COVID-19 infection vulnerability in Africa

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Poverty and Inequality Dimensions of COVID-19 in Africa: An Introduction

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Poverty and Pandemics

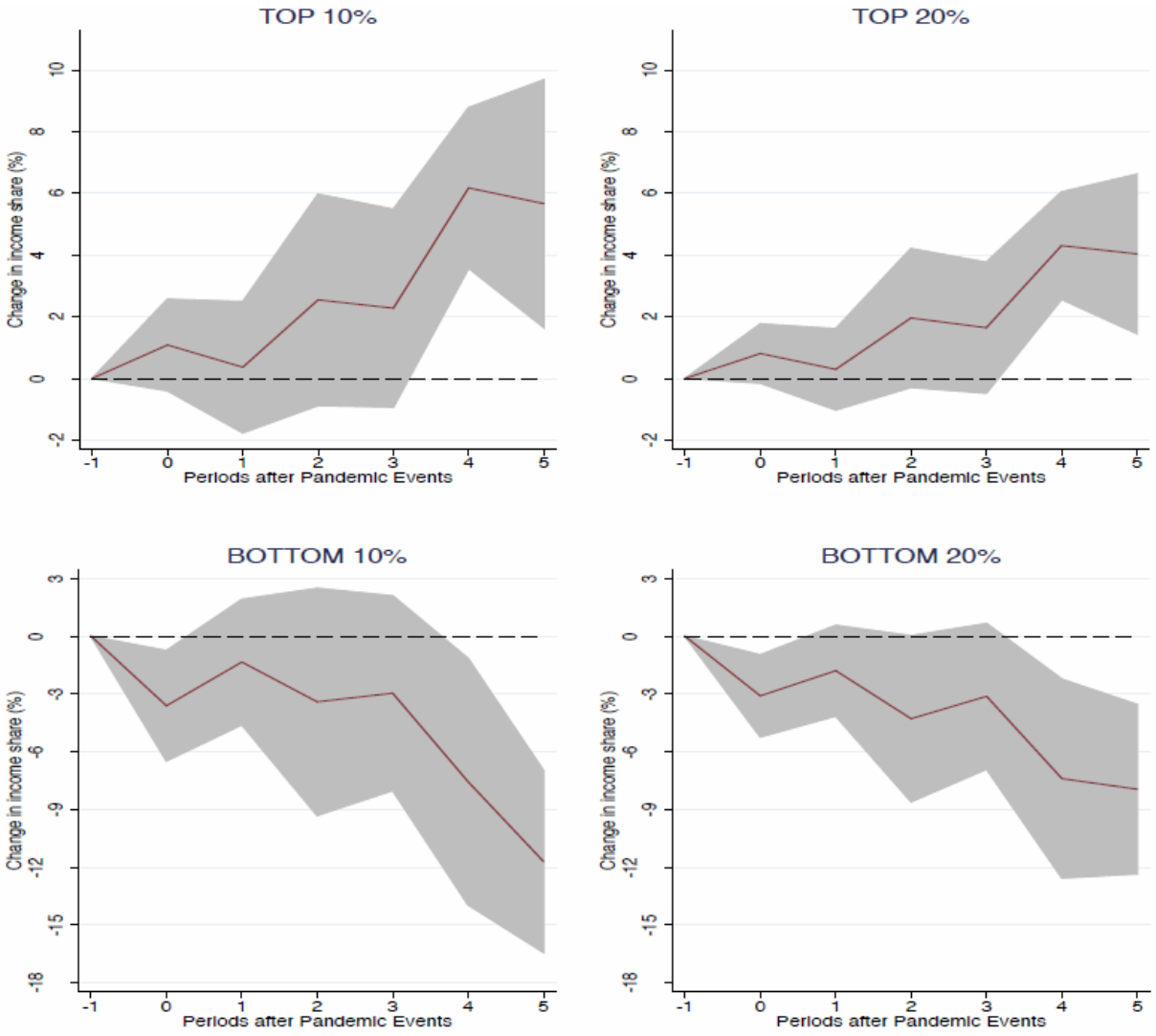
Bioarchaeological research has shown that, even in pre-industrial societies, the people at greatest risk during pandemics were:
"*often those already marginalized—the poor and minorities who faced discrimination in ways that damaged their health or limited their access to medical care*." (Wade, 2020, p700).

Depending on the extent of the economic damage wrought by the pandemic, it is estimated that extreme income poverty ($1.90 per day PPP poverty) will increase "*by between 85–135 million under a 5 per cent contraction, by between 180–280 million under a 10 per cent contraction, and, startlingly, between 420–580 million people under a per capita income or consumption contraction of 20 per cent*." (Sumner, Hoy & Otiz-Juarez, 2020, p5-6).

Across Africa, millions of people have lost their jobs or seen significant reductions in their incomes as a direct result of the pandemic. For example, a survey of 2,400 small businesses in eight African countries (DRC, Ghana, Kenya, Malawi, Rwanda, Tanzania, Uganda and Zambia) which receive microfinance loans from World Vision showed that **92%** had suffered falls in their income which affected their ability to repay their loans (Kabore, Wong & Munzara, 2020).

Average impact of the last five epidemics on Inequality: Income shares of the richest and poorest in 64 Countries

(SARS in 2003, H1N1 in 2009, MERS in 2012, Ebola in 2014 and Zika in 2016)



'Periods' are years before & after the epidemic

Source: Furceri et al, (2020) Will Covid-19 affect inequality? Evidence from past pandemics. *Covid Economics*, 12, 138-157

World Health Organisation Recommended Non-Pharmacological Interventions (NPIs) by Pandemic/Epidemic Severity

SEVERITY	PANDEMIC[a]	EPIDEMIC
Any	Hand hygiene Respiratory etiquette Face masks for symptomatic individuals Surface and object cleaning Increased ventilation Isolation of sick individuals Travel advice	Hand hygiene Respiratory etiquette Face masks for symptomatic individuals Surface and object cleaning Increased ventilation Isolation of sick individuals Travel advice
Moderate	*As above, plus* Avoiding crowding	*As above, plus* Avoiding crowding
High	*As above, plus* Face masks for public School measures and closures	*As above, plus* Face masks for public School measures and closures
Extraordinary	*As above, plus* Workplace measures and closures Internal travel restrictions	*As above, plus* Workplace measures and closures
Not recommended in any circumstances	UV light Modifying humidity Contact tracing Quarantine of exposed individuals Entry and exit screening Border closure	UV light Modifying humidity Contact tracing Quarantine of exposed individuals Entry and exit screening Internal travel restrictions Border closure

COVID-19 Infection Policies in Africa

The first case of a COVID-19 infection was detected in Africa on 14th February 2020 and the African Union quickly adopted a continental wide strategy which was published in early March (AU, 2020).

Most African governments responded rapidly to the growing pandemic threat enforcing quarantines, lockdowns and border closures (UN, 2020c).

"*because 56 per cent of the urban population is concentrated in overcrowded and poorly serviced slum dwellings (excluding North Africa) and only 34 per cent of the households have access to basic hand washing facilities. In all, 71 per cent of Africa's workforce is informally employed, and most of those cannot work from home.*" (UNECA, 2020, pV).

European style lockdown policies can be counter-productive in Africa as a disease control measure if they result in the loss of livelihoods and the consequent reverse migration of impoverished urban dwellers back to rural villages, potentially spreading the disease more rapidly into the countryside (Loayza 2020; Ravallion, 2020; World Bank, 2020b) and causing conflicts in rural areas (Agrawal, 2020).

Uganda is one of the Poorest Countries in the World: Child Deprivations 2017

COVID19 Global Pandemic: Which Countries Succeeded?

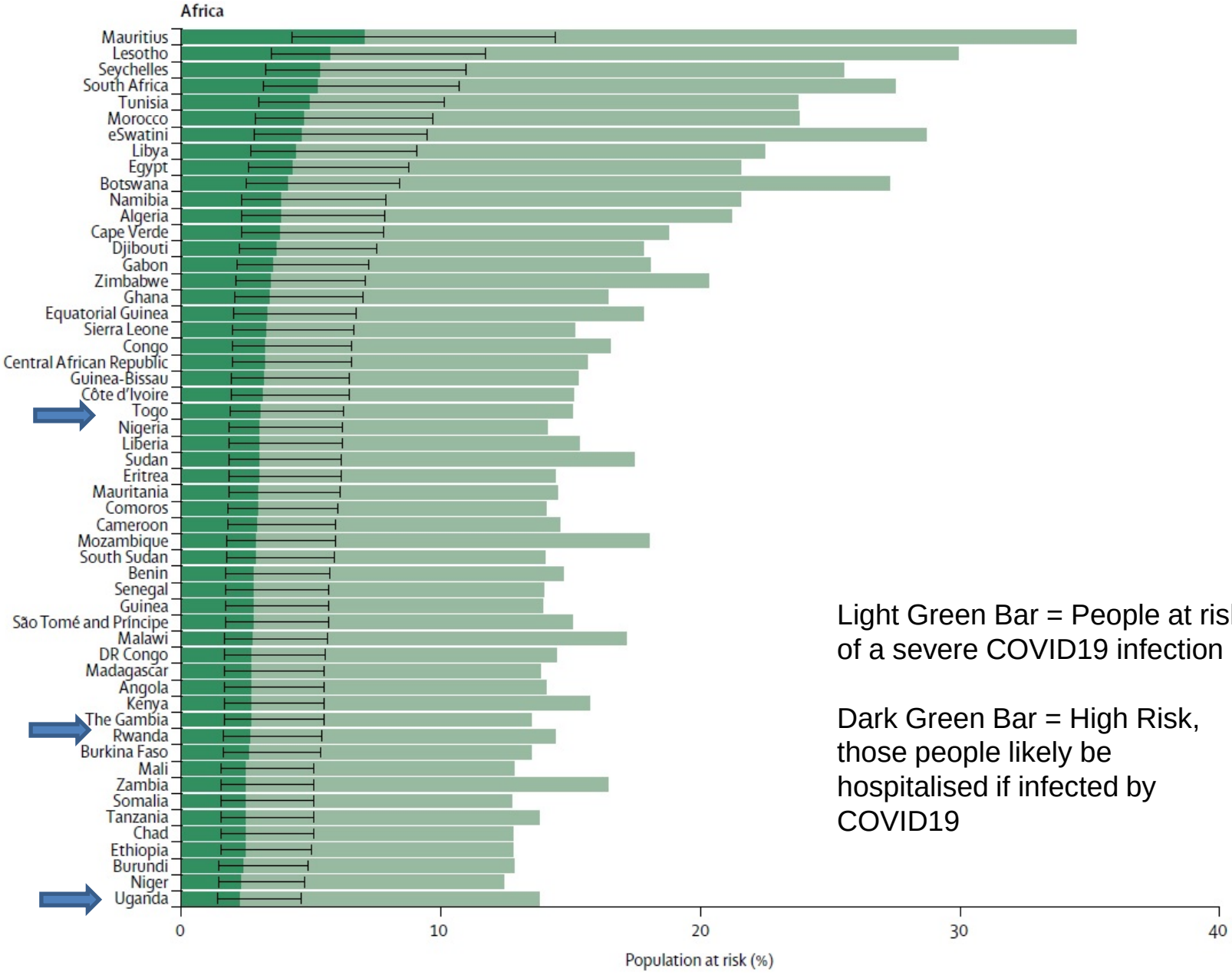
The Lancet COVID-19 Commission issued a statement to the 75th Session of the United Nations General Assembly of the 14th September 2020, arguing that only "*19 places achieved suppression in August: Taiwan, Province of China; Thailand; Viet Nam; Lao People's Democratic Republic; Cambodia; China; Myanmar; Malaysia; New Zealand; **Uganda; Togo**; Pakistan; Latvia; Luxembourg; Uruguay; Republic of Korea; Finland; Cuba; and **Rwanda***" –

Uganda achieved the best result in Africa (Lancet COVID-19 Commission, 2020: https://covid19commission.org/)

Uganda has a lot of experience in dealing with life threatening infectious viral diseases - the public health system effectively dealt with outbreaks of Ebola Virus Diseases (EVD) in 2000, 2007, 2011, 2012 and 2019. The MoH has a strong coordination and surveillance system to effectively alert and respond to any suspect case of deadly infectious viral disease.

Uganda implemented 35 public health measures against COVID19 starting on 18th March 2020 – four days before the first COVID19 case was detected. By the end of August, Uganda had 2,750 case and 28 deaths.

Population at Risk of Severe COVID19 Infections due to Underlying Health Conditions



Light Green Bar = People at risk of a severe COVID19 infection

Dark Green Bar = High Risk, those people likely be hospitalised if infected by COVID19

Source: Clark et al (2020) *Lancet Global Health* https://doi.org/10.1016/S2214-109X(20)30264-3

Where do people get infected with COVID19

R_0 = Basic Reproduction Number i.e. the average number of people in the susceptible population who will catch the disease from an infected person

For policy purposes, it is important to decompose R_0 into a series of Secondary Attack Rates (2^0AR), i.e. the proportion of people exposed to an infected person that develop the disease within a specific group (e.g. the household, a group of friends, etc.) Thus:

R_0 = 2^0AR [Household] x Number of contacts [Household]

+

2^0AR [Neighbours/Friends] x Number of contacts [Neighbours/Friends]

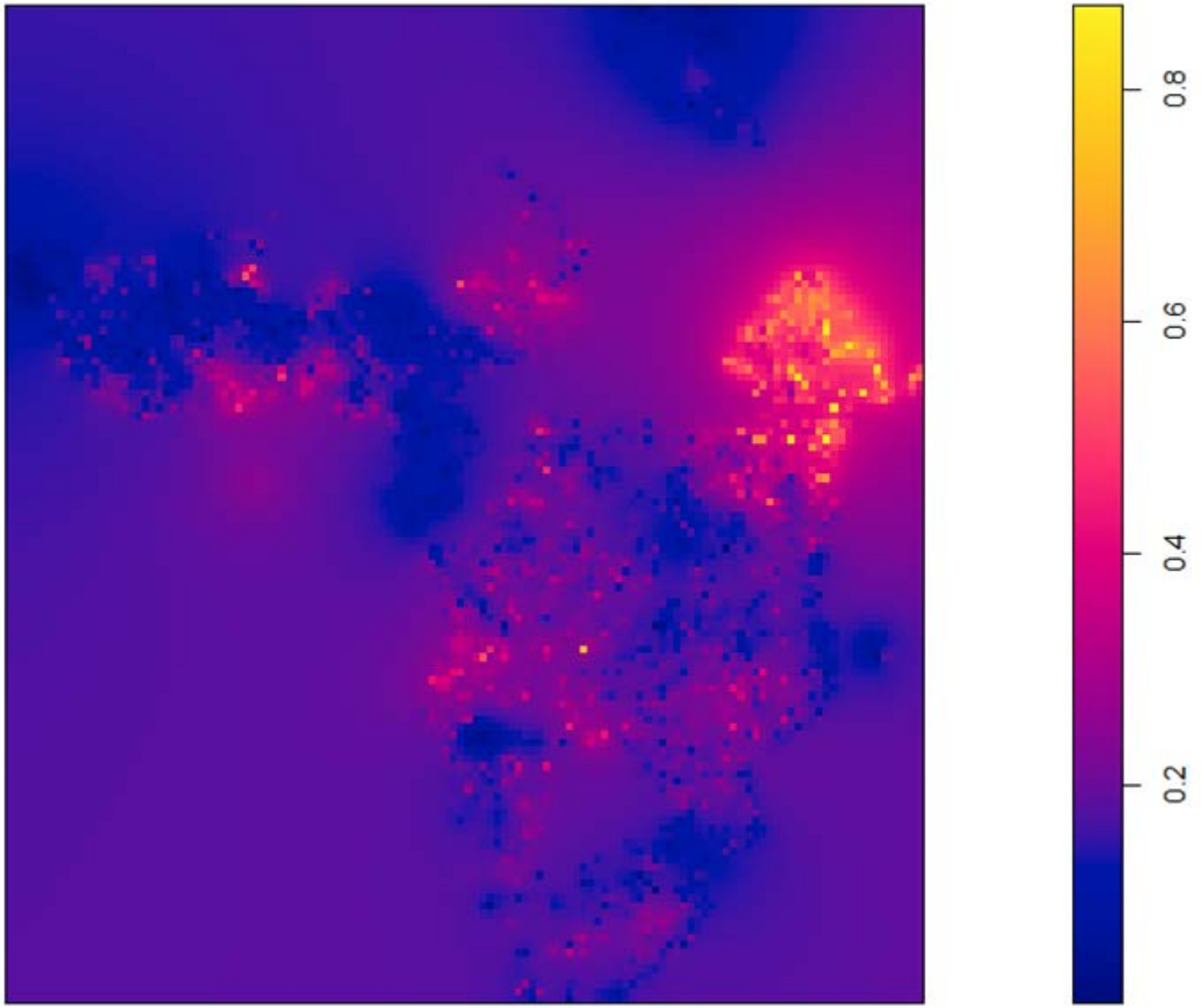
+

2^0AR [Community/Strangers] x Number of contacts [Community/Strangers]

Vulnerability indicators for COVID-19 infection in LMIC African countries

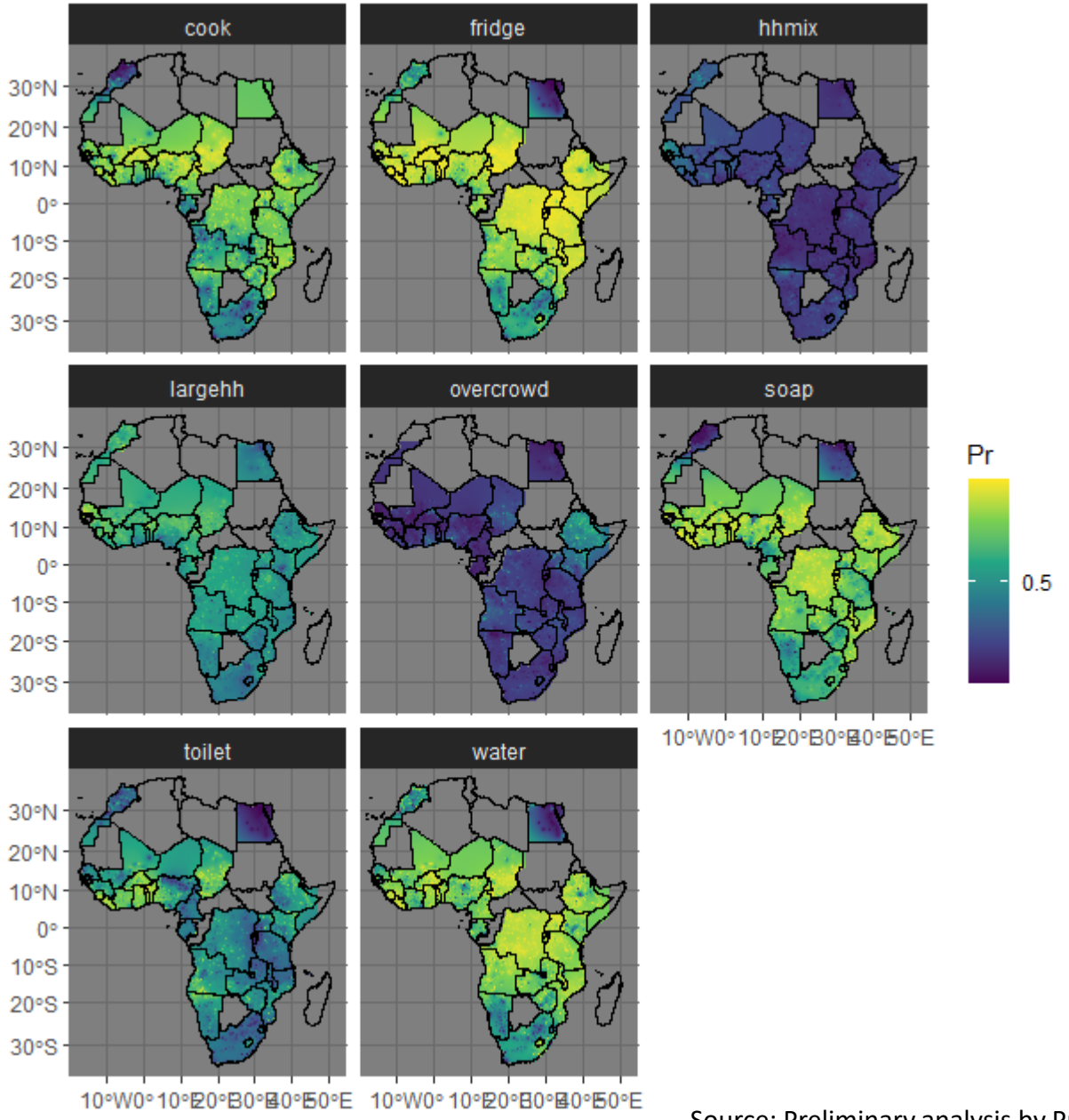
Vulnerability Indicator	Secondary Attack Rate Level	Scientific Reason
Large Household - 6 or more people	Household	An ill person is more likely to infect their household members than friends, neighbours or the wider community. The larger the household the more household members are likely to be infected.
Overcrowding more than 3 people per room and only one sleeping room	Household	COVID-19 is primarily spread by contact with coughed and respired droplets and fomites. In overcrowded households it is difficult or impossible for household members to socially distance from an infected household member.
People over 60 living in households with three or more younger people	Household	People aged 60 and over are more likely to die or suffer from a severe COVID-19 infection. Older people are more likely to be infected within households with younger members, i.e. older people have a higher secondary attack rate within the household.
Obesity	Household	Household members with a Body Mass Index (BMI) of 30 and over are more likely to die or suffer from a severe COVID-19 infection.
No soap or detergent available	Household	Inability to wash hands regularly with soap or detergent increases the risk of contracting a COVID-19 infection.
No refrigerator	Household	Households which do not have a refrigerator will need to leave their homes more frequently to get food and thus be at greater risk of infection.
Sharing a toilet with other households or not having a toilet facility	Wider community	Sharing a toilet increases the risk of catching COVID-19 from infected people in neighbour's households either by faecal/oral transmission or from close contact in or near the shared toilet (e.g. while waiting/queuing)
Need to collect firewood or not able to cook food at home	Wider community	Needing to collect or buy firewood increases the risk of catching COVID-19 from infected people in other households who are also collecting or buying firewood. Inability to cook food at home increases the risk of catching COVID-19 when obtaining cooked food outside the home.
Water source not in house or yard/plot of dwelling	Wider community	Needing to collect water from a public supply increases the risk of catching COVID-19 from infected people in other households due to close contact while queuing to collect water or touching contaminated water supply equipment, e.g. stand-pipe taps, pump handles, well buckets, etc.

COVID19 Vulnerability in Africa – Bright Areas on map have high vulnerability



Source: Preliminary analysis by Professor Rich Harris

COVID-19 Vulnerability Indicators at Small Area Level for some African Countries



Source: Preliminary analysis by Professor Rich Harris

Conclusions

- The COVID-19 pandemic is the most significant global disaster since the Second World War (WWII). Its effects will be profound and long lasting. The eminent historian, Professor Peter Hennessey, has argued that future historians will divide the post WWII period into "*BC and AC - before corona and after corona*".

- Complying with social distancing policies is difficult where people need to leave their homes to satisfy their basic needs - get food, collect water, to use sanitation facilities and to collect or buy cooking fuel. For example, in Chad, more than 90% of the population live in households which have no refrigerator and need to collect or buy firewood to cook, over 80% need to collect water from public sources and share toilets with their neighbours and 70% live in households with six or more people.

Conclusions

- To enable vulnerable households to comply with quarantine requirements, governments will need to either provide poor households with food or the money they need to buy food (e.g. via social protection/social security measures). Poorer households may also need soap, water and cleaning materials.

- Local authorities can help to facilitate queuing with social distancing measures (i.e. standing one or more metres apart) at public water points and public toilet/latrine facilities. They also need to try to prevent mass gatherings and encourage the public to wear masks or face coverings.

- Governments need to continue to invest in health services. It is estimated that the current level of disruption caused by the COVID-19 pandemic may result in a 10% increase in deaths from HIV, a 20% increase in deaths from TB and a 36% increase in deaths from Malaria over the next five years – compared with the number of expected deaths from these causes if no pandemic had occurred (Hogan et al, 2020) and over 117 million children in 37 countries may not receive a measles vaccination (Measles & Rubella Initiative, 2020).