Health facilities in Malawi

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Introduction

- Availability of health facility data is all the more important in the ongoing COVID-19 pandemic
- In sub-Saharan Africa, there are often multiple sources of health facility lists and a need to investigate differences has been noted [1]
- Using Malawi as a case study, this paper analyses the differences between three sources:

WHO-KWTRP → World Health Organization

healthsites.io

National Master Facility List (MFL) ← Run by Ministry of Health Malawi

- Questions addressed:
  1. Are the number of facilities and types same across sources?
  2. Is the distribution of hospitals across Malawi same between sources?
  3. Are there a significant number of private facilities in the MFL, which are excluded from the WHO-KWTRP data?

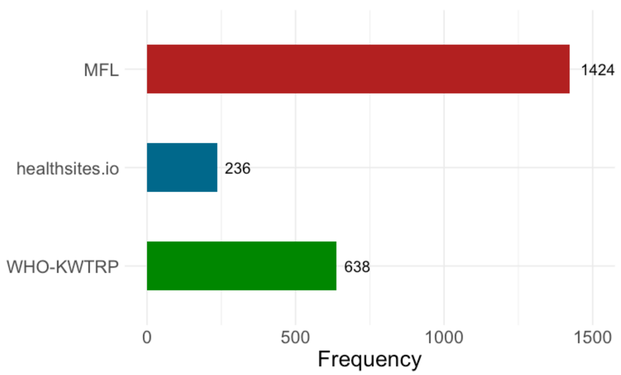
Methods

- Sources obtained from:
  MFL – http://zipatala.health.gov.mw/
  WHO-KWTRP – afrihealthsites R package [2]
  healthsites.io – rhealthsites R package [3] (dates 16/03/21)
- Rstudio version 1.4.1103 was used for the analysis and R code can be accessed on Github

Figure 1 – Total number of facilities recorded in each data source

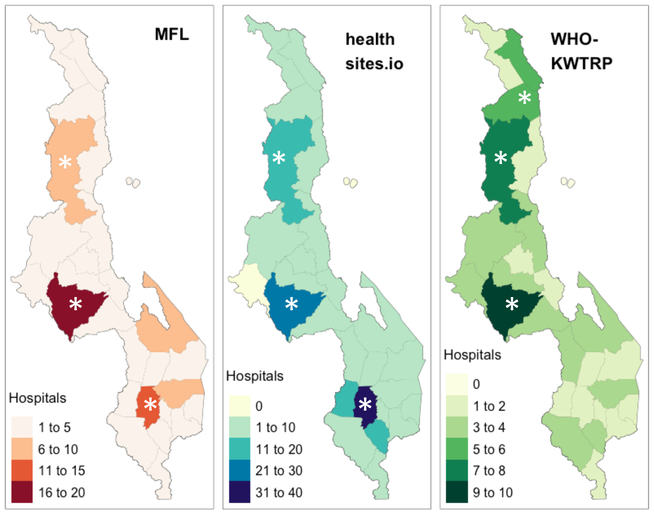
Number of types of facilities:
MFL (9),
healthsites.io (4),
WHO-KWTRP (8)

Largest discrepancy in number of clinics:
MFL (554),
healthsites.io (49),
WHO-KWTRP (20)



Healthsites.io does not have a category for health centres, which form 35% and 71% of MFL and WHO-KWTRP data respectively

Figure 2 – Number of hospitals per district in each data source



Total:
MFL (117)

healthsites.io (154)

WHO-KWTRP (82)

Top three districts (*) are similar across sources with Blantyre in the south replaced by Rumphi in the north in the WHO-KWTRP

Greatest variation is present in the specific numbers:
Blantyre district = healthsites.io (39), MFL (14), WHO-KWTRP (2)

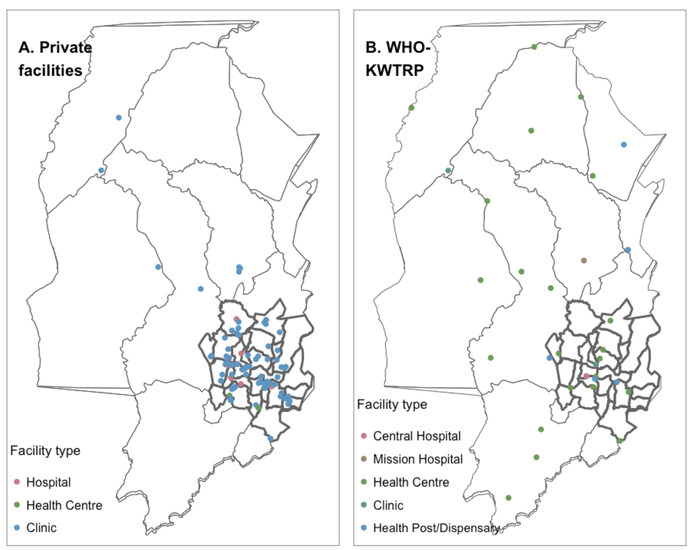
Figure 3 – A. Distribution of private facilities in Blantyre district from the MFL. B. All WHO- KWTRP facilities in Blantyre district

Total of 432 private facilities in MFL

Majority consist of clinics (356)

Districts with largest numbers include **Blantyre** (95) and Lilongwe (67)

Darker border in plot highlights urban area – majority of private excluded from WHO-KWTRP are within the city



Conclusions

- **Great discrepancy in the total number of facilities**
  - Research using facility data need to consider the private facilities excluded from WHO-KWTRP
  - 64% of clinics are privately owned in the MFL, which explains the lack of clinics in the WHO-KWTRP
  - Healthsites.io is dependent on volunteer information which may be the reason why facility numbers are low

- **Variation is largely present in the number of hospitals per district rather than distribution across Malawi**
  - An issue of misclassification of hospitals in the MFL and healthsites.io might be present
  - Studies have utilised healthsites.io to measure accessibility to healthcare[4,5] and inflation of hospital number could affect results if this issue is not exclusive to Malawi

- **Private facilities are not limited to urban areas in Blantyre**
  - Accessibility measurements can be affected by lack of inclusion of facilities in rural areas, a look into other districts would be beneficial

References

[1] Hulland, Erin. 2020. "COVID-19 and Health Care Inaccessibility in Sub-Saharan Africa." *The Lancet Healthy Longevity* 1 (1): e4–5. https://doi.org/10.1016/S2666-7568(20)30017-9.

[2] South, Andy. 2021. "Afrihealthsites: Geographic Locations of African Health Facilities from Different Sources." https://github.com/afrimapr/afrihealthsites.

[3] Dicko, Ahmadou. 2021. "Rhealthsites: R Package to Access Health Facilities from the Global Healthsites Mapping Project." https://gitlab.com/dickoa/rhealthsites.

[4] Weiss, D. J., A. Nelson, C. A. Vargas-Ruiz, K. Gligorić, S. Bavadekar, E. Gabrilovich, A. Bertozzi-Villa, et al. 2020. "Global Maps of Travel Time to Healthcare Facilities." *Nature Medicine* 26 (12): 1835–38. https://doi.org/10.1038/s41591-020-1059-1.

[5] Geldsetzer, Pascal, Marcel Reinmuth, Paul O. Ouma, Sven Lautenbach, Emelda A. Okiro, Till Bärnighausen, and Alexander Zipf. 2020. "Mapping Physical Access to Healthcare for Older Adults in Sub-Saharan Africa: A Cross-Sectional Analysis with Implications for the COVID-19 Response." *medRxiv*, August, 2020.07.17.20152389. https://doi.org/10.1101/2020.07.17.20152389.