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A PAHO Perspective on COVID-19 in Cuba

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If all physicians are detectives, using their skills to track down what ails body and mind, then epidemiologists are medicine's social detectives, using their training to understand the great calamities of population health. For over 30 years, Dr José Moya has worked in the field since his initial position as head of epidemiology in Ayacucho, in his home country of Peru. His journey into global health began with Doctors Without Borders in Guatemala, Mozambique and Nigeria. Later at PAHO, he was Permanent Representative in Venezuela, after earlier postings as an epidemiologist in Haiti, Mexico, Brazil, the Dominican Republic and Argentina.

Dr Moya has faced down epidemics of malaria, dengue, yellow fever and bubonic plague, and also rampant chronic diseases such as hypertension and diabetes. Yet undoubtedly he has seen nothing like COVID-19 in the Americas, where at this writing 17 million cases have ravaged Latin America and the United States is the pandemic's epicenter in the hemisphere and the world. In 2019, Dr Moya became PAHO/WHO Permanent Representative in Cuba, shortly before COVID-19



presented itself. Eight months later, as most of Cuba began its "new normal" phase with new cases waning, **MEDICC Review** spoke with the epidemiologist about conditions on the ground and Cuba's response to COVID-19.

MEDICC Review: Cuba has recorded just over 6000 COVID-19 cases since March and fewer than 150 deaths. With the exception of positive results in Uruguay, the rest of Latin America is still faced with an alarming spread. Are there strategies adopted by countries like Cuba that help explain such different results?

José Moya: Up to now, Cuba has done everything a country should do in the face of a pandemic like this one, building on the strengths it already had. These include the health system itself, which is a single, universal system with national coverage and free-of-charge to patients. Family doctors and nurses are posted in communities across the country—professionals who know their communities and work with local people on a permanent basis.

Such primary health care is an enormous strength of Cuba's system: family doctor-and-nurse offices and community-based polyclinics carry out the main health programs and play a key role in the successes of Cuban public health. Another strength is the workforce's magnitude and training: the physicians, nurses, laboratory technicians and so on. And a third strength is science itself. Cuba's experience in research, with the institutions that today

make up BioCubaFarma, dates back over 30 years. These are very serious research centers with first-class scientists organized for innovation. As a result, Cuba has developed domestic production capabilities in such areas as COVID-19 diagnostics, personal protection equipment (PPE) for the country's health workers and novel medications in clinical trials. They are also producing medicines for prevention that strengthen the immune system, particularly important for vulnerable people such as older adults and health workers.

So these three strengths—primary health care, human resources for health and development of science and technology—are the basis for a better response to the pandemic. Thus, when COVID-19 was on the horizon, they were able to take quick and timely action. By the end of January, Cuba had put together a national multi-sector plan, which is continually updated. Very early, they also had a protocol for treatment. This has meant almost daily sessions of the cabinet and of the various sectors, in order to monitor the COVID-19 response and its results, based on good epidemiological surveillance capacities through the health system's extensive epidemiological and laboratory networks already in existence.

Cuba started with 3 labs for COVID-19 testing, and now has 13, so nearly every province has one, enabling the country to upgrade capacities for RT-PCR testing from some 2000 tests daily in March to 7000–8000 daily now.

We've seen an excellent response in terms of active screening for cases, confirmatory laboratory testing, contact tracing and follow-up. This enabled control of the epidemic's evolution, as we saw in June and July. Later, in August and September, we saw an uptick in cases—much like that in other countries as they began to re-open—punctuated unfortunately by some people failing to abide by the safety measures adopted. Now, once again, we have many provinces without transmission for several weeks, entering what's called the “new normal” period. Just three provinces, including Havana, still have some of the most restrictive measures in place.

At this new juncture, the message is loud and clear: the burden falls on every one of us here in Cuba to help tame the epidemic, by continuing to wear masks, practice social distancing, wash hands, disinfect surfaces and avoid big gatherings. We need to do our part so that in the next few months, although we have transmission, it will be controlled and not get out of hand. This means internalizing new habits in our daily lives.

Cuba has also moved to quickly identify cases and apply treatment protocols, using their own medications as well as others, thus reducing case fatality. In April, this was over 4%, and now it is under 2%.

These are some of the elements contributing to more favorable results, starting from a solid health system foundation and a unified national response plan, implemented throughout the national, provincial and municipal levels. This marks the difference from some other countries in our region that are suffering intense and sustained transmission due to overcrowded health facilities, population density in our megacities, and a concentration of poverty and social inequalities exacerbated by the pandemic, among other factors. Our health services haven't been able to confront this situation in time, and some have even collapsed. This is the lamentable reality we see in Latin America.

MEDICC Review: I want to ask you about two aspects of Cuba's response that may seem unrelated: the first concerns to what degree Cubans feel confident in their health system, and the second relates to the health system's decision to hospitalize all confirmed cases instead of sending them home...something not common elsewhere.

José Moya: The confidence Cubans have in their health system is palpable wherever you go here. They're aware of the capabilities of their health professionals, of health services, to attend to and resolve their health problems, from the simple to the most complex. Not only at the primary care level, but also at very high-level hospital and research institutions, teaching centers where the most highly trained specialists are concentrated.

And this goes to the second part of your question: I don't think another country has hospitalized all patients diagnosed with COVID-19. Every person confirmed with COVID-19 is hospitalized in one of 30 hospitals specially equipped throughout Cuba to provide care to these patients, including ICU beds. It's worth mentioning

that in April, when we saw the highest transmission rates, just 20% of ICU beds were occupied.

Another key decision was contact tracing for all confirmed cases, referring many people to isolation centers, where they were tested and under medical observation for 14 days. This strategy has brought the epidemic under control at different points, the first in June–July as I mentioned, and also in the last few weeks with the decrease in cases.

Now, in the “new normal” period, they will continue active case finding and contact tracing, but contacts are able to self-quarantine at home for the required period, under medical supervision and visited by their neighborhood family doctor. This is an important change, and once again, its success depends on all of us: our ability to self-quarantine when necessary, acting responsibly as individuals and communities during Cuba's re-opening. It's the only way forward until there is a vaccine.

MEDICC Review: This period envisions opening schools and universities, correct?

José Moya: Yes, although in Havana this won't happen until November 2. This process is accompanied by clear protocols, ones we've already seen on television being applied in several other provinces where the educational institutions are already up and running again. Children go to school with their masks on and in the first few days, receive an orientation and training on how they need to behave. This doesn't come as a surprise to them of course: most have been watching the daily briefings by Dr Francisco Durán, the country's chief epidemiologist. In general, I'd say that I've observed children acting quite responsibly. This responsibility—to mask up, wash their hands, not attend class if they have any symptoms—of course also implies a greater responsibility on the part of their parents and the schools themselves.

MEDICC Review: You referred to the biotech sector's 30 years of experience. Cuba now has a vaccine candidate for COVID-19 in clinical trials. What does the regulatory framework look like? Does PAHO or WHO have a relationship that allows these agencies to evaluate the regulatory process?

The Center for State Control of Medicines and Medical Devices (CECMED), Cuba's regulatory agency, has top-notch capabilities

José Moya: The Center for State Control of Medicines and Medical Devices (CECMED), Cuba's regulatory agency, has top-notch capabilities and because of

this, is a regional reference and PAHO/WHO Collaborating Center. The National Clinical Trials Coordinating Center has also earned this distinction. These two Cuban institutions are constantly evaluated, linked as they are to production of medicines, lab reagents and medical technologies. In Cuba, no such product can be used without CECMED authorization.

During the pandemic, the two agencies have been essential to clinical trials and approvals for use of various medications, both domestically produced and imported, and play an important role as part of a regional network through PAHO/WHO. And of course in vaccine development.

Nearly 80% of vaccines applied in the National Immunization Program are manufactured in Cuba itself, where there are ample manufacturing facilities to produce high-quality vaccines that are also exported. The Finlay Vaccine Institute has decades of experience, and with other institutions experienced in R&D such as the Molecular Immunology Center, has developed a vaccine candidate, SOBERANA 01. There is also a second candidate in pre-clinical studies, and I understand there are two more in the pipeline. That is, Cuba will have four COVID-19 vaccine candidates.

SOBERANA 01 has successfully completed Phase I trials that test safety, and is now in Phase II trials to test immunogenicity. Preliminary reports I've reviewed indicate the results are very good thus far. So this is good news for Cuba, but also for Latin America and the Caribbean. This is the first vaccine from our region in clinical trials, joining others listed with WHO that are being tested.

We're all pleased and proud that this Cuban vaccine is the first developed in our region, and that hopefully Phase II trials will conclude successfully, and it can begin Phase III trials in a much larger population with greater COVID-19 transmission rates, to discern its impact. If and when the trials conclude successfully, then the vaccine requires CECMED approval before use in the Cuban population and, if production exceeds domestic needs, then made available to other countries in our region and elsewhere.

MEDICC Review: Experience indicates that Cuban manufacturers have marketed their medicines and vaccines to other countries, but usually at lower prices for developing nations.

José Moya: Yes, in this case, Cuba would have a proven COVID-19 vaccine, the production capacities for domestic distribution to cover the Cuban population, and perhaps also a level of production that could be used for people throughout Latin America and the Caribbean, at much more reasonable prices.

MEDICC Review: Yet, Cuba has many challenges ahead—shortages of some imported medicines, food security, the economy more broadly—that may threaten its ability to successfully “co-exist with COVID-19.” In this context, what role do UN agencies play, and PAHO in particular?

José Moya: Since the start, PAHO has played a role in information sharing, as the hemispheric agency specializing in health, alerting governments and health authorities of the dangers posed by COVID-19. Our director, Dr Carissa Etienne, authorized all our country representatives to mobilize technical cooperation resources to respond to the most urgent initial needs. That's something we have done here, providing personal protection equipment (PPE) and RT-PCR tests, which are fundamental, in addition to virtual training sessions that we continue to hold between teams from the ministries and those at PAHO headquarters.

Here in Havana during the first several months, we held meetings involving the various UN agencies, PAHO itself and

Cuba's Ministry of Public Health (MINSAP) to determine how each of us, under the auspices of the UN Resident Coordinator, could mobilize resources to respond to the country's vital needs. Without exception, all answered the call: UNFPA, UNDP, FAO, everyone. And these action plans, which we review periodically with MINSAP, have been fulfilled.

Now we head into a new period, when the UN Resident Coordinator is organizing a longer-term response to COVID-19 in a number of essential areas—one of them, health. PAHO continues to take the lead in this field, but of course the socioeconomic arena is vital. There, the UN agencies specializing in production, agriculture and food are at work.

MEDICC Review: Of course now Cuba has been elected to the Executive Committee of PAHO's Directing Council. What significance do you attach to this?

José Moya: Like many countries of the Americas, Cuba was a founding member of PAHO in 1902, and since then it has had various leadership functions in PAHO/WHO. A few years ago, the World Health Assembly was chaired by Cuba's Minister of Public Health, for instance. Such important roles highlight the stature and relevance of Cuba in the field of health.

In PAHO's case, Cuba is a full participating member, and was newly elected with two other countries to the nine-member Executive Committee, as part of the regular rotation. This is good news for us here, since MINSAP delegates will have an active presence in the Committee, which meets twice a year to discuss issues that affect our region, offering technical guidance to the organization, later producing resolutions, policies and projects to be implemented by our countries. We're very pleased that Cuba has been elected.

MEDICC Review: In the midst of a deep recession in Latin America and the Caribbean, PAHO itself is facing a serious budgetary crisis. What has this meant for your offices in Cuba?

José Moya: The pandemic has certainly affected PAHO's finances. Our funding is based on contributions by member states, using a quota system. Meeting these quotas allows us to fulfill our mandate in terms of financing our offices, our in-country projects and our cooperation.

In the case of the offices here in Cuba, we're facing a difficult financial crunch, so we've concentrated resources in priority areas, fundamentally in response to COVID-19, but also others we can't neglect. We hope this situation will improve in the coming months.

MEDICC Review: Nevertheless, the pandemic has opened a Pandora's box of challenges to multilateralism, and we're even seeing ‘vaccine nationalism.’ How has this affected PAHO's operations? Is multilateralism relevant in times like these?

José Moya: Multilateralism is as valid and relevant as ever. Our organization has brought together the countries of the Americas for 118 years based on cooperation, solidarity and Pan-Americanism—an important concept within PAHO itself. We are a technical agency, and we shouldn't permit politicization that could

We shouldn't permit politicization that could affect that spirit of cooperation and solidarity on which we were founded

laboration among our countries, South-South cooperation, triangular cooperation. That's our value.

Certainly this nationalism is affecting us, but we have to be true to our history and to our purpose. More so in these times, not

affect that spirit of cooperation and solidarity on which we were founded. We work for people's health, for the health of people in the Americas, and we do it through col-

only of pandemic, but also in the face of more chronic problems within health systems, of social inequalities, overcrowding of our cities, climate change. This is the scenario we have, the context. And in this scenario, we have to keep up the work and continue to cooperate.

Lastly, I think it's imperative that our countries continue to examine our health systems and how they are organized. And hopefully, one day, think much more about ways to sustain and strengthen primary health care—efficiently and with a permanent presence near where people live. I think this is one of the great challenges we have ahead. 