COVID-19: **Latest news of the world by IFGR**

Interview with **Dr Mirdad KAZANJI**, March 30th, 2020.
Director of Pasteur Institute of French Guyana

Could you introduce yourself in a few words?

I am a **Doctor in virology** graduated from Paris XII University in 1993. My professional career led me to study viruses at the Pasteur Institute of French Guyana, at Ohio State University in the United States and at Franceville International Center for Medical Research in Gabon. I then headed for 5 years the Pasteur Institute in Bangui in the Central African Republic. Since September 1, 2014, I have been the director of the Pasteur Institute in French Guyana.

First of all, how are you Mirdad?

I am fine despite the serious concerns about the current health situation. The Pasteur Institute is very mobilized by this outbreak and our institute is currently the only one capable of conducting screening in French Guyana. I am in constant contact with the services of the Regional Health Agency (ARS), and the services of the Prefecture. For the rest, my closed ones are doing well, and they calmly live this unprecedented situation of confinement like co a good part of humanity.

What is the current situation in French Guyana?

As I speak to you (March 29th, 2020), there were no reported casualties and no serious cases hospitalized in intensive care. Apart from imported cases, we have little secondary transmission and no native outbreak. Containment measures were taken very early on March 17th at the same time as mainland France, and a curfew is in effect from 9 p.m. to 5 a.m. These measures should, I hope, contain the development of the crisis in French Guiana.

We are keeping a very close eye on the risks of spread of the virus. Fears can also come from neighboring countries because the situation in Brazil is worrying. Bordering Guyana and with frequent exchanges (economic via Saint-Georges on the Oyapock river, but also through uncontrolled migrations), Brazil already has several thousand confirmed cases and more than one hundred deaths, 117 as of 29 March.

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What is the current dynamic at the global level?

The situation is very worrying. This crisis makes us realize that we live in a large global village. Although we do not yet know the origin on the possible origins of the Covid-19 (read the article published in Nature on March 26, 2020: *Identifying SARS-CoV-2 related coronaviruses in Malayan pangolins*), we know that the first human case declared itself at the end of 2019 near an animal market in Wuhan, China. It only took a few weeks to ignite a large part of the planet and confine half of humanity. It's unheard!

Many questions therefore remain on this outbreak and its health repercussions. **It is necessary to work at different scales** to limit the saturation of hospital structures and prepare for the end of the crisis. At an individual level: confinement and reminder of basic actions (i.e. washing hands); at a collective level: encourage mass test-screening campaigns as much as possible; at the research level: redouble efforts to achieve treatment in the short term, and a vaccine in the medium term.

What are your concerns?

After China, Europe has become the epicenter of the outbreak with very worrying situations in Italy (1000 deaths on the single day of March 28th), Spain, France or the UK. We already see that the United-States is becoming the new massive epicenter with a dynamic of contamination that is also very worrying. The American situation will have to be followed very closely.

I very much hope that the emerging countries, the African continent and the Indian subcontinent in particular, will manage to nip the outbreak in the bud and/or that they will benefit from treatments that we will have had time to develop.

Those emerging countries generally enjoy a warm intertropical climate, which is generally not conducive to seasonal flu epidemics. Do you develop clinical research in this sense?

Respiratory viruses can resist to hot and humid tropical climates. Indeed, areas like Guyana are affected annually by an influenza epidemic but this outbreak arrives later than in mainland Europe. Nevertheless, the respiratory virus (like the flu) resists and multiplies more when the temperature is low.

A *modeling study* recently published by an American team has shown that the best conditions for the multiplication of the Covid-19 virus are obtained in temperate latitudes, temperatures below 11 degrees and humidity between 47-79% (therefore in winter). It provides us a bit of hope for countries with a warm intertropical climate.

Virology laboratory P3+ at Pasteur Institute of Guyana

We also note relatively few cases of indigenous contamination in Guyana, and we seek to understand the root causes, in particular in transmissions within the family nucleus

The Pasteur Institute of French Guyana has therefore just launched a study in this direction. This trial focuses on the **intra-familial transmission of cases in a warm intertropical environment.**

We hear about chloroquine, avigan, etc. Can you help us to see clearly, and are you optimistic about a new treatment?

Much is spoken on social networks and mass media. Some, at the mention of possible promising treatments, confuse speed with haste, and rush on chloroquine, favipiravir (avigan) or others. Beyond this media uproar, and as a researcher and director of a Pasteur Institute, I see how the scientific community has invested in this task all over the world. Our Chinese colleagues have started numerous clinical trials that we will have to analyze. The Australians plan to vaccinate healthcare workers with BCG to strengthen their immune defenses.

I, for my part, want to insist in particular on one study, the results of which I expect with great interest: **the DISCOVERY clinical study. This is a unique European initiative** started on March 22, where researchers from several countries, including France, Germany and England are made up of testers with 3,500 patients about twenty molecules, including remdivir (initially designed for Ebola), anti-malaria hydroxychloroquine, lopinavir-ritonavir and others. The protocol is very precise, adaptive, the trials are randomized, and a daily monitoring of the viral load is carried out.

The first results of this unique trial will be available in about ten days! I hope they will not show a reduction in the viral load and pathogenicity of the virus.

However, it will take more time for a full analysis and obtaining enough feedback to demonstrate the superiority of one molecule over the other or the association of several molecules. Scientific rigor cannot be held hostage by media packaging.

As for the vaccine, it will take several months to determine the protocol, possible toxicity, etc.

"Scientific rigor cannot be held hostage by media uproar"

What is in store for next week intervention?

I will be happy to come back to my day-to-day experience, the regional and global situation and the progress towards a treatment.

And why not a focus on what seems to me key in what we live: **the disturbances of biodiversity** which can lead to such health dramas, with vectors like bats or mosquitos.

In the meantime, I invite you to go through the IFGR session report conference that I had the pleasure of hosting in 2019 on the subject: Health of rivers and human health.

Thanks Mirdad and see you next week!

Interview by Aziz Ouaabi