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Policies to control the COVID-19 pandemic in Costa Rica

Drs. Ronald Evans-Meza[1], Roger Bonilla-Carrión[2], Roberto Salvatierra-Durán[3]

SUMMARY

The objective of this paper is to present a series of policies for the control of the COVID-19 pandemic by the Costa Rican authorities. An exhaustive review of the pandemic control policies was made in the official government media, mainly the Ministry of Health and the Costa Rican Social Security Fund and some collective media. The first wave of the pandemic in Costa Rica was quite mild, allowing the government to address it with a series of quite effective suppression and mitigation measures, which had the unrestricted support of the population. The second wave grew aggressively, causing social discontent due to the economic impact. Due to the ineffectiveness of the "hammer and dance" strategy, the Costa Rican government has rethought that strategy, lifting certain restrictions while recognizing the risk involved in terms of the increase in cases of COVID-19 in cases and deaths.

Key words: *COVID-19, public policies, government, Costa Rica.*

RESUMEN

El objetivo del presente trabajo es presentar una serie de políticas de control de la pandemia del COVID-19 por parte de las autoridades de Costa Rica. Se hizo una revisión sistemática de las políticas de control de la pandemia en los medios oficiales gubernamentales, principalmente el Ministerio de Salud y la Caja Costarricense del Seguro Social y algunos medios de comunicación colectiva. La primera ola de la pandemia en Costa Rica fue bastante leve, permitiendo al gobierno hacerle frente con una serie de medidas de supresión y mitigación bastante efectivas, que contaron con el apoyo irrestricto de la población. La segunda ola creció de forma agresiva, provocando una disconformidad social por el impacto económico. Debido a la inefectividad de la estrategia del martillo y la danza el gobierno costarricense se ha replanteado esa estrategia, levantando ciertas restricciones, aunque reconociendo el riesgo que implica en términos del incremento de casos de COVID-19 en casos y defunciones.

Palabras clave: *COVID-19, políticas públicas, gobierno, Costa Rica.*

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[1]ORCID: 0000-0002-0875-9770
Physician, epidemiologist, sanitarian, M.Sc. Head of the Coordination of Research of the Hispano-American University, San José, Costa Rica. E-mail: roevansme@gmail.com
[2]ORCID: 0000-0002-8789-4494
Statistician, M.Sc. Research Coordination of the Universidad Hispanoamericana. San José, Costa Rica. E-mail: roger.bonilla@uh.ac.cr
[3]ORCID: 0000-0003-4442-7877
Medical assistant to the Coordination of Research of the Universidad Hispanoamericana. Universidad Hispanoamericana, San José, Costa Rica. E-mail: roberto.salvatierra@uh.ac.cr

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INTRODUCTION

Sixty-six days after the announcement by the Chinese authorities of the presence of 27 cases of viral pneumonia of unknown origin and 60 days after the declaration by the same Asian authorities that it was a new coronavirus (1), on March 6 of this year, the first case of the disease was diagnosed in Costa Rica, known by the WHO as "Coronavirus 1919 Disease (COVID-19) (2). In Latin America, the first case of the COVID-19

pandemic occurred in Brazil on February 26th, and in the United States, the new disease had already been diagnosed in New York. The first death in Latin America occurred in Argentina on March 7. The rest is history. The pandemic has spread everywhere. By early July, 27 333 464 cases had been diagnosed, for a rate of 3 507 per million population, with 57 456 new cases. In addition, 893 711 deaths had occurred, for a rate of 114.7 deaths per million population, with 1 039 deaths for that day.

Undoubtedly this is the pandemic of the century, one that occurs every hundred years, although, to date, it is still far behind the famous and misnamed "Spanish Influenza" of 1918 that caused some 50 million deaths and affected approximately a quarter of humanity (3). With the reserves of the case, knowing the differences of time, transferring these figures to the present moment, we would have about 175 million deaths and about 1 750 million cases. The numbers are frightening, but the non-therapeutic control measures that have been taken are undoubtedly slowing down the strength of SARS-CoV-2 and also, in perspective, we have the early arrival of some of the vaccines that are in advanced stages of testing, which are expected to contain the pandemic. But even so, the current and future consequences for global health are extremely serious.

The effects on the economy are also seriously affecting all nations, especially those outside the developed world. This is "a health, human and economic crisis unprecedented in the last century and one that is continually evolving" (4). Only in times of world war does one experience a similar situation. The measures of suppression and mitigation that have been taken to contain the pandemic, have proven to be effective, especially the physical distancing, but they have a negative action in the economic field since they cause the deceleration of production, which implies the loss of jobs and decrease of working hours, with the consequent action on the salary. The result is a reduction in the aggregate demand for goods and services.

National health structure

According to the health system profile prepared by the Panamerican Health Organization (PAHO) (5), the "health, nutrition and education" sector, as indicated in Executive Decree N°41187 of 2018, is made up of: the following centralized and decentralized institutions: Ministry of Health, Ministry of Agriculture and Livestock (MAG), Costa Rican Social Security Fund (CCSS), Costa Rican Institute of Aqueducts and Sewers (AyA), National Insurance Institute (INS), Costa Rican Institute of Sports and Recreation (ICODER), National Directorate of Education and Nutrition Centers and Children's Centers for Integrated Care (CEN-CINAI), Institute of Alcoholism and Drug Addiction (IAFA), National Institute of Research and Teaching in Nutrition and Health (INCIENSA) and National Rehabilitation Board (PANARE).

The National Health System of Costa Rica is made up of the Ministry of Health, which is its governing body, the Costa Rican Social Security Fund (CCSS), the National Insurance Institute (INS), the Costa Rican Institute of Aqueducts and Sewers (A&A), universities and public and private institutes that train health personnel, private health services, cooperatives and self-management companies that provide health promotion, disease prevention, healing, and rehabilitation services to individuals, municipalities, and communities.

This health system underwent a real and effective transformation in the nineties, a period in which the health sector reform was carried out, framed within the discussion on the Costa Rican State Reform. In 1991, a Health Sector Evaluation Commission was created to identify the main problems of the sector at that time. In 1993 the National Plan for Health Sector Reform was formulated (5). From then on, the Ministry of Health was responsible for the steering role of health, as well as some specific programs, such as health promotion and disease prevention such as vector control, basic sanitation, comprehensive care for children from families with nutritional needs through the National Directorate of Education and Nutrition Centers and Children's Centers for Comprehensive Care (CEN-CINAI). Finally, the prevention, treatment, and rehabilitation of people with

addiction problems is the responsibility of the attached body, the Institute on Alcoholism and Drug Dependence (IAFA).

The CCSS was assigned to provide health services at all three levels of care. Of particular importance was the creation by the CCSS of the network of Basic Teams for Integrated Health Care (EBAIS) and Health Areas, "with the main objective of complying with the universal coverage that had previously been established in the 1961 Law for the Universalization of Health Insurance. The CCSS divides the national territory into seven health regions, each region subdivided into health areas that would have one EBAIS for every 3 500-4 000 inhabitants, depending on population density" (5).

The National Health System in Costa Rica is governed by four fundamental principles: 1. Financing is provided by contributions from the state, employers, and workers. Public funds covered 73 % of total health care spending in 2014, equal to the average among OECD countries (6). So far, it has covered the prevailing needs and obligations, but it is feared that very serious actuarial studies will not be enough in the medium term.

According to the 1998 Reform, the Ministry of Health was assigned four primary functions: 1) direction and management; 2) regulation of health development; 3) health surveillance, and 4) research and technological development. These attributions have been very evident during the current COVID-19 pandemic, in which the work of the Minister of Health has been outstanding and leading, a very important fact since in the past, with the exceptions of rigor, the actions of the Ministry had been quite grey, overshadowed by the enormous magnitude of the CCSS and its multi-presence throughout the country. The occasion-although very serious-has served then to highlight the role of the Ministry of Health as the undisputed rector of the sector.

The COVID-19 pandemic in the country

So far, there are two stages or two waves of the pandemic in Costa Rica. The first goes from March 6, when COVID-19 is first diagnosed in a tourist from abroad, starting to rise slowly, until it reaches its peak on April 9 when 37 cases are reported. From then on, the descent begins with some irregular ascents, until May 24th, that is, it lasted eighty days when from then on, it can be established that the second wave or outbreak of the pandemic is beginning. The first outbreak had its highest percentage increase in the weeks, 2, 3, and 4, while the minimum was reached in the ninth. In all, it had a cumulative total of about 1 000 cases, lasting up to eighty days. The first death of the pandemic occurred on March 19, and 48 hours later the second victim died. Then a long period of 17 days passed without death, when by that time 502 cases had been diagnosed. By the end of May, only ten deaths had occurred, resulting in a very low lethality for the country (7).

The second wave began in the last week of May, slowly increasing the number of cases in June, but never going below twenty. However, the mortality rate continues to be very low, so much so that during those four weeks it barely added six deaths to the ten that had come before, at a time when 3 459 cases were counted (lethality 0.5 %). As of June 24, no fewer than one hundred cases are reported daily, until the present time. On July 15, for the first time, more than 500 cases were diagnosed in one day, while on August 7, more than one thousand cases were diagnosed daily. It is already evident that July represents the breaking point of the pandemic in Costa Rica. Both prevalence and mortality are increasing steadily, with the former rising from 3 459 to 17 820 cumulative cases, while deaths are rising from a mere 16 to 150. Figure 1 shows the increase in cases every five days during July and August. In the first 25 days of July, there was a practically continuous increase in cases, followed by 15 days in which cases decreased, only to resume on August (8).

This is the last month in which cases are rising rapidly, reaching high rates in the Latin American context. Table 1 shows the cumulative cases and deaths from June 6 to August 23, as well as their respective rates per million inhabitants. It can be seen how the prevalence went from 237.2 per million on 3 June 20 to 6 935 on 23 August 20 (a 25-fold increase). During the same period, mortality varied from 2.7 per million on 3 June 20 to 72.8 per million (a 26-fold increase). Figure 2 (semi-logarithmic) shows how the rates of deaths and cases rise in parallel. Referring only to the second half of August, Costa Rica, as can be seen

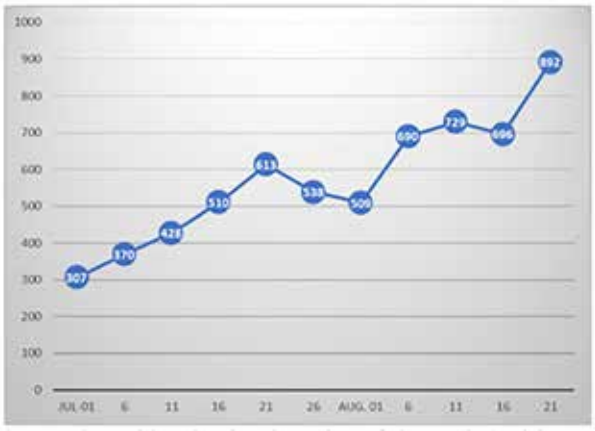

Figure 1. Costa Rica. The average number of new cases of COVID-19, according to five-day periods. July-August, 2020. Source: Own elaboration based on data of Costa Rica'sMinistry of Health.

Table 1

Costa Rica. Cases and deaths per million inhabitants by COVID-19 from June 3 to August 23, 2020

Date cases	Cumulative hab.	Cases/million deathshab.	Cumulative	Deaths/million
3/06/20	1 157	237.0	10	2.7
14/06/20	1 715	351.0	12	2.5
26/06/20	2 836	581.0	12	2.5
5/07/20	4 996	1 024.0	19	3.9
15/07/20	8 986	1 482.0	40	8.2
25/07/20	14 600	29 992.0	98	20.01
14/08/20	26 931	5 520.3	281	57.06
19/08/20	30 409	6 233.2	321	65.8
23/08/20	33 820	6 935.0	355	72.8

Source: Own elaboration based on data of Costa Rica's Ministry of Health.

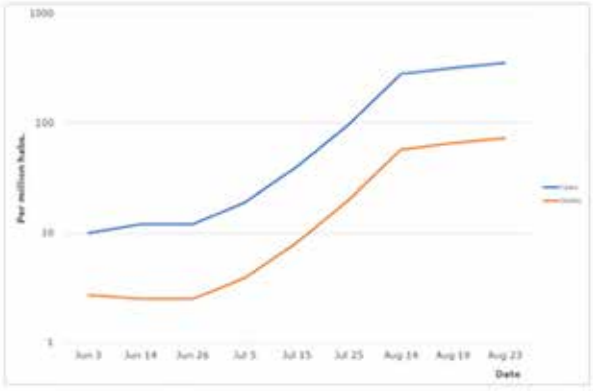

Figure 2. Costa Rica. Cases and deaths of COVID-19 per million (expressed in logarithms), June-August, 2020. Source: Own elaboration based on data of Costa Rica's Ministry of Health.

in Table 2, has higher rates of COVID-19 than Mexico and all Central American and Caribbean nations, except for Panama, and in the case of South America, above all countries except Peru, Colombia, and Argentina. Fortunately, mortality continues to be one of the lowest in the region, as can also be seen in the same Table 2 (9).

As of 7 September, Costa Rica reported 46 920 accumulated cases, for a rate of 9 618 per million, of which 18,211 are recovered and 28 231 remain active; 478 deaths (rate 98 per million), 50 % have occurred in the last 28 days. The base reproduction number for the date is 1.2. According to the risk classification COVID-19 (10), a score of 3.49 % is obtained which implies "high risk".

Table 2

Latin America. The average number of cases, deaths, and active cases per COVID-19 from 14 to 28 August 2020 (14 days), per million inhabitants

Country	Cases	Deaths	Active cases
North America			
Mexico	4 339.1	470.7	324.2
Central America			
Guatemala	3 984.2	151.0	550.9
Belice	1 619.0	16.7	1 488.3
El Salvador	3 827.2	102.8	1 847.8
Honduras	6 066.9	186.9	4 948.2
Nicaragua	688.2	21.2	200.1
Costa Rica	6 526.4	68.8	4 264.0
Panama	21 073.2	459.0	5 937.9
Caribbean			
Cuba	311.7	7.9	49.0
Haiti	737.0	18.1	218.3
Dominican Rep.	8 478.3	144.9	2 835.3
South America			
Argentina	7 649.5	151.8	1 895.0
Bolivia	9 674.9	397.0	5 403.9
Brazil	16 896.9	541.1	2 631.1
Chile	21 548.3	586.4	863.8
Colombia	10 563.7	337.4	3 220.0
Ecuador	6 393.3	377.2	624.5
Paraguay	1 783.2	27.0	728.9
Peru	17 896.1	856.2	4 802.4
Uruguay	436.0	11.9	59.8
Venezuela	1 261.0	10.5	334.8

Source: Own elaboration based on http://malouche.github.io

Measures taken by the government of Costa Rica

In Costa Rica, there was a 32-day gap between the taking of the first measure (3/02/20) and the appearance of the first case (6/03/20) (11). From the outset, the national government took a series of measures to address COVID-19, very similar to those already being applied in other countries (12,13). Among them were the declaration of a national emergency, restrictions on vehicle traffic and public transport, physical distancing, closure of schools, colleges, and universities, as well as shopping centers, restaurants, bars, civic and religious centers, sports facilities, border closures, suspension of international flights, migration measures, promotion of hygienic behavior such as hand washing, treatment of contacts and people suspected of having the disease, strengthening of hospital facilities, mainly in the area of intensive care, and later, the mandatory use of masks.

Among the most recent measures in the transition phase (starting in September) are the following:

- From August 31 to September 8, a transition closing phase is applied towards a model of controlled reopening and co-responsibility with municipalities, the private sector, and communities.
- During these 9 days, restrictive measures are established for the opening of establishments.
- All establishments with a health care operating permit in cantons on orange alert are ordered to be closed, except for the list of exceptions which includes supermarkets, hardware stores, home service, vehicle repair, stores, restaurants, beauty salons, among others.
- The operation of individual sports is authorized, outdoors or indoors, without an audience; contact sports for the training of the Women's and Men's National Teams of high competition; and competitions of the high performance or professional category, behind closed doors and without an audience; and contact sports for individual training without physical contact or approach; all according to the list authorized by the Minister of Sports.
- The hotels will be able to operate throughout the country with 100 % capacity. In the

In chronological order, among the most important are the following (14):

Table 3. Measures taken by the government of Costa Rica

Date	
Mar. 14th	Measures to protect or mitigate the economic and social impact of the pandemic.
Mar.16th	The National State of Emergency.
Mar. 19th	National Assembly approves a reduction in work hours.
Mar. 20th	A tax moratorium and exemption for commercial rents take effect. The Ministry of Labor publishes procedures for the temporary suspension of work contracts. On the same day, the government announces temporary school closings.
Mar. 21th	Approval of teleworking.
Mar. 24th	Labor measures in the public sector.
Mar. 27th	The extraordinary budget proposal to help affected families. The Costa Rican Tourism Institute grants a 4-month moratorium on the payment of taxes. The same day, it announces a restriction on night-time travel.
Mar. 31st	The CCSS approves the streamlining of public procurement awards.
Apr. 1st	Approval of fines for those who violate sanitary isolation measures, as well as vehicle restriction.
Apr. 4th	Daytime vehicle restriction. On the same day, temporary closure of establishments with sanitary permits for public meetings.
Apr. 5th	Restriction to the entrance to beaches and national parks.
Apr. 7th	Permission for public and private education to have alternative measures for teaching.
Apr. 9th	Prohibition of the sale of chloroquine, hydroxyquinoline, and ivermectin without a prescription.
Apr. 12th	Daytime vehicle restriction.
Apr. 17th	Approval of the "Bono Proteger" to help unemployed families.
Apr. 20th	Border closures are extended.
Apr. 22nd	Activation of protocols and health measures in workplaces. The Legislative Assembly approves a temporary subsidy for those whose employment is affected. The Ministry of Health announces protocols and health measures in work centers.
Apr. 30th	Reform of the general health law in cases of suspicion or confirmation of communicable diseases that must be reported.
May 11th	Restriction of the entrance of international flights to the national territory.
June 5th	Restriction to navigation in some of the country's rivers. Expansion of certain orange cantons.
June 25th	Health Care Guidelines for Pandemic COVID-19.
June 27th	Mandatory use of masks or masks.
Aug. 5th	Declaration of interest in research projects that contribute to the development and validation of diagnostic tests for the detection of SARS-CoV-2.

common areas of these hotels (restaurants, swimming pools, gyms, among others) a capacity of 50 % must be maintained.

- All the beaches in the country are open from Monday to Sunday until 14:30.
- The cantons on yellow alert will continue the process of reopening establishments.

The phase of controlled opening begins on September 9 allowing the controlled opening of establishments that serve the public, but with only 50 % of its maximum capacity and in schedule from Monday to Friday from 5 p.m. to 10 p.m. and on Saturdays and Sundays until 8 p.m. Places where there may be mass events such as bars, casinos, among others, are kept closed. Places of worship, event halls, cinemas, and theaters may operate with some restrictions. Other business and academic places may operate with a maximum of 75 people. For other events, the maximum will be 30 people.

The shared management model ("Costa Rica trabaja y se cuida") implies involving all citizens' at all administrative levels in the application of

the "protocols and guidelines for the prevention of COVID-19 infection in each of the territories and within the organizational structure of the National Risk Management System". In each canton, reference will be made to the "Cantonal Risk Ratio" (RRC), which is the product of the analysis of epidemiological indicators carried out by the Situation Analysis Room of the Emergency Operations Center (COE) (15).

DISCUSSION

The first wave of the COVID-19 pandemic in Costa Rica was quite mild and the country's health structure responded adequately. It is recognized that its powerful national health system, with national coverage, well organized in its three operational levels, under a unified command and with a very competent and well-prepared staff (16), was prepared to face the virus that was already devastating many areas of the planet. It also favored that there was enough time to be ready for what was coming and that we already said, the beginning was slow and not abrupt. The proof is in the low number of cases and attenuated linear growth. Similarly, it happened with the lethality and mortality, which were among the lowest in the world, as has already been mentioned.

Another positive condition was the initial participatory and comprehensive response of the population. In the face of the suppression and mitigation measures undertaken, it responded with respectful compliance. The intelligent participation of the highest health authorities, who daily addressed the country, giving details on the evolution of the pandemic, contributed to this. Among them, practically in the first months, the Ministry of Health and the director of the Costa Rican Social Security Fund were always present. The President of the Republic attended several of these presentations, but he always acted discreetly, talking as little as possible and giving all the support to his technicians. At that time, the government gained favorable points among the population's feelings, and the figure of the Minister of Health, Dr. Daniel Salas, and that of MS.C. Román Macaya gained popularity and respectability.

That honeymoon ended when the second wave came with unusual vigor. It is in full swing right now and is expected to peak in mid-October. The government, after taking alternative measures to the "hammer and dance" strategy during August, has decreed as of September 9, the lifting of some measures tending to favor physical distancing. Public opinion has changed, and that popular support that benefited the government at the beginning of the pandemic has been shattered.

For a long time, the thesis that the country had entered phase three of the pandemic was defended, when it was already evident to the population that the country had entered a stage of community contagion. The number of PCR tests dropped substantially, bringing the negative/positive ratio down to two when during the first wave it reached 40. It was evident that the high number of cases that have been presented has frankly exceeded the official response capacity. Either economic resources were not available - for lack of them or not foreseen - to carry out a sufficient number of tests, or perhaps there was not an adequate number of trained personnel to carry them out. A lack of personnel has been cited to meet a demand that has grown too much in recent weeks, but the truth is that there has been no effect on this aspect (Table 4).

Table 4

Costa Rica. Percentage of cases recovered from COVID-19 with respect to the cumulative total of cases, March-August 2020

Date	Cumulative cases	Recovered	Percentage cases
25/03/20	201	2	1.0
15/04/20	626	67	10.7
30/04/20	719	338	47.0
15/05/20	843	542	64.3
31/05/20	1 056	669	63.4
15/06/20	1 744	771	44.2
30/06/20	3 559	1 436	41.5
15/07/20	8 986	2 551	28.4
31/07/20	17 820	4 404	24.7
15/08/20	27 737	9 010	32.5
23/08/20	33 820	10 518	31.1

Source: Own elaboration based on data of Costa Rica'sMinistry of Health.

It would seem that the government has been proactive in diligently increasing the number of hospitalization beds to attend to patients with the disease, especially those in intensive care. However, it is reaching a dangerous point, in which, if the increase in cases continues, there could be a collapse in-hospital care.

CONCLUSIONS

The first wave of the pandemic in Costa Rica was quite mild, both in terms of morbidity and mortality, allowing the government to deal with a series of quite effective suppression and mitigation measures, which had the unrestricted support of the population. The process lasted eighty days and created a false sense of security and even pride, for having traveled without too much damage, a path that had been very painful, for many countries in the world, and even in Latin America.

The second wave began slowly at first, but after four weeks it has been growing in an unusually aggressive manner, both in terms of the number of cases and deaths, increasing the occupation of beds for moderate patients, as well as for severe patients located in intensive care units. The community has begun to protest, especially because of the economic impact that has arisen and the official discourse no longer generates the positive impact of the first months. Rather, it looks tired, repetitive, and not entirely transparent, which is why it has been accused by journalists.

Some sectors are beginning to complain about the ineffectiveness of the hammer and dance strategy and to ask for it to be rethought. The government has been forced by the circumstances to lift certain restrictions, which will allow the economy to improve, even though it recognizes the danger of occurring in the middle of an upward epidemic curve. This is the case with tourism, an activity that represents the country's main source of income, but bringing tourists from Europe and the United States, despite all the precautions taken, will increase risk exposure.

The pandemic has spread during other serious health problems that Costa Rica has in common with other Latin American countries. First of all, chronic non-communicable diseases should be mentioned, which constitute the first cause of mortality and disease burden in the region (and in the world). Their interaction with the pandemic is known from the beginning, making both intertwine to form a "perfect storm". Then we have the diseases of poverty, which include under nutrition that is particularly prevalent in children, as well as the other infectious diseases, which are still a major cause of death and disease in the area. In addition, there are a large number of other health problems aggravated by the pandemic, which a magnificent study by the Latin American Society of Pediatric Infectious Diseases (SLIPE) has recently reported (17), among which it mentions mental health, increased consumption of drugs and alcohol, learning disabilities, increased food insecurity with the closure of school canteens, limited access to immunizations, among others.

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