Stemming COVID-19 in Cuba: Strengths, Strategies, Challenges

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Dr Durán is a native of eastern Santiago de Cuba and his early medical career began in this mountainous region, where he also headed provincial prevention and treatment of HIV/AIDS. He went on to become rector of the Medical University of Santiago de Cuba and provincial health director. Later in Havana, Dr Durán was director of medical education and vice minister at the Ministry of Public Health (MINSAP). Abroad, he served as advisor to Angola's Minister of Health, and on his return, as deputy director of Cuba's Pedro Kourí Tropical Medicine Institute (IPK). Dr Durán has been "battle-tested" over the years by his involvement in stemming dengue epidemics and other infectious disease outbreaks, good preparation for his current position as National Director of Epidemiology. Today, his is the voice and the face on the 11:00 AM briefing carried daily by Cuban television, reporting the latest data on the unfolding COVID-19 pandemic globally, in the Americas and in Cuba. **This *MEDICC Review* interview took place on April 10, 2020, a month after the first three COVID-19 cases were diagnosed in Cuba (March 11, 2020).**

***MEDICC Review:* Can you walk us through the most important strategies adopted by Cuba to head off COVID-19 over the last few weeks and months?**

Francisco Durán: Of course. Remember that Cuba is an island, so well before closing our borders altogether, we stepped up surveillance at the port, airports and marinas. In that period, any traveler arriving with symptoms from countries experiencing transmission of the disease was hospitalized in isolation for 14 days, where they were studied; travelers from other countries were followed in primary health care at home or where they were staying. When flights were essentially stopped (except for returning Cubans and for humanitarian reasons), everyone arriving was isolated during 14 days for observation and study. As you know, 14 days is assumed to be the maximum incubation period for this coronavirus to develop. These measures reaped good results.

The other main strategy has been active case detection in large population groups, using both rapid tests and real-time polymerase chain reaction (RT-PCR) tests in some cases. By large population groups, I mean identifying the most vulnerable, the suspected cases (people who have had contact, for example with people coming from high-risk countries, or who have symptoms) and contacts of confirmed cases. These are the kinds of people who are placed in isolation centers for diagnosis and testing by RT-PCR, as well as any person hospitalized for an acute respiratory infection, or who becomes seriously ill with one while hospitalized. And we are now also testing post-mortem any persons who died with respiratory or diarrheal symptoms. This has helped us identify a good number of cases.

And we also use rapid tests in larger population groups, tests which of course are not only quicker but also less expensive. This broad testing is important for finding possible cases because COVID-19 is contagious during the incubation period when people are asymptomatic. Nobody carries a sign identifying themselves as a carrier. You have to go out and find them.

Then there is the door-to-door active screening, with participation by our medical students, to discover people with respiratory symptoms. If physicians determine there is any epidemiological risk, these cases are remitted immediately to isolation centers for study as well. Every time a case is confirmed, contact tracing is initiated to isolate contacts, too. All this has resulted in identification of another good share of cases.

I should mention that we are also carrying out epidemiological surveillance and various other measures for people in prison where

until now, we have no cases identified. But we are continuing to watch this carefully.

***MEDICC Review*: How broad is the active screening?**

Francisco Durán: We have screened about 2.5 million people a day with medical students, coordinated by and reporting to family doctors, going house-to-house. Anyone found with respiratory symptoms is given a rapid test by the coordinating physician. The students are trained and protect themselves with masks and gloves; they don't enter into homes, but stay outside a few feet away. Their work is critically important.

***MEDICC Review*: I see that South Korea started testing early, at least with rapid tests. But we're seeing Cuba rely more heavily on this massive door-to-door screening that continues at the primary health care level.**

Francisco Durán: The fact that we have primary health care everywhere—even in the remote mountains of Santiago de Cuba, there's a family doctor and nurse, a community polyclinic—has permitted us to do the screening and also rapid testing, which is quite easy, on whole groups of at-risk people. It has also allowed us to screen other groups, such as the health professionals leaving to assist other countries. They receive both a rapid test and a RT-PCR.

***MEDICC Review*: I want to have the protocol clear on the rapid tests...**

Francisco Durán: We began using them to test travelers coming from countries with transmission; then for anyone arriving in the 14 days prior to March 24, when most travel to Cuba was suspended, as part of primary care follow up. Beginning on March 24, all people who, for one reason or another, are still returning to Cuba are tested in isolation centers where they remain for 14 days of observation; all contacts of suspected (not confirmed) cases; those with acute respiratory infections, even a common cold; symptomatic people who may have been indirectly exposed in areas where transmission clusters have been identified (or areas quarantined); all those in nursing homes, psychiatric hospitals and psychopedagogical centers; once again, to all health professionals going abroad; and to anyone hospitalized with a respiratory infection.

You know that the rapid test isn't conclusive, but gives you an idea of possible infection. So of course, when a person is identified with a serious acute respiratory condition, then we use RT-PCR in addition to rapid testing.

***MEDICC Review:* Today is April 10. The first cases in Cuba were identified 30 days ago, on March 11. What is the situation today?**

Francisco Durán: The measures taken thus far have meant that for most of this time, we were seeing only imported cases, or those infected by travelers, or very small clusters (such as families). Now this has extended and we are talking about limited local transmission. That means that whole neighborhoods or communities are affected, and as a result are put into quarantine, where movement in and out is further restricted and epidemiological surveillance and testing stepped up. This has happened in specific places in various provinces up until now.

***MEDICC Review*: It seems that prevention is more important now than ever. How has the media been involved?**

Francisco Durán: To the strategies adopted by the national health system, you have to add the intense media campaign. On television, you see a barrage of information and messages. People all across the island tune in to our daily briefing. It offers a panorama of the global COVID-19 situation and the situation in Cuba. We report how many total and new cases have been confirmed in the country, where the new cases have been found (province or town), how many are in serious or critical condition, how many deaths. And this information is accompanied by messaging: for example, if I say that many of the critical or serious cases are people who are hypertensive or diabetic, or that they are in a given age range, then this helps us explain why people of a certain age or with these risk factors should take extra care, should stay home, and so on.

***MEDICC Review:* Of course this response doesn't just involve the health system and the media. Who else is involved at this point?**

One group, including scientists from various institutions and universities, and in particular BioCubaFarma, is working on developing medications to treat COVID-19. Another group is working on digital applications. One is already available that allows people with symptoms to communicate with a health facility's professionals, so they can be identified and receive instructions this way. Another application by Infomed, the country's health information network, publishes updated reports on the situation in Cuba and the world.

Further afield, intersectoral participation is fundamental—not only by neighborhood or mass organizations and local communities, but also the measures taken by Immigration and Customs, Ministries of Education, Higher Education, Culture, Tourism and the Sports and Recreation Institute. Another key action was taken by the Ministry of Labor and Social Security to protect people's salaries when they have to stay home, particularly people over 60 or who have chronic conditions, who have been asked to shelter at home...unless of course they're folks like me, who are older and still working!

***MEDICC Review*: In many places worldwide, health facilities have been overwhelmed by patients. What is Cuba doing to prepare for the possibility of high rates of hospitalization and critical care?**

Francisco Durán: First, we have set aside more facilities as isolation centers, to be able to handle more people who are at risk, but are asymptomatic, where they stay for 14 days under observation. As you know, travelers arriving since late March, and even the few arriving after that date, have been shuttled directly from the airport to isolation centers.

We have increased the numbers of hospital beds dedicated to COVID-19 patients, including ICU beds, readying these for when we hit the peak of cases, now expected in mid-May. In general, we believe we have enough, and we are using all the capacities we can. In terms of critical care, we are looking fundamentally for more ventilators, so important for these patients. The US sanc-

tions have made it more difficult to acquire ventilators, but we're doing what we can to find more.

We have also ramped up our diagnostic lab facilities: early on, we had three with molecular biology capabilities testing for this virus (one at the Pedro Kourí Tropical Medicine Institute, one in Santiago de Cuba Province and one in Villa Clara Province), but now we have included other labs in Havana, such as the lab at the National Civil Defense's Scientific Research Center. And in each of the first three laboratories, we've increased testing capacities. So now, we are processing well over 1000 RT-PCR tests daily. Because we have to keep searching, searching, searching...and once found, isolate and hospitalize infected patients.

***MEDICC Review*: In terms of both RT-PCR and rapid tests, does Cuba have enough? And do you have enough suppliers?**

Francisco Durán: We're in a very tight situation. The first RT-PCR kits came through the Pan American Health Organization (PAHO), but very few; later, we were able to acquire more from China, and we had a donation from Marseilles, France. But as you know, the US sanctions (actually a blockade), shut many doors on us when it comes to these kinds of purchases as well. In any case, and through various countries, principally China, we have quite a few tests now.

The same has been true with the rapid tests. We acquired a good number from China, and UN organizations such as PAHO and UNICEF, as well as the Global Fund, have also made successful efforts. Through them, we've also acquired some personal protective equipment (PPE). But all this is further limited by the fact that everyone is after these supplies and the prices are going up every day. Thus we received the donations I mentioned, and with government funds, we continued to look for more, and so have a sufficient number for now. But we want to prepare for the time when we may see an increased case load. So, in addition, we are producing domestically such items as specialized gowns, aprons, masks, goggles and face shields, which greatly facilitates protection for people working in our health services.

We have limitations, even in the amount of cloth we've been able to import, but with what we produce and the arrangements made through international agencies, including WHO-PAHO, we have these items to protect our health workers.

In addition, the general public is getting quite used to wearing their own masks, and the police are requiring it.

***MEDICC Review*: Do you have the N95/P2 masks, and enough of them, for workers most at risk?**

Francisco Durán: We've acquired the N95/P2 masks through the same routes I've described. These of course aren't used as massively, but rather for those people working directly with COVID-19 patients, in the laboratories as well. But yes, we have them. And we are always looking for more.

***MEDICC Review*: I know that Cuba is using its own interferon alfa-2b, as well as various other antivirals in its treatment protocol. And thus far, the country has a low case fatality rate.**

Francisco Durán: Yes, today's case fatality was 2.7%, below that in the Americas. And we are working very hard with these treatments and with the broader preventive measures to keep it low.

***MEDICC Review*: What about those who have recovered? What is your protocol?**

Francisco Durán: Patients are hospitalized for at least 15 days, and if by the end of that time, they are symptom-free, recovering, then they are tested by RT-PCR. If the results are negative, they receive a clinical discharge to return home, but with a restricted movement regimen for an extra 15 days. That is, they can't go out and can't receive visitors at home. How do we check up on them? Their families do, as well as the local health professionals in primary health care. After those 15 days at home—that is, one month after admission—a RT-PCR is repeated. If it is negative, then they receive an "epidemiological discharge" and can return to their normal activities, of course also limited for the general population right now.

Now, if the second RT-PCR is positive, it's repeated again in 5 days, while the patient remains confined to home, and if it's positive once again, they are readmitted to hospital until the test proves negative.

***MEDICC Review*: Mathematicians have developed predictive models forecasting coronavirus cases in Cuba will peak in mid-May. And the goal of course is to flatten the curve from the higher to the lower estimates. How can that be done?**

Francisco Durán: Exactly. What happens depends on the results of our actions. If we're able to sustain all the actions I mentioned, plus receive real cooperation from the public—in terms of self-protection, taking care to further limit social activity, only leave home when absolutely necessary, and then respect perimeters of physical distancing—then undoubtedly the peak will be lower, the curve flatter. The increase in cases will happen, but you'll be able to modify how it looks. The curve won't look the same if you delay actions, delay necessary quarantine or delay restricting people's movements. Then the peak will hit higher.

And that's what we're struggling against. We're fighting. And with what? With all the actions I've described, and by accelerating their pace. You've seen the daily meetings the Cuban president has with ministers and vice ministers, with other leaders, to analyze the situation and take new decisions. From those meetings come new measures. For me, like so many others, there's no rest. It's an unprecedented situation and we need even more public participation, greater awareness so that the panorama ahead can be more positive.

The mathematicians are working, you know that! And they've made their forecasts, which are useful to us: if they say we're going to reach a peak of nearly 5,000 cases, then our job is to fight to keep from reaching that number. We need to prepare for it, for the peak, by reinforcing ICUs, increasing beds, ventilators, everything, so that we're not taken by surprise. But struggle we will, fight like hell, to keep the case numbers lower, to keep more people from becoming infected.