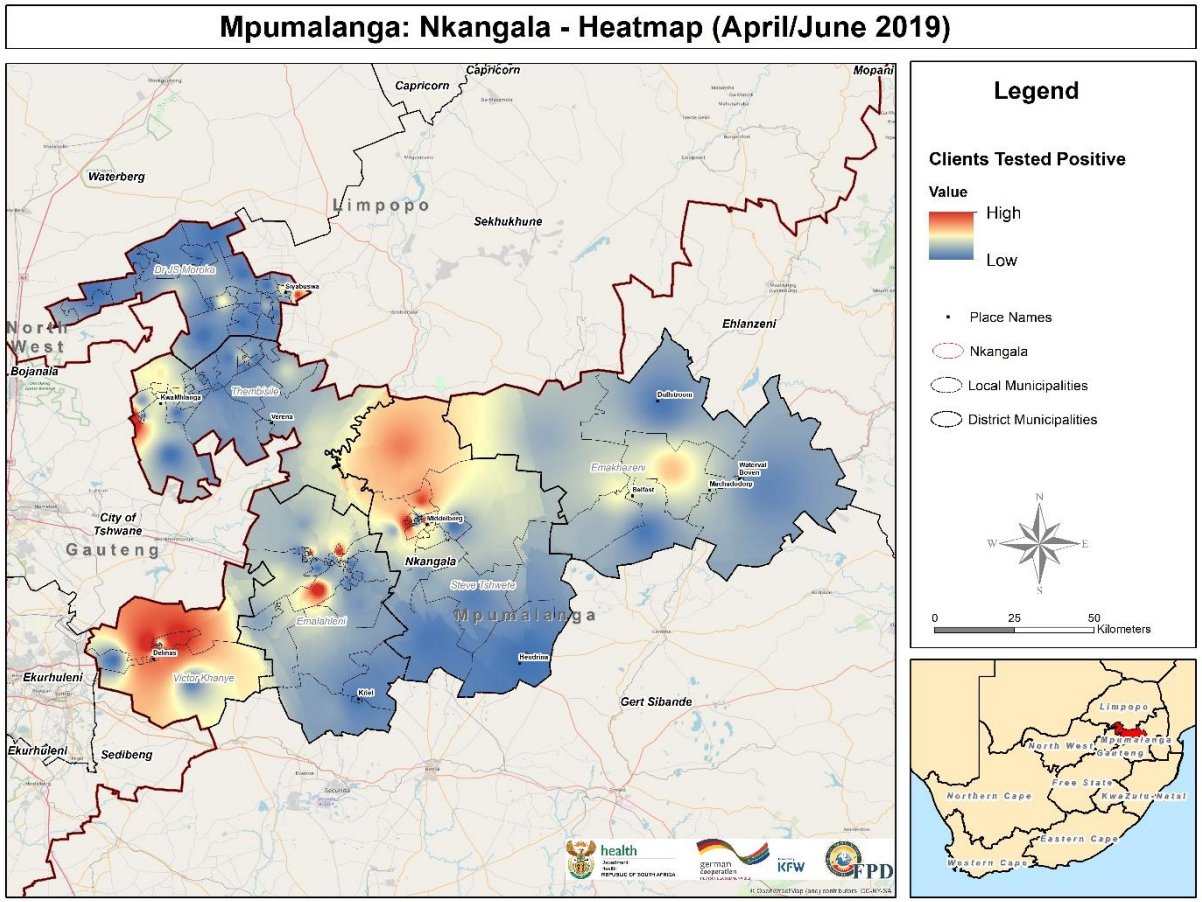


Mpumalanga: Nkangala - Population: Hotspot (April/June 2019)



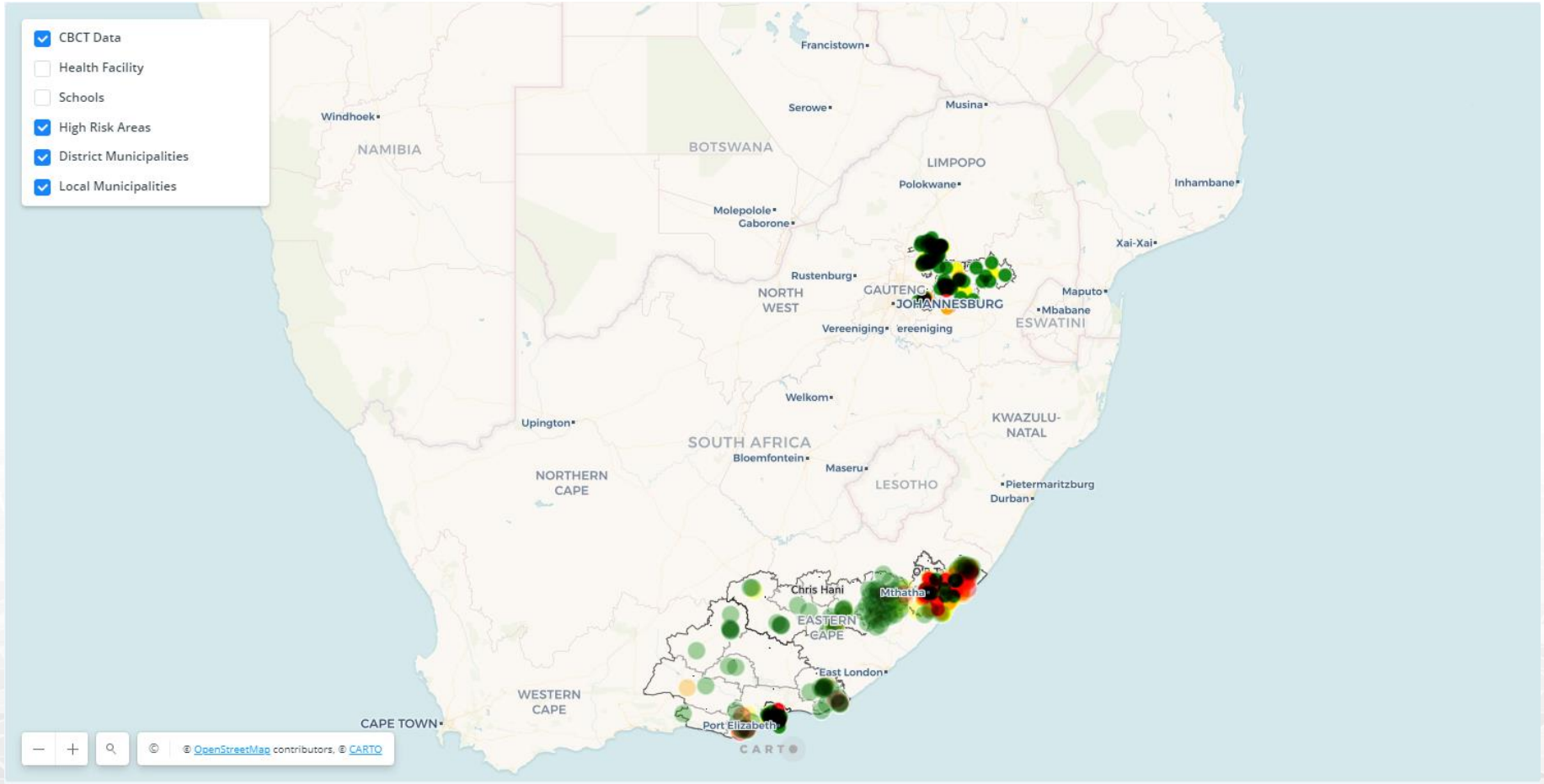
- Increasing number of tests help to determine if an area is a hotspots or not

Using hotspot maps to guide testing



- Increasing number of tests help to determine if an area is a hotspots or not
- Hotspots include townships, farming and mining areas, industrial zones, informal settlements
- Large numbers of testing help to define testing
- Mapping helps to direct further testing

Online Tracker



Discussion

Challenges

- Some hotspots found in the literature are not confirmed by our data
- Determining GPS coordinates of a tester whose choice of health facility is not determined by proximity to clinic but by avoidance of stigmatising situation
- Data accuracy is temporal eg mobile testing centres
- Seasonality of farming activities
- Truckers are mobile
- Temporality of stigmatised population groups – MSMs, sex workers

Conclusion

Conclusions

- HIV Hotspots help to guide HIV testing
- Daily monitoring of HIV tests and prevalence is possible
- Hotspots are dynamic, sometimes seasonal and temporal
- Complexity of the HIV hotspots

Acknowledgements

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- NDoH