Africa and the SARS-CoV-2-pandemic

A pandemic is a non-linear, highly complex and – at a first glance – chaotic outbreak scenario. As the outbreak seems to be contained in China the **epicenter seems to have moved to Europe and the US**. The absolute number of cases in the US is likely to surpass the number of cases in Italy, the current hot-spot of the outbreak. But what's about the countries in sub-Saharan Africa?

Until now the reason for the low number of cases within the humanitarian and tropical medicine related trouble spot Africa can be found in the **comparably limited testing capacities.**

How does the climate affect the future course of the pandemic? A number of European experts are counting on **seasonality** and hope that the outbreak will end in the summer (at least temporary). The incidence of other respiratory viral diseases support this hypothesis. For example Influenza has its peak during the cold season and is regularly not demonstrable during summer. Higher temperatures dry out droplets (a typical vector for the virus) faster and reduce their radius. An increase of UV-radiation during summer and spring is capable of reducing the virus' ability to survive in the environment. As temperatures rise people tend to be more active outside their houses and thereby reduce transmission rates as the distance between people being outside is bigger compared to the distance between people inside of a building. The influenza-surveillance in sub-Saharan-Africa – as limited its significance may be – shows notably lower activities of circulating Influenza A and B strains compared to Europe.

Those who implemented climate effects for Europe or sub-Saharan-Africa into predictive models of the outbreak as a given should have a look at the currently massively increasing number of cases in South America. Brasil can be seen as a case in point. Another aspect in most African countries has to be taken into consideration as well when talking about the future development of the outbreak: **demographic factors**.

Severe and lethal progression of COVID-19 is mostly observed in old patients with an age of over 60 years and several comorbidities. The younger and healthier patients are by far less affected. In the group of children up to 10 years of age no fatalities have been reported yet and up to the age of 30 the lethality of the disease is well below 2% (and – due to a probable massive underestimation of the denominator of the Case Fatality Rate – the true lethality is likely to be even lower).

Africa is the second largest continent (by size and population respectively) only outnumbered by Asia and by far the youngest continent. 60% of all Africans are under the age of 25. The median age in Italy is 47.3 years, in contrast the median age in Nigeria (the most populous country in Africa) is 17.9 years. If the spread of the disease isn't slowed down an infection rate that is sufficient to grant herd immunity will be reached in sub-Sahara-Africa with a comparably low number of severe progressions and a much higher recovery rate.

---

[1]source: http://theiddoc.net/2020/03/15/covid19-pandemic-and-pandemonium-will-africa-sit-this-one-out/

Approximately 35% of all Africans are over the age of 60 and usually live with their families and not in retirement homes. This could probably reduce the likelihood of outbreak clusters usually induced by a concentration of high-risk patients.

On top of that the huge African continent has a **mobility problem**: Streets are – depending on seasonality and security situation -often unusable and air travel between the African countries is limited and costly. On the one hand those logistic shortcomings might be a protective factor regarding the spread of the virus. A Ghanaian TroTro with its unlimited number of passengers on the other hand has to be considered as a (potential) super spreader.

Taking into consideration the aspects mentioned above it has to be said that forecasting has to be don on a weak evidence base.

The **immunity** within the African population can be considered to have basically the same protective potential as the immunity of the rest of the global population. In addition the following holds true: Tropical medicine is not the medical discipline of the warm countries but of the poor ones. The "social determinants of health" are for sure as relevant as the impact of high parasitical infection rates, the sometimes disastrous food situation, numerous comorbidities – not least HIV/AIDS and tuberculosis – and the effect of slums and townships on the outbreak dynamic.

The **comparably fragile health** systems in Africa are without doubt not prepared for treating cases of COVID-19; this holds true for the quality as well as for the quantity of treatment (but the latter is the same in the rest of the world for the time being). Apart from that the continent finds itself in a "**constant training" in the management of outbreaks** (e.g. Measles, Cholera, Monkey Pox, Lassa Fever and Ebola) - sometimes to a degree that is critical for a whole country. Numerous African countries are post-conflict countries or never left conflict-state.

The connection between "conflict" and "health" is evident.

First and foremost this leads to a blatant shortage of resources down to unmet basic-needs like basic hygiene and supply of clean water. To what extent the implementation of harsh public health measures is facilitated by the weak legal situation (e.g. lack of fundamental rights) resulting from the persistent crisis is disputed, even among public health experts. Are societies that haven't been socialized with a law compliant administration or the compulsive silo thinking of many bureaucracies really more agile during a crisis? What does "**being agile**" mean in this context?

---

[1] Cynefin-Framework https://de.wikipedia.org/wiki/Cynefin-Framework

[1] https://www.thinkglobalhealth.org/article/anticipating-coronavirus-west-africa

The **Cynefin framework** pictured in the upper right corner is a simple model for knowledge management and gives us unexpected insights: In case of complex and chaotic problems – apart from the simple and complicated issues pictured on the right side of the framework – "Best Practice" and "Good Practice" are replaced by "Emergent Practice" (a kind of "Reflection in Action"). Those requirements challenge western bureaucracies with their latent aversion against innovation and cooperation regularly and tend to bring them to their breaking points. Whether the African Communities' will demonstrate to be able to self-organize and develop alternative structures or not has to be awaited. What does all this now mean for Europe? Will we –currently not even looking as being capable of acting solidary on a European level – be able to provide European resources to support African outbreak areas when the time has come? Maybe even preventive?

During the last years – especially in the aftermath of the Ebola crisis – Africa has been prepared for various outbreak scenarios – at least on a conceptual level by WHO and numerous other organizations. A strong leadership role played the NGA CDC. Along with the preparation on a conceptual level, laboratory capacities have been improved, Public Health capacities were increased and surveillance-systems were implemented. In contrast to other supranational bodies there is a continent-wide strategy for Africa(see on the left). There are various docking points and – not to forget – a European Medical Corps. NGA CDC's executive director Chikwe Ihekweazu claims consequently that, because of the limited clinical capacities for teating severely ill patients, in Africa all efforts should be directed towards the early detection of the virus and the interruption of the chain of infections – using "… hard core Public Health and Prevention (approaches)".

„…The concept of every country trying to look only within its own borders is completely, mindbogglingly, a waste of everybody's time'.

Christian Janke, Andreas Jansen, Katalyn Roßmann

To do:

https://www.thinkglobalhealth.org/article/africa-not-starting-scratch-covid-19