

Global Population Studies in the 21st Century: Priorities & Challenges – Mortality

Samuel J. Clark

Department of Sociology, The Ohio State University, Columbus, USA
MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt), School of Public Health,
Faculty of Health Sciences, University of the Witwatersrand

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New Challenges Require New Data. The Experience of the Global South.

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My background

Nano bio:

- ▶ Professor at The Ohio State University, Columbus, Ohio, USA
- ▶ Demographer/Epidemiologist/[Statistician]
- ▶ Born in Kenya, grew up in East Africa, parents American → mixed identify
- ▶ Most of my career working on topics affecting Africa
- ▶ Current work mostly on
 - ▶ statistical/computational methods for characterizing burden of disease in areas where traditional vital statistics systems do not function
 - ▶ mathematical models of age-specific mortality
 - ▶ methods to improve coverage and accuracy of mortality estimates

Web: www.samclark.net

Questions

Questions guiding a quick discussion of mortality (and population health in general) with respect to the Global South

- ▶ Why?
- ▶ What?
- ▶ Where?
- ▶ Who?
- ▶ How?
- ▶ When?

Incomplete list in responses to *why*?

Health

- ▶ understanding
- ▶ monitoring
- ▶ overall **risks** and differentials
- ▶ **causes**
- ▶ changes by time, place, ...

Equity – differentials in:

- ▶ **risks of dying**
- ▶ **years of life lived**
- ▶ years of healthy life lived

Population structure & dynamics

- ▶ age structure
- ▶ forecasting

Development – **SDGs**

What?

Measures – minimally by sex, age, time, and place:

- ▶ risk of dying
- ▶ lifespans (e_x)
- ▶ **cause**
- ▶ burden of disease

Processes

- ▶ measurement systems
- ▶ **data**
- ▶ **methods**
- ▶ reporting systems

Where?

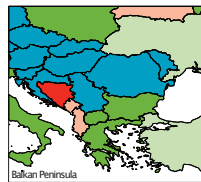
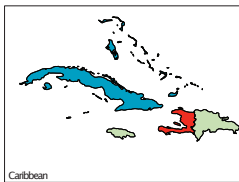
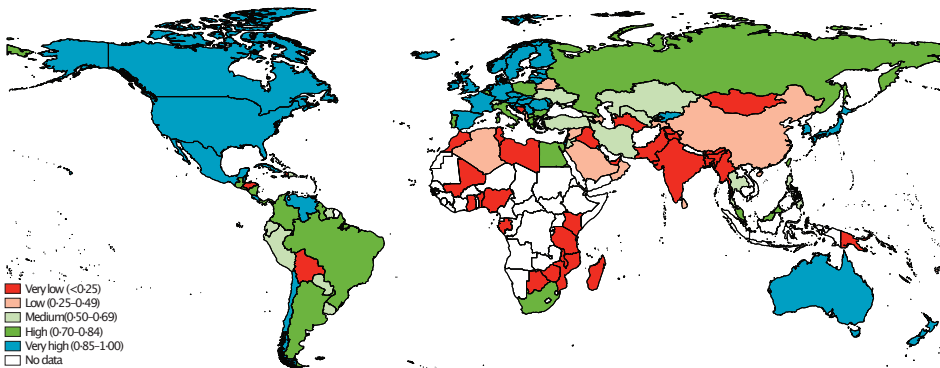
Everywhere!

- ▶ Global North has this under control
- ▶ Global South is complicated situation with much to be done, particularly **Africa**
- ▶ **roughly 60% of global deaths not registered at all** (Mikkelsen et al., 2015), and of the 40% that are registered, many do not get an accurate cause

Vital Statistics Performance Index (VSPI) – single number to capture (Mikkelsen et al., 2015):

- ▶ completeness of death reporting,
- ▶ quality of death reporting,
- ▶ level of cause-specific detail,
- ▶ internal consistency,
- ▶ quality of age and sex reporting, and
- ▶ data availability or timeliness.

Global VSPI (Mikkelsen et al., 2015)



New thinking and new doing are necessary – *Who?*

Fundamental shift

- ▶ **create another global pole:** for issues affecting the Global South, move center of gravity of population studies research and action from Global North to Global South
- ▶ Vienna, New York, Rostock, Seattle, ... → Nairobi, Dakar, Addis Ababa, Johannesburg ...
- ▶ **create new human capital in place** in Global South
 - ▶ training
 - ▶ apprenticeship
 - ▶ mentoring
- ▶ **create new infrastructure in place** in Global South
 - ▶ data repositories
 - ▶ computing
 - ▶ data collection systems
 - ▶ **data amalgamation**

How?

Human capital development, to enable:

- ▶ substantial **in place** innovation
- ▶ take advantage of developments in data, computing, and methods
- ▶ develop novel methods/approaches to use new sources of data and amalgamate data from multiple sources

Data

- ▶ the Global North's solution to the lack of data in Africa and other parts of the Global South is to use models to infer, interpolate, extrapolate, and generally guess – *pragmatic, but not a good strategy in general*
- ▶ **create focus on creating new, better sources of data** that increase coverage, timeliness, accuracy, and accessibility – this is possible and we must not abandon this fundamental exercise!

Innovation - get the most from existing and new data

- ▶ new approaches to collecting data
- ▶ new sources of data
- ▶ data amalgamation
- ▶ making better, more timely use of data
- ▶ **lots of new methods development**

Case studies

- ▶ The Institute for Health Metrics and Evaluation – IHME ([IHME, 2021](#))
- ▶ The African Population and Health Research Center – APHRC ([APHRC, 2021](#))
- ▶ The Consortium for Advanced Research and Training in Africa – CARTA ([CARTA, 2021](#))

Institute for Health Metrics and Evaluation – IHME

IHME

- ▶ Global North, privately-funded institution
- ▶ health intelligence data warehouse: burden of disease, estimates, forecasts, and much more
- ▶ little human capital development or transfer in/to Global South
- ▶ **not** transparent
- ▶ highly influential for Global South because one of very few comprehensive sources of health/population data and well connected to Global North funders and publishers and WHO
- ▶ apart from being key data providers and product consumers, hard for me to see how Global South plays an important role in the workings of IHME
- ▶ **my opinion: the world needs a move on from this model**

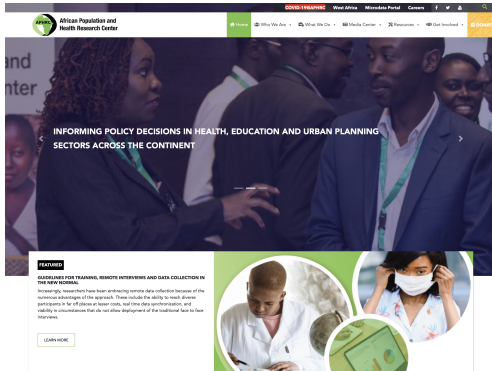
Possible remedies

- ▶ replicate elements of IHME in Global South and as part of multilateral organizations
- ▶ **requires building human capital and infrastructure to support something like IHME**

African Population and Health Research Center – APHRC

APHRC

- ▶ **Africa-led**
- ▶ **Nairobi, Kenya**
- ▶ **Dakar, Senegal**
- ▶ population & health research
- ▶ research capacity strengthening – *training*
- ▶ policy engagement and communications
- ▶ high impact, growing quickly
- ▶ URL: aphrc.org

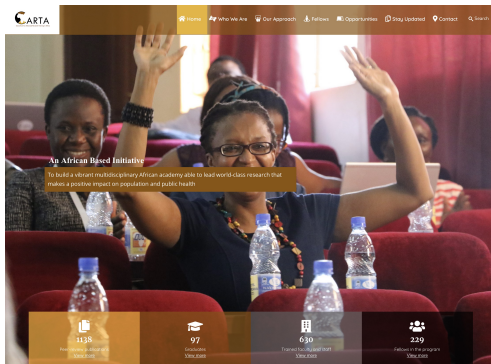


Consortium for Advanced Research Training in Africa – CARTA

Mission: Build high-level capacity for population and public health-related research in Africa

CARTA

- ▶ **wholly within Africa and Africa-led**
- ▶ consortium of African universities
- ▶ PhD training across consortium
- ▶ support young researchers: PhD, postdoc, faculty
- ▶ build critical mass of locally-trained and highly effective researchers
- ▶ URL: cartafrica.org



One of our speakers today – **Alex Ezeh** – played key, foundational roles in building and growing both APHRC and CARTA

Future

Thoughts on a way forward

- ▶ using APHRC & CARTA as examples, build and support **in place human capital development** and research capacity in the Global South
 - ▶ requires Global North to continue funding and supporting, but not controlling
 - ▶ *maybe*, instead of students from Global South training in Global North, researchers and instructors from Global North go to Global South for periods of time to teach and provide research mentorship
- ▶ prioritize investments in **data** over developing new models to substitute for data
- ▶ encourage **rapid innovation in methods** to utilize all data, defective or not
 - ▶ census
 - ▶ vital statistics
 - ▶ surveys
 - ▶ research surveillance system, e.g. health and demographic surveillance
 - ▶ big data and digital exhaust
 - ▶ remote sensing
 - ▶ verbal autopsy (cause of death)

Examples of new approaches to data (also shameless self-promotion!)

Hyak – combining sample surveys with health and demographic surveillance (Clark et al., 2018)

- ▶ leverage detail in surveillance system to conduct purposeful sampling in large area in order to capture more rare events
- ▶ account for sampling in calculating indicators
- ▶ improves performance of system, covers larger population, and saves resources

Spatio-temporal small-area estimates of under-five mortality from existing surveys, censuses (Wakefield et al., 2019)

- ▶ leverages large collection of existing data and robust data collection system
- ▶ fills in gaps in space and time
- ▶ or said another way, greatly improves disaggregation by space and time

Verbal autopsy (e.g. Nichols et al., 2018)

- ▶ interview-based approach to ascertaining cause of death
- ▶ comparatively cheap uncomplicated, i.e. feasible
- ▶ can be rapidly integrated into large scale mortality surveillance, e.g. CVRS
- ▶ provides reasonable estimates of important burden of disease indicators



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