Covid-19 in DRC & in sub-Saharan Africa. Observations & reflections

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INTRODUCTION:

I am staff member of ITM-Antwerp, now based in Kinshasa during the corona crisis (rather by coincidence), and supporting DRC's *Riposte Corona*, as a member of the *Conseil Scientific du Secretariat Technique de la Riposte*, led by prof Jean-Jacques Muyembe.

Since early April, I have compiled successive versions of this document in telegraphic style. It is informed by participant observation in the Riposte, intensive follow-up of the literature, and oriented by reactions received on previous versions.
This update (v6) remains incomplete and biased. I continue to focus mainly on topics which seem most relevant at this moment in DRC, and for sub-Saharan Africa in general.
In parallel an in-depth review "the Covid-19 pandemic unfolds in multiple ways around the globe. How & why?" is being compiled, and available upon request.
I hope it triggers further discussion and sharing, as new evidence and field experience emerge on a daily basis. Many controversies remain unsolved; and there are still many unknowns.

Till now, the Covid-19 epidemic has been most intensive in densely populated parts of Europe and the US, now moving to Latin America. We can only hope it doesn't come to that in an African mega-city, such as Kinshasa. The dominant opinion remains that it is mainly a question of time … Scientific understanding and sense making is brewing intensively, but no consistent explanation for the diversity of Covid-19 epidemic patterns across the globe is yet emerging.
Anyhow, Covid-19 is now an extremely dominant reality worldwide. Countries struggle to cope with a huge burden, or to prevent a fast increase. Response measures are local variations on a "global script" (social distancing, hand hygiene, lockdown, testing, quarantine, … more recently mass masking); but these play out quite differently in different contexts. The huge collateral effects of the pandemic and the containment measures are increasingly recognised, both in the health sector, with disruption of non-covid essential health services, and the soco-economic effects in wider society.

I welcome your further reactions to wvdamme@itg.be.

Kinshasa, 1 June 2020.

COVID-19 UPDATES:
updates on the COVID-19 "number game" have multiplied:

DRC: Bulletin journalier: register by sending a mail to:
Chargée de communication au ST / CMR-19 Covid at buatamiphy@gmail.com;

Africa: WHO African Region: weekly Update COVID-19 African Region

Global updates:
- WHO COVID-19 dashboard
- Johns Hopkins corona
- COVID-19 data - Financial Times
- Corona at Our World in Data

CONTAINMENT:

It seems increasingly clear that SARS-CoV-2 is unstoppable, and that it will progressively reach across the globe. If so, then it seems important to clarify in each context what is the objective of the corona response: Stopping the virus? Slowing down speed of transmission? Keeping case-management manageable? Protecting the most vulnerable? Avoiding "super-spreading events"? …
- African governments have reacted quickly, with very early restrictions on international travel and internal mobility, school closures, and severe restrictions on mass events. These measures have most likely limited the initial spread in sub-Saharan African countries.
- Also a variety of additional measures have been selected from the "universal recipes", developed in China, Europe, & US. Their feasibility is, however, very problematic in LMIC;
- the unintended consequences are thought to largely outweigh the direct health effects of Covid-19 – How long can this last? What is the "exit strategy"?

The main messages conveyed, including in cities with large slums, such as Kinshasa, are: Stay at home; Physical distancing; Frequent handwashing. Such advice is quasi-impossible to adhere to for slum dwellers, given their living circumstances: informal employment (day-to-day activities to earn a daily income); no savings; no fridge; overcrowding with many people sharing rooms; poor access to water.

Such impractical advice may contribute to distrust of authorities ("the elite, who tries to rule us, lives in luxury and doesn't understand our conditions"); and may also contribute

to the urban exodus of temporary urban migrants back to their rural areas of origin.

The reactions I received from other LMIC confirm this overall picture, and many confirm that the social and economic consequences of confinement / lock down are high for the poor in LMIC (*"the unintended consequences of the containment measures may be worse than the disease, especially for those earning their daily living in the informal sector").*

The reaction of the population to the measures (acceptability, protest, etc) is strongly influenced by the (lack of) respect for the authorities.

Many people stress that it is crucial to assess acceptability and feasibility of such measures through trusted community leaders, involve them in informing the local communities, adapt the measures to local circumstances, counter fake news and make sure that trusted sources of reliable information exist, are widely available, and updated continuously.

More recently "mass masking" has strongly come up as a strategy, including with home-made masks (designs and instructions are being widely shared). Whether this is effective, and if so, in which contexts, remains quite controversial. There are strong believers (mainly in Asia & Eastern Europe), but also many sceptics (Western Europe & US), and there is a lack of convincing evidence. But it seems likely that the practise will become more widespread in the near future.
Masking in public now compulsory in DRC, and in several other African countries. Rapid production of "home-made masks"; but utilisation remains rather erratic.

Progress of the Covid-19 epidemic (TRANSMISSION):

Early April, I wrote: "It is surprising that in DRC the number of confirmed cases stays low: 10s of cases per day; not 100s or 1000s; this is most intriguing; and this despite poor hygiene and overcrowding, especially in urban slums (lack of water!!)". This was the case across sub-Saharan Africa.
This statement was considered "VERY CONTROVERSIAL", and triggered many reactions. The dominant opinion was, and still is, that this is most likely because of a combination of later introduction, early lockdowns, non-detection of cases without travel history abroad, reluctance to self-identify as potential case (hiding, because of stigma?) and low level of testing. Many experts expect that a full-blown massive epidemic will emerge in a few days, a few weeks.

Many people in DRC refer to a "severe flu epidemic" in December 2019 – January 2020 in Kinshasa and various provinces. This is now increasingly interpreted as "this must have been corona already". == Might be interesting to explore further ==.

Although uncertainties remain, it is increasingly clear that

- intensive transmission takes place mostly indoors, in poorly ventilated places. There is high potential for spread in crowded places, when people are in close contact, are shouting or singing; and also when temperatures are low. This can lead to typical super-spreading events, such as during parties, weddings, choirs, religious gatherings, in prisons, and the like;
- transmission in health care settings is very frequent, even with protective measures. Personal protective equipment (PPE) for health care workers remains a top-priority; but is still often insufficient;
- the virus is basically "unstoppable" and will likely continue to everywhere, although at different pace and with different intensity;
- aiming for herd immunity is an unrealistic goal;
- the role of children in transmission remains puzzling; but many people think that schools should re-open, with appropriate hygiene and physical distancing measures (if possible).

But, transmission dynamics in the African continent remain puzzling, unclear and intriguing … Mathematical models continue to predict huge increases, but timelines of this occurrence have been repeatedly postponed. The current outbreak in Brazil shows that the Southern hemisphere indeed is vulnerable …
What explains such differences?

- Climate and seasonality? It is clearer that SARS-CoV-2 survives more easily outside the body in cooler and drier conditions than in hot and humid conditions.
- It may well be that, as with influenza, the covid-19 epidemic is less seasonal in tropical climates, and more continuous (speculative+++).
- But: awareness that air-conditioning creates cooler and dryer environment!!
- Cross-immunity with other infections and aspecific immunity??? Most scientists warn that it is quite unlikely that this plays a major role.
- Population structure / role of children? Now more thoughts go towards population structure with many more young populations across sub-Saharan Africa than in other continents. Epidemiologists wonder about the exact role children play in spreading the epidemic. Children, play a "special, yet poorly understood role". Children consistently have much less severe disease after infection, but may transmit disease, potentially with a lower initial viral inoculum (this should be explored further).

Different transmission dynamics thus remain quite unclear but very "intriguing"…
Various mathematical models are now circulating, to alert public authorities to the risk of an explosive epidemic to come, and the need to prepare for a massive increase in cases, and the disruption this will cause.
My personal take: even if "hoping for the best", it is certainly indicated "to prepare for the worst".

In DRC:
Steady increase in number of confirmed Covid-19 infections; now >100 per day. Positivity rate among samples taken >30%, which most probably indicates that the number of undiagnosed infections is many times higher. Large majority of confirmed cases still in Kinshasa, but not any longer in the city centre, La Gombe. Also many cases in slum areas, such as

Limite, Kokolo (mainly in prison), Binza Ozone, Lemba and Binza Météo.
"Confinement de la Gombe" since 2 months. Continued discussions on exit strategy ("déconfinement").
Seeding to other provinces is happening, and will continue.

Provinces:
Increased numbers in the provinces, mostly in Kongo Central (Matadi), Nord-Kivu (Goma), Sud-Kivu (Bukavu), and Haut-Katanga (Lubumbashi). Ongoing preparedness and early response in the provinces. For the moment all testing is centralised in Kinshasa. Big challenge to transport samples to Kinshasa. Start of decentralised testing being prepared, and urgently needed.
Various provinces have implemented their own versions of lockdown & containment measures.

TESTING:

PCR tests:
- growing awareness that tests may have low sensitivity, especially among patients with advanced disease (virus not present anymore);
- Big hope for GeneXpert test: much more easy and rapid; equipment widely available across the country (for MDR-TB testing & Ebola testing), but only very limited quantities available.

Antigen detection with Rapid Diagnostic Tests (RDT), low sensitivity.

Antibody tests, such as Zentech / EuroImmune:
- Estimated that already some 200 tests "exist", validation of various tests ongoing (big international effort by WHO and FIND a.o. to validate tests asap);
- Not useful for early diagnosis, and results difficult to interpret for individual patients; quite useful for population studies, to assess how widespread transmission is / has been in diverse communities;
- Maybe useful to test whether frontline workers / relatives have been infected and have a certain degree of protection (but discussions still ongoing);
- Sero-surveys are being prepared: hospital staff, general population.

PRISE EN CHARGE = TREATMENT:

Most crucial: early oxygen therapy!!! And consequently need for production, storage, and distribution of oxygen; pulse oximeters; masks and tubes to administer oxygen!!
(Hydroxy)chloroquine (CLQ):
- CLQ in protocol for covid-19 treatment in DRC, for all cases; authorities and population are very eager to use CLQ.
- Research being considered on use of CLQ as prophylaxis for frontline health workers;
- Whether CLQ is effective remains very controversial (most evidence from studies without control group); many clinical studies ongoing worldwide.
- Concern about side effects ("need for ECG to identify QT prolongation"; certainly when combined with azithromycine, as is the case in DRC; feasible in LMICs??)

Other treatments??: antiviral drugs?? (hope for remdesivir ; looks increasingly "promising"), convalescent plasma?? A lot of scientific controversy– no strong evidence yet; but some "early indications" waiting confirmation through sound clinical trials.

Severity of Covid-19 strongly related to age and co-morbidities, such as diabetes and hypertension.
- Patients with other respiratory disease, including TB patients, probably at higher risk for severe disease; but needs confirmation;
- HIV patients: not entirely clear yet; but patients on ART may be a bit protected; needs confirmation; HIV patients not yet on ART may be at higher risk (??)

VACCINE??

- Some 100 candidate vaccines under development; 3 or 4 entering clinical trials;

- Whether a vaccine will be able to trigger 'robust immunity', while natural infection doesn't, creates a lot of uncertainty and debate.

- Even an imperfect vaccine would be a big breakthrough. Would be needed at "massive scale". Who would be prioritised? Will it be acceptable, given growing vaccine hesitancy, and debates about "Africans as guinea pigs".

HEALTH SYSTEM TRANSFORMATION

Growing awareness that covid-19 will not disappear any time soon (maybe it will stay with us for ever), there is a need to think ahead how a health system can be transformed, so that it can
(1) cope with covid-19 cases (maybe massive numbers, periodically, during "waves");
(2) continue to cater for all other health problems;
(3) while avoiding health facilities becoming "super-spreading sites"; and
(4) regaining trust of the population and health workers.

This calls for preparedness of all levels of the health system (from community-care, over peripheral clinics, to hospitals), including
- triage to separate covid patients from non-covid patients;
- clear functions for each level of care; and referrals between them;
- inclusion of all sub-sectors (public, confessional, NGO, private-for-profit, formal and informal);
- overall governance of the transformed system;
- due consideration for supply chains (and volumes needed), health workforce (safety and remuneration), health information systems; testing capacity and surveillance at scale;
- and much more.

Need to think in "steps": how to cope, if 100 new covid cases per day? If 500 cases per day? …

Preparedness of health facilities:

Hospitals (getting all attention for the moment): Big doubts whether hospitals in Kinshasa can deal with large number of cases;

- need to analyse capacity, including surge capacity, in view of potentially important covid caseload;
- If insufficient, need to think of "low care- high volume" options for mild cases.

Oxygen therapy (= most essential):
- Even oxygen is not widely available; if increased demand, oxygen supply unable to keep pace;
- Often oxygen concentrators are used, but serve only 1 patient at a time; and very few are available (often only a few per hospital)…
- Certainly very few respirators; very few people trained in using them;
- Some voices that 'respirators may do more harm than good' in low-resource settings, including high risk of infection of staff introducing intubation. (There is some anecdotal evidence that clinicians may get very severe covid-19. This might be related to high viral inoculum from close contact with very sick patients; e.g. during invasive procedures, such as intubation – to be confirmed!!!);

Infection Prevention and Control (IPC)
- Still largely inadequate, with major risk for nosocomial outbreaks of covid-19 ("super-spreading events"), exposing both non-covid-19 patients and staff;
- Rationale for trying to separate covid-19 patients from other patients (different wards, different patient flows); but difficult on clinical basis alone, because clinical picture quite aspecific, needs PCR-test (without delay).
- Non-covid-19 patients may flee the hospital (already observed);
- Many patients may be reluctant to attend hospitals with covid-19 patients;
- Need to do good "triage" of patients, but screening / triage algorithms not very good, if absence of travel history. Need to be adapted to clinical picture of covid-19 in sub-Saharan Africa (not clear yet, whether significant differences, e.g. in terms of presence of diarrhoea, and gastro-intestinal involvement).

Health workforce:
- not enough Personal Protective Equipment (PPE) available, some staff reluctant to care for covid-19 patients;
- Some suggest to "avoid exposing older staff (>50? >60?)", as they are at much higher risk for severe disease, if infected;
- Staff training +++

Hospital organisation:
- Systematic use of pulse oximeter would be useful (not commonly used yet), even if patient not dyspnoeic, because some anecdotal evidence of "low oxygen saturation, early on, even before clinically obvious".
- Maybe also consider taking systematically glycemia in patients (>40 y?) as undiagnosed diabetes is relatively frequent and strongly related to severity of diseases;

First-line facilities
- For the moment little involved. Need to be prepared, if large numbers of patients, so that referral system can be functional, so that hospitals can concentrate on severe cases.
- Need for good triage algorithm, including risk assessment for severity, based on age, other morbidities (see above). Probably pulse oximeter more useful than thermometer.
- Staff training +++
- Referrals by ambulance, to prevent further spread in taxis or public transport.

Functional health zones / health districts
- Important that district health authorities have oversight of entire health system, including confessional and private-for-profit facilities; which may care for bulk of patients, and need to be involved in correct response.

"COLLATERAL DAMAGE":

Early fears that overall utilisation of health facilities was decreasing; revealing fear and lack of trust of the population, lack of preparedness.
- All attention focused on corona; population may fear to use health facilities where there are corona cases; health workers may fear to go to work if PPE not available. Many "other pathologies" may go untreated? (not yet documented now, but certainly the case during Ebola epidemics).
- In DRC: measles, malaria, obviously still much bigger morbidity and mortality. But prevention measures "on hold", because mobility is constrained: no more travel outside Kinshasa; strict limitations on travel.
- Much attention also for "collateral damage" of containment measures, especially for the poor (socio-economic consequences) == see above
- More attention for effects of "corona fear", fear for the disease and fear triggered by draconian containment measures;
- More attention for mental health aspects of corona crisis; as livelihoods and income generation is disturbed, as social roles change, as children don't go to school, etc.

Fake news = big problem, fuelling conspiracy theories and even aggression towards health workers (Ebola all over).

International media coverage on COVID-19 in sub-Saharan Africa:

In French: a good overview at Radio France International.

A selection from the weekly ITM IHP Newsletter; with extensive coverage on COVID-19.

BMJ Global Health (Commentary) - COVID-19: the rude awakening for the political elite in low- and middle-income countries. A Viens,. *"Decades of bad political choices by the elite class has resulted in weakened health systems in many LMICs. The resulting lack of high-quality care and poor health outcomes are typically only borne by those of lower socio-economic standing - with the elites and their families being able to seek care in high-income countries. COVID-19 may change all that—a highly transmissible virus and restrictive measures that prevent elites from flying abroad has forced them to depend on an ill-equipped health system at home. COVID-19 presents a stark illustration that we are all interconnected; social class, personal status or borders do not help to evade health vulnerability. Enlightened self-interest of political elites may finally provide sufficient motivation to invest in an effective and integrated health system."*

Guardian - Why are Africa's coronavirus successes being overlooked? Hirsh; *"Examples of innovation aren't getting the fanfare they would do if they emerged from Europe or the US."* Focus here on Senegal & Ghana, and also on sweet wormwood: *"…Across the African continent, the lack of access to expensive pharmaceutical products, not to mention a well-founded historic lack of trust, has fuelled interest in whether traditional herbal remedies have anything to offer. One plant in particular – Artemisia annua, or sweet wormwood, which belongs to the daisy family – is drawing particular attention after the president of Madagascar, Andry Rajoelina, claimed it was a "cure" for Covid-19." "…More than 20 African countries have already ordered the Madagascan version, a vote of confidence for Rajoelina, who has taken to showing up at meetings and TV appearances with a bottle of a brown herbal drink made from the plant, touting its benefits. The reason you probably haven't heard about this, he says, is because of patronising attitudes towards African innovation…."*

The Nation - Africa Is Not Waiting to Be Saved From the Coronavirus. Nyabola; *"As Covid-19 races its way across Africa, there are two stories happening at once. The first is of governments using their armies and militarized police to beat, threaten, and shoot their way to public health. … It is the story of governments closing their borders too late, diverting money to security instead of hospitals, and waiting for someone from somewhere else to save them. The second is of communities knitting together their meagre resources to fill the gap of failed services and absent states. It is the story of tailors across informal settlements in Nairobi and Mombasa sewing face masks out of scrap fabric and handing them out free after price gouging by commercial suppliers. … … Both of these stories are true, but only the first one is on track to enter the archives of how Africa navigated the pandemic. …. When confronted by a new situation, the punditry and analysis are inclined to pay attention to what is likely to go wrong rather than what might go right. … . But so far, when it comes to Africa, the first draft is an incomplete and inaccurate story of a continent waiting to be saved. If only the first story enters the archive, the creativity and agency of swaths of humanity will be lost, which will have consequences beyond the pandemic."*

New Yorker - What African Nations Are Teaching the West About Fighting the Coronavirus. This piece went viral last weekend. Quote: "… a *rather obvious possibility stares us in the face: What if some African governments are doing a better job than our own of managing the coronavirus? "One reason why we may be seeing what we are seeing is that the continent of Africa reacted aggressively," J Nkengasong, director of the Africa CDC, told me. "Countries were shutting down and declaring states of emergency when no or single cases were reported. We have evidence to show that that helped a lot."* …"

Brookings (blog) - In developing countries, communities and primary care providers—not hospitals—hold the key to successful pandemic response. N Mor; *"Almost uniformly across the developing world, pandemic policy responses so far have tried to replicate the typical developed country strategy: social distancing coupled with national lockdowns, quarantining suspected cases in centralized locations, and increasing hospital capacity of hospitals by shoring up their intensive care units (ICUs) and increasing the supply of invasive mechanical ventilators. This will almost certainly have to change…."*

BMJ Global Health - Shifting the paradigm: using disease outbreaks to build resilient health systems. Durski; *"… The resources dedicated to outbreaks create organisational infrastructure, capacity and networks that can be leveraged to simultaneously strengthen health systems. It is necessary to shift the current paradigm of managing outbreaks to include health system strengthening as a critical component of the response. We identify 10 activities that could be implemented during health emergencies to achieve this goal."*

BMJ Global Health (blog) - From models to narratives and back: a call for on-the-ground analyses of COVID-19 spread and response in Africa. *"This week, BMJ Global Health published two mathematical models (here and here) to predict the pattern of spread and the potential consequences of COVID-19 in Africa. These two papers are steps ahead of several other such predictive exercises in that they make*

deliberate effort to take into account the different ways in which people live their lives in different parts of the continent. The papers spelt out in some detail the various demographic, socio-economic and geographical factors that are (actually or potentially) responsible for how COVID-19 might spread on the continent. … … BMJ Global Health, in conjunction with the *Emerging Voices for Global Health programme would like to invite narratives and analyses of on the ground experiences in Africa. We want these narratives and analyses to take these modelling exercises as their point of departure. How, for example has rurality played a role in the (non-)spread of COVID-19 in your setting? What about the age distribution, or even population density? What about the level of inequality? What is the role of your local political situation in the response measures put in place to control COVID-19? How have measures put in place by (both national and sub-national) governments (not) worked?..."* With focus on the 'local gaze'.

HPW - Africa Hosts Just 1.5% Of Global COVID-19 TallyIn his media briefing on Africa Day (25 May), Tedros paid tribute to Africa's response so far: "In *contrast to Europe and the Americas,* Africa has just 1.5 percent of the world's reported cases of COVID-19, and less than 0.1 percent of the world's deaths. "Africa appears to have so far been spared the scale of outbreaks we have seen in other regions," said Dr Tedros. "Of course, these numbers don't paint the full picture. *Testing capacity in Africa is still being ramped up, and there is a likelihood that some cases may be missed*.

WHO Afro - Covid-19 'taking different path in Africa', says WHO. "*The 54 countries of the African Union were reporting a total of 103,933 cases of coronavirus on Saturday morning, according the Africa Centres for Disease Control. So far African nations have reported 3,183 deaths from Covid-19, while 41,473 people have recovered since the virus was first detected on the continent 14 weeks ago.* There had been apocalyptic forecasts for the potential impact of the coronavirus pandemic in Africa. On Friday evening, after the 100,000th case was reached, the World Health Organization's Africa office circulated a note saying that it now seemed clear that the pandemic "appears to be taking a different pathway in Africa*."*

HPW - World Health Organization Pauses Hydroxychloroquine Arm Of Multinational COVID-19 Treatments Trial For Review. "*Enrolment of new patients in the hydroxychloroquine (HCQ) arm of the World Health Organization's Global COVID-19 Solidarity Trial will be put on pause, as the trial's oversight committee reviews all available data on COVID-19 and hydroxychloroquine. The WHO decision on Saturday came just a day after a major observational study published in The Lancet found a higher mortality rate in COVID-19 patients who have received hydroxochloroquine, chloroquine, or a combination of either drug and azithromycin, as compared to COVID-19 patients who did not receive any treatments…."*

Stat News - WHO warns millions of children at risk as Covid-19 pandemic disrupts routine vaccinations. Warning from late last week. "*Some 80 million babies around the world are at higher risk of diseases like diphtheria, measles, and polio as the coronavirus pandemic hinders routine vaccination programs, global health officials warned Friday. Vaccine campaigns have been disrupted in at least 68 countries, according to* data released by the World Health Organization, UNICEF, the Sabin Vaccine Institute, and Gavi, the Vaccine Alliance*. The interruptions could affect 80 million children under 1 year old in those countries.* The agencies said that the disruptions are occurring at a scale unseen since widespread immunization campaigns began in the 1970s*. The countries reported at least moderate interruptions to the programs, with some countries suspending their programs completely.*

Washington Post - In the developing world, the coronavirus is killing far more young people. "*… As the coronavirus escalates its assault on the developing world, the victim profile is beginning to change. The young are dying of covid-19, the disease caused by the novel coronavirus,* at rates unseen in wealthier countries — *a development that further illustrates the unpredictable nature of the disease as it pushes into new cultural and geographic landscapes. … … In* Brazil, 15 percent of deaths have been people under 50 — a rate more than 10 times greater than in Italy or Spain. … *In Rio de Janeiro state, more than two-thirds of hospitalizations are for people younger than 49.* … Analysts say the emerging data suggests many of the problems that have long troubled the developing world — intractable poverty, extreme inequality, fragile health systems — are increasing vulnerability to the disease*. In countries with more poverty and fewer resources, people who might have survived elsewhere are instead dying…."*

Nature (News)- What the growing rift between the US and WHO means for COVID-19 and global health. Amy Maxmen*;* "*If President Trump sidelines the World Health Organization, experts foresee incoherence, inefficiency and resurgence of deadly diseases*." "*…Experts in health policy are contending with the real possibility that the United States will pull away from the World Health Organization (WHO), fracturing a relationship that began in the wake of the Second World War. They say that the* repercussions could range from a resurgence of polio and malaria, to barriers in the flow of information on COVID-19. Scientific partnerships around the world would also be damaged, and the United States could lose influence over global health initiatives*, including those to distribute drugs and vaccines for the new coronavirus as they become available, say researchers…."*

Guardian - Experts sound alarm over lack of Covid-19 test kits in Africa. "*Public health experts have warned about the risks of low supplies of coronavirus test kits as lockdowns in African countries begin to ease and urban populations become more mobile. Different countries on the continent have adopted a range of testing strategies, but* international competition for test kits and a lack of global coordination of resources *have meant many African countries are testing with significantly limited reach…"*

Lancet Editorial – COVID-19 in Africa: no room for complacency. "*Despite over 100 000 confirmed cases and infections in every country, the passage of COVID-19 through the African continent remains somewhat enigmatic….* … There is no room for complacency. … *The focus on COVID-19 must not detract from continued action in other areas of health…. …* This pandemic should underline the importance of universal health coverage over narrow responses…." The Editorial concludes: "*There is still potential for disaster in Africa, especially as countries begin to ease the strictest lockdowns. The COVID-19 pandemic enforces global power structures.* The rest of the world has a role in supporting and enabling an effective and safe response, but as much as Africa faces unique difficulties, it also has unique strengths. There have been many national successes and an effective regional response. Future action needs to be Africa-led and the rest of the world should look to see what can be learned."

World Politics Review - Africa Is a Coronavirus Success Story So Far, If Only the World Would Notice. H French; Nice piece, even if, by now, the world *has* begun to notice.

Foreign Policy - If African Governments Won't Act, the People Will. A Green; "*With frustration rising over haphazard responses to the coronavirus,* community networks *are filling the void across the continent*." The other side of the coin.

Chatham House (Expert Comment) - Together, African Countries Have Enough to Fight COVID-19. Ngozi Erundu; *Africa can mount a stronger COVID-19 response strategy* by using regional trade blocs *to coordinate, consolidate, and connect resources across the continent*."

Guardian - From Kenya to Bangladesh mask-making has become a thriving cottage industry. "*Charities, NGOs and garment factories are adapting to provide protective gear, generating income and keeping communities safe*." Many of the people making masks are women.

WB (blog) - Oxygen for all, during COVID-19 (coronavirus) and beyond. K Watkins; Very important case, by Kevin Watkins (Save the Children). "… *Medical oxygen supplies starkly illustrate health inequalities between and within countries… The challenge is to increase the supply of medical oxygen while reducing cost so that it's accessible where it's needed most, free at the point of use.* It will take increased investment and commitment to put oxygen at the center of strategies for universal health coverage. … … *COVID-19 is a public health crisis without parallel in recent history. But it is also* an opportunity to turn the spotlight on medical oxygen as one of the defining health equity issues of our age…"

SRHM (Perspective) - Reproductive health under Covid-19 – challenges of responding in a global crisis.

Guardian - Global report: 'disaster' looms for millions of children. "The coronavirus pandemic will have a "disastrous" impact on children's rights worldwide, making them more vulnerable to forced labour and underage marriage, a rights group has said … … *Millions of children would fall into extreme poverty because of the outbreak, which has left governments short of money for health and education for the young,* Dutch NGO KidsRights *said….*" See also here.

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