

This document is a compilation of all questions, justifications, and sources used to determine the 2021 Global Health Security Index scores for Cuba. For a category and indicator-level summary, please see the Country Profile for Cuba.

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Category 1: Preventing the emergence or release of pathogens with potential for international concern

1.1 ANTIMICROBIAL RESISTANCE (AMR)

1.1.1 AMR surveillance, detection, and reporting

1.1.1a

Is there a national AMR plan for the surveillance, detection, and reporting of priority AMR pathogens?

Yes, there is evidence of an AMR plan, and it covers surveillance, detection, and reporting = 2, Yes, there is evidence of an AMR plan, but there is insufficient evidence that it covers surveillance, detection, and reporting = 1, No evidence of an AMR plan = 0

Current Year Score: 0

There is no accessible official documentation of a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens, but there is some evidence that such a plan is in preparation, or might already exist. The WHO Library of national action plans contains no data for Cuba, but in the WHO 2019 "Global Database for Antimicrobial Resistance Country Self Assessment", Cuba scored a 'B' in response to question 5.1, indicating that there is a national 'AMR action plan under development', or that the 'plan involves only one sector or ministry' [1]. However, in the WHO 2018 report on global progress on AMR to the World Health Assembly, Cuba did not respond to the survey [2] Evidence that a plan might be under development is also provided by a 2017 article in the Cuban 'Pedro Kouri' Institute of Tropical Medicine's Cuban Review of Tropical Medicine, which reports that such a national AMR plan is currently in the 'development and perfection' stages [3] The lack of information on the launch of such a plan for the surveillance, detection and reporting of priority AMR pathogens on Government websites (namely: the Ministry of Public Health's website and the Ministry of Agriculture) suggest that there is not yet one in place in Cuba [4,5].

[1] World Health Organisation. 2019. "Global Database for Antimicrobial Resistance Country Self Assessment". [<https://amrcountryprogress.org/#docs>]. Accessed 25 November 2020.

[2] World Health Organisation. 2018. 'Monitoring Global Progress on Addressing Antimicrobial Resistance: analysis report of the second round of results of AMR country self-assessment survey 2018', [<http://apps.who.int/iris/bitstream/handle/10665/273128/9789241514422-eng.pdf>]. Accessed 25 November 2020.

[3] Quiñones Pérez, Dianelys. 2017. "Resistencia antimicrobiana: evolución y perspectivas actuales ante el enfoque "Una salud" (Antimicrobial resistance: evolution and current perspectives in the context of the "One health" approach)". Revista Cubana de Medicina Tropical (Cuban Review of Tropical Medicine). 69

[3] :13. [http://scielo.sld.cu/pdf/mtr/v69n3/a09_263.pdf]. Accessed 25 November 2020.

[4] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[5] Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed 25 November 2020.

1.1.1b

Is there a national laboratory/laboratory system which tests for priority AMR pathogens?

All 7 + 1 priority pathogens = 2 , Yes, but not all 7+1 pathogens = 1 , No = 0

Current Year Score: 1

There is public evidence that Cuba has a national laboratory/laboratory system which tests for at least some of the 7+1 priority AMR pathogens. Cuba is a member of the Latin American Antimicrobial Resistance Surveillance Network (ReLAVRA), an international network supported by the Pan American Health Organization that collects reliable, timely and reproducible microbiological data. [1,2] A 2014 ReLAVRA report (most recent available online), confirms that the laboratory system in Cuba conducts tests for drug resistant Salmonella, Shigella, N. gonorrhoea, S.pneumoniae, E.coli and K.pneumoniae. [3] There is no further public information on if Cuba can test for others of the 7+1 priority AMR pathogens. Cuba is not covered in the WHO Library of national action plans, nor is it included in the WHO report on global progress on AMR to the World Health Assembly. There is no mention of such a record on the website of the Ministry of Agriculture (MINAG) [4]. There is no publicly available information on this topic on the Ministry of Health website, too [5]. However, there are reports in the press that mention a 'National Laboratory for the monitoring of anti-microbial resistance and pathogens related to infections related to sanitary care' ('Laboratorio Nacional para la vigilancia de la resistencia antimicrobiana en patógenos relacionados con las infecciones asociadas a la asistencia sanitaria') [6,7]. The reference laboratory is at the Pedro Kouri Institute (IPK), and is responsible for national surveillance of microbial resistance, drawing on samples from a national network of microbiology laboratories linked to 146 hospitals. The IPK's microbial map is constantly updated, with AMR results, and identification of specific pathogens of concern, circulated to physicians, epidemiologists, and the pharmacotherapy committee. Testing for the 7+1 priority AMR pathogens could not be confirmed.

[1] Pan American Health Organization. "ReLAVRA - Países miembros".

[https://www.paho.org/hq/index.php?option=com_content&view=article&id=6251:2017-relavra-paises-participantes&Itemid=42428&lang=es] Accessed 25 November 2020

[2] Pan American Health Organization. "Red Latinoamericana de Vigilancia de la Resistencia a los Antimicrobianos - ReLAVRA". [https://www.paho.org/hq/index.php?option=com_content&view=article&id=13682:relavra-home&Itemid=42427&lang=es] Accessed 25 November 2020

[3] Pan American Health Organization. "ReLAVRA - Documentos técnicos".

[https://www.paho.org/hq/index.php?option=com_content&view=article&id=6246:2017-relavra-documentos-tecnicos&Itemid=42431&lang=en] Accessed 25 November 2020

[4] Ministry of Agriculture website. [<https://www.minag.gob.cu/>]. Accessed 25 November 2020

[5] Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

[6] Magdariaga Larduet, R. 2016. 'Antibiotic resistance, a real problem in Cuba' ('Resistencia a los antibióticos, un problema real en Cuba'). Prensa Latina website. [<https://www.prensa-latina.cu/index.php?o=rn&id=214901&SEO=resistencia-a-los-antibioticos-un-problema-real-en-cuba>]. Accessed 25 November 2020.

[7] Prensa Latina. (No author name given.) 2016. 'Antimicrobial resistance for international debate in Cuba' ('Resistencia a los antimicrobianos a debate internacional en Cuba'). Prensa Latina website, September 12 2016. [<https://www.prensa-latina.cu/index.php?o=rn&id=209818&SEO=resistencia-a-los-antimicrobianos-a-debate-internacional-en-cuba>]. Accessed 25 November 2020.

1.1.1c

Does the government conduct environmental detection or surveillance activities (e.g., in soil, waterways) for antimicrobial residues or AMR organisms?

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Cuba conducts detection or surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues or AMR organisms. Within the Cuban government, the entity that should be responsible for environmental detection or surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues or AMR organisms is the Ministry of Science, Technology and the Environment (CITMA), but there is no accessible information on this issue on the Ministry's

website [1]. The Ministry of Public Health website also provides no accessible information on AMR surveillance [2]. According to the World Health Organization's 2014 Global Report on Antimicrobial Resistance, the Pedro Kouri Institute of Tropical Medicine (IPK), which is a Ministry of Public Health Institution, is cited as the national entity responsible for AMR surveillance [3]. The IPK is the Cuban participant in the AMR networks coordinated by PAHO/AMRO (Pan American Health Organization/WHO Regional Office for the Americas) - ReLAVRA (Latin American Antimicrobial Resistance Surveillance Network) and SIREVA (Sistema de Redes de Vigilancia de los Agentes Responsables de Neumonías y Meningitis Bacterianas) [4]. There is no clear public information on the division of labour between the IPK in this capacity, and the Centre for Animal and Plant Health (CENSA), which is responsible for surveillance of AMR resistance in animals and therefore might be monitoring residues on oil and waterways [5]. Cuba's chapter of the Alliance for the Prudent Use of Antibiotics (APUA) reported that it had over 1,000 members in 2015 [6]. It is not clear whether this includes scientists responsible for environmental surveillance for AMR residues or organisms.

[1] Ministerio de Ciencia, Tecnología y Medio Ambiente website. [<http://www.citma.gob.cu/>]. Accessed 25 November 2020.

[2] Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

[3] WHO, 2014. Antimicrobial resistance: global report on surveillance.

[https://www.who.int/iris/bitstream/10665/112642/1/9789241564748_eng.pdf?ua=1] Accessed 25 November 2020.

[4] WHO. 2018. Monitoring Global Progress on Addressing Antimicrobial Resistance: Analysis report of the second round of results of AMR country self-assessment survey. [<http://www.fao.org/3/ca0486en/CA0486EN.pdf>]. Accessed 25 November 2020.

[5] Center for Animal and Plan Health (CENSA). [<http://www.censa.edu.cu>]. Accessed November 18 2018.

[6] APUA website, Cuba page. [<https://apua.org/cuba/>] Accessed 25 November 2020.

1.1.2 Antimicrobial control

1.1.2a

Is there national legislation or regulation in place requiring prescriptions for antibiotic use for humans?

Yes = 2 , Yes, but there is evidence of gaps in enforcement = 1 , No = 0

Current Year Score: 2

There is evidence of national legislation or regulation in place requiring prescriptions for antimicrobial use for humans, which includes antibiotics.

According to CECMED (Center for State Control of Medicines and Medical Devices, *centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos*), the National Regulator for Pharmaceutical in the Republic of Cuba, and the Panamerican Organization for Health (OPS, Organization Panamericana de la Salud), the prescription system was established in 1991. In that year, the first National Program for Pharmaceutical (NPP, Programa Nacional de Medicamento) was created, thereby implementing control and inspection measures for prescription, including: identification of the prescribing actor, controlled delivery of the drugs, establishment of regulations for prescription of specific products, and others. These measures should be updated in each version of the NPP.

As of today, CECMED provides authorisation to the sale of drugs, including antimicrobials (and, as a consequence, antibiotics), thereby assuring their quality. Antimicrobials require a prescription from a "facultativo" (a physician or a stomatologist) which includes the diagnosis and lasts seven days. [1] The most updated version of the NPP available online is dated 2014 and does not include specific data on antibiotics, but it provides thorough regulations for the usage and prescription of antimicrobials, such as: the creation of a Pharmaceutical Committee (Comite Farmacoterapeutico) with the

goal to increase the quality control of the prescription, including antimicrobials; the creation of an antimicrobial subcommittee within the hospitals with the goal of optimizing the selection, dosage and length of antimicrobial treatments. [2]. There is no evidence of gap in enforcement. [1] Nevertheless, the WHO Library of National Action Plans does not include a National Action Plan for Cuba [3].

[1] Organization Panamericana de la Salud, 2020. Fiscalización de la venta de antibióticos en Cuba.

[<https://www.paho.org/es/sistemas-servicios-salud/fiscalizacion-venta-antibioticos-cuba>]. Accessed November 25, 2020.

[2] Ministry of Public Health, 2014. Programa Nacional de Medicamentos.

[https://files.sld.cu/higienepidemiologia/files/2015/07/programa_nacional_completo-medicamentos.pdf]. Accessed November 25, 2020.

[3] WHO Library of National Action Plans, <https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>. Accessed 25 November 2020

1.1.2b

Is there national legislation or regulation in place requiring prescriptions for antibiotic use for animals?

Yes = 2 , Yes, but there is evidence of gaps in enforcement = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available evidence of national legislation or regulation in place and enforced requiring prescriptions for antibiotic use for animals. In the WHO's Global Database for Antimicrobial Resistance Country Self Assessment for 2019, Cuba reported a 'D' grade (with the scale being from 'A' as least positive to 'E' as most) on the question (9.2) on the implementation 'of legislation and regulations on responsible and prudent use of antimicrobials in animals and ensuring safe food supplies', including the statement that prescriptions 'are required for antimicrobial use in animals'. [1]. The UN's Food and Agriculture Organisation also mentions in a bulletin post that the Cuban Ministry of Agriculture created legislation regulating antimicrobial use, including for veterinary purposes. [2] However, the legislation could not be found. In September 2018 the local press reported that Cuba hosted an international conference on 'Antimicrobial Resistance: from Laboratory to Clinic' ('Resistencia Antimicrobiana: del Laboratorio a la clínica') [3]. The organising committee was presided over by researcher from the Pedro Kouri Institute of Tropical Medicine (IPK), the national reference laboratory for antimicrobial resistance. In the press report, there is a reference to a national action plan to combat AMR, but further information is not available. No public information on this topic is available from the Ministry of Health website, INFOMED or the Ministry of Agriculture site, and there is no entry for Cuba in the WHO Library of National Action Plans [4,5,6].

[1] World Health Organisation. 2019. "Global Database for Antimicrobial Resistance Country Self Assessment".

[<https://amrcountryprogress.org/#docs>]. Accessed November 25, 2020.

[2] Food and Agriculture Organisation of the United Nations. 2017. "Expertos cubanos asistieron a taller mundial sobre Resistencia a los antimicrobianos (Cuban experts assist in global workshop on antimicrobial resistance)".

[<http://www.fao.org/cuba/noticias/detail-events/es/c/1035509/>]. Accessed November 25, 2020.

[3] 2018. 'Se suma Cuba al llamado de la OMS en la lucha contra resistencia antimicrobiana'. ACN. 26 September 2019.

[<http://cubasi.cu/cubasi-noticias-cuba-mundo-ultima-hora/item/82950-se-suma-cuba-al-llamado-de-la-oms-en-la-lucha-contra-resistencia-antimicrobiana>]. Accessed November 25, 2020.

[4] Health Ministry Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.

[5] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

[6] WHO Library of National AMR Action Plans. [<http://www.who.int/antimicrobial-resistance/national-action-plans/library/en>]. Accessed November 25, 2020.

1.2 ZOOBOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

Is there national legislation, plans, or equivalent strategy documents on zoonotic disease?

Yes = 1 , No = 0

Current Year Score: 0

There is not enough publicly available evidence of a national law, plan, or equivalent strategy document, on zoonotic diseases in Cuba. According to the Health Ministry, Cuba implements surveillance, control and prevention programs against zoonotic diseases which include case tracking, protection of high-risk people, health education and promotion of health, rabies vaccines for pets and other measures, but the plan is not publicly available. The Health Ministry also applies the National Zoonosis Program (PNZ, Programa Nacional de Zoonosis), which is aimed at reducing zoonotic diseases in human beings and works in collaboration with the Animal Health Direction of the Ministry of Agriculture. [1] Nevertheless, the PNZ is not accessible in detail on the public websites of the Ministry of Agriculture or the Ministry of Public Health, as well as on the website of the Pedro Kouri institute. [2] [3] [4] The Ministry of Health does provide more precise data on the plan for vigilance, control and prevention of rabies, but again the plan is not accessible to the public and it is thus impossible to confirm whether the plan exists and it is enforced [5]

[1] Ministry of Health, 2019. Para reducir la incidencia de enfermedades zoonóticas en Cuba. [<https://salud.msp.gob.cu/para-reducir-la-incidencia-de-enfermedades-zoonoticas-en-cuba/>]. Accessed November 25, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.

[3] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

[4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[5] Ministry of Health Website. Enfermedades zoonóticas en Cuba: la rabia. [https://salud.msp.gob.cu/la-rabia-enfermedad-letal-para-los-humanos/?doing_wp_cron=1606335853.2177970409393310546875#:~:text=La%20rabia%2C%20es%20una%20enfermedad,humanos%20y%20diferentes%20especies%20animales.] Accessed November 25, 2020.

1.2.1b

Is there national legislation, plans or equivalent strategy document(s) which includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans?

Yes = 1 , No = 0

Current Year Score: 0

There is some evidence of a national law, plan, or equivalent strategy document, on zoonotic diseases in Cuba that includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans, but the plan is not publicly available and therefore can not be confirmed.

According to the Health Ministry, Cuba implements surveillance, control and prevention programs against zoonotic diseases which include case tracking, protection of high-risk people, health education and promotion of health, rabies vaccines for pets and other measures for risk identification and reduction for zoonotic disease spillover events from animals to humans, but the plan is not publicly available. The Ministry of Health also applies the National Zoonosis Program (PNZ, Programa

Nacional de Zoonosis), which is aimed at reducing zoonotic diseases in human beings and works in collaboration with the Animal Health Direction of the Ministry of Agriculture. [1] The PNZ is not accessible in detail on the public websites of the Ministry of Agriculture or the Ministry of Public Health, as well as on the website of the Pedro Kouri institute. [2, 3, 4]

The Ministry of Health provides some more precise data on the plan for vigilance, control and prevention of rabies which includes measures for risk identification and reduction for rabies spillover events from animals to humans. Although the plan itself is again not accessible, there is enough publicly available information to confirm such plan exists and it is enforced. The webpage from the Health Ministry website tackling this topic is dated 2019 and it is unclear when the mentioned program was initiated. [5]

[1] Ministry of Health, 2019. Para reducir la incidencia de enfermedades zoonóticas en Cuba. [<https://salud.msp.gob.cu/para-reducir-la-incidencia-de-enfermedades-zoonoticas-en-cuba/>]. Accessed November 25, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.

[3] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

[4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[5] Ministry of Health Website. Enfermedades zoonóticas en Cuba: la rabia. [https://salud.msp.gob.cu/la-rabia-enfermedad-letal-para-los-humanos/?doing_wp_cron=1606335853.2177970409393310546875#:~:text=La%20rabia%2C%20es%20una%20enfermedad%20diferentes%20especies%20animales.] Accessed November 25, 2020.

1.2.1c

Is there national legislation, plans, or guidelines that account for the surveillance and control of multiple zoonotic pathogens of public health concern?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient publicly available evidence that there are national plans, guidelines, or laws that account for the surveillance and control of multiple zoonotic pathogens of public health concern. On its website the Centre for Animal and Plant Health (CENSA) states that it is the national coordinating body for animal health, including monitoring zoonotic pathogens, and that it supervises national plans for surveillance and risk reduction, indicating that such plans exist [1]. The CENSA website is not really searchable, but articles providing evidence of surveillance can be found. For example one article cites some activities in 2017: a study that identified strains of *Pasteurella multocida* and *Streptococcus suis* in pigs that were resistant to tetracycline and spectinomycin, and the first detection of methicillin-resistant strains of *Staphylococcus aureus* in pigs slaughtered for human consumption; and a report on the 'National implementation of a risk-based surveillance system for early warning of the introduction of avian influenza into the country' [2]. One of CENSA's agencies, CEDESAP, is described as Cuba's Centre for the Reduction of Sanitary Disasters in Animals and Plants, with specific responsibility for surveillance and control of zoonotic pathogens [3]. According to the Health Ministry, Cuba implements surveillance, control and prevention programs against zoonotic diseases which include case tracking, protection of high-risk people, health education and promotion of health, rabies vaccines for pets and other measures. Additionally, still according to the Health Ministry website, the same ministry applies the National Zoonosis Program (Programa Nacional de Zoonosis), which is aimed at reducing zoonotic diseases in human beings and works in collaboration with the Animal Health Direction of the Ministry of Agriculture. [4] Nevertheless, mentioned strategies are not available on a public website, so it is not possible to confirm that it addresses a minimum of at least three zoonotic diseases. [5] [6] [7].

- [1] CENSA website [<http://www.censa.edu.cu/?lang=en>] Accessed November 25, 2020.
- [2] CENSA website 'CENSA researchers recognised in the plenary session of the Cuban Academy of Sciences' ('Reconocidos Investigadores del CENSA en el pleno de la Academia de Ciencias de Cuba') [<http://www.censa.edu.cu/index.php/2018/04/17/reconocidos-investigadores-del-censa-en-el-pleno-de-la-academia-de-ciencias-de-cuba/?lang=en>] Accessed November 25, 2020.
- [3] CEDESAP web page [<http://www.censa.edu.cu/index.php/2016/02/05/cedesap/?lang=en>] Accessed November 25, 2020.
- [4] Ministry of Health, 2019. Para reducir la incidencia de enfermedades zoonóticas en Cuba. [<https://salud.msp.gob.cu/para-reducir-la-incidencia-de-enfermedades-zoonoticas-en-cuba/>]. Accessed November 25, 2020.
- [5] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.
- [6] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.
- [7] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

1.2.1d

Is there a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries?

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence of a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. According to the Health Ministry website, Cuba implements surveillance, control and prevention programs against zoonotic diseases which include case tracking, protection of high-risk people, health education and promotion of health, rabies vaccines for pets and other measures. Such measures are said to be applied by the very Health Ministry via the National Zoonosis Program (PNZ, Programa Nacional de Zoonosis), which is aimed at reducing zoonotic diseases in human beings and works in collaboration with the Animal Health Direction of the Ministry of Agriculture. [1] Nevertheless, mentioned Program is not available on a public website, so it is not possible to confirm that it establishes a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries. In particular, the plan is not available on the websites of the Ministry of Agriculture or the Ministry of Public Health, as well as on the website of the Pedro Kouri institute. [2] [3] [4] Additionally, Cuba's Center for Animal and Plant Health (CENSA) and 'Pedro Kouri' Institute of Tropical Medicine (IPK) are the main national agencies responsible for monitoring and research on zoonotic diseases, with the former focusing on animal health and the latter on human health. Both CENSA and the IPK work closely with the Ministry of Public Health, the National Regulatory Authority and all health institutions, including hospitals and community centres. However, there is no publicly available evidence that either function across ministries. [5] [6].

- [1] Ministry of Health, 2019. Para reducir la incidencia de enfermedades zoonóticas en Cuba. [<https://salud.msp.gob.cu/para-reducir-la-incidencia-de-enfermedades-zoonoticas-en-cuba/>]. Accessed November 25, 2020.
- [2] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.
- [3] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.
- [4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.
- [5] Center for Animal and Plant Health (CENSA) website. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 25, 2020.
- [6] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>]. Accessed November 25, 2020.

1.2.2 Surveillance systems for zoonotic diseases/pathogens

1.2.2a

Does the country have a national mechanism (either voluntary or mandatory) for owners of livestock to conduct and report on disease surveillance to a central government agency?

Yes = 1 , No = 0

Current Year Score: 1

Cuba has a national mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency. The lead institution for conducting surveillance is the Center for Animal and Plant Health (CENSA), which gathers information from the nationwide network of laboratories and reports to the National Civil Defense authority [1]. The Ministry of Agriculture and Ministry of Public Health websites provide no public information on this national mechanism [2,3]. As well as carrying out testing and research in its laboratories, CENSA maintains communication with, and provides information and training to, farmers and veterinarians. It links researchers, professors, officials, relevant agricultural enterprises and small farmers, the Ministries of Fishing and Public Health, the Academy of Sciences and specialists from other Latin American countries. Since most owners of livestock do not have good access to the internet, they generally report by other means. The REDesastres website has been developed as part of the national mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency, but it is a subscription service (by application), so the information it publishes is not publicly available. The site is hosted by the Ministry of Science, Technology and the Environment (CITMA) and sponsored by the Ministry of Higher Education. A description of the REDesastres network is provided in a 2015 conference paper in English, which notes that its usefulness will grow in line with Cuba's internet connectivity, and a 2017 article published by the University of La Plata, Argentina, provides a further update. [4, 5]. The 2017 article reports that "REDesastres provides informational support to all members of the network as a key factor for updating, timely decision making and active participation of all actors and sectors involved in the reduction of animal and plant health disasters. It has more than 510 destinations and enables the real-time interconnection of professionals, executives and officials from various Cuban and Latin American disciplines and institutions. Through the network, more than 1,376 messages have been circulated with relevant up-to-date and commented information from health agencies and international news agencies, scientific publications and national sources on emerging, reemerging, transboundary diseases and disaster management."

[1] Center for Animal and Plant Health (CENSA) website. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 25, 2020.

[2] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

[3] Ministry of Public Health. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.

[4] Percedo, M.I. 2015. 'CEDESAP and REDesastres network with "One Health" surveillance approach for the sanitary risk reduction in the agricultural sector.' Paper presented at 2015 Conference International Society for Disease Surveillance (ISDS) Denver, Colorado, USA

[https://www.researchgate.net/publication/309560254_CEDESAP_and_REDesastres_network_with_One_Health_surveillance_approach_for_the_sanitary_risk_reduction_in_the_agricultural_sector]. Accessed November 25, 2020.

[5] Canales, H., M.I. Percedo, M.G. Rodríguez, I. González. 2017. 'Redesastres, una herramienta de gestión de información al servicio de la reducción de desastres sanitarios en animales y plantas en Cuba' (Disaster management tool serving information reducing health disasters in animals and plants in Cuba). 18 May 2017. Palabra Clave (La Plata), 6 [2] , e023. [<http://sedici.unlp.edu.ar/handle/10915/60197>]. Accessed November 25, 2020.

1.2.2b

Is there legislation and/or regulations that safeguard the confidentiality of information generated through surveillance activities for animals (for owners)?

Yes = 1 , No = 0

Current Year Score: 0

There is no available information on laws or guidelines that safeguard the confidentiality of information generated through surveillance activities for animals. There is no accessible relevant information via the websites of the Ministries of Agriculture or Public Health [1, 2].

[1] Ministry of Agriculture website: <https://www.minag.gob.cu>. Accessed on November 25, 2020.

[2] Ministry of Public Health website: <http://www.sld.cu>. Accessed on November 25, 2020.

1.2.2c

Does the country conduct surveillance of zoonotic disease in wildlife (e.g., wild animals, insects, other disease vectors)?

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc.) is conducted in Cuba. A 2018 article by a team of Cuban researchers published in Cuba's Animal Health Journal (Revista de Salud Animal, Irian Percedo et al., 2018) confirms that the country conducts surveillance on zoonotic diseases in wildlife, specifying that the surveillance system covers "wildlife areas" as well as specific places vulnerable to the introduction or dissemination of transboundary diseases [1]. The article explains that the surveillance system, involving a national network of researchers, officials, farmers and environmental managers, is supported by the Ministry of Agriculture, as part of the national disaster risk reduction system (covering 'natural, technological and sanitary (biological) disasters in all sectors') led by the civil defence authority. It also notes that Cuba's "methodological manual" for risk assessment and surveillance, "with the software for database management and the user's manual" have been translated into English to be "shared with the Epidemiology Working Group (EWG) of CaribVET, the network of animal health in the region" for training purposes. The wildlife General Index of Biological Risk (GIBR) created via the information provided is categorized by each animal species (bovine, porcine and poultry) at the municipality level.

[1] Percedo, M.I., Isel González, Pablo R. ChávezII, Carlos Delgado, and María Antonia Abeledo. 2018. "Territorial risks analysis by transboundary animal diseases in Cuba". Revista de Salud Animal (Animal Health Review) Vol. 35, No. 2:122.

[<http://scielo.sld.cu/pdf/ras/v35n2/ras07213.pdf>]. Accessed November 25, 2020.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

Has the country submitted a report to OIE on the incidence of human cases of zoonotic disease for the last calendar year?

Yes = 1 , No = 0

Current Year Score: 0

2019

OIE WAHIS database

1.2.4 Animal health workforce

1.2.4a

Number of veterinarians per 100,000 people

Input number

Current Year Score: 37.62

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 68.69

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

Does the national plan on zoonotic disease or other legislation, regulations, or plans include mechanisms for working with the private sector in controlling or responding to zoonoses?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that the Cuban national plan on zoonotic disease and related legislation and regulation include mechanisms for working with the private sector in controlling or responding to zoonoses. The Ministry of Agriculture and Ministry of Public Health websites provide no public information on these national mechanisms [1,2]. However, other national organisations describe how they operate. One of the ways the disaster risk reduction authorities work with the private sector in Cuban agriculture in controlling or responding to zoonotic disease is through the sector's representative body, the Asociacion Nacional de Agricultores Pequeños (ANAP) [3]. ANAP is one of Cuba's official 'mass organisations', and as such is integrated into the national system for disease control and response. It subscribes to REDesastres and agricultural extension services organised by the Ministry of Agriculture. The REDesastres site, hosted by the Ministry of Science, Technology and the Environment (CITMA) and sponsored by the Ministry of Higher Education, A description of the REDesastres network is provided in a 2015 conference paper in English, which notes that its usefulness will grow in line with Cuba's internet connectivity [4]. The network has been developed as part of the national mechanism for owners of livestock in state, private and cooperative farms, to conduct and report on disease surveillance to a central government agency. It is a subscription service (by application), so the information it publishes is not publicly available. A 2017 article published by the University of La Plata, Argentina, provides a further update [5]. It reports that "REDesastres provides informational support to all members of the network as a key factor for updating, timely decision making and active participation of all actors and sectors involved in the reduction of animal and plant health disasters. The mechanisms for working with the private sector in controlling or responding to zoonoses also include outreach activities of the Center for Animal and Plant Health (CENSA),

which is the home of the Centre for capacity-building for disaster reduction in animal and plant health (Centro de Capacitación para la Reducción de Desastres Sanitarios en Animales y Plantas, CEDESAP) [6,7]. CENSA and CEDESAP work with farmers and veterinarians through the national networks of ANAP and local government. CEDESAP reports to the National Civil Defense authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), as shown in a brief outline of the civil defence system provided by the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR) [8]. The EMNDC in turn is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), which may explain why the EMNDC does not have an accessible website.

- [1] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.
- [2] Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020
- [3] Asociacion Nacional de Agricultores Pequeños (ANAP) website [www.revista.anap.cu] Accessed November 25, 2020.
- [4] Percedo, M.I. 2015. 'CEDESAP and REDesastres network with "One Health" surveillance approach for the sanitary risk reduction in the agricultural sector.' Paper presented at 2015 Conference International Society for Disease Surveillance (ISDS) Denver, Colorado, USA
[https://www.researchgate.net/publication/309560254_CEDESAP_and_REDesastres_network_with_One_Health_surveillance_approach_for_the_sanitary_risk_reduction_in_the_agricultural_sector]. Accessed November 25, 2020.
- [5] Canales, H., M.I. Percedo, M.G. Rodríguez, I. González. 2017. 'Redesastres, una herramienta de gestión de información al servicio de la reducción de desastres sanitarios en animales y plantas en Cuba' (Disaster management tool serving information reducing health disasters in animals and plants in Cuba). 18 May 2017. Palabra Clave (La Plata), 6 [2] , e023. [<http://sedici.unlp.edu.ar/handle/10915/60197>]. Accessed November 25, 2020
- [6] Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 25, 2020.
- [7] Centro de Capacitación para la Reducción de Desastres Sanitarios en Animales y Plantas (CEDESAP) website. [<http://www.censa.edu.cu/index.php/2016/02/05/cedesap/?lang=en>] Accessed November 25, 2020.
- [8] FAR outline of Cuba's civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 25, 2020.

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

Does the country have in place a record, updated within the past five years, of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities?

Yes = 1 , No = 0

Current Year Score: 0

There is some evidence of a record of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities, which is mandated to be updated yearly; however, there is no proof of the actual update taking place. VERTIC's database of legislative measures concerning the Biological Weapon Conventions includes the Law for the Accountability and Control of Biologic Materials, Equipment and Technology (Reglamento para la Contabilidad y el Control de Materiales Biológicos, Equipos y Tecnología Aplicada a estos), first published in 2004. Such Law defines "biologic material" as "biologic agents and their byproducts, toxins, genetically modifies organisms of their fragments with infectuous capacity". The law establishes an Internal Registry for Security and for the Organs of the State's Central Administration (Registro Interno de Salvaguardia y de los Organismos de la Administración Central de Estado) of facilities that perform any activity related to mentioned biologic material, equipment

or technology applied to it within the national territory. Such facilities are required to share annual statements with the National Authority, as well as to maintain a record of the operations involving biologic material pursuant to the law. There is however no publicly accessible evidence that such update does indeed take place. [1] No further evidence is found on the Ministry of Public Health (MINSAP), the Ministry of Agriculture website or the Ministry of Science, Technology and Environment. [2, 3, 4]. Although Cuba submitted Confidence Building Measures every year since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [5]

[1] VERTIC, BWC Legislation Database. "REGLAMENTO PARA LA CONTABILIDAD Y EL CONTROL DE MATERIALES BIOLÓGICOS, EQUIPOS Y TECNOLOGÍA APLICADA A ESTOS", 2004.

[https://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed November 26, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 26, 2020.

[3] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020.

[4] Ministry of Science, Technology and Environment. [<http://www.citma.gob.cu/>]. Accessed December 11, 2020.

[5] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed 25 November 2020.

1.3.1b

Does the country have in place legislation and/or regulations related to biosecurity which address requirements such as physical containment, operation practices, failure reporting systems, and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed?

Yes = 1, No = 0

Current Year Score: 1

There is publicly-available evidence that Cuba has in place a comprehensive legislation and regulations related to biosecurity which address requirements such as physical containment, operation practices, failure reporting systems, and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed. The main relevant publicly-available legislation in Cuba is 'Law Decree No. 90 (1999) (of Biosecurity)' [1]. This law covers biosafety and mentions specific requirements for aspects of biosecurity - namely, requiring that facilities housing biological materials control personnel access to the materials, maintaining records of operations and undergoing periodic inspections (Chapter II, Article 9), but it does not cover all aspects of physical containments, operation practices, failure reporting systems and/or cybersecurity. Additionally, Regulation 2/2004 'for the Control of Biological Materials, Equipment and Applied Technology' provides the framework for control of biological hazards, with the National Centre for Biological Security (Centro Nacional de Seguridad Biológica, CNSB) as the responsible authority for oversight of the national system for control of biological materials, equipment and technologies, as part of the National Security Framework [2]. Although Cuba submitted Confidence Building Measures every year since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [3].

[1] Ministerio de Ciencia, Tecnología y Medio Ambiente (Ministry of Science, Technology and the Environment). Law Decree No. 90 of 1999. Of biosecurity (De la seguridad biológica). [<http://www.sld.cu/galerias/pdf/sitios/insat/decreto-190-1999.pdf>]. Accessed 25 November 2020.

[2] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed 25 November 2020.

[3] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed 25 November 2020.

1.3.1c

Is there an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations?

Yes = 1 , No = 0

Current Year Score: 1

Cuba has an agency in place which oversees legislation and regulations related to biosecurity. The National Centre for Biological Security (Centro Nacional de Seguridad Biológica, CNSB), is responsible for oversight of biosecurity in the country. The main relevant publicly-available legislation in Cuba is 'Law Decree No. 90 (1999) (of Biosecurity)' [1]. This law covers biosafety and mentions specific requirements for aspects of biosecurity - namely, requiring that facilities housing biological materials control personnel access to the materials, maintaining records of operations and undergoing periodic inspections (Chapter II, Article 9). Both Law Decree 90 and Regulation 2/2004 'for the Control of Biological Materials, Equipment and Applied Technology' provides the framework for control of biological hazards, with the National Centre for Biological Security as the responsible authority for oversight of the national system for control of biological materials, equipment and technologies, as part of the national security framework [1,2]. Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [3].

[1] Ministerio de Ciencia, Tecnología y Medio Ambiente (Ministry of Science, Technology and the Environment). Law Decree No. 90 of 1999. Of biosecurity (De la seguridad biológica). [<http://www.sld.cu/galerias/pdf/sitios/insat/decreto-190-1999.pdf>]. Accessed 25 November 2020.

[2] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004. [http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed 25 November 2020.

[3] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 25, 2020.

1.3.1d

Is there public evidence that shows that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence showing that Cuba has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. The National Centre for Biological Security (Centro Nacional de Seguridad Biológica, CNSB) is the responsible authority for oversight of the national system for control of pathogens, as part of the national security framework, but does not have an accessible website. Responsibility for oversight of all disaster risk management lies with the National Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC). This in turn is linked to the national defence system under the Ministry of Defence (Ministerio de las Fuerzas Armadas, FAR), which may explain why there are no accessible CNSB or EMNDC websites. The FAR does not have a website. The Ministry of Public Health website does not cover this specific regulatory issue [1]. The Ministry of Agriculture does not detail anything regarding any such checks. [2] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [3]. There is no mention of actions to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities in the laws shared in the VERTIC database, Law Decree No. 90 (1999) (of Biosecurity)' and Regulation 2/2004 'for the Control of

Biological Materials, Equipment and Applied Technology' [4, 5].

[1] Public Health Ministry Website. [<https://salud.msp.gob.cu/>]. Accessed November 25, 2020.

[2] Ministry of Agriculture website. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

[3] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 25, 2020.

[4] Ministerio de Ciencia, Tecnología y Medio Ambiente (Ministry of Science, Technology and the Environment). Law Decree No. 90 of 1999. Of biosecurity (De la seguridad biológica). [<http://www.sld.cu/galerias/pdf/sitios/insat/decreto-190-1999.pdf>]. Accessed 25 November 2020.

[5] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed 25 November 2020.

1.3.1e

Is there public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax and/or Ebola, which would preclude culturing a live pathogen?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax and/or Ebola. The Ministry of the Revolutionary Armed Forces (the Cuban equivalent of a 'Ministry of Defence') does not have a website, and the Ministry of Health's website does not have information on this topic [1]. The Ministry of Agriculture does not detail anything regarding any such testing and the Ministry of Health-associated website 'INFOMED' only has one mention of this type of test, with regards to the sequence and type of testing that should be done in cases of Ebola, with no real indication that this is something that there is in-country capacity for. [2,3]. The relevant pages of the website of the relevant national central laboratory, the Pedro Kouri Institute of Tropical Medicine, are not accessible [4].

[1] Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 26, 2020.

[2] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020.

[3] Infomed: Red de Salud de Cuba. "Enfermedad por el virus de ébola (illness due to the Ebola virus). [<http://temas.sld.cu/ebola/cuadro-clinico-y-laboratorio/>]. Accessed November 26, 2020.

[4] Pedro Kouri Institute of Tropical Medicine website. [<http://www.sld.cu/webs/kouri/>]. Accessed November 26, 2020.

1.3.2 Biosecurity training and practices

1.3.2a

Does the country require biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential?

Yes = 1 , No = 0

Current Year Score: 0

There is not enough public evidence to confirm exactly what type of biosecurity training is required, or carried out, in Cuba. However, the available information indicates that such training is well developed. The Compendium of the Biosafety/security laws (Compendio de legislación de Seguridad Biológica) drafted by the Centro de Seguridad Biologica (CSB, Centre for

Biosafety/security) in 2006 mentions that all laboratory chiefs are responsible for their staff to receive appropriate training in all aspects related to biosafety/security., but it does not specify what type of training is required or carried out [1] A 2008 conference paper presented by Cuba during a meeting of the party states to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on their Destruction, mentions that a 'national training programme' was under way, organised by the national Centre for Biosecurity [2]. This refers to Centro de Seguridad Biologica (CSB, Centre for Biosafety/security): the national coordinating body for both biosafety and biosecurity, as described by its mission: to 'regulate the procedures to prevent biological risk in facilities and the environment and responses to international commitments related to biological safety' [3]. The CSB has also published a 'manual for the inspection of biological security'. [4] There is no evidence of a requirement for biosecurity training in any regulations included in the VERTIC database for Cuba. [5] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [6].

[1] Various Authors, 2006. Compendio de legislación de Seguridad Biológica.

[<http://file.cbd.int/database/attachment/?id=10119>]. Accessed November 26, 2020.

[2] Cuba. 2008. "Experiencia nacional sobre las medidas para mejorar la bioseguridad y la protección en los laboratorios de patógenos y toxinas; y sobre la creación de capacidad, la gestión de riesgos, la supervisión de la ciencia y la educación y elevación de la conciencia (National experience regarding measures for the improvement of biosecurity and the protection in laboratories of pathogens and toxins; and regarding the creation of capacity, risk management, scientific supervision and education and consciousness-raising)". Paper presented at the meeting of the party states to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on their Destruction, 1-5 December, 2008, Geneva. [http://www.opbw.org/new_process/mx2008/BWC_MSP_2008_MX_WP.29_Sp.pdf]. Accessed November 26, 2020.

[3] Eured description of Centro Nacional de Seguridad Biologica:

https://www.ecured.cu/Centro_Nacional_de_Seguridad_Biol%C3%B3gica. Accessed November 26, 2020.

[4] Menendez de San Pedro, Juan Carlos, Garcia Santos, Leyenis, Arce Hernández, Lenia, Aguero López, Beatriz, López Fumero, Grisel, Rodríguez Dueñas, José, and Gandolff Dovo, Camilo. 2018. "Manual de Inspección de Seguridad Biologica (Manual for the inspection of Biological Security)".

[https://www.researchgate.net/publication/324573847_Manual_de_Inspeccion_de_Seguridad_Biologica]. Accessed November 26, 2020.18.

[5] VERTIC. "Cuba". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/>]. Accessed November 26, 2020.

[6] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 26, 2020.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

Do regulations or licensing conditions specify that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to the following checks: drug testing, background checks, and psychological or mental fitness checks?

Personnel are subject to all three of these checks = 3, Personnel are subject to two of these checks = 2, Personnel are subject to one of these checks = 1, Personnel are not subject to any of these checks = 0

Current Year Score: 0

There is no publicly available information confirming that there are regulations or licensing conditions specifying that security and other personnel with access to such materials are subject to the specified checks. The Ministry of the Revolutionary

Armed Forces (the Cuban equivalent of a 'Ministry of Defence') does not have a website, the Ministry of Agriculture does not detail anything regarding any such checks and nor does the Ministry of Health's. [1,2] The website of the Ministry of Science, Technology and the Environment (CITMA) also provides no such information on regulations or licensing conditions, although it lists among its responsibilities the design of biological safety policies, regulations and supervision measures, including conformity with international obligations [3]. Decree Law 190 approved in 1999, and Regulation 2/2004 'for the Control of Biological Materials, Equipment and Applied Technology' provides the framework for control of biological weapons and hazards, with the National Centre for Biological Security (Centro Nacional de Seguridad Biológica, CNSB) as the responsible authority for oversight of the national system for control of biological materials, equipment and technologies, as part of the national security framework [4,5]. These regulations do not specify drug testing, background checks, and psychological or mental fitness checks, but refers to the need to conform to appropriate regulations. Likewise, the Compendium of the Biosafety/security laws (Compendio de legislación de Seguridad Biológica) drafted by the Centro de Seguridad Biologica (CSB, Centre for Biosafety/security) in 2006, does not mention any testing requirement' [6] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [7].

[1] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 26, 2020.

[2] Infomed: Red de Salud de Cuba. [<http://www.sld.cu/>]. Accessed November 26, 2020.

[3] Ministry of Science, Technology and the Environment (CITMA) website: [<http://www.citma.gob.cu/>] Accessed November 26, 2020.

[4] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004.

[https://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed November 26, 2020

[5] Vertic database. 1999. Decree Law 190. Biological Security. 28 January 1999.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Ley_190_Biological_Security.pdf]. Accessed November 26, 2020.

[6]. Various Authors, 2006. Compendio de legislación de Seguridad Biológica.

[<http://file.cbd.int/database/attachment/?id=10119>]. Accessed November 26, 2020.

[7] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 26, 2020.

1.3.4 Transportation security

1.3.4a

Does the country have publicly available information on national regulations on the safe and secure transport of infectious substances (specifically including Categories A and B)?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available information on national regulations on the safe and secure transport of infectious substances (Categories A and B). The national bodies responsible are the Centre for Animal and Plant Health (CENSA) and one of the agencies that it runs, known as, CEDESAP, which is described as Cuba's Centre for the Reduction of Sanitary Disasters in Animals and Plants. Neither the CENSA nor CEDESAP websites provide information on regulations for transport of infectious substances [1,2]. Decree Law 1999 sets out the framework for biological security but does not specifically refer to transport [3]. Resolution 2/2004 covering the control of biological materials, equipment and applied technology does not refer to the regulation of transportation [4]. A 2018 paper presented at an international health convention held in Cuba (Convención

Internacional de Salud, Cuba Salud 2018) provides an outline of further regulations for handling infectious materials from the Ministry of Science, Technology and the Environment (CITMA) and Ministry of Public Health [5]. These include: CITMA regulations for biological security and safety, including rules governing transportation, were issued in 2007 (Resolution 180), available on a CITMA platform [6]; and Cuban Norm ('Norma Cuban') no. 530/2009 and CITMA Resolution 136/2009, available on the website of CITMA's Office of Environmental Regulation and Nuclear Safety (Oficina de Regulacion Ambiental y Seguridad Nuclear, ORACEN) [7]. Decree Law 309 of 2013, which refers more specifically to the production, handling, transport and disposal of chemical substances, also includes 'poisonous substances' [8]. Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [9].

[1] CENSA website [<http://www.censa.edu.cu/?lang=en>] Accessed November 26, 2020.

[2] CEDESAP web page [<http://www.censa.edu.cu/index.php/2016/02/05/cedesap/?lang=en>] Accessed November 26, 2020.

[3] Vertic database. 1999. Decree Law 190. Biological Security. 28 January 1999.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Ley_190_Biological_Security.pdf]. Accessed November 26, 2020.

[4] Government of Cuba. 2004. Resolution 2/2004. Regulation for accounting and control of biological materials, equipment and applied technology. 20 April 2004. (Reglamento para la contabilidad y el control de materiales biológicos, equipos y tecnología aplicada a estos). [http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. Accessed 1 November 26, 2020.

[5] González Alcober, E., S.M. Pell del Río, V.M. Alcober Machado. 2018. 'Usefulness of a manual for management of dangerous biological waste materials in laboratories' ('Utilidad de un manual de procedimientos para el manejo de desechos biológicos peligrosos en laboratorios'). Proceedings of Salud 2018 conference, Havana. [www.convencionssalud2018.sld.cu] Accessed 1 November 26, 2020.

[6] Ministry of Science, Technology and the Environment (CITMA). 2007. Regulation no. 180 for granting certification for biological security and safety. (Reglamento para el Otorgamiento de la Autorizacion de Seguridad Biologica). [<http://www.medioambiente.cu/legislacion/R-180-07-CITMA.pdf>]. Accessed November 26, 2020.

[7] Website of the Oficina de Regulacion Ambiental y Seguridad Nuclear (ORACEN). [<http://www.orasen.cu/wp-content/uploads/2015/03/Resolucion-CITMA-136-2009.pdf>] Accessed November 26, 2020.

[8] Gaceta Oficial de la Republica de Cuba, 20 March 2013, no.15, p.561. Decree Law 309, on chemical safety. [<http://extwprlegs1.fao.org/docs/pdf/cub125866.pdf>]. Accessed November 26, 2020.

[9] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed 1 November 26, 2020.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

Is there legislation and/or regulations in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of national legislation, regulation, or other guidance in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins and pathogens with pandemic potential. Details on national legislation, regulation and other guidance on biosecurity are not accessible. The (Centro de Seguridad Biologica (CSB, National Centre for Biosafety/security) is the national coordinating body for both biosafety and biosecurity, as described by its mission: to 'regulate the procedures to prevent biological risk in facilities and the environment and responses

to international commitments related to biological safety' [1]. However, links from that site to further details on legislation and regulation do not work from outside Cuba. Cuba's international collaboration in this area is illustrated by the report on the International Federation of Biosafety Associations (IFBS) website (this organisation also covers both biosafety and biosecurity) that on February 12 2017 the CSB joined as an official observer to the IFBS [2]. There is no evidence from the Ministry of Public Health (MINSAP) [3]. The Ministry of the Armed Forces (Fuerzas Armadas Revolucionarias, FAR, Cuba's Ministry of Defence) does not have a website, and the Ministry of Science, Technology and the Environment (CITMA) website provides no information in this area [4]. Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [5]. There is no further evidence in the VERTIC database, nor on the Ministry of Defence's (which, in Cuba, is the Ministry of the Revolutionary Armed Forces), Agriculture's and Trade websites. [6, 7, 8, 9]

[1] Ecured description of Centro Nacional de Seguridad Biologica:

https://www.ecured.cu/Centro_Nacional_de_Seguridad_Biol%C3%B3gica. Accessed November 26, 2020.

[2] International Federation of Biosafety Associations (IFBS) website:

[<https://www.internationalbiosafety.org/index.php/news-events/news-menu/news-items/579-cuba-national-center-for-biological-safety-joins-the-ifba>.] Accessed November 26, 2020.

[3] Public Health Ministry. [<https://salud.msp.gob.cu/>]. Accessed November 26, 2020.

[4] Ministry of Science, Technology and the Environment (CITMA) website: [<http://www.citma.gob.cu/>] Accessed November 26, 2020.

[5] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 26, 2020.

[6] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed December 11, 2020.

[7] Ministry of External Trade and Investment. [<https://www.mincex.gob.cu/index.php/portal/>]. Accessed December 11, 2020.

[8] Ministry of Revolutionary Armed Forces. [<http://www.cubadefensa.cu/?q=ministerio-far&b=d1>]. Accessed December 11, 2020

[9] VERTIC Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/>]. Accessed December 11, 2020.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

Does the country have in place national biosafety legislation and/or regulations?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient publicly available evidence that national legislation, regulation and other guidance on biosafety exists in Cuba as details are not accessible. The Centro de Seguridad Biologica (CSB, National Centre for Biosafety/security) is the national coordinating body for both biosafety and biosecurity, as described by its mission: to 'regulate the procedures to prevent biological risk in facilities and the environment and responses to international commitments related to biological safety'[1]. However, links from that site to further details on legislation and regulation do not work from outside Cuba. Cuba's international collaboration in this area is illustrated by the report on the International Federation of Biosafety Associations (IFBS) website (this organisation also covers both biosafety and biosecurity) that on February 12 2017 the CSB joined as an official observer to the IFBS [2]. Cuban action in this field is detailed in an article by a CSB staff member in the Cartagena

Protocol on Biosafety's 2011 magazine on 'National Administrative Systems for Biosafety' [3]. The article provides a description of the regulatory framework, citing legislation, as follows: '(i) Decree No.190 on Biological Safety and Resolution 67/96 of the CITMA which created the CSB; (ii) Resolution 76/2000 (Regulation for the Granting of Biosafety Authorizations) which establishes the procedures for granting biosafety authorizations linked to the development, use, handling and transboundary movement of LMOs; (iii) Resolution 8 on General Biosafety Regulation for Facilities where Biological Agents and their Byproducts, Organisms and Fragments thereof with Genetic Information are Handled; (iv) Resolution 103 (Regulation Establishing the Biosafety Requirements and Procedures for Facilities that Use Biological Agents and their Byproducts, Organisms and Fragments thereof with Genetic Information) and (v) Resolution 112 (Regulation Establishing the Biosafety Requirements and Procedures for Facilities that Work with Plants and Animals that Represent a Biological Risk)'. Of the laws and resolutions cited, only Decree Law 190 is available on the VERTIC database [4]. The same database also provides the Regulation 2/2004 'for the Control of Biological Materials, Equipment and Applied Technology', which only relates to controlling biological material and it does not serve as a national plan/strategy. [5] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [6].

[1] EcuRed. "Centro Nacional de Seguridad Biológica (National Centre for Biosafety/biosecurity)".

[https://www.ecured.cu/Centro_Nacional_de_Seguridad_Biol%C3%B3gica]. Accessed 17 October 2018.

[2] International Federation of Biosafety Associations (IFBS) website:

[<https://www.internationalbiosafety.org/index.php/news-events/news-menu/news-items/579-cuba-national-center-for-biological-safety-joins-the-ifba>.] Accessed November 17 2018.

[3] Menéndez de San Pedro López, J.C. 2011. 'Administrative Systems for Handling Biosafety Issues in Cuba. Emerging Experiences and Lessons Learned'. Cartagena Protocol on Biosafety. Biosafety Protocol News. Issue 9, July 2011, National Administrative Systems for Biosafety. pp. 6-7.[<https://www.cbd.int/doc/newsletters/bpn/bpn-09.pdf>]. Accessed 17 October 2018.

[4] Vertic database. 1999. Decree Law 190. Biological Security. 28 January 1999.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Ley_190_Biological_Security.pdf]. Accessed 5 January 2019.

[5] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]

[6] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed 12 April 2019.

1.4.1b

Is there an established agency responsible for the enforcement of biosafety legislation and regulations?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Cuba has established an agency responsible for enforcement of biosafety regulations as there is insufficient evidence of the biosafety regulations. In spite of this, Cuba has an established agency responsible for the enforcement of biosafety legislation and regulations. The central state agency responsible for the enforcement of biosafety legislation and regulations is the Ministry of Science, Technology and the Environment (CITMA), and responsible entity within CITMA is the Center for Biological Safety (Centro Nacional de Seguridad Biológico, CSB), as reported by the International Federation of Biosafety Associations (IFBS) website on February 12 2017, when it joined as an official observer to the IFBS [1]. Decree No.190 on Biological Safety, available on the VERTIC database, sets out the legal framework [2]. Cuba's current arrangements for biosafety are reviewed in a 2017 UN-Global Environment Facility (GEF) report, 'Terminal Evaluation Report on Completion and Global Environment Facility (GEF) Strengthening of the Cuban National Biosafety Framework for the

Effective Implementation of the Cartagena Protocol' [3]. Its conclusion concerning the project was that "Overall project performance and results were highly satisfactory, offering a case study of good biosafety project design and management." Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [4].

[1] International Federation of Biosafety Associations (IFBS) website:

<https://www.internationalbiosafety.org/index.php/news-events/news-menu/news-items/579-cuba-national-center-for-biological-safety-joins-the-ifba>. Accessed November 25, 2020.

[2] Vertic database. Gaceta Oficial (Official Gazette). Resolution 2/2004. Regulation for the Control of Biological Materials, Equipment and Applied Technology. 20 April 2004.

[http://www.vertic.org/media/National%20Legislation/Cuba/CU_Resolucion_2_2004.pdf]. November 25, 2020.

[3] UN-Global Environment Facility (GEF). 2017. 'Terminal Evaluation Report on Completion and Global Environment Facility (GEF) Strengthening of the Cuban National Biosafety Framework for the Effective Implementation of the Cartagena Protocol' [https://www.thegef.org/sites/default/files/project_documents/3643_2017_TE_UNEP_Regional_BD_MSP_UNEPSPPEG_Cuba%2520NBf_3.pdf] Accessed on November 25, 2020.

[4] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 25, 2020.

1.4.2 Biosafety training and practices

1.4.2a

Does the country require biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence to confirm that Cuba requires biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. There is information that some training may take place, although there is no evidence if this is required or standardized. Cuba's information service, EcuRed, describes training as one of the functions of the National Centre for Biosecurity and Biosafety (Centro Nacional de Seguridad Biológica, CNSB) [1]. A 2008 conference paper also mentions a 'national training programme' organised by the CNSB [2]. Note that 'seguridad biológica' in the title of the CNSB and the conference paper refers to both biosafety and biosecurity, as is evident from the title of the paper, "Experiencia nacional sobre las medidas para mejorar la bioseguridad y la protección en los laboratorios de patógenos y toxinas; y sobre la creación de capacidad, la gestión de riesgos, la supervisión de la ciencia y la educación y elevación de la conciencia (National experience regarding measures for the improvement of biosecurity and the protection in laboratories of pathogens and toxins; and regarding the creation of capacity, risk management, scientific supervision and education and consciousness-raising)". [2] The Compendium of the Biosafety/security laws (Compendio de legislación de Seguridad Biológica) drafted by the Centro de Seguridad Biologica (CSB, Centre for Biosafety/security) in 2006, mentions that all chiefs of laboratories handling biologic agents and their products are responsible for their staff to receive appropriate training in all aspects related to biosafety/security, but it does not specify whether it be standardized, required approach, such as through a common curriculum or a train-the-trainer program. [3] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [4]. There is no further evidence in the VERTIC database, nor on the websites of Ministry of

Health, of Agriculture and the Institue Pedro Kouri, which serves as the national laboraty. [5, 6, 7, 8]

[1] Eured description of Centro Nacional de Seguridad Biologica:

https://www.ecured.cu/Centro_Nacional_de_Seguridad_Biol%C3%B3gica. Accessed November 27, 2020.

[2] Cuba. 2008. "Experiencia nacional sobre las medidas para mejorar la bioseguridad y la protección en los laboratorios de patógenos y toxinas; y sobre la creación de capacidad, la gestión de riesgos, la supervisión de la ciencia y la educación y elevación de la conciencia (National experience regarding measures for the improvement of biosecurity and the protection in laboratories of pathogens and toxins; and regarding the creation of capacity, risk management, scientific supervision and education and consciousness-raising)". Paper presented at the meeting of the party states to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on their Destruction, 1-5 December, 2008, Geneva. [http://www.opbw.org/new_process/mx2008/BWC_MSP_2008_MX_WP.29_Sp.pdf]. Accessed November 27, 2020.

[3] Various Authors, 2006. Compendio de legislación de Seguridad Biológica.

[<http://file.cbd.int/database/attachment/?id=10119>]. Accessed November 26, 2020.

[4] United Nations Office at Geneva. 2020. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 27, 2020.

[5] VERTIC Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/>]. Accessed December 11, 2020.

[6] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[7] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[8] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 25, 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

1.5.1 Oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research

1.5.1a

Is there publicly available evidence that the country has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available official documentation or other evidence of a national assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, and/or other dual use research. The Ministry of Science, Technology and the Environment (CITMA) website does not mention such an assessment [1]. The national agencies responsible for these issues include the National Centre for Biological Security (Centro Nacional de Seguridad Biológica, CNSB), the Ministry of Science, Technology and the Environment (Ministerio de Ciencia, Tecnología y Medio Ambiente, CITMA) and the Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which constitutes one component of the national defence system under the Ministry of Defence (Ministerio de las Fuerzas Armadas, FAR). Of these, only CITMA has an accessible website, but it has no details of any national assessments of research in dangerous biological materials. The Ministry of Public Health provides no information on any such assessment [2]. Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [3]. There is no further evidence in the VERTIC database, nor on the websites of Ministry of Defence's (which in Cuba would be the Ministry of Revolutionary Armed Forces'), of

Agriculture and the Institue Pedro Kouri, which serves as the national laboraty. [4, 5, 6, 7]

[1] Ministry of Science, Technology and the Environment (CITMA) website: [http://www.citma.gob.cu/] Accessed November 25, 2020.

[2] Ministry of Health website. [https://salud.msp.gob.cu/]. Accessed 25 November 2020

[3] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [https://bwc-ecbm.unog.ch/state/cuba]. Accessed November 25, 2020.

[4] VERTIC Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/]. Accessed December 11, 2020.

[5] Ministry of Revolutionary Armed Forces. [http://www.cubadefensa.cu/?q=ministerio-far&b=d1]. Accessed December 11, 2020

[6] Instituto Pedro Kouri website [http://instituciones.sld.cu/ipk/; http://www.sld.cu/webs/kouri/. Accessed November 25, 2020.

[7] Ministerio de la Agricultura. [https://www.minag.gob.cu/]. Accessed November 25, 2020.

1.5.1b

Is there legislation and/or regulation requiring oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?

Yes = 1 , No = 0

Current Year Score: 0

There is not enough publicly available evidence of a national policy requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. The Decree-Law 190 on Biosafety/security (Decreto-Ley 190 de la seguridad biologica) published in 1999 provides guidelines over the use, research and trial of biologic agents and their byproducts. It encompasses aspects such as general guidelines for the creation of specific research centers that comply with safety measures, notification mechanisms in case of accidents and safety plans. [1] All research is carried out by state-owned institutions, directly accountable to, and controlled by, the government and its agencies. The Ministry of Health has no reports on policies in this area. [2] The Ministry of Science, Technology and the Environment website does not mention the issue [3]. Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [4]. There is no further evidence in the VERTIC database, nor on the Ministry of Defence's (which, in Cuba, is the Ministry of the Revolutionary Armed Forces), Agriculture's and the Institute Pedro Kouri's websites. [5, 6, 7, 8]

[1] Ministerio de Ciencia, Tecnología y Medio Ambiente (Ministry of Science, Technology and the Environment). Law Decree No. 90 of 1999. Of biosecurity (De la seguridad biológica). [http://www.sld.cu/galerias/pdf/sitios/insat/decreto-190-1999.pdf]. Accessed 25 November 2020

[2] Ministry of Health website. https://salud.msp.gob.cu/. Accessed 25 November 2020.

[3] Ministry of Science, Technology and Environment website. [http://www.citma.gob.cu] Accessed 25 November 2020.

[4] United Nations Office at Geneva. 2020. "Cuba". BWC Electronic Confidence Building Measures Portal. [https://bwc-ecbm.unog.ch/state/cuba]. Accessed 25 November 2020.

[5] VERTIC Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/]. Accessed December 11, 2020.

[6] Ministerio de la Agricultura. [https://www.minag.gob.cu/]. Accessed December 11, 2020.

[7] Instituto Pedro Kouri website [http://instituciones.sld.cu/ipk/; http://www.sld.cu/webs/kouri/. Accessed November 25, 2020.

[8] Ministry of Revolutionary Armed Forces. [http://www.cubadefensa.cu/?q=ministerio-far&b=d1]. Accessed December 11,

2020

1.5.1c

Is there an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?

Yes = 1 , No = 0

Current Year Score: 0

There is no public information available to identify the Cuban agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research. Relevant information is not available from the Ministry of Science, Technology and the Environment, or the Ministry of Public Health [1,2]. The National Center for Biological Security (Centro Nacional de Seguridad Biologica), the entity tasked with overseeing the implementation of Cuba's obligation in terms of biosecurity/safety, does not have an accessible website, and the related Ecured page does not mention any detail on the oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research [3] Although Cuba submitted Confidence Building Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [4]. There is no further evidence in the VERTIC database, nor on the Ministry of Defence's (which, in Cuba, is the Ministry of the Revolutionary Armed Forces), Agriculture's and the Institute Pedro Kouri's websites. [5, 6, 7, 8]

[1] Ministry of Science, Technology and the Environment website. [<http://www.citma.gob.cu>]. Accessed November 27, 2020.

[2] Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

[3] Ecured description of Centro Nacional de Seguridad Biologica:

https://www.ecured.cu/Centro_Nacional_de_Seguridad_Biol%C3%B3gica. Accessed November 27, 2020.

[4] United Nations Office at Geneva. 2019. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed November 27, 2020.

[5] VERTIC Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/>]. Accessed December 11, 2020.

[6] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed December 11, 2020.

[7] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[8] Ministry of Revolutionary Armed Forces. [<http://www.cubadefensa.cu/?q=ministerio-far&b=d1>]. Accessed December 11, 2020

1.5.2 Screening guidance for providers of genetic material

1.5.2a

Is there legislation and/or regulation requiring the screening of synthesized DNA (deoxyribonucleic acid) against lists of known pathogens and toxins before it is sold?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Cuba possesses a national legislation, regulation, policy, or other guidance, requiring the screening of synthesized DNA before it is sold. There is no mention of such a record on the website of the Ministry of Agriculture (MINAG), Ministry of Transport or Ministry of Public Health. [1, 2, 3] . The Ministry of Science, Technology and the Environment (CITMA) website also has no information on this [4]. Although Cuba submitted Confidence Building

Measures every years since 1991, access to these reports is restricted to the public, and it is unknown if they contain information on this matter [5]. There is no further evidence in the VERTIC database nor on the Ministry of Defence's (which, in Cuba, is the Ministry of the Revolutionary Armed Forces) websites [6, 7]

[1] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed 27 November 2020.

[2] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020.

[3] Ministry of Transportation website. [<https://www.mitrans.gob.cu/>]. Accessed 27 November, 2020.

[4] Ministry of Science, Technology and the Environment (CITMA) website. [<http://www.citma.gob.cu>]. Accessed 27 November 2020.

[5] United Nations Office at Geneva. 2020. "Cuba". BWC Electronic Confidence Building Measures Portal. [<https://bwc-ecbm.unog.ch/state/cuba>]. Accessed 27 November 2020.

[6] VERTIC Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/c/>]. Accessed December 11, 2020.

[7] Ministry of Revolutionary Armed Forces. [<http://www.cubadefensa.cu/?q=ministerio-far&b=d1>]. Accessed December 11, 2020

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

Immunization rate (measles/MCV2), 95% or greater = 2, 80-94.9% = 1, Less than 80%, or no data = 0

Current Year Score: 2

2019

World Health Organization

1.6.1b

Are official foot-and-mouth disease (FMD) vaccination figures for livestock publicly available through the OIE database?

Yes = 1, No = 0

Current Year Score: 1

2020

OIE WAHIS database

Category 2: Early detection and reporting for epidemics of potential international concern

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

Does the national laboratory system have the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests?

Evidence they can conduct 5 of the 10 core tests and these tests are named = 2, Evidence they can conduct 5 of the 10 core tests and the tests are not named = 1, No evidence they can conduct 5 of the 10 core tests = 0

Current Year Score: 2

The national laboratory system has the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests. A WHO 2015 report on the Cuban health system describes the history of the national laboratory system and its substantial capacity to conduct a wide range of tests including the core tests [1]. A 2012 article by Keck and Reid published in the American Journal of Public Health provides a further survey, including references, highlighting the strength of Cuba's capacity for conducting diagnostic tests [2], and a 2012 letter from researchers at the Cuban Instituto Pedro Kouri (IPK), Havana, to the journal of the US Center for Disease Control (CDC) describes the Cuban response to epidemics, coordinated by the (IPK) [3]. Researchers from the IPK have published a series of articles providing evidence of tests carried out in Cuba. 2010 letter to the editor of the International Journal of Infectious Diseases confirms that PCR testing for the influenza virus is used [4]. A 2003 article confirms the use of tests using a virus culture for polio [5]. A 2001 editorial in MEDICC, a 2009 article in the Journal of Infection in Developing Countries and a 2016 WHO article all refer to serology tests for HIV [6,7, 8]. Procedures for testing for TB, including microscopy, are explained in a 2009 article in MEDICC [9]. Alternative approaches to rapid diagnostic testing for malaria are described in an article in the International Journal of Tropical Disease and Health [10]. The OIE website has no searchable depository of reference reports, but an internet search revealed a 2016 report posted on the website, which illustrates the activities of Cuba's Center for Animal and Plant Health (CENSA), the Cuban Reference Laboratory, in the case of Avian mycoplasmosis [11].

[1] WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed November 25, 2020.

[2] C. William Keck and Gail A. Reed, 'The Curious Case of Cuba'. American Journal of Public Health. 102

[8] : e13-e22. 2012 August; [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3464859/>]. Accessed November 25, 2020.

[3] Acosta, B. et. al. 2012. 'Rapid Diagnosis of Pandemic (H1N1) 2009' in Cuba for Disease Control (CDC) Emerging Infectious Diseases, Volume 18, Number 2—February 2012. Letter from researchers at Cuba's Instituto Pedro Kouri. [https://wwwnc.cdc.gov/eid/article/18/2/11-0547_article]. Accessed November 25, 2020.

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[10] 02322-2/pdf]. Accessed November 25, 2020.

[5] Más Lago, P., H.E. Gary, J.L. Sarmientos Pérez, V. Cáceres, J. Barrios Olivera, R. Palomera Puentes, M. Bello Corredor, P. Jiménez, M.A. Pallansch, R. González Cruz. 2003. 'Poliovirus detection in wastewater and stools following an immunization campaign in Havana, Cuba'. International Journal of Epidemiology, Volume 32, Issue 5, 1 October 2003, Pages 772-777,

[<https://academic.oup.com/ije/article/32/5/772/665718>] Accessed November 25, 2020.

[6] Editorial. 2001. 'Spotlight on Cuba's Strategy against AIDS'. MEDICC Review, Vol 11, no. 1-2.

[http://www.medicc.org/publications/medicc_review/III/hiv-aids/spo1.html] Accessed November 25, 2020.

[7] Gonzalez, D., D. Limonta, J.F. Bandera, J. Perez, G. Kouri, M.G. Guzman MG. 2009. 'Dual infection with dengue virus 3 and human immunodeficiency virus 1 in Havana, Cuba'. Journal of Infection in Developing Countries. 2009 May 1;3

[4] :318-20. [<https://jdc.org/index.php/journal/article/view/19759497/68>]. Accessed November 25, 2020.

[8] WHO Bulletin. 2016. Towards an HIV-free generation in Cuba. [<https://www.who.int/bulletin/volumes/94/12/16-021216/en/>]. Accessed November 27, 2020.

[9] Gonzalez, E.R., and L. Armas. 2012. 'New Indicators Proposed to Assess Tuberculosis Control and Elimination in Cuba'. MEDICC Review, October 2012, Vol. 14, No.4: 40-43.

[<http://webcache.googleusercontent.com/search?q=cache:RopCKmOcl9QJ:www.medicc.org/mediccreview/pdf.php%3Flang%3D%26id%3D278+&cd=7&hl=en&ct=clnk&gl=uk&client=safari>] Accessed November 25, 2020.

[10] Nazaré Pembele, G., L. Rojas Rivero and J. Fraga. 2015. 'Detection and Species Identification of Malaria Parasites by Nested-PCR: Comparison with Light Microscopy and with SD BIOLINE Malaria Ag Test in Luanda', Angola'. International Journal of Tropical Disease & Health. 10[1] : 1-13.

[<https://pdfs.semanticscholar.org/3574/0c52396ca10f540d497bc45bdba93c30bdb6.pdf>]. Accessed November 25, 2020.

[11] OIE Designated Reference Laboratory for Avian mycoplasmosis, Report, Activities in 2016. 2016. CENSA, Cuba. Report submitted : 2017-01-05.

[http://www.oie.int/fileadmin/Home/eng/Our_scientific_expertise/reflabreports/2016/report_98_2016_Avian_mycoplasmosis_CUBA.pdf]. Accessed November 25, 2020.

2.1.1b

Is there a national plan, strategy or similar document for conducting testing during a public health emergency, which includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing?

Yes, there is evidence of a plan, and it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing = 2, Yes, there is evidence of a plan, but there is insufficient evidence that it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing = 1, No evidence of a plan = 0

Current Year Score: 1

There is evidence of a national plan, strategy or similar document for conducting testing during a public health emergency that includes considerations for scaling capacity, but there is no evidence of public plans that can be used for multiple outbreaks.

Namely, since January 2020 Cuba has developed a National Plan for Facing COVID-19 (plan nacional de enfrentamiento a la COVID-19), which encompasses scaling capacity. More specifically, the plan includes a national testing strategy; refers to increased testing and diagnostic capacity for the main national laboratory, Instituto Pedro Kouri (IPK), through the involvement of other microbiology laboratories provided with the technology to carry out the molecular testing. Although there is no specific testing goal, the plan was developed with the triple goals of moving gradually and asymmetrically towards a "new normal"; mitigate the economic and social impact of COVID-19; develop the capacity to face the events that will unfold during the "new normal". [1,2].

There is no evidence of a national plan, strategy or similar document for conducting testing during a public health emergency, which includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing on the Public Health Ministry and the Agriculture Ministry Websites, as well as on the IPK website. [3, 4,5]

- [1] INFOMED. En vigor nuevo plan de enfrentamiento a la COVID-19 en Cuba, 2020. [<https://especialidades.sld.cu/higienepidemiologia/2020/10/09/en-vigor-nuevo-plan-de-enfrentamiento-a-la-covid-19-en-cuba/>]. Accessed 25 November 2020
- [2] Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.
- [3] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.
- [4] Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed 25 November 2020.
- [5] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

2.1.2 Laboratory quality systems

2.1.2a

Is there a national laboratory that serves as a reference facility which is accredited (e.g., International Organization for Standardization [ISO] 15189:2003, U.S. Clinical Laboratory Improvement Amendments [CLIA])?

Yes = 1 , No = 0

Current Year Score: 0

There is no official available public information on whether or not the national laboratory that serves as a reference facility is accredited (eg ISO 15189:2003, CLIA), either on the Ministry of Public Health's website, or on the website of the public health emergencies reference facility, Pedro Kouri Institute of Tropical Medicine [1,2]. The National Accreditation agency, ONARC (Organo Nacional deAcreditación de la República de Cuba) evaluates the laboratories of testing and calibration following the international standard NC-ISO/IEC 17011:2005, evaluates the laboratories of testing and calibration following NC-ISO/IEC 17025:2006 and the inspection organisms pursuant NC-ISO/IEC 17020:2012. ONARC's website presents a list of accredited laboratories and institutions, but the public health emergencies reference facility, the Pedro Kouri Institute of Tropical Medicine, does not appear among them. [3] A survey of Latin American clinical laboratory systems published in the 2015 issue of the Journal of the International Federation of Clinical Chemistry and Laboratory Medicine provides data on the number of laboratories certified with ISO 9001:2008, 17025:2005 and 15189:2012 [4]. It finds that three Cuban laboratories have the first of this, but there is 'no available information' on the other two. A 2015 Cuban press report on the ISO/IEC 17025:06 accreditation of one laboratory states that by gaining accreditation, the laboratory joins "the list of 75 laboratories accredited by the ONARC, entity signing the agreement of multilateral recognition among accreditation bodies of 83 nations" [5].

- [1] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 27, 2020.
- [2] Pedro Kouri Institute of Tropical Medicine website. [<http://instituciones.sld.cu/ipk/>] Accessed November 27, 2020.
- [3] ONARC website. OECs acreditados. [<http://www.onarc.cu/oec-acreditadasc/>]. Accessed November 27, 2020.
- [4] Ecured website. Information on ONARC (Organo Nacional deAcreditación de la República de Cuba). [https://www.ecured.cu/Órgano_Nacional_de_Acreditación_de_la_República_de_Cuba]. Accessed November 27, 2020.
- [5] Telleria Alfaro, E. 2015. 'Certificado de Acreditación para Laboratorio de Tropicalización' Report in Trabajadores newspaper. [<http://www.trabajadores.cu/20151014/certificado-de-acreditacion-para-laboratorio-de-tropicalizacion/>]. Accessed November 27, 2020.

2.1.2b

Is there a national laboratory that serves as a reference facility which is subject to external quality assurance review?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that national laboratory that serves as a reference facility is subject to external quality assurance review. The national reference facility is at the Pedro Kouri Institute of Tropical Medicine (IPK). Neither the website of the IPK nor the Ministry of Health's website, provide accessible information on external quality review of this facility [1,2]. A 2015 Cuban press report provides some further information, describing the system of national accreditation overseen by the National Accreditation agency, ONARC (Organismo Nacional de Acreditación de la República de Cuba) [3] ONARC's website presents a list of accredited laboratories and institutions, but the public health emergencies reference facility, the Pedro Kouri Institute of Tropical Medicine, does not appear among them. [4]. However, the International Laboratory Accreditation Cooperation (ILAC) website shows that ONARC is a full signatory to the ILAC Mutual Recognition Arrangement (MRA), meaning that they "have been peer evaluated in accordance with ISO/IEC 17011 to demonstrate their competence." [5] ONARC is recorded as having been signatory to the MRA as follows: Calibration: ISO/IEC 17025 (17 Sep 2005), Testing: ISO/IEC 17025 (17 Sep 2005) and Inspection: ISO/IEC 17020 (29 March 2017).

[1] Pedro Kouri Institute of Tropical Medicine website. [<http://instituciones.sld.cu/ipk/>] Accessed November 27, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 27, 2020.

[3] Telleria Alfaro, E. 2015. 'Certificado de Acreditación para Laboratorio de Tropicalización' Report in Trabajadores newspaper. [<http://www.trabajadores.cu/20151014/certificado-de-acreditacion-para-laboratorio-de-tropicalizacion/>]. Accessed November 27, 2020.

[4] ONARC website 'under construction' [<http://www.onarc.cubaindustria.cu/>]. Accessed November 27, 2020

[5] ILAC MRA signatory details for ONARC: [<https://ilac.org/signatory-detail/?id=20>]. Accessed November 27, 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 0

There is no specific published evidence that there is a system for transporting specimens from hospitals/clinics to laboratories that operates nationwide, although the nature of the Cuban system means that it likely exists. The Ministry of Public Health and relevant laboratories run their own transport systems for all purposes, however there is no specific mentions of specimen transport in the website hosted by the health or agriculture ministry [1, 2]. The Ministry of Transportation 's website does not have relevant information on this topic [3]. All aspects of the public health and health emergency systems, including specimen transport, are fully integrated in Cuba's centralised, planned economy, as described in the literature [4,5].

[1] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020.

[2] Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 26, 2020.

[3] Ministry of Transportation website. [<https://www.mitrans.gob.cu/>]. Accessed 27 November, 2020.

[4] WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed November 18 2018.

[5] C. William Keck and Gail A. Reed, 'The Curious Case of Cuba'. American Journal of Public Health. 102

[8] : e13-e22. 2012 August; [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3464859/>]. Accessed November 18 2018.

2.2.2 Laboratory cooperation and coordination

2.2.2a

Is there a plan in place to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak?

Yes = 2 , Yes, but there is evidence of gaps in implementation = 1 , No = 0

Current Year Score: 0

There is no evidence of a plan in place to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak. Since January 2020 Cuba has developed a National Plan for Facing COVID-19 (plan nacional de enfrentamiento a la COVID-19), which encompasses testing, scaling capacity for testing. The plan includes a national testing strategy; refers to increased testing and diagnostic capacity for the main national laboratory, Instituto Pedro Kouri (IPK), through the involvement of other microbiology laboratories provided with the technology and the competence to carry out the molecular testing, but there is not evidence of a coordinated plan to rapidly authorize or license laboratories. [1,2]. There is no evidence of a national plan, strategy or similar document on the Public Health Ministry and the Agriculture Ministry Websites, as well as on the IPK website. [3,4,5]

[1] INFOMED. En vigor nuevo plan de enfrentamiento a la COVID-19 en Cuba, 2020.

[<https://especialidades.sld.cu/higienepidemiologia/2020/10/09/en-vigor-nuevo-plan-de-enfrentamiento-a-la-covid-19-en-cuba/>]. Accessed 25 November 2020.

[2] Organizacion Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

[3] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[4] Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed 25 November 2020.

[5] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

Is there evidence that the country is conducting ongoing event-based surveillance and analysis for infectious disease?

Yes, there is evidence of ongoing event-based surveillance and evidence that the data is being analyzed on a daily basis = 2,

Yes, there is evidence of ongoing event-based surveillance, but no evidence that the data are being analyzed on a daily basis

= 1, No = 0

Current Year Score: 0

There is some evidence of ongoing event-based surveillance facility (EBS) within Cuba's national emergency operations center, but full information is not readily accessible. Neither the Ministry of Public Health's nor the Ministry of Agriculture website have any information on such a facility [1,2]. However, the Ministry of Public Health coordinates with other agencies through a disaster risk reduction and management system led by the National Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which acts as a national emergency operations centre, enabling a coordinated national rapid

response to risk events using the same framework as the response to national security emergencies. Indeed, the EMNDC is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), which may explain why its website is not accessible. The WHO and OIE do not provide specific information on Cuba's EBS, but the ability of the surveillance system to respond to events as part of the national emergency system can be gleaned from various sources. Cuba's national network of laboratories includes a national reference facility at the Pedro Kouri Institute of Tropical Medicine (IPK), and Cuba's Centre for Animal and Plant Health (CENSA) is one of the OIE's collaborating centres for the reduction of risk of disasters in animal health and a reference laboratory for H1N1 [3, 4, 5, 6]. A 2012 letter published in 'Emerging Infectious Diseases' journal also provides some details on the system for disease surveillance and event response, confirming Cuba's capacity in this area [7].

[1] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[2] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 27, 2020.

[3] Instituto Pedro Kouri (IPK) website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 27, 2020.

[4] OIE. List of Collaborating Centres. [<http://www.oie.int/scientific-expertise/collaborating-centres/list-of-centres/>] Accessed November 27, 2020.

[5] OIE Designated Reference Laboratory for Avian mycoplasmosis, Report, Activities in 2016. 2016. CENSA, Cuba. Report submitted : 2017-01-05.

[http://www.oie.int/fileadmin/Home/eng/Our_scientific_expertise/reflabreports/2016/report_98_2016_Avian_mycoplasmosis_CUBA.pdf]. Accessed November 27, 2020.

[6] Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 27, 2020.

[7] Acosta, B. et. al. 2012. 'Rapid Diagnosis of Pandemic (H1N1) 2009 in Cuba', Emerging Infectious Diseases, Volume 18, Number 2—February 2012. Letter from researchers at Cuba's Instituto Pedro Kouri. [https://wwwnc.cdc.gov/eid/article/18/2/11-0547_article]. Accessed November 27, 2020.

2.3.1b

Is there publicly available evidence that the country reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Cuba reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years including for Covid-19. The last such outbreak listed on the WHO's Disease Outbreak News page in 1997 (of Dengue). [1]. There is no information available via the Ministry of Public Health website [2].

[1] World Health Organization. 2018. "Disease outbreak news: Cuba".

[<http://www.who.int/csr/don/archive/country/cub/en/>]. Accessed November 27, 2020.

[2] Ministry of Public Health website: <http://www.sld.cu>. Accessed on November 27, 2020.

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

Does the government operate an electronic reporting surveillance system at both the national and the sub-national level?

Yes = 1 , No = 0

Current Year Score: 0

There is no available information on whether or not the government operates an electronic reporting surveillance system at the national or sub-national levels. There are no reports on current provisions for a electronic reporting surveillance system from WHO, OIE, or official national sources. [1] The OIE lists Cuba's Centre for Animal and Plant Health (CENSA) as one of its list of collaborating centres for the reduction of risk of disasters in animal health, but the CENSA website contains no information on electronic reporting surveillance [2, 3]. The Ministry of Health's website also has no such information. [4]

[1] WHO. Cuba. [<https://www.who.int/countries/cub/en/>] Accessed November 27, 2020.

[2] OIE. List of Collaborating Centres. [<http://www.oie.int/scientific-expertise/collaborating-centres/list-of-centres/>] Accessed November 27, 2020.

[3] Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 27, 2020.

[4] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020.

2.3.2b

Does the electronic reporting surveillance system collect ongoing or real-time laboratory data?

Yes = 1 , No = 0

Current Year Score: 0

There is no available evidence from official websites on the collection of ongoing/real-time laboratory data. The Ministry of Health website has no relevant accessible evidence [1]. The national laboratory also has no relevant accessible information [2].

[1] Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

[2] Pedro Kouri Institute for Tropical Medicine website. [<http://instituciones.sld.cu/ipk/bolipk/>]. Accessed November 27, 2020.

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

Electronic health records are commonly in use = 2, Electronic health records are not commonly in use, but there is evidence they are used = 1, No evidence electronic health records are in use = 0

Current Year Score: 1

There is no publicly available evidence that electronic health records are commonly in use, although they are implemented.

According to a medical journal article, the Electronic Health Record for patients (Registro Electronico de Pacientes) has been implemented gradually according to the level of confidentiality and complexity of each piece of information; as of 2018, 11 research institutes (amounting to 91,7% of the total), 53 hospitals (35.3%) and 100% blood banks local are implementing EHRs. [1] The incorporation of EHR sin the system is still insufficient to be considered commonly in use. The Cuban Ministry of Public Health (MINSAP) website and the associated 'INFOMED' site do not have any information on electronic health records [2, 3].

With the ongoing rapid development of Cuban internet connectivity from its low base (the latest leap forward having been the availability of 3G connectivity to the general public in December 2018), the use of electronic records is likely to be increasing, as part of a more general expansion of internet use and e-governance [4]. No further information is available on the Ministry of Health's and the Institute Pedro Kouri's websites [2, 5]

[1] Vidal et al., Aplicación de la eSalud en el contexto cubano. Revista Panamericana de Salud Publica, 2018.

[<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6385787/>]. Accessed 27 November 2020.

[2] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020.

[3] Infomed website. <http://www.sld.cu/>. Accessed 27 November 2020.

[4] BBC Technology report. 2018. 'Cuba offers 3G mobile internet access to citizens'. 5 December 2018

[<https://www.bbc.co.uk/news/technology-46456944>]. Accessed 6 January 2019.

[5] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

2.4.1b

Does the national public health system have access to electronic health records of individuals in their country?

Yes = 1 , No = 0

Current Year Score: 0

The Ministry of Public Health (MINSAP), which oversees the functioning of the national, universal healthcare system, has access to all health records of individuals in Cuba, but there is no available information on the extent to which these are held on an electronic system that is readily accessible. MINSAP website does not have any information on electronic health records [1]. The Cuban healthcare system is based on centralized healthcare provided by the Ministry of Health, which holds most of its record in paper although Electronic Health Records (EHRs) are slowly gaining traction. A medical journal article reports that the Electronic Health Record for patients (Registro Electronico de Pacientes) have been in 11 research institutes (amounting to 91,7% of the total), 53 hospitals (35.3%) and 100% of the blood banks, but there is no information on whether these records are in fact readily accessible. [2] A 2015 bulletin on the Qatari Ministry of Transport and Communications details the introduction of electronic health records in one Cuban hospital, while a short article on the Healthcare IT news website refers to a conversation with a healthcare IT professional who reported that "they are in the process of implementing a system they have developed" [3,4]. However, a US medic who visited Cuba in 2017 reported that: "Despite the absence of a health information technology infrastructure and the continued use of paper records, the Cuban health system tracks various metrics similar to ones we follow, such as immunization and cancer screening rates. They do it manually. At a visit to a primary care office, we saw a clipboard with a sheet of paper listing the day's patients and the services provided. At the end of the day, the report was taken to the regional health clinic, where it would be compiled. No online registries, health information exchanges, or electronic health records." [5].

[1] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020

[2] Vidal et al., Aplicación de la eSalud en el contexto cubano. Revista Panamericana de Salud Publica, 2018.

[<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6385787/>]. Accessed 27 November 2020

[3] Qatari Ministry of Transport and Communications. 2015. "Cuban Hospital replaces paper clinical records system with a new integrated electronic one". [<http://www.motc.gov.qa/en/news-events/news/cuban-hospital-replaces-paper-clinical-records-system-new-integrated-electronic-one>]. Accessed October 2018.

4. Schade, S. 2016. 'On the ground in Cuba: A look at a healthcare system driven by prevention'. Healthcare IT News website. November 30 2016. [<https://www.healthcareitnews.com/blog/ground-cuba-look-healthcare-system-driven-prevention>]. Accessed 6 January 2019.

5.

Ejnes, Y. 'A wealth of medical knowledge in a country that lacks resources'. Kevin MD.com. 3 July 2017. [<https://www.kevinmd.com/blog/2017/07/wealth-medical-knowledge-country-lacks-resources.html>]. Accessed October 2019.

2.4.1c

Are there data standards to ensure data is comparable (e.g., ISO standards)?

Yes = 1 , No = 0

Current Year Score: 0

There is no public information from official national sources to confirm whether there data standards to ensure data is comparable (e.g. ISO standards). The Ministry of Public Health (MINSAP), which oversees the functioning of the national, universal healthcare system, has access to all health records of individuals in Cuba, but there is no available information on the extent to which these are held on an electronic system that is readily accessible. MINSAP, its associated 'INFOMED' site and the website of the national laboratory "Instituto Pedro Kouri" do not have any information on electronic health records [1, 2, 3]. There is a National Accreditation agency, the ONARC (Organo Nacional deAcreditación de la República de Cuba) but it does not have an accessible website and provides no database of accreditations [4]. The ISO web page for Cuba indicates that Cuba's Oficina Nacional de Normalización (NC), within to the Ministry of Science, Technology and Environment (CITMA) is a member body of the ISO, and is responsible for organising and implementing policy on standardisation, metrology and quality [5].

[1] Infomed website. [<http://www.sld.cu/>] Accessed 27 November 2020

[2] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020

[3] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[4] Ecured website. Information on ONARC (Organo Nacional deAcreditación de la República de Cuba).

[https://www.ecured.cu/Órgano_Nacional_de_Acreditación_de_la_República_de_Cuba]. Accessed 27 November 2020

[5] ISO web page for Cuba: [<https://www.iso.org/member/1684.html>] Accessed 27 November 2020.

2.4.2 Data integration between human, animal, and environmental health sectors

2.4.2a

Is there evidence of established mechanisms at the relevant ministries responsible for animal, human, and wildlife surveillance to share data (e.g., through mosquito surveillance, brucellosis surveillance)?

Yes = 1 , No = 0

Current Year Score: 0

Evidence from the available public information of established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data (such as through mosquito surveillance, brucellosis surveillance, etc.) is not available from the websites of the Ministry of Public Health's website, the portal INFOMED, or from the website of the Ministry of Science, Technology and the Environment (CITMA) or Ministry of Agriculture [1,2,3, 4]. The websites of the Center for Animal and Plant Health and Civil Defence refer to systems of surveillance but do not detail the mechanisms for sharing data [5].

[1] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020

[2] Ministry of Science, Technology and the Environment (CITMA) website: [<http://www.citma.gob.cu/>] Accessed November 28, 2020.

[3] Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 28, 2020.

[4] Infomed website. <http://www.sld.cu/>. Accessed 27 November 2020.

[5] Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 28, 2020.

2.4.3 Transparency of surveillance data

2.4.3a

Does the country make de-identified health surveillance data on infectious diseases publicly available via reports (or other format) on government websites (such as the Ministry of Health, Ministry of Agriculture, or similar)?

Yes = 1 , No = 0

Current Year Score: 0

There is public evidence that the country makes de-identified health surveillance data on disease outbreaks publicly available via reports (or other format) on government websites, but there is no clear indication that this is performed on a regular basis and with a lag time inferior to one month.

There is no mention of specific plan or guidelines for gathering and publishing such surveillance data on disease outbreaks on government websites such as the Ministry of Health's or the Ministry of Agriculture's, but such data has been shared in the case of outbreaks [1, 2]. In the case of the Zika outbreak of 2016, the state-controlled media published updates on the situation on an irregular basis - namely, whenever new cases were identified - via informative notes ("notas informativas") which included anonymized data on the people infected by the disease. [3,4,5].

No further information on surveillance of Zika or other infectious diseases is available on the Insitute Pedro Kouri - the national laboratory - website. [6] The website INFOMED does provide some de-identified health surveillance data on several infectious diseases, both in Cuba and in other countries; it also makes available reports from the Panamerican Health Organization on the state of diffusion of several infectious diseases. However, it is not clear whether the statistics are shared at least on a weekly basis, and if there is no more of a lag time of one month in terms of publication. [7]

[1] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 28, 2020.

[2] Ministry of Agriculture website. <https://www.minag.gob.cu/>. Accessed November 28, 2020

[3] Ministry of Public Health Official Note on first and second cases of Zika in Granma, the ruling Cuban Communist Party newspaper. 3 March 2016[<http://www.granma.cu/cuba/2016-03-03/nota-informativa-del-ministerio-de-salud-publica-03-03-2016-20-03-52>]. Accessed November 28, 2020.

[4] Ministry of Public Health Official Note on third case of Zika in Granma, the ruling Cuban Communist Party newspaper. 8

March 2016. [<http://www.granma.cu/salud/2016-03-08/nota-informativa-del-ministerio-de-salud-publica-08-03-2016-20-03-05>]. Accessed November 28, 2020.

[5] Ministry of Public Health Official Note on fourth case of Zika in Granma, the ruling Cuban Communist Party newspaper. 9 March 2016 [<http://www.granma.cu/salud/2016-03-08/nota-informativa-del-ministerio-de-salud-publica-08-03-2016-20-03-05>]. Accessed November 28, 2020.

[6] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[7] INFOMED. Vigilancia en Salud Publica. [<https://temas.sld.cu/vigilanciaensalud/>]. Accessed December 11, 2020.

2.4.3b

Does the country make de-identified COVID-19 surveillance data (including details such as daily case count, mortality rate, etc) available via daily reports (or other formats) on government websites (such as the Ministry of Health, or similar)?

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence that the country makes de-identified health surveillance data (including details such as daily case count, mortality rate, etc) available via daily reports (or other formats) on government websites. The Ministry of Health website publishes frequent updates on the situation, including the number of cases reported and their location and details on a daily basis sharing the most recent available data without any lag. [1, 2]

[1] Ministry of Public Health. Coronavirus en Cuba, 2020. [<https://salud.msp.gob.cu/parte-de-cierre-del-dia-26-de-noviembre-a-las-12-de-la-noche/>]. Accessed November 28, 2020.

[2] Ministry of Public Health. Coronavirus en Cuba, 2020. [<https://salud.msp.gob.cu/parte-de-cierre-del-dia-24-de-noviembre-a-las-12-de-la-noche/>]. Accessed November 28, 2020.

2.4.4 Ethical considerations during surveillance

2.4.4a

Is there legislation and/or regulations that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities?

Yes = 1 , No = 0

Current Year Score: 0

There is no available evidence in official national sources of regulations that Cuba safeguards the confidentiality of identifiable health information for individuals. The Ministry of Public Health does not provide any information on this on its website [1]. Research studies have revealed conflicting evidence, with some informants stating that "doctor-patient confidentiality is [a] . . . basic principle", while others complain of a complete lack of privacy protection, which is of concern to some patients. [2,3] Observers note that patient confidentiality and individual rights come second to protection of public health (or national security) in Cuba, as was evident in Cuba's response to AIDS, when mandatory testing was introduced and HIV positive patients were required to live in sanatoriums until sufficient research had been done to identify the exact nature of contagion [4]. In the case of the 2020 COVID-19 outbreak, in some instances the Cuban government isolated the houses of people infected with the disease in a visible manner, thereby violating the supposed right to privacy. In this instance, a lawyer mentioned that "although it is included in the medical ethics code, patients' privacy is not protected by law in Cuba". [5]

- [1] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 28, 2020.
- [2] Katherine Hirschfeld, Re-examining the Cuban Health Care System: Towards a Qualitative Critique, Cuban Affairs, Quarterly Electronic Journal, [<https://romancatholicworld.files.wordpress.com/2013/09/re-examining-the-cuban-health-care-system-towards-a-qualitative-critique-katherine-hirschfeld.pdf>] Accessed November 28, 2020..
- [3] Epstein, Dan. 2015. Privacy in Cuba. Law School International Immersion Program Papers, No. 5. Chicago Law School. [https://chicagounbound.uchicago.edu/international_immersion_program_papers/7/]. Accessed November 28, 2020.
- [4] Anderson, T. 2013. 'HIV/AIDS in Cuba: A rights-based analysis'. Health and Human Rights Journal. 11/1. Published June 2009. [<https://www.hhrjournal.org/2013/09/hiv-aids-in-cuba-a-rights-based-analysis/>]. Accessed November 28, 2020..
- [5] Radio Television Marti. Violan privacidad de enfermos de COVID-19 en Cuba al marcar sus casas. Published October 2020. [<https://www.radiotelevisionmarti.com/a/violan-privacidad-de-enfermos-de-covid-19-en-cuba-al-marcar-sus-casas/276313.html>]. Accessed November 28, 2020.

2.4.4b

Is there legislation and/or regulations safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks (e.g., ransomware)?

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence from official national sources of laws, regulations, or guidelines safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks. The Ministry of Public Health does not provide any information on its website [1]. While, more in general, the doctor-patient confidentiality appears to be a complex issue in Cuba, there is no specific mention of protection from cyber attacks in the publicly available evidence on the confidentiality of health information for individuals [2,3]. No further information is available on the Instituto Pedro Kouri (the national laboratory) website [4]

- [1] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 28, 2020.
- [2] Katherine Hirschfeld, Re-examining the Cuban Health Care System: Towards a Qualitative Critique, Cuban Affairs, Quarterly Electronic Journal, [<https://romancatholicworld.files.wordpress.com/2013/09/re-examining-the-cuban-health-care-system-towards-a-qualitative-critique-katherine-hirschfeld.pdf>] Accessed November 28, 2020..
- [3] Epstein, Dan. 2015. Privacy in Cuba. Law School International Immersion Program Papers, No. 5. Chicago Law School. [https://chicagounbound.uchicago.edu/international_immersion_program_papers/7/]. Accessed November 28, 2020.
- [4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

2.4.5 International data sharing

2.4.5a

Has the government made a commitment via public statements, legislation and/or a cooperative agreement to share surveillance data during a public health emergency with other countries in the region?

Yes, commitments have been made to share data for more than one disease = 2, Yes, commitments have been made to share data only for one disease = 1, No = 0

Current Year Score: 0

There is insufficient evidence that the government made a commitment via public statements, legislation and/or a cooperative agreement to share surveillance data during a public health emergency with other countries in the region.

The government's commitment to public health emergency collaboration in general, and including through international surveillance networks is part of its more general and well-documented commitment to medical internationalism [1,2]. This openness to international collaboration, including information exchange during public health emergencies, extends to the US along with the rest of the region, despite the backdrop of tensions in bilateral relations [3]. Cuba plays an active part in the Pan-American Health Organisation (PAHO)'s surveillance network, with two WHO Collaborating Centres for disease control. The country's Center for the State Control of Medicines, Equipment and Medical Devices (Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Medicos, CEMED), a reference authority for the Americas, provides a list of international agreements for information exchange and collaboration. [4]. During the 2020 COVID-19 outbreak, the Health Minister intervened during the 73rd annual reunion of the World Health Organization (WHO) reaffirming Cuba's commitment to cooperate and share experiences with any other country in the world. [5] However, neither of these agreements explicitly mention a commitment to share surveillance data during public health emergencies. There is no evidence of further commitments to share surveillance data during a public health emergency with other countries in the region on the Ministry of Health's and the Instituto Pedro Kouri's websites [6, 7]

[1] Kirk, J. and Erisman, H.M. 2009. Cuban Medical Internationalism: Origins, Evolution, and Goals. Palgrave Studies of the Americas. Palgrave Macmillan US. [<https://www.palgrave.com/gp/book/9780230622227>] Accessed November 28, 2020.

[2] Blue, S.A. 2010. Cuban Medical Internationalism: Domestic and International Impacts. Journal of Latin American Geography. Vol. 9, No. 1, pp. 31-49.

[https://www.researchgate.net/publication/236790368_Cuban_Medical_Internationalism_Domestic_and_International_Impacts] Accessed November 28, 2020.

[3] Pan American Health Organization. 2014. Panamerican Health Organization (PAHO in English, OPS in Spanish) participates as observer in historic Cuba-US bilateral meeting" (OPS participa como observador en histórica Reunión Bilateral Cuba - EE.UU.) [https://www.paho.org/cub/index.php?option=com_content&view=article&id=630:ops-participa-como-observador-en-historica-reunion-bilateral-cuba-ee-uu&Itemid=528]. Accessed November 28, 2020.

[4] Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Medicos, CEMED), list of specific international agreements, including information exchanges. [<https://www.cecmecmed.cu/ri/instrumentos-internacionales-firmados>]. Accessed November 28, 2020.

[5] Telesur. Cuba reitera ante la OMS su compromiso de cooperare en lucha contra Covid-19. Published May 2020.

[<https://www.telesurtv.net/news/cuba-reitera-compromiso-cooperar-covid-mundo-20200518-0019.html>]. Accessed November 28, 2020.

[6] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 27 November 2020.

[7] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

Is there a national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of a public health emergency?

Yes, there is evidence that the national government supports sub-national systems to prepare for future public health emergencies = 2, Yes, there is evidence that the national government supports sub-national systems, but only in response to active public health emergencies = 1, No = 0

Current Year Score: 0

There is insufficient evidence of a national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of an active or future public health emergency. There is no mention of such measures on the Ministry of Health's website, nor on the website of the national laboratory, the Instituto Pedro Kouri. [1, 2] During the COVID-19 pandemic, Cuba implemented the National Plan to Face COVID-19 (Plan Nacional de Enfrentamiento a la COVID-19), which encompassed an increased contact tracing effort at the sub-national level. There is however no clear information on how this contact tracing system was implemented and what type of support the sub-national level was offered. The plan is not publicly accessible. [3]

[1] Ministry of Health Website. [<https://salud.msp.gob.cu/>]. Accessed November 28, 2020.

[2] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[3] Organizacion Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

2.5.1b

Does the country provide wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly economic support (paycheck, job security) and medical attention?

Yes, both economic support and medical attention are provided = 2, Yes, but only economic support or medical attention is provided = 1, No = 0

Current Year Score: 1

There is some evidence that the country provides wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly economic support (paycheck, job security).

According to Cuban law, all workers who are unable to perform their work duties pursuant to law requirements or force majeure (as in the case of self-isolation and quarantine mandated by the law) are entitled to job security for a given period established by the National Defense Council as provided by the Work Code (Law 116/2013). Such rules are applied in any public health emergency situation. [1] In the case of COVID-19, in March 2020 the Labor Minister provided that all workers required to self-isolate for contracting COVID-19 will receive 50 to 60% of their salary until they resume their regular work activity, as also established by the Social Security Law (Ley de Seguridad Social, 105/2008) [2].

As for medical attention, although there is no general law or guideline on this topic available on the website of the Ministry of Health or the Pedro Kouri Institute, the National Plan for Facing COVID-19 (Plan Nacional de Enfrentamiento a la COVID-19) mandated that contacts required to quarantine be isolated in dedicated healthcare centers, where they are provided with medical attention. [3, 4, 5]. This measure is implemented on a national scale and there is no language in the plan suggesting it could be applied to public health emergencies beyond COVID-19 [3, 4, 5].

[1] Cuba Debate. Cuba garantiza protección laboral y salarial ante situación con el nuevo coronavirus. Published March 2020. [<http://www.cubadebate.cu/noticias/2020/03/12/cuba-garantiza-proteccion-laboral-y-salarial-ante-situacion-con-el-nuevo-coronavirus/#.X8J2cM1KhEY>]. Accessed November 28, 2020

[2] Infobae. Cuba pagará solamente la mitad del salario a los trabajadores en cuarentena por el coronavirus. Published March

2020. [<https://www.infobae.com/america/america-latina/2020/03/14/cuba-pagara-solamente-la-mitad-del-salario-a-los-trabajadores-en-cuarentena-por-el-coronavirus/>]. Accessed November 28, 2020.

[3] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.

[5] Organizacion Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

2.5.1c

Does the country make de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites (such as the Ministry of Health, or similar)?

Yes = 1, No = 0

Current Year Score: 1

There is public evidence that the country makes de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites. The Ministry of Health website publishes frequent updates on the situation, including the number of cases reported, their location and de-identified contact tracing details (including how many can be traced back to a known source) on a daily basis sharing the most recent available data without any lag. [1, 2]

[1] Ministry of Public Health. Coronavirus en Cuba, 2020. [<https://salud.msp.gob.cu/parte-de-cierre-del-dia-26-de-noviembre-a-las-12-de-la-noche/>]. Accessed November 28, 2020.

[2] Ministry of Public Health. Coronavirus en Cuba, 2020. [<https://salud.msp.gob.cu/parte-de-cierre-del-dia-24-de-noviembre-a-las-12-de-la-noche/>]. Accessed November 28, 2020.

2.5.2 Point of entry management

2.5.2a

Is there a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of a public health emergency?

Yes, plan(s)/agreement(s) are in place to prepare for future public health emergencies = 2, Yes, but plan(s)/agreement(s) are in place only in response to active public health emergencies = 1, No = 0

Current Year Score: 1

There is evidence that Cuba has a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of an active public health emergency, but only in response to an ongoing emergency.

In 2020, Cuba implemented the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19), which encompasses measures to tackle the spread of the COVID-19 virus in Cuba including contact tracing and quarantine measures for travelers. During the first stage of the pandemic according to mentioned plan, i. e. when cases were only related to travelers and local spread was limited to a handful of cases, travelers were imposed testing and 14 days of quarantine, including if

asymptomatic. On March 22nd Cuba prohibited access to international travelers to the country with exception of national and foreign residents, thereby closing commercial flights, and disposed the evacuation of tourists. [1]

As of November 2020, Cuba reinstated international flights with an additional three-step screening for international travelers. In the first step, the crew is asked whether anybody had symptoms compatible with respiratory diseases. Secondly, passengers are thermally scanned to identify fever, they fill a declaration of each passenger's health status and to authorize PCR testing, and finally receive a PCR test. Thirdly, passengers are again measured their temperature with a digital thermometer. Once in Cuba, passengers are required to visit within 48 hours from the arrival to the country the local health clinic where they reside, although hotels and tourist resorts are often endowed with health teams capable of fulfilling such requirements. Each person entering the country is mandated to isolate for 10 days, until they receive the results of the PCR test realised on the fifth day in the local health clinic. [2, 3] Nevertheless, there is no language suggesting that the measures taken pursuant to the COVID-19 plan could be applied to any type of public health emergency.

There is no additional information available on the Health Ministry website, the Institute Pedro Kouri website and the border authority (the Direction for Identification, Immigration and Foreign Services of the Ministry of Interior) [3] [4] [5]

[1] Organización Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

[2] Cubadebate. ¿Conoces los protocolos sanitarios establecidos por Cuba para los viajeros internacionales?

[<http://www.cubadebate.cu/especiales/2020/11/18/conoces-los-protocolos-sanitarios-establecidos-por-cuba-para-los-viajeros-internacionales/#.X8Ozuc1KhEY>]. Accessed November 29, 2020.

[3] Ministry of Health website. Control sanitario internacional en la nueva normalidad. <https://salud.msp.gob.cu/control-sanitario-internacional-en-la-nueva-normalidad/>. Accessed 29 November 2020.

[4] Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 29, 2020.

[5] Ministry of Interior. Dirección Identificación, Inmigración y Extranjería. [<https://diie.minint.gob.cu/>]. Accessed December 10, 2020.

2.6 EPIDEMIOLOGY WORKFORCE

2.6.1 Applied epidemiology training program, such as the field epidemiology training program, for public health professionals and veterinarians (e.g., Field Epidemiology Training Program [FETP] and Field Epidemiology Training Program for Veterinarians [FETPV])

2.6.1a

Does the country meet one of the following criteria?

- Applied epidemiology training program (such as FETP) is available in country
- Resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs (such as FETP)

Needs to meet at least one of the criteria to be scored a 1 on this measure. , Yes for both = 1 , Yes for one = 1 , No for both = 0

Current Year Score: 0

There is insufficient public evidence to confirm that Cuba meets one of the following specific criteria: the availability of an applied epidemiology training program (such as FETP) in country; or the provision by the government of resources to send

citizens to another country to participate in applied epidemiology training programs (such as FETP). No information on such programs is available via the Ministry of Health website for Cuba or TEPHINET. [1,2] However, there is evidence that training on epidemiology is taking place in country. A 2012 article in the International Journal of Epidemiology, and descriptions of the curriculum at the Latin American School of Medicine (ELAM), which mirrors the Cuban medical curriculum (in Social Medicine and in an ELAM webpage), notes that Cuban medical education epidemiology training [3,4,5]. The Cuban Ministry of Health-associated 'INFOMED' website and in a 2017 paper by a group of professors describe masters degrees in epidemiology provided at Cuba's 'Pedro Kourí' Institute of Tropical Medicine. [6,7]. However, there is no evidence of an applied epidemiology training program. Similarly, there is no public evidence that the Cuban government provides resources to send citizens to another country to participate in applied epidemiology training programmes (such as FETP).

[1] Ministry of Public Health website: <http://www.sld.cu>. Accessed November 29, 2020.

[2] TEPHINET. "Training Programs." [<https://www.tephinet.org/training-programs>]. Accessed November 29, 2020.

[3] Barreto, S.M., J.J. Miranda, J.P. Figueroa, M. Ines Schmidt, S. Munoz, P.P. Kuri-Morales and J.B. Silva Jr. 2012. 'Epidemiology in Latin America and the Caribbean: current situation and challenges'. International Journal of Epidemiology 2012; 41:557-571. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3324459/>] Accessed November 29, 2020.

[4] Remen, R. and Holloway, L. 2008. Social Medicine in Practice: A Student Perspective on ELAM and its Educational Program. Social Medicine, 3

[2] pp. 158-164. July 2008. [<http://www.socialmedicine.info/index.php/socialmedicine/article/view/216/447/>]. Accessed November 29, 2020.

[5] ELAM webpage. [<https://instituciones.sld.cu/elam/tag/elam/>]. Accessed November 29, 2020.

[6] Infomed: Red de Salud de Cuba. 2018. "Maestría en Epidemiología (Masters in Epidemiology)".

[<http://instituciones.sld.cu/ipk/maestria-epidemiologia-2/>]. Accessed November 29, 2020. Castelló González, M., R. Pons Vázquez, D. Rodríguez Bencomo and I. Choonara. 2016. International Medical Collaboration: Lessons from Cuba. Children (Basel). December 2016; 3

[4] : 20.

[7] González-Ochoa, Edilberto, Armas-Pérez, Luisa A., Pérez-Rodríguez, Antonio, Martínez-Sánchez, Raydel, Peña-Molina, Eliecer and Cantelar-de-Francisco, Nereyda. 2017. "Higher Education in the Health; Formation of Epidemiological Personnel in Cuba (Educación Superior en Salud; Formación de Personal en Epidemiología en Cuba)". Salud Publica de Mexico. [<http://saludpublica.mx/index.php/spm/article/view/5635/6130>]. Accessed November 29, 2020.

[8] Caribbean Public Health Agency (CARPA) report: 'Regional Network Launched to Collaborate on Zika and Other Vector-Borne Diseases'. 22 Aug, 2017. [<http://carpha.org/articles/ArticleType/ArticleView/ArticleID/152>] Accessed November 29, 2020.

2.6.1b

Are the available field epidemiology training programs explicitly inclusive of animal health professionals or is there a specific animal health field epidemiology training program offered (such as FETPV)?

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of available field epidemiology training programs explicitly inclusive of animal health professionals or a specific animal health field epidemiology training program offered (such as FETPV) in Cuba. The public information available does not refer to specific animal health field epidemiology training program offered (such as FETPV). The Centre for Animal and Plant Health (CENSA), the national specialist centre for animal health research and training [1], offers training programs in field epidemiology specifically designed for animal health professionals, but there is no reference to the title of the program or information on the extent to which the course content coincides with internationally-recognised programmes [2].

There is no additional information on the Ministry of Public Health's website [3].

[1] CENSA website. [<http://www.censa.edu.cu/?lang=en>] Accessed November 29, 2020.

[2] CENSA web page describing courses and training for animal health professionals.

[<http://www.censa.edu.cu/index.php/2018/01/07/cursos-y-entrenamientos/?lang=en>] Accessed November 29, 2020.

[3] Ministry of Public Health. [<https://salud.msp.gob.cu/>]. Accessed November 26, 2020.

2.6.2 Epidemiology workforce capacity

2.6.2a

Is there public evidence that the country has at least 1 trained field epidemiologist per 200,000 people?

Yes = 1, No = 0

Current Year Score: 0

2020

Completed JEE assessments; Economist Impact analyst qualitative assessment based on official national sources, which vary by country

Category 3: Rapid response to and mitigation of the spread of an epidemic

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

Does the country have an overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential?

Evidence that there is a plan in place, and the plan is publicly available = 2, Evidence that the plan is in place, but the plan is not publicly available OR, Disease-specific plans are in place, but there is no evidence of an overarching plan = 1, No evidence that such a plan or plans are in place = 0

Current Year Score: 1

Cuba has a well-developed overarching national public health emergency response plan, which includes planning for any communicable diseases with pandemic potential, including multiple disease outbreaks, as described in a 2008 article by a Ministry of Public Health researcher and a 2015 WHO report [1,2]. However, a full description of the plan is not available. The Ministry of Public Health coordinates with other agencies through a system led by the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), which may explain why the EMNDC website is not accessible. The integrated public health emergency response system is supported by a national health system with universal coverage, enabling rapid identification of disease outbreaks. According to a 2010 United Nations Development Program report, this framework "has contributed to the excellent track record in Cuba of protecting human life and livelihoods through

preparedness and institutional capacity building at a local level." [3]. The effectiveness of Cuba's national public health emergency response system has been illustrated by its response to the threat of Ebola, radical measures to contain the spread of HIV in the 1980s (initially including quarantine but subsequently revised as knowledge improved), and rapid action in response to outbreaks of dengue and, most recently, zika [4,5,6]. Cuba also drafted disease-specific plans in 2005 and 2009 for Influenza A, as well as a comprehensive COVID-19 plan involving aggressive measures such as three-layer screening for travelers, mandatory quarantine/isolation for possible or confirmed cases, scaling up of testing and treatment facilities and others [7, 8, 9]

- [1] Mesa, G. 2008. 'The Cuban Health System and Disaster Mitigation'. MEDICC Review, Summer 2008, Vol. 10, No. 3. Pages 5-8. [<http://www.medigraphic.com/pdfs/medicreview/mrw-2008/mrw083b.pdf>]. Accessed 24 March 2019.
- [2] WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [https://www.who.int/phi/publications/cuban_experience_local_prod_medstech_transfer/en/]. Accessed 6 January 2019.
- [3] Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicrccubabp2010en1.pdf]. Accessed 6 January 2019.
- [4] Castro M., Pérez D., Guzman M.G., Barrington C. 2017. Why Did Zika Not Explode in Cuba? The Role of Active Community Participation to Sustain Control of Vector-Borne Diseases. Journal of Tropical Medicine and Hygiene. Aug 2017. 97 [2] :311-312. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5544081/>]. Accessed on 6 January 2019.
- [5] Corry, Conner, 2016. Cuba Confronts Zika: All Hands on Deck. International Journal of Cuban Health & Medicine 18 (1-2) Jan-Apr 2016. [https://www.scielosp.org/scielo.php?script=sci_arttext&pid=S1555-79602016000100006] Accessed November 18 2018.
- [6] Reardon, Sara, 2016. 'Cuba's Epic Battle with Zika'. Nature. 536:257-8. [https://www.nature.com/polopoly_fs/1.20429.14714523761/menu/main/topColumns/topLeftColumn/pdf/536257a.pdf?origin=ppub] Accessed November 17 2018.
- [7] Ministry of Health, PLAN PARA EL ENFRENTAMIENTO DE LA PANDEMIA INFLUENZA A (H1N1), 2009. [https://files.sld.cu/pdvedado/files/2009/09/final_plan_para_el_enfrentamiento_de_pandemia.pdf]. Accessed November 27, 2020.
- [8] Ministry of Health, Plan para el enfrentamiento unico de una pandemia de influenza, 2005. [https://www.paho.org/hq/images/stories/AD/HSD/CD/INFLUENZA/cuba_prep_plan.pdf]. Accessed November 27, 2020.
- [9] Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

3.1.1b

If an overarching plan is in place, has it been updated in the last 3 years?

Yes = 1 , No /no plan in place= 0

Current Year Score: 0

There is no direct evidence that Cuba's overarching national public health emergency response plan has been updated in the last 3 years. Apart from the comprehensive nature of the plan, as described in a 2015 WHO report and a 2010 United Nations Development Program report on Cuba's model of risk reduction management centres which describes it as an example of "best practice" [1,2], two articles indicate that the authorities updated the emergency response plan as a result of the 2014 outbreak of zika in the region, and its arrival in Cuba in 2016 [3,4]. The outbreak prompted a revision of the procedures for spraying against mosquitos, and intensification of health surveillance. Although the Ministry of Public Health and Ministry of Science, Technology and the Environment (CITMA) are closely involved in the emergency response activity, their websites do not provide accessible information on the health emergency response plan [5,6]. The most recently updated plan, the Plan for Facing Covid-19 (Plan de Enfrentamiento a la COVID-19) was drafted in 2020, but it only deals with

a specific disease. [7] It is however possible that, as in the case of Zika region, the COVID outbreak promoted the revision of health emergency procedures within Cuba's comprehensive response plan.

- [1] WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed November 29, 2020.
- [2] Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicrrcubabp2010en1.pdf]. Accessed November 29, 2020.
- [3]. Isaac, A. 2017. 'Regional network launched to collaborate on Zika and other vector-borne diseases'. 22 August 2017. [<http://carpha.org/articles/ArticleType/ArticleView/ArticleID/152>]. Accessed November 29, 2020.
- [4] Castro M., Pérez D., Guzman M.G., Barrington C. 2017. 'Why Did Zika Not Explode in Cuba? The Role of Active Community Participation to Sustain Control of Vector-Borne Diseases'. Journal of Tropical Medicine and Hygiene. Aug 2017. 97 [2] :311-312. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5544081/>]. Accessed on November 29, 2020.
- [5] Ministry of Public Health website, Infomed. [<http://www.sld.cu>] Accessed November 29, 2020.
- [6] Ministry of Science, Technology and the Environment (CITMA) website. [<http://www.citma.gob.cu>]. Accessed November 29, 2020. [87 Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

3.1.1c

If an overarching plan is in place, does it include considerations for pediatric and/or other vulnerable populations?

Yes = 1 , No /no plan in place= 0

Current Year Score: 0

There is not enough evidence to confirm that the overarching national public health emergency preparedness and response plan, described in a UNDP report as demonstrating "best practice", include specific considerations for all sections of the population, including specific provisions for children and other vulnerable populations. Although there is some evidence that the overarching plan includes mentioned measures, the plan is not publicly available [1, 2]. There is no additional information on the Ministry of Public Health's website, and the website of the emergency management authority, the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), is not accessible. [3]

1. Castro M., Pérez D., Guzman M.G., Barrington C. 2017. Why Did Zika Not Explode in Cuba? The Role of Active Community Participation to Sustain Control of Vector-Borne Diseases. Journal of Tropical Medicine and Hygiene. Aug 2017. 97 [2] :311-312. 29 November 2020 2. UNICEF annual report on Cuba 2017. [https://www.unicef.org/about/annualreport/files/Cuba_2017_COAR.pdf]. Accessed on 29 November 2020 3. Ministry of Public Health website, Infomed. [<http://www.sld.cu>] Accessed November 29, 2020

3.1.1d

Does the country have a publicly available plan in place specifically for pandemic influenza preparedness that has been updated since 2009?

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

Does the country have a specific mechanism(s) for engaging with the private sector to assist with outbreak emergency preparedness and response?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Cuba has a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. There is no accessible public information available on the Ministry of Public Health website [1]. The Asociacion Nacional de Agricultores Pequeños (ANAP) is one of Cuba's official 'mass organisations', and as such is integrated into the national system for disease control and response. It subscribes to the REDesastres information network, hosted by the Ministry of Science, Technology and the Environment (CITMA) and sponsored by the Ministry of Higher Education as described in a 2015 conference paper in English [2]. The network has been developed as part of the national mechanism for owners of livestock in private and cooperative farms as well as state farms, to conduct and report on disease surveillance to a central government agency. It is a subscription service (by application), so it is not publicly available. A 2017 article published by the University of La Plata, Argentina, provides a further update on REDesastres [3]. It reports that "REDesastres provides informational support to all members of the network as a key factor for updating, timely decision making and active participation of all actors and sectors involved in the reduction of animal and plant health disasters." These actors and sectors are also those responsible for outbreak emergency preparedness and response [4]. However, there is no additional information available. Additionally, there is no mention of private-sector involvement within the information available on the Plan for Facing COVID-10 (Plan de Enfrentamiento a la COVID-19) drafted in 2020. [5]

[1] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 29 November 2020.

[2] Asociacion Nacional de Agricultores Pequeños (ANAP) website [www.revista.anap.cu] Accessed November 29, 2020.

[3] Percedo, M.I. 2015. 'CEDESAP and REDesastres network with "One Health" surveillance approach for the sanitary risk reduction in the agricultural sector.' Paper presented at 2015 Conference International Society for Disease Surveillance (ISDS) Denver, Colorado, USA

[https://www.researchgate.net/publication/309560254_CEDESAP_and_REDesastres_network_with_One_Health_surveillance_approach_for_the_sanitary_risk_reduction_in_the_agricultural_sector]. Accessed November 29, 2020.

[4] Canales, H., M.I. Percedo, M.G. Rodríguez, I. González. 2017. 'Redesastres, una herramienta de gestión de información al servicio de la reducción de desastres sanitarios en animales y plantas en Cuba' (Disaster management tool serving information reducing health disasters in animals and plants in Cuba). 18 May 2017. Palabra Clave (La Plata), 6

[2], e023. [<http://sedici.unlp.edu.ar/handle/10915/60197>]. Accessed November 29, 2020.

[5] Organizacion Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

Does the country have a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic?

Yes, a policy, plan and/or guidelines are in place for more than one disease = 2, Yes, but the policy, plan and/or guidelines exist only for one disease = 1, No = 0

Current Year Score: 2

There is evidence that Cuba has a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic for one or more diseases.

In 2020 Cuba implemented a Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19) which set the main guidelines for dealing with the COVID pandemic. This plan encompassed NPIs such as closing schools, recommending work from home, restraining travels, mandating screening and facemasks, but there is no evidence or language that suggests explicitly that such plan can be applied to other diseases [1, 2].

Furthermore, in 2005 and 2009 Cuba implemented two disease-specific plans for addressing the A influenza pandemics (H5N1 and H1N1). Such plans provided generic guidelines for NPIs such as restricting entry to the country, recommending to stay at home and avoiding gathering, prepare extraordinary measures for the closure of schools and workplaces and others, but there is no evidence or language that suggests explicitly that such plan can be applied to other diseases [3, 4]

Additionally, Cuba has a well-developed national public health emergency response plan, which includes planning for any communicable diseases with pandemic potential, including multiple disease outbreaks, as described in a 2008 article by a Ministry of Public Health researcher and a 2015 WHO report [3,4]. However, a full description of the plan is not available and it is thereby impossible to prove the existence of a policy, plan and/or guidelines or NPIs. The Ministry of Public Health coordinates with other agencies through a system led by the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), which may explain why the EMNDC website is not accessible. [5]

1. Organización Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 29 November 2020.

2. Cuba Debate. Cuba garantiza protección laboral y salarial ante situación con el nuevo coronavirus. Published March 2020. [<http://www.cubadebate.cu/noticias/2020/03/12/cuba-garantiza-proteccion-laboral-y-salarial-ante-situacion-con-el-nuevo-coronavirus/#.X8J2cM1KhEY>]. Accessed November 28, 2020

3. Ministry of Health, Plan para el enfrentamiento unico de una pandemia de influenza, 2005.

[https://www.paho.org/hq/images/stories/AD/HSD/CD/INFLUENZA/cuba_prep_plan.pdf]. Accessed November 27, 2020.

4. Ministry of Health, PLAN PARA EL ENFRENTAMIENTO DE LA PANDEMIA INFLUENZA A (H1N1), 2009.

[https://files.sld.cu/pdvedado/files/2009/09/final_plan_para_el_enfrentamiento_de_pandemia.pdf]. Accessed November 27,

2020.

5. Mesa, G. 2008. 'The Cuban Health System and Disaster Mitigation'. MEDICC Review, Summer 2008, Vol. 10, No. 3. Pages 5-8. [<http://www.medigraphic.com/pdfs/medicreview/mrw-2008/mrw083b.pdf>]. Accessed 29 November 2020.

6. WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health.

[https://www.who.int/phi/publications/cuban_experience_local_prod_medstech_transfer/en/]. Accessed 29 November 2020.

7. Ministry of Public Health website, Infomed. [<http://www.sld.cu>] Accessed November 29, 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?

- Is there evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year?

- Is there evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year?

Needs to meet at least one of the criteria to be scored a 1 on this measure. , Yes for both = 1 , Yes for one = 1 , No for both = 0

Current Year Score: 1

There is publicly available evidence that Cuba has activated their national emergency response plan for an infectious disease outbreak in the past year, although there is no evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year.

On the first point, Cuba implemented in 2020 the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) which provided emergency guidelines and measures to fight the COVID pandemic and was built on the national emergency response plan. [1] A full description of the plan is not available. The Ministry of Public Health coordinates with other agencies through a system led by the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), which may explain why the EMNDC website is not accessible.

On the latter point, neither the WHO or PAHO websites include any information on after action reviews or IHR exercises for Cuba [2, 3]. There is no access to such information on the webpage of the Pedro Kouri Institute for Tropical Medicine (IPK), Cuba's central laboratory for surveillance of biological threats, nor on the Ministry of Public Health's website [4, 5] No further evidence is available on the WHO Simulation Exercise page [6].

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 29 November 2020
2. WHO. Cuba. [<https://extranet.who.int/sph/country/253>] Accessed 29 November 2020
3. PAHO member states epidemiological bulletins. [https://www.paho.org/hq/index.php?option=com_content&view=article&id=5717:2011-links-member-states-epidemiological-bulletins&Itemid=4117&lang=en]. Accessed 29 November 2020.
4. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 29 November 2020.
5. Pedro Kouri Institute for Tropical Medicine website. [<http://instituciones.sld.cu/ipk/bolipk/>]. Accessed 29 November 2020.
6. WHO. Simulation Exercise. [<https://extranet.who.int/sph/simulation-exercise>]. Accessed December 10, 2020.

3.2.1b

Is there evidence that the country in the past year has identified a list of gaps and best practices in response (either through an infectious disease response or a biological-threat focused exercise) and developed a plan to improve response capabilities?

Yes, the country has developed and published a plan to improve response capacity = 2 , Yes, the country has developed a plan to improve response capacity, but has not published the plan = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the country in the past year has identified a list of gaps and best practices in response (either through an infectious disease response or a biological-threat focused exercise) and developed a plan to improve response capabilities. Neither the WHO or PAHO websites include any information on after action reviews or IHR exercises for Cuba [1,2, 3]. There is no access to such information on the webpage of the Pedro Kouri Institute for Tropical Medicine (IPK), Cuba's central laboratory for surveillance of biological threats, nor on the website of the Ministry of Public Health [4, 5]

1. WHO. Cuba. [<https://extranet.who.int/sph/country/253>] Accessed November 29 2020. 2. WHO. After Action Review. <https://extranet.who.int/sph/after-action-review>. Accessed November 29 2020. 3. PAHO member states epidemiological bulletins. [https://www.paho.org/hq/index.php?option=com_content&view=article&id=5717:2011-links-member-states-epidemiological-bulletins&Itemid=4117&lang=en]. Accessed November 29 2020. 4. Pedro Kouri Institute for Tropical Medicine website. [<http://instituciones.sld.cu/ipk/bolipk/>]. Accessed November 29 2020. 5. Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed November 29 2020

3.2.2 Private sector engagement in exercises

3.2.2a

Is there evidence that the country in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that the country in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives. Neither the WHO or PAHO websites include any information on after action reviews or IHR exercises for Cuba [1,2]. There is no access to such information on the webpage of the Pedro Kouri Institute for Tropical Medicine (IPK), Cuba's central laboratory for surveillance of biological threats, nor on the Ministry of Public Health's website [3, 4] No further evidence is available on the WHO Simulation Exercise page, too. [5]

1. WHO. Cuba. [<https://extranet.who.int/sph/country/253>] Accessed 29 November 2020 2. PAHO member states epidemiological bulletins. [https://www.paho.org/hq/index.php?option=com_content&view=article&id=5717:2011-links-member-states-epidemiological-bulletins&Itemid=4117&lang=en]. Accessed 29 November 2020. 3. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 29 November 2020. 4. Pedro Kouri Institute for Tropical Medicine website. [<http://instituciones.sld.cu/ipk/bolipk/>]. Accessed 29 November 2020. 5. WHO. Simulation Exercise. [<https://extranet.who.int/sph/simulation-exercise>]. Accessed December 10, 2020.

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

Does the country have in place an Emergency Operations Center (EOC)?

Yes = 1 , No = 0

Current Year Score: 0

There is no clear public evidence that the country has in place an Emergency Operations Centre (EOC). There are many references to Cuba's emergency response system as well as evidence that an emergency response centre does exist, although there is little public information available about its operations. Cuba's National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC) hosts the country's emergency response centre, and the EMNDC is directly under the supervision of the highest levels of government and linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). Only a brief official description of the national civil defence system is available on the web [1]. An article reports that the center was created shortly before 2017 and is located in the Convention Center in San Juan, and it coordinates the emergency operations of local and federal government [2]. Information on a health Emergency Operations Center is not available on the Ministry of Health's website [3]. Cuba also does have an institution focused on health in disasters, the Latin American Centre for Disaster Medicine (Centro Latinoamericano Medicina de Desastre, CLAMED), but it is more focused on disaster reduction than response. [4,5, 6].

1. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30, 2020.
2. Cubadebate. Choque de realidades en el Centro de Operaciones de Emergencia, published in 2017. [<http://www.cubadebate.cu/especiales/2017/10/09/choque-de-realidades-en-el-centro-de-operaciones-de-emergencia/#.X8UUJM1KhEY>]. Accessed November 30, 2020.
3. Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 30, 2020.
4. Eured information on the Latin American Centre for Disaster Medicine at [https://www.eured.cu/Centro_Latinoamericano_Medicina_de_Desastre]. Accessed November 30, 2020.
5. Infomed page with information on CLAMED: [http://www.sld.cu/sitios/desastres/verpost.php?blog=https://articulos.sld.cu/desastres&post_id=37446&c=1704&tipo=2&id_blog=87&p=1&n=df]. Accessed November 30, 2020.
6. Yraida Rodríguez, L. et.al. 2010. Salud y Desastres. Experiencias Cubanas IV. [https://www.researchgate.net/profile/Marcos_Iraola2/publication/261986580_Salud_y_Desastres_Experiencias_cubanas_2010/links/0deec53615152245b7000000/Salud-y-Desastres-Experiencias-cubanas-2010.pdf]. Accessed November 30, 2020.

3.3.1b

Is the Emergency Operations Center (EOC) required to conduct a drill for a public health emergency scenario at least once per year or is there evidence that they conduct a drill at least once per year?

Yes = 1 , No = 0

Current Year Score: 0

There is no clear public evidence that the country has in place an Emergency Operations Centre (EOC) and therefore any requirement to conduct a drill for public health-related emergencies at least once per year. In the case of pandemics, the specialist organisation, the Center for Animal and Plant Health (CENSA) participates in periodic national defence exercises, but there is no evidence of the frequency of any drills in the Ministry of Health's website [1,2].

1. Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 30, 2020.
2. Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 30, 2020.

3.3.1c

Is there public evidence to show that the Emergency Operations Center (EOC) has conducted within the last year a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario?

Yes = 1 , No = 0

Current Year Score: 0

There is no clear public evidence that the country has in place an Emergency Operations Centre (EOC) and therefore that it can conduct, or has conducted within the last year, a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario. Cuba's National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC) is directly under the supervision of the highest levels of government and linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). This may explain why the EMNDC website is not accessible. Only a brief official description of the national civil defence system is available on the web [1]. The links between disaster response and the military are clearly described in a 2010 study, which explains that "The [civil defense system] is organized as a military organization. One of its claims is that it participates in neutralizing the attacks directed against Cuba by the United States. It has a National Civil Defense Command currently directed by Mr. Raul Castro, the President of the Council of State, who is assisted by the Chief Minister of the Armed Forces." [2]. The website of the national body responsible for surveillance of pathogens, the Center for Animal and Plant Health (CENSA), participates in periodic national defence exercises, but provides no reports on the speed of response, nor does the website hosted by the Ministry of Health [3,4]. However, as a UNDP report notes, Cuba's emergency response system provides substantial evidence of 'best practice', so it is likely that the activation of emergency response is swift [5]

1. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 18 2018. Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 30, 2020. 2. B. E. Aguirre, B. E. and Joseph E. Trainor. 2010. 'Emergency Management in Cuba: Disasters Experienced, Lessons Learned, and Recommendations for the Future'. Comparative Emergency Management. David McEntire (ed.) FEMA in Higher Education Program. Infomed: Red de Salud de Cuba. Website. [<http://www.sld.cu/>]. Accessed November 30, 2020. 3. Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 30, 2020. 4. Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 30, 2020. 5. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed November 30, 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

3.4.1 Public health and security authorities are linked for rapid response during a biological event

3.4.1a

Does the country meet one of the following criteria?

- Is there public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack)?
- Are there publicly available standard operating procedures, guidelines, memorandums of understanding (MOUs), or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e., bioterrorism attack)?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is no available public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event, and there are no publicly available standard operating procedures, guidelines, MOUs or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e. bioterrorism attack). No such information is available on the website hosted by the Ministry

of Public Health, and the national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is part of the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), does not have an accessible website [1,2].

1. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30, 2020. 2. Ministry of Health Website. [<https://salud.msp.gob.cu/>] Accessed November 30, 2020.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

Does the risk communication plan (or other legislation, regulation or strategy document used to guide national public health response) outline how messages will reach populations and sectors with different communications needs (eg different languages, location within the country, media reach)?

Yes = 1 , No = 0

Current Year Score: 0

There is evidence that Cuba's national public health emergency response plan includes risk communication, although the plans are not publicly available and it is therefore unclear whether or not guidance for ensuring that messages will reach populations and sectors with different communications needs during public health emergencies is contained within the document. According to the information available on the Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19), mentioned plan includes the implementation of an integral communication program to present each response steps to the general population as well as to the different organisms involved [1]. Nevertheless, the communication program cannot be verified since such plan is not available online; additionally, there is no evidence that the Plan mention explicitly that this can be used for public health emergencies in general, as it is a disease-specific response. Furthermore, a communications strategy is outlined in a 2004 Oxfam report on risk reduction and a 2010 UNDP report [2, 3]. The 2010 report notes that the strategy explicitly addresses the challenge of providing information to remote and vulnerable communities. Communication resources include equipment for risk reduction management centres [RRMCs] transmitting "voice, data and images to different administrative levels, and reducing 'silent zones'." However, this information is not clear if this information is contained within the national public emergency response plan. In this way, "Vulnerable communities are able to maintain radio communication between several of [the RRMC's] members; this helps with the execution of established civil defence measures." The strategy also involves channels of communication at neighbourhood level through the family doctor network that covers the entire population, as well as through national civil defence agencies. State-controlled national and local radio and television are incorporated into the communications arrangements. The response to health emergencies is centrally coordinated by through national civil defence system [4]. A brief outline of the family doctor system, explaining its universal reach and effectiveness, is provided in an article in the WHO bulletin [5]. There is no additional information on the Ministry of Public Health's website [5]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 30November 2020 2. Oxfam. 2004. Weathering the Storm: lessons in risk reduction from Cuba. Oxfam America. [<http://www.eird.org/isdr-biblio/PDF/Cuba%20Weathering.pdf>] Accessed November 30, 2020. 3. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [<https://www.preventionweb.net/publications/view/14963>] November 30, 2020 4. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30, 2020. 5. Reed, G. 2008. 'Cuba's primary health care revolution: 30 years on'. Bulletin of the World Health Organization.

Volume 86:5, May 2008, pp.321-416. [<https://www.who.int/bulletin/volumes/86/5/08-030508/en/>]. Accessed November 30, 2020. 6. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 30 November 2020.

3.5.1 Risk communication planning

3.5.1a

Does the country have in place, either in the national public health emergency response plan or in other legislation, regulation, or strategy documents, a section detailing a risk communication plan that is specifically intended for use during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

There is some evidence that the national public health emergency response plan includes risk communication, but the plans are not publicly available. There is no publicly available information on this subject on the Ministry of Public Health-hosted website [1]. Health emergencies are part of the remit of the national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). Neither the EMNDC nor the FAR have accessible websites, although the FAR does provide an accessible very general outline of the history and activities of the civil defence system [2]. The fullest available account of the system of risk reduction, including public health emergencies, is a 2010 report published by the UNDP [3]. Additionally, according to the information available on the Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19), such plan includes the implementation of an integral communication program to present each response step to the general population as well as to the different organisms involved [4]. Nevertheless, the risk communication program cannot be verified in detail since the plan is not available online.

1. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 30 November 2020. 2. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30 2020. 3. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicrrecubabp2010en1.pdf]. Accessed November 30 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 30 November 2020

3.5.1c

Does the risk communication plan (or other legislation, regulation or strategy document used to guide national public health response) designate a specific position within the government to serve as the primary spokesperson to the public during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that the risk communication plan designates a specific position within the government to serve as the primary spokesperson to the public during a public health emergency. There is no publicly available information on this subject on the Ministry of Public Health (MINSAP) website [1]. Health emergencies are part of the remit of the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNbut DC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). Neither the EMNDC nor the FAR have accessible websites, although the FAR does provide an accessible very general outline of the history and activities of the civil

defence system [2]. The fullest available account of the system of risk reduction, including public health emergencies, is a 2010 report published by the UNDP. According to such account, the communication efforts are mostly assigned to Risk Reduction Management Centres (RRMCs) but there is no specific mention of a position within the government to serve as the primary spokesperson; nevertheless, general roles and responsibilities are identified for RRMCs [3]. Lastly., according to the information available on the Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19), such plan identifies the main spokesperson for official data in Dr. Francisco Durán, National Director of Epidemiology at MINSAP, who informs daily in a press conference diffused via radio and national television of COVID cases, their evolution, distribution and other relevant epidemiologic variables [4] Nevertheless, the risk communication program cannot be verified in detail since the plan is not available online.

1. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 30 November 2020. 2. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30 2020. 3. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed November 30 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 30 November 2020

3.5.2 Public communication

3.5.2a

In the past year, is there evidence that the public health system has actively shared messages via online media platforms (e.g. social media, website) to inform the public about ongoing public health concerns and/or dispel rumors, misinformation or disinformation?

Public health system regularly shares information on health concerns = 2, Public health system shares information only during active emergencies, but does not regularly utilize online media platforms = 1, Public health system does not regularly utilize online media platforms, either during emergencies or otherwise = 0

Current Year Score: 2

There is publicly-available evidence that the public health system has actively shared messages via online media platforms (e.g. social media, website) to inform the public about ongoing public health concerns and/or dispel rumors, misinformation or disinformation in the past year. Although Cuba lags substantially on internet connectivity, its national health emergency system does use more traditional media, including radio and television, to provide public information on health emergencies. As of December 2018 a broadband connectivity was launched in Cuba and the use of media platform increased rapidly. [1] Throughout 2020, the Ministry of Health (MINSAP) website shared daily updates on the state of COVID-19 patients, as well as information on contact tracing [2]. Such information was also shared through the MINSAP's Facebook page [3] Additionally, Cuba's Health-Ministry-hosted website, INFOMED, also provides health news service and specialized information services, as well as other services such as a virtual library on medical topics. Such health news are published regularly, within and without public health emergencies, as testified by the many articles and news regarding health concerns, developments in the medical field and other relevant topics that were shared on the portal [4]

1. McLaughlin, J. Internet In Cuba: A Brief History & Connecting Today. Published on March 15, 2020. [<https://www.ding.com/community/internet-access-in-cuba>]. Accessed 30 November 2020. 2. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 30 November 2020. 3. Ministry of Health Facebook page. [<https://www.facebook.com/MINSAPCuba/>]. Accessed November 30, 2020. 4. Infomed website. <http://www.sld.cu/>.

Accessed 27 November 2020.

3.5.2b

Is there evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years?

No = 1, Yes = 0

Current Year Score: 1

There is no evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years in Cuba. As a matter of fact, Cuba exerts a tight control over the information that is spread on infectious diseases, allowing only the Ministry of Health (MINSAP) and the portal INFOMED to provide information about such topics [1] [2]. In the case of COVID-19, only the National Director for epidemiology Francisco Duran offers daily updates on the status of COVID in the country, later integrated by further details on the websites MINSAP and INFOMED [3]. To ensure the diffusion of true information on COVID-19, the Universidad de Pinar del Rio created the first Observatory of Coronavirus, which utilizes information from open scientific journals, international data, official news from WHO and Ministry of Health to monitor and analyze scientific and technologic information published on COVID-19 worldwide. [3] In this tightly controlled context, there is little room for senior leaders to spread any misinformation on such topics. There is no further information on international and national news outlets.

1. Infomed website. [<http://www.sld.cu/>] Accessed 25 November 2020. 2. Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020. 3. Ministerio de los Exteriores. Noticias falsas, infodemia y desinformación: ¿qué debes saber?. Published May 2020. [<http://misiones.minrex.gob.cu/es/articulo/noticias-falsas-infodemia-y-desinformacion-que-debes-saber>]. Accessed november 30, 2020.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 61.84

2019

International Telecommunication Union (ITU)

3.6.2 Mobile subscribers

3.6.2a

Mobile-cellular telephone subscriptions per 100 inhabitants

Input number

Current Year Score: 53.32

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

Percentage point gap between males and females whose home has access to a mobile phone

Input number

Current Year Score: 3.14

2018-2019

Gallup; Economist Impact calculation

3.6.4 Female access to the Internet

3.6.4a

Percentage point gap between males and females whose home has access to the Internet

Input number

Current Year Score: 4.24

2018-2019

Gallup; Economist Impact calculation

3.7 TRADE AND TRAVEL RESTRICTIONS

3.7.1 Trade restrictions

3.7.1a

In the past year, has the country issued a restriction, without international/bilateral support, on the export/import of medical goods (e.g. medicines, oxygen, medical supplies, PPE) due to an infectious disease outbreak?

Yes = 0, No = 1

Current Year Score: 1

In the past year, there is no publicly available evidence that the country has issued unilaterally a restriction on the export/import of medical goods (e.g. medicines, oxygen, medical supplies, PPE) due to an infectious disease outbreak. In March 2020 Cuba restricted all international travel with the exception of Cuban residents (national and foreigners) with the closure of commercial flights due to the COVID-19 outbreak, but there is no information on the restriction of medical goods import/export on the relevant Health, Agriculture and Foreign Affairs Ministries' websites, as well as on the webpage of the Insitute Pedro Kouri. [1,2,3,4, 5, 6]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud.

[<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November

2020. 2. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020. 3. Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed 25 November 2020. 4. Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020. 5. Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020. 6. Ministerio de Asuntos Exteriores Cuba. [<http://www.minrex.gob.cu/es>]. Accessed November 30, 2020.

3.7.1b

In the past year, has the country issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc) due to an infectious disease outbreak?

Yes = 0, No = 1

Current Year Score: 1

In the past year, there is no evidence that the country issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc) due to an infectious disease outbreak. In March 2020 Cuba restricted all international travel with the exception of Cuban residents (national and foreigners) with the closure of commercial flights due to the COVID-19 outbreak, but there is no information on the restriction of non-medical goods import/export on the relevant Health, Agriculture and Foreign Affairs Ministries' websites, as well as on the webpage of the Insitute Pedro Kouri. [1,2,3,4, 5, 6]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020. 2. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020. 3. Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed 25 November 2020. 4. Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020. 5. Ministerio de la Agricultura. [<https://www.minag.gob.cu/>]. Accessed November 26, 2020. 6. Ministerio de Asuntos Exteriores Cuba. [<http://www.minrex.gob.cu/es>]. Accessed November 30, 2020.

3.7.2 Travel restrictions

3.7.2a

In the past year, has the country implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak?

Yes = 0, No = 1

Current Year Score: 0

In the past year, there is publicly available evidence that the country has implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak. In March 2020 Cuba restricted all international travel with the exception of Cuban residents (national and foreigners) with the closure of commercial flights due to the COVID-19 outbreak without targeting a specific country nor following explicit WHO recommendations. [1, 2] No further information is available on the Ministry of Public Health and Foreign Affairs websites. [3, 4]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020. 2. World Health Organization. Coronavirus disease (COVID-19) travel advice.

[<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/travel-advice>]. Accessed November 30, 2020/ 3. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020. 4. Ministerio de Asuntos Exteriores Cuba. [<http://www.minrex.gob.cu/es>]. Accessed November 30, 2020.

Category 4: Sufficient and robust health sector to treat the sick and protect health workers

4.1 HEALTH CAPACITY IN CLINICS, HOSPITALS, AND COMMUNITY CARE CENTERS

4.1.1 Available human resources for the broader healthcare system

4.1.1a

Doctors per 100,000 people

Input number

Current Year Score: 842.18

2018

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 756.14

2018

WHO; national sources

4.1.1c

Does the country have a health workforce strategy in place (which has been updated in the past five years) to identify fields where there is an insufficient workforce and strategies to address these shortcomings?

Yes = 1 , No = 0

Current Year Score: 0

There is no public information on whether Cuba has a public workforce strategy in place (which has been updated in the past five years) to identify fields where there is an insufficient workforce, or strategies to address any shortcomings.

The Ministry of Public Health's website has no information on this subject. [1] Access to the Ministry of Labour and Social Security website is restricted, and the Ministry of Education website has no public information on this subject [2, 3]. The National Statistics Office (Oficina Nacional de Estadísticas e Informacion, ONEI) publishes the total number of medical staff employed by the national health system annually at the year end in its Anuario Estadístico de Cuba, chapter 19 [4]. In the 2017 Anuario, the total number was given as 262,789. Of these, there were 92,084 doctors (one for every 122 people) of which 13,131 were family doctors (general practitioners). The remainder were technicians, nurses, nursing assistants, stomatologists and pharmacists.

[1] Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 25 November 2020.

[2] Ministry of Labour and Social Security website. [<http://www.mtss.gob.cu>]. Unable to access November 30, 2020.

[3] Ministry of Education website [<http://www.mined.gob.cu>]. Accessed November 30, 2020.

[4] Oficina Nacional de Estadísticas e Informacion. Anuario Estadístico de Cuba. Capitulo 19. Salud Publica y Asistencia Social. 2018. [<http://www.one.cu>]. Accessed November 30, 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 533

2017

WHO/World Bank; national sources

4.1.2b

Does the country have the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation room/unit located within the country?

Yes = 1 , No = 0

Current Year Score: 0

There is not enough publicly available evidence that Cuba has the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation facility located within the country. In 2020, Cuba implemented the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) which provides the creation of isolation centers primarily destined to isolate international travelers during a screening and monitoring period. To this end, the Cuban government identified and prepared hospitals and isolation centers throughout the whole territory to be activated progressively during the COVID-19 response. Among these centers were also included tourist centers destined to isolate travelers and tracked contacts [1]. There is no clear information on whether these facilities are permanent and could be used for other outbreaks as well, as no further information is available on the Ministry of Health's website [2]. An additional indication of the existence of biocontainment patient care units and/or patient isolation facilities is also contained in a 2015 report to the US Department of Defense on the National Biocontainment Training Center (at the University of Texas) . The report lists a member of staff from Cuba's Pedro Kouri Institute (IPK) of Tropical Medicine as a recipient of its training programme in 2010, as an 'international trainee' sponsored by the WHO. [3] However, existence of such a facility could not be confirmed via publicly available sources. Additionally, there is no evidence of biocontainment patient units at the Insitute

Pedro Kouri or the Hospital Landin [4, 5]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y]. Accessed 25 November 2020. 2. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 25 November 2020. 3. Report to the US Department of Defense on the National Biocontainment Training Center at the University of Texas Medical Branch at Galveston. Prepared for U.S. Army Medical Research and Materiel Command. February 2015. [https://apps.dtic.mil/dtic/tr/fulltext/u2/a622485.pdf]. Accessed November 30, 2020. 4. Hospital Clinico Quirurgico Lucia Landin. [http://www.hcqho.sld.cu/]. Accessed December 11, 2020. 5. Pedro Kouri Institute for Tropical Medicine website. [http://instituciones.sld.cu/ipk/bolipk/]. Accessed November 27, 2020.

4.1.2c

Does the country meet one of the following criteria?

- Is there evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years?
- Is there evidence that the country has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years?

Yes = 1, No = 0

Current Year Score: 1

There is evidence that Cuba has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years.

In 2020, Cuba implemented the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) which provides the creation of isolation centers primarily destined to isolate international travelers during a screening and monitoring period. To this end, the Cuban government identified and prepared hospitals and isolation centers throughout the whole territory to be activated progressively during the COVID-19 response. Among these centers were also included tourist centers destined to isolate travelers and tracked contacts [1]. There is no clear information on whether these facilities are permanent and could be used for other outbreaks as well, as no further information is available on the Ministry of Health's website [2]. There is no further evidence that Cuba has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years, but there is evidence that Cuba has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years according to the Institute Pedro Kouri or the Hospital Landin [4, 5]

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y]. Accessed 25 November 2020. 2. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 25 November 2020. 3. Report to the US Department of Defense on the National Biocontainment Training Center at the University of Texas Medical Branch at Galveston. Prepared for U.S. Army Medical Research and Materiel Command. February 2015. [https://apps.dtic.mil/dtic/tr/fulltext/u2/a622485.pdf]. Accessed November 30, 2020. 4. Hospital Clinico Quirurgico Lucia Landin. [http://www.hcqho.sld.cu/]. Accessed December 11, 2020. 5. Pedro Kouri Institute for Tropical Medicine website. [http://instituciones.sld.cu/ipk/bolipk/]. Accessed November 27, 2020.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

Is there a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine needs?

Yes for both laboratory and medical supply needs = 2, Yes, but only for one = 1, No = 0

Current Year Score: 0

There is insufficient evidence of a procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine need.

Procurement in Cuba (for laboratories or any other state entity) is centralised but not governed by a national procurement protocol. For six decades, the whole of the Cuban health system has been run by the government, with all supplies to laboratories, and transportation of such supplies, provided by state enterprises and all imports of such supplies handled by state entities. State enterprises that produce supplies to laboratories, like most state enterprises, are required to prepare their economic plans (including production, inputs and investments) to the relevant ministries in advance. State suppliers do not compete with each other: their plan must be consistent with the policy of the sector and with the annual national economic plan, approved by the National Assembly each year in December. [1,2]. However, there is no evidence of a procurement system to acquire materials other than through annual budget planning via the Ministry of Health or the Ministry of Agriculture. [3,4] Cuba is the only country of the western hemisphere that is not a member of the Inter-American Network on Government Procurement (RICG) [5].

[1] WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed November 30, 2020.

[2] C. William Keck and Gail A. Reed, 'The Curious Case of Cuba'. American Journal of Public Health. 102

[8] : e13-e22. 2012 August; [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3464859/>]. Accessed November 30, 2020.

[3] Ministry of Agriculture website: <https://www.minag.gob.cu>. Accessed November 30, 2020.

[4] Ministry of Public Health website: <http://www.sld.cu>. Accessed November 30, 2020.

[5] Sistema Economico Latinoamericano y del Caribe (SELA). 2015. 'Public procurement as a tool for development in Latin America and the Caribbean'. [<http://www.sela.org/media/268509/public-procurement-as-a-tool-for-development-in-lac.pdf>] Accessed November 30, 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

Does the country have a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency?

Yes = 2, Yes, but there is limited evidence about what the stockpile contains = 1, No = 0

Current Year Score: 0

There is insufficient evidence that suggests that Cuba's system for responding to public health emergencies has a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency.

As is evident from studies of the Cuban emergency response system, this has been a top priority for the government for many years, and the system has proven its effectiveness [1,2]. The response to public health emergencies is considered a national security matter, and is coordinated by the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). This may explain why neither the EMNDC nor the FAR have accessible websites, although the 'cubadefensa' website (hosted by the FAR) does provide an overall description of the structure of the civil defence system [3].

In Cuba the state owns all domestic enterprises that manufacture and distribute such products. Therefore the central government authorities (through the civil defence system) has the power to procure whatever supplies are available from domestic producers, or can be produced at short notice. In the case of supplies that need to be imported, the central authorities also have the power to allocate foreign exchange for this purpose, which is a national priority. There is no further confirmation of Cuba's medical supply stockpile for responding to public health emergencies in the latest Plan for Facing Covid-19 (Plan de Enfrentamiento a la COVID-19) either. [4] No further evidence is available on the Ministry of Health's website, nor on the website of CECMED, the drug regulatory agency, and on the Ministry of Revolutionary Armed Force (which in Cuba has the function of Ministry of Defence) [5, 6, 7]

1. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crnicgrrcubabp2010en1.pdf]. Accessed December 1, 2020. 2. WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed December 1, 2020. 3. Civil defence system. [http://www.cubadefensa.cu/?q=sistema-defensa-civil] Accessed December 1, 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y]. Accessed 25 November 2020. 5. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 27 November 2020. 6. CECMED website. https://www.cecmec.cu/. Accessed November 30, 2020. 7. Ministry of Revolutionary Armed Forces. [http://www.cubadefensa.cu/?q=ministerio-far&b=d1]. Accessed December 11, 2020

4.2.2b

Does the country have a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency?

Yes = 2, Yes, but there is limited evidence about what the stockpile contains = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Cuba has a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency. As is evident from studies of the Cuban emergency response system, this has been a top priority for the government for many years, and the system has proven its effectiveness [1,2]. The response to public health emergencies is considered a national security matter, and is coordinated by the national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). This may explain why neither the EMNDC nor the FAR have accessible websites, although the 'cubadefensa' website (hosted by the FAR) does provide an overall description of the structure of the civil defence system [3]. In Cuba the state owns all domestic enterprises that manufacture and distribute such products. Therefore the central government authorities (through the civil defence system) has the power to procure whatever supplies

are available from domestic producers, or can be produced at short notice. In the case of supplies that need to be imported, the central authorities also have the power to allocate foreign exchange for this purpose, which is a national priority. However, despite Cuba's efforts to develop its own capacity for production of basic medical supplies, shortages have been known to occur. Past experience with natural disasters indicates that the emergency authorities are able to secure and efficiently distribute supplies from international donors, with Hurricane Irma being a recent example of a major emergency [4]. There is no further confirmation of Cuba's laboratory supply stockpile for responding to public health emergencies in the latest Plan for Facing Covid-19 (Plan de Enfrentamiento a la COVID-19) either, nor on the Ministry of Health websites. [5, 6,]

1. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed December 1, 2020. 2. WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed December 1, 2020. 3. Civil defence system. [http://www.cubadefensa.cu/?q=sistema-defensa-civil] Accessed 30 November 2020. 4. International Red Cross and Crescent Federation Report. 2017. 'Aid arrives in Cuba as island nation begins recovery from destructive Hurricane Irma'. 25 September 2017. [https://media.ifrc.org/ifrc/press-release/aid-arrives-cuba-island-nation-begins-recovery-destructive-hurricane-irma/]. Accessed 7 January 2019. 5. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 30 November 2020. 6. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y]. Accessed 25 November 2020.

4.2.2c

Is there evidence that the country conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency?

Yes = 1, No = 0

Current Year Score: 0

There is no evidence that Cuba conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency.

The Cuban emergency response system has been a top priority for the government for many years, and the system has proven its effectiveness [1,2]. The response to public health emergencies is considered a national security matter, and is coordinated by the National Civil Defence Authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). This may explain why neither the EMNDC nor the FAR have accessible websites, although the 'cubadefensa' website (hosted by the FAR) does provide an overall description of the structure of the civil defence system [3].

In terms of stockpile, in Cuba, the state owns all domestic enterprises that manufacture and distribute such products. Therefore the central government authorities (through the civil defence system) has the power to procure whatever supplies are available from domestic producers, or can be produced at short notice. In the case of supplies that need to be imported, the central authorities also have the power to allocate foreign exchange for this purpose, which is a national priority. Nevertheless, there is no information that Cuba conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency on the Ministry of Health's website, nor on the website of CECMED, the drug regulatory agency, and on the Ministry of Revolutionary Armed Force (which in Cuba has the function of Ministry of Defence) [4, 5, 6]. Likewise, there is no confirmation of Cuba's medical supply stockpile for responding to public health emergencies in the latest Plan for Facing Covid-19 (Plan de Enfrentamiento a la COVID-19) either. [7]

1. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicrrcubabp2010en1.pdf]. Accessed December 1, 2020.
2. WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed December 1, 2020.
3. Civil defence system. [http://www.cubadefensa.cu/?q=sistema-defensa-civil] Accessed December 1, 2020.
4. Ministry of Revolutionary Armed Forces. [http://www.cubadefensa.cu/?q=ministerio-far&b=d1]. Accessed December 11, 2020.
5. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 27 November 2020.
6. CECMED website. https://www.cecmec.cu/. Accessed November 30, 2020.
7. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y]. Accessed 25 November 2020.

4.2.3 Manufacturing and procurement for emergencies

4.2.3a

Does the country meet one of the following criteria?

- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency?
- Is there evidence of a plan/mechanism to procure medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is no public evidence of either a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency nor a plan/mechanism to procure medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency.

There is no publicly available information on this subject on the Ministry of Public Health-hosted website, although the Cuban labour code notes that authorities are responsible for providing healthy and safe conditions for all workers (including healthcare workers). [1, 2] Information on the provision of PPE during an emergency is also unavailable. Health emergencies are part of the remit of the national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). Neither the EMNDC nor the FAR have accessible websites, although the FAR does provide an accessible very general outline of the history and activities of the civil defence system [3]. There is, however, evidence that Cuba does take PPE for emergency response into consideration, particularly for the healthcare professionals attending the Ebola epidemic [4]. The available information on the Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19) mentions some measures to increase/leverage the production of PPEs, including: the Panamerican Health Organization (PHO) and the United Nations in Cuba supported the production of materials directed to vulnerable groups; and that the Cuban Neuroscience Centre (CNEURO) produces facemasks, reusable and disposable suits and other measures. [5] However, there is no indication of either a coordinated plan/agreement to leverage domestic manufacturing or to procure medical supplies.

1. Ministry of Health website. https://salud.msp.gob.cu/. Accessed 30 November 2020.
2. Cuban labour code, Chapter X, Articles 126-144. 2014. Ministry of Labour website. [http://www.trabajadores.cu/buzon-abierto/legislacion-laboral/]. Accessed 30 November 2020.
3. Civil defence system. [http://www.cubadefensa.cu/?q=sistema-defensa-civil] Accessed November 30 2020.
4. Kirk, J. and C. Walker. 2016. 'Cuban Medical Internationalism: The Ebola Campaign of 2014-15'. International Journal of Cuban Studies.

8.1:9-27. Spring 2016. Accessed November 30 2020
2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>].
Accessed 25 November 2020

5. Organizacion Panamericana de la Salud,
2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>].
Accessed 25 November 2020

4.2.3b

Does the country meet one of the following criteria?

- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency?

- Is there evidence of a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is no public evidence of either a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency nor a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency. There is no publicly available information on this subject on the Ministry of Public Health-hosted website [1] Health emergencies are part of the remit of the national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC), which is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR). Neither the EMNDC nor the FAR have accessible websites, although the FAR does provide an accessible very general outline of the history and activities of the civil defence system [2]. CECMED, the national drug regulatory agency which promotes public health via a regulatory system that ensures quality safety and accessibility to lab supplies, does not have any information on this topic. [3]. Finally, the available information on the Plan for Facing COVID-19 (Plan de enfrentamiento a la COVID-19) does not mention any measure to leverage the production of laboratory supply. [4]

1. Ministry of Health website. <https://salud.msp.gob.cu/>. Accessed 30 November 2020. 2. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 30 2020. 3. CECMED website. [<https://www.cecmed.cu/#:~:text=Autoridad%20Reguladora%20de%20Medicamentos%2C%20Equipos,veraz%20para%20su%20uso%20racional.>]. Accessed November 30, 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

4.3.1 System for dispensing medical countermeasures (MCM) during a public health emergency

4.3.1a

Does the country have a plan, program, or guidelines in place for dispensing medical countermeasures (MCM) for national use during a public health emergency (i.e., antibiotics, vaccines, therapeutics and diagnostics)?

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence of a plan, program, or guidelines in place for dispensing medical countermeasures for national use during a public health emergency,. In the case of COVID-19, there is evidence of a mechanism to dispense tests, although

the official documents are not publicly available. Namely, the information available on Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) mention that the Instituto de Tropical Medicine Pedro Kouri (IPK) coordinates the Cuban laboratory network of public health, through which it implements a decentralized testing strategy for COVID-19 [1] There is however no additional information on this, neither on the IPK website nor on the Ministry of Health's [2, 3]. The national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC) is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), and neither the EMNDC nor the FAR have accessible websites. However, Cuba's emergency response is organised as a nationally-coordinated system involving all relevant agencies that includes local emergency response centres throughout the country [4]. These centres are tasked with distributing medicines as required. Despite Cuba's efforts to develop its own capacity for production of basic medical supplies, shortages have been known to occur. There is no available information on stockpiles.

1. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 25 November 2020.
2. Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.
3. Instituto Pedro Kouri website [<http://instituciones.sld.cu/ipk/>; <http://www.sld.cu/webs/kouri/>]. Accessed November 25, 2020.
4. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed November 18 2018.

4.3.2 System for receiving foreign health personnel during a public health emergency

4.3.2a

Is there a public plan in place to receive health personnel from other countries to respond to a public health emergency?

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available information on whether or not Cuba has a public plan in place to receive health personnel from other countries to respond to a public health emergency. The national Civil Defence authority (Estado Mayor Nacional de la Defensa Civil, EMNDC) is linked to the national defence system under the Ministry of the Armed Forces (Ministerio de las Fuerzas Armadas, FAR), and neither the EMNDC nor the FAR have accessible websites [1]. The Ministry of Public Health's website does not provide publicly available information [2]. Although a plan for receiving health personnel from other countries might be a component of Cuba's extensive Risk Reduction system, as described in a 2010 UNDP report, no details of any such plan are publicly available [3].

[1] Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed December 2, 2020.

[2] Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed December 2, 2020.

[3] Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed December 2, 2020.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

Does the constitution explicitly guarantee citizens' right to medical care?

Guaranteed free = 4, Guaranteed right = 3, Aspirational or subject to progressive realization = 2, Guaranteed for some groups, not universally = 1, No specific provision = 0

Current Year Score: 4

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 99.9

2016

WHO/World Bank/United Nations Children's Fund (UNICEF)

4.4.1c

Out-of-pocket health expenditures per capita, purchasing power parity (PPP; current international \$)

Input number

Current Year Score: 260.58

2017

WHO Global Health Expenditure database

4.4.2 Paid medical leave

4.4.2a

Are workers guaranteed paid sick leave?

Paid sick leave = 2, Unpaid sick leave = 1, No sick leave = 0

Current Year Score: 2

2020

World Policy Analysis Center

4.4.3 Healthcare worker access to healthcare

4.4.3a

Has the government issued legislation, a policy, or a public statement committing to provide prioritized healthcare services to healthcare workers who become sick as a result of responding to a public health emergency?

Yes = 1, No = 0

Current Year Score: 0

There is no public information via the Ministry of Public Health, Ministry of Labour and Social Security, or agencies for the coordination of public health emergencies concerning legislation or policy concerning the government's commitment to provide prioritised health care services to healthcare workers who become sick as a result of responding to a public health emergency. The Ministry of Public Health's website has no accessible information on this issue [1]. The Labour Code, published on the Ministry of Labour and Social Security's website, makes no mention of such specific commitments, and the coordinating information for public health (and other) emergencies does not have a website [2]. The information available on the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) does not mention specific concerning legislation or policy concerning the government's commitment to provide prioritised health care services to healthcare workers [3]

1. Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed December 2, 2020. 2. Cuban labour code. 2014. Ministry of Labour website. [<http://www.trabajadores.cu/buzon-abierto/legislacion-laboral/>]. Accessed December 2, 2020. 3. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed 2 December 2020.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

Is there a system in place for public health officials and healthcare workers to communicate during a public health emergency?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that the Cuban infrastructure for responding to public health emergencies includes a system for public health officials and healthcare workers to communicate as necessary.

The 2010 United Nations Development Program report includes the existence of communications plans at all levels, including local, provision of communications equipment in risk reduction management centres in government buildings throughout the country to allow local emergency response teams, including public health officials, to communicate with colleagues across the country and with the public. [1] The public information available on the web is limited, but a brief outline of the structure for linking the national agencies provided by the Ministry of Defence (Fuerzas Armadas Revolucionarias, FAR), which oversees the system, provides an overall picture of the national framework [2]. Some information in this area is also posted on INFOMED, the website hosted by the Ministry of Public Health, but the site does not have a search facility to enable this information to be accessible [3]. Although the information available on the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) mentions a comprehensive "Plan for communication and prevention", such strategy is geared towards the communication of health officials towards the public and vice versa, rather than addressing a system for public health officials and healthcare workers to communicate as necessary [4]

1. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed December 2, 2020. 2. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed December 2, 2020. 3. Infomed: Red de Salud de Cuba. Website. [<http://www.sld.cu/>]. Accessed December 2, 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed

December 2, 2020.

4.5.1b

Does the system for public health officials and healthcare workers to communicate during an emergency encompass healthcare workers in both the public and private sector?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that the Cuban infrastructure for responding to public health emergencies includes a system for public health officials and healthcare workers to communicate as necessary. Hence, there is no evidence that it is inclusive of the public and private sectors.

The 2010 United Nations Development Program report includes the existence of communications plans at all levels, including local, provision of communications equipment in risk reduction management centres in government buildings throughout the country to allow local emergency response teams, including public health officials, to communicate with colleagues across the country and with the public. [1] The public information available on the web is limited, but a brief outline of the structure for linking the national agencies provided by the Ministry of Defence (Fuerzas Armadas Revolucionarias, FAR), which oversees the system, provides an overall picture of the national framework [2]. Some information in this area is also posted on INFOMED, the website hosted by the Ministry of Public Health, but the site does not have a search facility to enable this information to be accessible [3]. Although the information available on the Plan for Facing COVID-19 (Plan de Enfrentamiento a la COVID-19) mentions a comprehensive "Plan for communication and prevention", such strategy is geared towards the communication of health officials towards the public and vice versa, rather than addressing a system for public health officials and healthcare workers to communicate as necessary [4]

1. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicgrrcubabp2010en1.pdf]. Accessed December 2, 2020. 2. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed December 2, 2020. 3. Infomed: Red de Salud de Cuba. Website. [<http://www.sld.cu/>]. Accessed December 2, 2020. 4. Organizacion Panamericana de la Salud, 2020. Andar La Salud. [<https://iris.paho.org/bitstream/handle/10665.2/52514/v24n2.pdf.pdf?sequence=1&isAllowed=y>]. Accessed December 2, 2020.

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

Is there evidence that the national public health system is monitoring for and tracking the number of healthcare associated infections (HCAI) that take place in healthcare facilities?

Yes = 1 , No = 0

Current Year Score: 0

There is no clear available evidence that the national public health system is monitoring and tracking the number of health care associated infections that take place in healthcare facilities.

A 2017 international report (prepared by a Wellcome Trust/University of Oxford/Infectious Diseases Data Observatory/Worldwide Antimalarial Resistance Network team) indicates that such monitoring should be in place, although there is no clear public available evidence to confirm this [1]. Mentioned report lists Cuba as a participant in international initiatives that would require monitoring and tracking health care associated infections, including: the Gonococcal Antimicrobial Surveillance Programme (GASP), WHO Foodborne Infections Network, the International Nosocomial Infection Control Consortium (INICC), PulseNet International, the Latin American Network for Surveillance of Antimicrobial Resistance (Red Latinoamericana de Vigilancia de la Resistencia a los Antimicrobianos, ReLAVRA), the Network System for Surveillance of Agents Responsible for Pneumonias and Meningitis Bacterias (Sistema de Redes de Vigilancia de los Agentes Responsables de Neumonias y Meningitis Bacterianas (SIREVA & SIREVA II), World Organisation for Animal Health (OIE) network of reference centres, WHO Global Influenza Surveillance and Response System (GISRS).

The extent to which the Cuban public health system is monitoring and tracking the number of health care associated infections is unclear. In the case of COVID-19, the Ministry of Health website provides thorough information on patients affected with the disease, including anonymized details on their age, place of residence and contact tracing measures, but it offers no clear indication on whether it tracks healthcare associated infections [2]. No further information is available on the Ministry of Health website as well as on the national laboratory's website - the Instituto Pedro Kouri [2, 3].

1. Wellcome Trust MORU Tropical Health Network/University of Oxford/Infectious Diseases Data Observatory/Worldwide Antimalarial Resistance Network. 2019. Antimicrobial Resistance in Low and Middle Income Countries', [https://www.iddo.org/sites/default/files/publication/2018-04/fleming_scoping_amr_networks_0.pdf.] Accessed 24 February 2019. 2. Ministry of Public Health website. [https://salud.msp.gob.cu/]. Accessed December 2, 2020. 3. Pedro Kouri Institute for Tropical Medicine website. [http://instituciones.sld.cu/ipk/bolipk/]. Accessed November 27, 2020.

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

Is there a national requirement for ethical review (e.g., from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence a national requirement for ethical review before beginning a clinical trial. This information is not publicly available from the websites of the Ministry of Health or Ministry of Science, Technology and the Environment [1,2]. However, an article published in MEDICC Review in 2011 provides full details of the National Clinical Trials Center (CENEC), the objective of which is "ensuring clinical assessment of priority medical-pharmaceutical and biotechnology products with full ethical, scientific and methodological rigor in compliance with international standards and with the required efficiency to obtain product approval for marketing in Cuba and abroad." The World Health Organization list of national ethics committees also notes that Cuba has a National Committee for Bioethics (Comité Nacional Cubano de Bioética, CNB) [4]. The CNB was established in 1997, and its main role appears to be to represent Cuba at international fora on bioethics [5, 6]. Additionally, there is evidence of an ethical committee within the national research laboratory, the Instituto Pedro Kouri, tasked, among others, with assessing the scientific and ethical validity of research proposed to the

Institute. It remains unclear whether the Committee's review is on a mandatory or voluntary basis [7]

1. Infomed: Red de Salud de Cuba. [<http://www.sld.cu/>]. Accessed December 2, 2020. 2. Ministry of Science, Technology and the Environment (CITMA) website. [<http://www.citma.gob.cu>] Accessed December 2, 2020. 3. Pascual, M. A., G. Jiménez, A. Torres, M. M. Fors, I. López. 2011. 'Cuba's National Clinical Trials Coordinating Center'. MEDICC Review, January 2011, Vol 13, No 1: 46:51 [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=2ahUKEwiNu_3DtNfgAhXvxhUIH5BDTkQFjABegQIBBAC&url=https%3A%2F%2Fwww.medicc.org%2Fmediccreview%2Fpdf.php%3Flang%3D%26id%3D184&usg=AOvVaw3Cgm7QJoITNZs8cD88BrFz]. Accessed December 2, 2020. 4. World Health Organisation. List of national ethics committees. [http://apps.who.int/ethics/nationalcommittees/NEC_full_web.pdf] Accessed December 2, 2020. 5. UNESCO Cuba. 2018. 'VII Taller Annual de Comités Nacional, Puntos Focales y Coordinadores de Programas de la UNESCO'. Report on website of the Cuban national UNESCO Commission, 17 December 2018. [<http://www.cncu.cu/viii-taller-anual-de-comites-nacionales-puntos-focales-y-coordinadores-de-programas-de-la>] Accessed 25 February 2019. 6. Revista Habanera de Ciencias Médicas report on 2007 conference speech by Dr C. Daniel Piedra Herrera, Secretary of the Comité Nacional Cubano de Bioética. On the website of Cuban medical sciences, Scielo: [http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1729-519X2007000500007]. Accessed December 2, 2020. 6. Herdandez et al. 2017. Aportes del Comité de ética de la Investigación del Instituto de Medicina Tropical "Pedro Kouri" durante una década. Revista Cubana de Medicina Tropical. [<https://www.medigraphic.com/pdfs/revcubmedtro/cmt-2017/cmt173f.pdf>]. Accessed December 2, 2020.

4.7.1b

Is there an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing epidemics?

Yes = 1 , No = 0

Current Year Score: 0

There is no public information to explicitly confirm an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics. The Ministry of Public Health-hosted website, INFOMED, provides no accessible information, nor does the website of the Ministry of Science, Technology and the Environment (CITMA) [1,2]. There is evidence that CECMED, the national authority for drug regulation, approved the emergency use of medication during the ongoing COVID-19; nevertheless, there is no mention of emergency approval of clinical trials [3]. According to a bibliographic review of the measures in place for clinical trials during the ongoing COVID-19 pandemic seem to imply the existence of an expedited method to approve and conduct clinical trials, as well as initiatives aimed to protect the quality of the study [4]. Nevertheless, there is not enough publicly available information to confirm this point on the Ministry of Health's website [5].

[1] Infomed: Red de Salud de Cuba. [<http://www.sld.cu/>]. Accessed December 2, 2020.

[2] Ministry of Science, Technology and the Environment (CITMA) website. [<http://www.citma.gob.cu>] Accessed December 2, 2020.

[3] CECMED website. Aprobaciones de productos. [<https://www.cecmec.cu/covid-19/aprobaciones>]. Accessed December 2, 2020.

[4] Rodríguez Álvarez, Arteaga García, Amoroto Roig , Arteaga Cantón , Álvarez Guerra , Jiménez Rivero , Morales Suárez. 2020, Acciones del Sistema Nacional de Salud cubano para las investigaciones clínicas durante la pandemia por la COVID-19. [<https://www.revistadelaofil.org/acciones-del-sistema-nacional-de-salud-cubano-para-las-investigaciones-clinicas-durante-la-pandemia-por-la-covid-19/>]. Accessed December 2, 2020.

[5] Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

Is there a government agency responsible for approving new medical countermeasures (MCM) for humans?

Yes = 1 , No = 0

Current Year Score: 1

Cuba has a government agency responsible for approving new medical countermeasures for humans. The Center for the State Control of Medicines, Equipment and Medical Devices (Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos - CECMED) is the agency responsible for this. As per its website, the agency is in charge of "promoting and protecting public health through a regulatory system capable of guaranteeing timely access to the market of products with quality, safety, efficacy and truthful information for its rational use". It also "develops the basic functions of control of access to laboratories, registration of medicines, diagnosticians, equipment and medical devices, clinical trials, post-marketing surveillance, inspections of good practices, release of lots and granting of licenses to establishments". [1]

[1] Center for the State Control of Medicines, Equipment and Medical Devices (Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos - CECMED). [<https://www.cecmecd.cu/acerca-de>]. Accessed December 2, 2020.

4.7.2b

Is there an expedited process for approving medical countermeasures (MCM) for human use during public health emergencies?

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of an expedited process for approving medical countermeasures for human use during public health emergencies, although there is evidence that such process has been applied. The Cuban disaster risk and emergency response system is centrally coordinated with directly links to the highest level of government, enabling an expedited process for approving medical countermeasures for human use during public health emergencies [1]. There is evidence that CECMED, the national authority for drug regulation, approved the emergency use of MCM for human use during the ongoing COVID-19 outbreak, although the details of the emergency approval process are not specified [2]. However, there is no clear indication or language suggesting that it could apply to any type of public health emergency beyond Covid-19. There is no additional publicly available information from official entities involved in emergency response available [3, 4, 5].

1. WHO. 2015. Cuban experience with local production of medicines, technology transfer and improving access to health. [http://www.who.int/phi/publications/Cuba_case_study121115.pdf] Accessed December 2, 2020. 2. CECMED website. Aprobaciones de productos. [<https://www.cecmecd.cu/covid-19/aprobaciones>]. Accessed December 2, 2020. 3. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed December 2, 2020. 4. Ministry of Health website. Infomed: Red de Salud de Cuba. [<http://www.sld.cu/>]. December 2, 2020. 5. Ministry of Science, Technology and the Environment (CITMA) website. <http://www.citma.gob.cu>. December 2, 2020.

Category 5: Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms

5.1 INTERNATIONAL HEALTH REGULATIONS (IHR) REPORTING COMPLIANCE AND DISASTER RISK REDUCTION

5.1.1 Official IHR reporting

5.1.1a

Has the country submitted IHR reports to the WHO for the previous calendar year?

Yes = 1 , No = 0

Current Year Score: 0

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

Are epidemics and pandemics integrated into the national risk reduction strategy or is there a standalone national disaster risk reduction strategy for epidemics and pandemics?

Yes = 1 , No = 0

Current Year Score: 1

Pandemics are integrated into the national risk reduction strategy, within the framework of the system of civil defence. The national defence system as a whole is described in a website belonging to the Ministry of Defence (Fuerzas Armadas Revolucionarias, FAR), which has overall responsibility for all national emergency planning [1]. Within it, disaster risk reduction is specified, and within that, the risks of pandemics. The national disaster coordinating agency, the Estado Mayor Nacional de la Defensa Civil (EMNDC), is directly accountable to the FAR, and has no website. However, a 2010 UNDP report on Cuba's national network of Risk Reduction Management Centres, created by the EMNDC in 2005, explains the national disaster risk strategy, including pandemics [2]. These include the collection of data from relevant medical institutions and institutions for veterinary medicine and plant health, and dissemination of that information to centres in every municipality. The Cuban risk reduction Country Programme Action Plan for 2008-2012 is summarised in Appendix F. More recent report on the UNDP website confirms that a new Country Programme Action Plan is in place [3, 4]. The key medical institutions and institutions for veterinary medicine and plant health are the National School of Public Health (Escuela Nacional de Salud Pública, ENSAP), and National Centre for Animal and Plant Health (CENSA), respectively [5,6]

1. Civil defence system. [<http://www.cubadefensa.cu/?q=sistema-defensa-civil>] Accessed December 2, 2020.
2. Llanes Guerra, J. 2010. Cuba. Risk Reduction Management Centres. Best Practices In Risk Reduction. UNDP. [https://www.preventionweb.net/files/14963_crmicrccubabp2010en1.pdf]. Accessed December 2, 2020.
3. 'A Cuban model for a resilient Caribbean'. Feb 25, 2015 report on UNDP website. [<https://www.undp.org/content/undp/en/home/presscenter/articles/2015/02/25/a-cuban-model-for-a-resilient->

caribbean.html]. Accessed December 2, 2020. 4. 'With the European Union's support, UNDP is helping Cuba recover from Hurricane Irma'. October 18, 2017, report on UNDP website. [<https://www.undp.org/content/undp/en/home/news-centre/news/2017/undp-and-eu-support-cubans-affected-by-hurricane-irma.html>]. Accessed December 2, 2020. 5. National School of Public Health website. [<http://www.ensap.sld.cu>]. Accessed December 2, 2020. 6. National Center for Animal and Plant Health website. [<http://www.censa.edu.cu/?lang=en>]. Accessed December 2, 2020.

5.2 CROSS-BORDER AGREEMENTS ON PUBLIC HEALTH AND ANIMAL HEALTH EMERGENCY RESPONSE

5.2.1 Cross-border agreements

5.2.1a

Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies?

Yes = 2, Yes, but there is evidence of gaps in implementation = 1, No = 0

Current Year Score: 2

Cuba participates in a host of cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies. Despite not being a member of the Caribbean Community (CARICOM), Cuba is a supporting partner of CARICOM's Caribbean Public Health Agency (CARPHA) [1]. In its most recent of their triennial Summit meetings with Cuba, CARICOM heads of state affirmed a commitment to building 'stronger cooperation [with Cuba] in disaster risk management' [2]. At the meeting, the Caribbean Disaster Emergency Management Agency (CDEMA) and the Cuban Civil Defence Agency signed MOU to work in this area. Health emergency response is included in Cuba's system for disaster emergency management. The final statement of the CDEMA meeting stressed the importance of Cuba's contribution as a regional leader in health sciences, and noted the Cuba had provided free medical training to more than 5,000 Caribbean students. More generally, Cuba has long demonstrated an exceptional record in terms of international collaboration on health and response to health emergencies, as summarised in a various medical articles [3] [4]. This cooperation includes providing training for medical personnel for emergency response, as described in a 2012 report of the International Committee of the Red Cross [5]. During the COVID-19 pandemic, Cuba provided significant help to heavily-affected countries by sending teams of doctors to respond to mentioned public health emergency [6]

[1] Caricom: Caribbean Public Health Agency (CARPHA) website refers to Cuba as a supporting partner.

[<http://carpha.org/what-we-do/laboratory-services-and-networks/crs>]. Accessed December 2, 2020

[2] Caricom website. 'CARICOM-Cuba Summit agrees to stronger development, trade and economic cooperation'. CARICOM Press Release at the close of the sixth CARICOM-Cuba Summit. [<https://caricom.org/communications/view/caricom-cuba-summit-agrees-to-stronger-development-trade-and-economic-cooperation>]. Accessed December 2, 2020.

[3] De Vos, P., W. De Ceukelaire, M. Bonet, P. Van der Stuyft. 2007. 'Cuba's International Cooperation in Health: An Overview'. International Journal of Health Services 37

[4] :761-76. February 2007.

[https://www.researchgate.net/publication/5776693_Cuba%27s_International_Cooperation_in_Health_An_Overview].

Accessed December 2, 2020. 4. Wenham, C., Kittelsen, S.. 2019. Cuba y seguridad sanitaria mundial: Cuba's role in global health security. MBJ. [<https://gh.bmj.com/content/5/5/e002227>; Accessed December 2, 2020. 5. International Committee of the Red Cross. 'Cuba: training medical personnel to respond to humanitarian emergencies.' 21 June 2012.

[<https://www.icrc.org/en/doc/resources/documents/feature/2012/cuba-feature-2012-06-21.htm>]. Accessed December 2,

2020. 6. NBC News. Cuba sends 'white coat army' of doctors to fight coronavirus in different countries. 2020.

[<https://www.nbcnews.com/news/latino/cuba-sends-white-coat-army-doctors-fight-coronavirus-different-countries->

n1240028]. Accessed December 2, 2020

5.2.1b

Does the country have cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to animal health emergencies?

Yes = 2, Yes, but there is evidence of gaps in implementation = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Cuba has cross-border agreements, protocols or MOUs with neighbouring countries, or as part of a regional group, with regards to animal health emergencies. Cuba has many cross-border agreements, protocols and MOUs with neighbouring countries, and collaborates with regional groups, but they are not explicitly inclusive of animal health emergency cooperation. In the most recent of CARICOM's triennial Summit meetings with Cuba, CARICOM heads of state affirmed a commitment to building 'stronger cooperation [with Cuba] in disaster risk management' [1]. At the meeting, the Caribbean Disaster Emergency Management Agency (CDEMA) and the Cuban Civil Defence Agency signed an MOU to work in this area. Animal health emergency response is included in Cuba's system for disaster emergency management. The website of Cuba's National Center for Animal and Plant Health (CENSA), the national research centre that leads on animal health emergencies, provides a long list of the international institutions with which it has 'collaborative relationships' [2]. The extent of Cuban collaboration with international partners is also illustrated by the wide range of sponsors of this year's annual international conference hosted by CENSA, to be held in May 2019 [3]. In Cuba's case the authorities generally require a formal agreement for international collaboration by state entities, so therefore it is a strong indication that such agreements exist. On the website of CaribVET, the Caribbean regional body for animal health, CENSA is listed as one of the 13 core partners, and described in a 'major research partner' of CaribVET. [4]

1. Caricom website. 'CARICOM-Cuba Summit agrees to stronger development, trade and economic cooperation'. CARICOM Press Release at the close of the sixth CARICOM-Cuba Summit. [<https://caricom.org/communications/view/caricom-cuba-summit-agrees-to-stronger-development-trade-and-economic-cooperation>]. Accessed December 2, 2020. 2. Center for Animal and Plant Health description of international relationships [<http://www.censa.edu.cu/index.php/2015/11/20/objetivos/?lang=en>]. Accessed December 2, 2020. 3. III International Seminar on Animal and Plant Health (SISA 2019) website. [<http://www.sanidadagropecuaria.com/es/auspician>]. Accessed December 2, 2020. 4. CaribVET, the Caribbean animal health network website. [<https://www.caribvet.net/training/training-workshops/one-health-a-renewed-integrating-approach-to-the-increasing-global-health-risks>; and <https://www.caribvet.net/about-the-network/partners>] Accessed December 2, 2020.

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

Does the county have signatory and ratification (or same legal effect) status to the Biological Weapons Convention?

Signed and ratified (or action having the same legal effect) = 2, Signed = 1, Non-compliant or not a member = 0

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

Has the country submitted confidence building measures for the Biological Weapons Convention in the past three years?

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

Has the state provided the required United Nations Security Council Resolution (UNSCR) 1540 report to the Security Council Committee established pursuant to resolution 1540 (1540 Committee)?

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

Extent of United Nations Security Council Resolution (UNSCR) 1540 implementation related to legal frameworks and enforcement for countering biological weapons:

Very good (60+ points) = 4, Good (45–59 points) = 3, Moderate (30–44 points) = 2, Weak (15–29 points) = 1, Very weak (0–14 points) or no matrix exists/country is not party to the BWC = 0

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

Does the country meet at least 2 of the following criteria?

- Membership in Global Health Security Agenda (GHSA)
- Membership in the Alliance for Country Assessments for Global Health Security and IHR Implementation (JEE Alliance)
- Membership in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)
- Membership in the Australia Group (AG)
- Membership in the Proliferation Security Initiative (PSI)

Needs to meet at least two of the criteria to be scored a 1 on this measure. , Yes for five = 1 , Yes for four = 1 , Yes for three = 1 , Yes for two = 1 , Yes for one = 0 , No for all = 0

Current Year Score: 0

2021

Global Health Security Agenda; JE Alliance; Global Partnership; Australia Group; PSI

5.4 JOINT EXTERNAL EVALUATION (JEE) AND PERFORMANCE OF VETERINARY SERVICES PATHWAY (PVS)

5.4.1 Completion and publication of a Joint External Evaluation (JEE) assessment and gap analysis

5.4.1a

Has the country completed a Joint External Evaluation (JEE) or precursor external evaluation (e.g., GHSA pilot external assessment) and published a full public report in the last five years?

Yes = 1, No = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.4.1b

Has the country completed and published, within the last five years, either a National Action Plan for Health Security (NAPHS) to address gaps identified through the Joint External Evaluation (JEE) assessment or a national GHSA roadmap that sets milestones for achieving each of the GHSA targets?

Yes = 1, No = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.4.2 Completion and publication of a Performance of Veterinary Services (PVS) assessment and gap analysis

5.4.2a

Has the country completed and published a Performance of Veterinary Services (PVS) assessment in the last five years?

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.4.2b

Has the country completed and published a Performance of Veterinary Services (PVS) gap analysis in the last five years?

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

Is there evidence that the country has allocated national funds to improve capacity to address epidemic threats within the past three years?

Yes = 1, No = 0

Current Year Score: 0

There is no evidence that in the past three years Cuba has worked to improve its own domestic capacity to address epidemic threats. The National Budget laws for 2019 and 2020 do not make any reference to funds allocated to improve capacity to address epidemic threats. [1] There is no additional information on this topic on the Ministry of Health's or Agriculture's websites [2, 3, 4]. There is, however, evidence via the Global Health Security Funding Tracker that Cuba has invested donor-financed resources to improve domestic capacity to address epidemic threats. The tracker notes that Cuba has received funding from multiple donors to enhance their capacity on global security preparedness, immunization, workforce development and other measures within the last three years. [4]

1. Gaceta Oficial de la República de Cuba (Cuban Official Gazette). Ministerio de Justicia. Available from Ministry of Finance and Prices website. [<http://www.mfp.gob.cu/inicio/publicaciones.php>]. Accessed December 2, 2020. 2. Ministry of Public Health website. [<https://salud.msp.gob.cu/>]. Accessed December 2, 2020. 3. Ministry of Agriculture website. [<https://www.minag.gob.cu/>] Accessed December 2, 2020. 4. Global Health Security Funding Tracker. [<https://tracking.ghscosting.org/#/data>]. Accessed December 2, 2020.

5.5.2 Financing under Joint External Evaluation (JEE) and Performance of Veterinary Services (PVS) reports and gap analyses

5.5.2a

Does the Joint External Evaluation (JEE) report, National Action Plan for Health Security (NAPHS), and/or national GHSA roadmap allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?

Yes = 1, No/country has not conducted a JEE = 0

Current Year Score: 0

2021

WHO Strategic Partnership for IHR and Health Security (SPH); Global Health Security Agenda

5.5.2b

Does the Performance of Veterinary Services (PVS) gap analysis and/or PVS assessment allocate or describe specific funding from the national budget (covering a time-period either in the future or within the past five years) to address the identified gaps?

Yes = 1 , No/country has not conducted a PVS = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

Is there a publicly identified special emergency public financing mechanism and funds which the country can access in the face of a public health emergency (such as through a dedicated national reserve fund, an established agreement with the World Bank pandemic financing facility/other multilateral emergency funding mechanism, or other pathway identified through a public health or state of emergency act)?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Cuba has a publicly identified special emergency public financing mechanism and funds which it can access in the face of a public health emergency. Although there is an emergency financing mechanism is that the government of Cuba, which is a centrally-planned economy, provides special emergency public financing from its own resources. Annual fiscal budgets, published in the official gazette (Gaceta Oficial) include a contingency reserve [1]. As the central planning authorities directly allocate fiscal resources, they are able to immediately divert additional finance from other budget lines in response to disasters. It is not clear, however, if this is also dedicated to public health emergency response. As well as planning the economy, the central authorities are also directly involved in Cuba's emergency response system, coordinated by the Estado Mayor Nacional de la Defensa Civil, (EMNDC, National Civil Defence General Staff). The mechanism for accessing and allocating emergency public financing is therefore through the direct relationship between central government and the EMNDC. The same arrangement serves to supervise the allocation of funds provided from international sources in the face of a public health emergency. International emergency relief agencies work closely with the official emergency response agencies. The EMNDC website is not accessible. Access to international emergency relief is restricted by the provisions of Section 104 of the US Cuban Liberty and Democratic Solidarity (Libertad) Act of 1996 (known as the Helms-Burton Act), which bars Cuba from any support from the World Bank pandemic financing facility or any other funds from the World Bank Group [2, 3]. This legislation also either prohibits or deters Cuba's access to other multilateral funding mechanisms, including emergency funding, where the US has influence over allocations. However, during emergencies Cuba has received support from UN agencies, the EU, bilateral official donors and non-government organisations.

1. Gaceta Oficial de la República de Cuba (Cuban Official Gazette). Ministerio de Justicia. Ley No.130/2019. Del Presupuesto del Estado para el Año 2020. Available from Ministry of Finance and Prices website. [<http://www.mfp.gob.cu/inicio/publicaciones.php>]. Accessed December 2, 2020.
2. Cuban Liberty and Democratic Solidarity (Libertad) Act of 1996. [<https://www.treasury.gov/resource-center/sanctions/documents/libertad.pdf>]. Accessed December 2, 2020.
3. World Bank Pandemic Financing Facility website [<http://pubdocs.worldbank.org/en/119961516647620597/PEF-Operational-Brief-Dec-2017.pdf>] Accessed December 2, 2020.

5.5.4 Accountability for commitments made at the international stage for addressing epidemic threats

5.5.4a

Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:

- Support other countries to improve capacity to address epidemic threats by providing financing or support?
- Improve the country's domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is insufficient evidence that senior leaders have made public commitments to support other countries to improve capacity to address epidemic threats in the past three years, as most of the efforts have been targeted towards tackling existing emergencies without explicit mention of improving capacity. However, there is evidence of support for relief and response efforts. Namely, in May 2020, the Minister of Health stated before the 73rd World Health Assembly (WHA) that Cuba is "open to share our scientific knowledge and experience in confronting the virus". [1] Since the start of the COVID-19 pandemic Cuba offered to help countries in need during the outbreak. As of late 2020, nearly 40 countries have received Cuban physicians during the pandemic, including Italy, Saint Vincent and the Grenadines, Jamaica and the Democratic Republic of the Congo. Cuba's effort was, however, targeted at tackling the existing outbreak without clear mention of efforts to improve the capacity to address epidemic threats [2] The November 2018 Ministry of Health statement describes the country's dedicated international assistance capacity, in the form of the 'Henry Reeve Brigade', consisting of medical specialists in disasters and major epidemics ready to provide support as and when necessary. Since its creation in 2005 members of this brigade have travelled to many countries, including provision of assistance in response to the cholera outbreak in Haiti (from 2010) and the Ebola epidemic in Africa (2014). The statement also refers to free medical training that has been provided in Cuba more than 35,000 health professionals from 138 developing countries. Details of the Cuban response to Ebola, 'only one example of the Cuban efforts to strengthening health care provision in areas of need throughout the world', is described in a 2017 article in the International Journal of Health Services. In these cases, too, there is no evidence of Cuba's intervention to improve capacity to address epidemic threats [3, 4]. No additional evidence is available on the Ministry of Health's, Foreign Affairs' and United Nations/WHO websites [5,6,7]

[1] Xinhua. Cuba supports WHO in fighting COVID-19 pandemic: health minister. May 2020.

[http://www.xinhuanet.com/english/2020-05/19/c_139069155.htm. Accessed December 2, 2020

[2] NBC News. Cuba sends 'white coat army' of doctors to fight coronavirus in different countries. 2020.

[<https://www.nbcnews.com/news/latino/cuba-sends-white-coat-army-doctors-fight-coronavirus-different-countries-n1240028>]. Accessed December 2, 2020

[3] Chaple, E.B. and M.A. Mercer. 2017. 'The Cuban Response to the Ebola Epidemic in West Africa: Lessons in Solidarity'. International Journal of Health Services. 2017 Jan; 47[1] :134-149. [<https://www.ncbi.nlm.nih.gov/pubmed/27956578>] Accessed 25 March 2019.

[4] De Vos, P. 2019. 'Cuba's Strategy Toward Universal Health'. International Journal of Health Services 2019, Vol. 49[1] 186-192. [<https://journals.sagepub.com/doi/pdf/10.1177/0020731418804406>]. Accessed 25 March 2019.

[5] Ministry of Health website. [<https://salud.msp.gob.cu/>]. Accessed 25 November 2020.

[6] Ministerio de Asuntos Exteriores Cuba. [<http://www.minrex.gob.cu/es>]. Accessed November 30, 2020.

[7] World Health Organization. [<https://www.who.int/>]. Accessed December 11, 2020.

5.5.4b

Is there evidence that the country has, in the past three years, either:

- Provided other countries with financing or technical support to improve capacity to address epidemic threats?
- Requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats?

Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

There is evidence that Cuba has, in the past three years, both provided other countries with financing or technical support to improve capacity to address epidemic threats, and requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats.

During the recent COVID-19 pandemic Cuba offered to help countries in need by providing technical support and medical expertise to facilitate the treatment and diagnosis of COVID-19. As of September 2020, nearly 40 countries had received Cuban physicians during the pandemic, including Italy, Saint Vincent and the Grenadines, Jamaica and the Democratic Republic of the Congo. [1] Additionally, there is evidence via the Global Health Security Funding Tracker that Cuba has received financing or technical support from donors to improve domestic capacity to address epidemic threats. The tracker notes that Cuba has received funding from multiple donors to enhance their capacity on global security preparedness, immunization, workforce development and other measures within the last three years. [2]

[1] NBC News. Cuba sends 'white coat army' of doctors to fight coronavirus in different countries. 2020.

[<https://www.nbcnews.com/news/latino/cuba-sends-white-coat-army-doctors-fight-coronavirus-different-countries-n1240028>]. Accessed December 2, 2020

[2] Global Health Security Funding Tracker. [<https://tracking.ghscosting.org/#/data>]. Accessed December 2, 2020.

5.5.4c

Is there evidence that the country has fulfilled its full contribution to the WHO within the past two years?

Yes = 1, No = 0

Current Year Score: 0

2021

Economist Impact analyst qualitative assessment based on official national sources, which vary by country

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

5.6.1 Commitment to sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) in both emergency and nonemergency research

5.6.1a

Is there a publicly available plan or policy for sharing genetic data, clinical specimens, and/or isolated specimens (biological materials) along with the associated epidemiological data with international organizations and/or other countries that goes beyond influenza?

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available plan or policy for sharing genetic data, epidemiological data, clinical specimens, and/or isolated specimens (biological materials) with international organizations and/or other countries that goes beyond influenza. Neither the website of the Ministry of Public Health nor the website of the Center for Animal and Plant Diseases, which is responsible for surveillance of genetic and epidemiological data, have such information [1,2]. The Ministry of Science, Technology and the Environment, which oversees scientific research facilities, and the Ministry of Agriculture, also provide no relevant information on their websites [3,4]. In May 2020, the Minister of Health stated before the 73rd World Health Assembly (WHA) that Cuba is "open to share our scientific knowledge and experience in confronting the virus". However, no clear plan or policy for sharing genetic data, clinical specimens and/or isolated specimens is available. [5]

[1] Ministry of Health website. Infomed: Red de Salud de Cuba. [<http://www.sld.cu/>]. Accessed October 2018.

[2] Center for Animal and Plant Health. [<http://www.censa.edu.cu/?lang=en>]. Accessed November 18 2018.

[3] Ministry of Science, Technology and the Environment (CITMA) website. <http://www.citma.gob.cu>

[4] Ministry of Agriculture website. <https://www.minag.gob.cu/>

[5] Xinhua. Cuba supports WHO in fighting COVID-19 pandemic: health minister. May 2020.

[http://www.xinhuanet.com/english/2020-05/19/c_139069155.htm]. Accessed December 2, 2020

5.6.1b

Is there public evidence that the country has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years?

Yes = 0, No = 1

Current Year Score: 1

There is no public evidence that the country has not shared samples in accordance with the PIP framework in the past two years from international or local media outlets, or from the WHO Country Report on Cuba [1].

[1] WHO country report, Cuba. [<https://www.paho.org/salud-en-las-americas-2017/?p=4251>]. Accessed December 3, 2020.

5.6.1c

Is there public evidence that the country has not shared pandemic pathogen samples during an outbreak in the past two years?

Yes = 0, No = 1

Current Year Score: 1

There is no evidence either in WHO records nor through national or media sources to suggest that Cuba has or has not shared pandemic pathogen samples, including COVID-19, during an outbreak in the past two years [1].

[1] PAHO Cuba Country page. [<https://www.paho.org/cub/>]. Accessed December 3, 2020.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

Policy formation (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1b

Quality of bureaucracy (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1c

Excessive bureaucracy/red tape (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1d

Vested interests/cronyism (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1e

Country score on Corruption Perception Index (0-100, where 100=best)

Input number

Current Year Score: 47

2020

Transparency International

6.1.1f

Accountability of public officials (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1g

Human rights risk (Economist Intelligence score; 0-4, where 4=best)

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.2 Orderly transfers of power

6.1.2a

How clear, established, and accepted are constitutional mechanisms for the orderly transfer of power from one government to another?

Very clear, established and accepted = 4, Clear, established and accepted = 3, One of the three criteria (clear, established, accepted) is missing = 2, Two of the three criteria (clear, established, accepted) are missing = 1, Not clear, not established, not accepted = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.3 Risk of social unrest

6.1.3a

What is the risk of disruptive social unrest?

Very low: Social unrest is very unlikely = 4, Low: There is some prospect of social unrest, but disruption would be very limited = 3, Moderate: There is a considerable chance of social unrest, but disruption would be limited = 2, High: Major social unrest is likely, and would cause considerable disruption = 1, Very high: Large-scale social unrest on such a level as to seriously challenge government control of the country is very likely = 0

Current Year Score: 2

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

How likely is it that domestic or foreign terrorists will attack with a frequency or severity that causes substantial disruption?

No threat = 4, Low threat = 3, Moderate threat = 2, High threat = 1, Very high threat = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.4b

What is the level of illicit arms flows within the country?

4 = Very high, 3 = High, 2 = Moderate, 1 = Low, 0 = Very low

Current Year Score: 4

2020

UN Office of Drugs and Crime (UNODC)

6.1.4c

How high is the risk of organized criminal activity to the government or businesses in the country?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 3

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

Is this country presently subject to an armed conflict, or is there at least a moderate risk of such conflict in the future?

No armed conflict exists = 4, Yes; sporadic conflict = 3, Yes; incursional conflict = 2, Yes, low-level insurgency = 1, Yes; territorial conflict = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

Does the government's authority extend over the full territory of the country?

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

Is there a threat that international disputes/tensions could have a negative effect?

No threat = 4, Low threat = 3, Moderate threat = 2, High threat = 1, Very high threat = 0

Current Year Score: 1

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

Adult literacy rate, population 15+ years, both sexes (%)

Input number

Current Year Score: 99.8

2012

United Nations Development Programme (UNDP); United Nations Educational, Scientific and Cultural Organization (UNESCO);
The Economist Intelligence Unit

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.69

2018

United Nations Development Programme (UNDP); The Economist Intelligence Unit

6.2.3 Social inclusion

6.2.3a

Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population)

Input number

Current Year Score: 1.1

2008-2018

World Bank; Economist Impact

6.2.3b

Share of employment in the informal sector

Greater than 50% = 2, Between 25-50% = 1, Less than 25% = 0

Current Year Score: 0

There is no information available on Cuba's share of employment in the informal sector. The World Bank and ILO databases do not gather data on Cuba. [1] The only available document is a study realised in 2005 by the Universidad de Oriente, in Santiago de Cuba, which mentioned that studying informal economy is a difficult task in Cuba since all economic data is controlled by the Government. The study does not provide any estimate of the size of the informal economy in Cuba [2]. Likewise, other studies and press articles do not provide any rough estimates [3, 4] The closest figures to an estimate of the informal economy in Cuba is the Self-Employed Work ("Trabajo por cuenta propia"), a special type of economic activity performed by individuals in autonomy and subject to ad-hoc fiscal and administrative rules which include individual authorizations ("licencias") to perform such activities. In 2019, the total number of authorization released amounted to around 617,000, which constituted about 12% of Cuba's total labor force. [5]

[1] World Bank and ILOSTAT, Informal Economy. [<https://data.worldbank.org/indicator/SL.ISV.IFRM.ZS>] Accessed December 4, 2020.

[2] Lim Chang, N., Pacheco Feira, U. La Economía Informal en Cuba. 2005.

[<https://www.scribd.com/document/277489195/Economia-Infomal-en-Cuba>]. Accessed December 4, 2020.

[3] Aulas abiertas. Economía informal en Cuba. [<https://aulasabiertas.net/archivos/4410>]. Accessed December 10, 2020.

[4] Inter Press Service Cuba. Trabajo informal en Cuba: ¿reconocimiento? ¿(des) protección?.

[<https://www.ipscuba.net/espacios/por-su-propio-peso/con-lupa/trabajo-informal-en-cuba-reconocimiento-des-proteccion/>]. Accessed December 10, 2020.

[5] Inter Press Service Cuba. Trabajo por cuenta propia en Cuba: una mirada desde el derecho.

[<https://www.ipscuba.net/espacios/por-su-propio-peso/con-lupa/trabajo-por-cuenta-propia-en-cuba-una-mirada-desde-el-derecho/>]. Accessed December 10, 2020

6.2.3c

Coverage of social insurance programs (% of population)

Scored in quartiles (0-3, where 3=best)

Current Year Score: 1

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

Is media coverage robust? Is there open and free discussion of public issues, with a reasonable diversity of opinions?

Input number

Current Year Score: 0

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.38

Latest available.

World Bank; Economist Impact calculations

6.3 INFRASTRUCTURE ADEQUACY

6.3.1 Adequacy of road network

6.3.1a

What is the risk that the road network will prove inadequate to meet needs?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 1

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

What is the risk that air transport will prove inadequate to meet needs?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 1

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 1

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 77.11

2019

World Bank

6.4.2 Land use

6.4.2a

Percentage point change in forest area between 2006–2016

Input number

Current Year Score: 4.62

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

What is the risk that the economy will suffer a major disruption owing to a natural disaster?

Very low = 4, Low = 3, Moderate = 2, High = 1, Very high = 0

Current Year Score: 1

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)

Input number

Current Year Score: 78.73

2018

United Nations; World Bank, UNICEF; Institute for Health Metrics and Evaluation (IHME); Central Intelligence Agency (CIA)
World Factbook

6.5.1b

Age-standardized NCD mortality rate (per 100 000 population)

Input number

Current Year Score: 431.2

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 15.56

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 27.1

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 24.6

2016

WHO

6.5.2 Access to potable water and sanitation

6.5.2a

Percentage of homes with access to at least basic water infrastructure

Input number

Current Year Score: 95.33

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 92.81

2017

UNICEF; Economist Impact

6.5.3 Public healthcare spending levels per capita

6.5.3a

Domestic general government health expenditure per capita, PPP (current international \$)

Input number

Current Year Score: 2239.78

2018

WHO Global Health Expenditure database

6.5.4 Trust in medical and health advice

6.5.4a

Trust medical and health advice from the government

Share of population that trust medical and health advice from the government , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018

6.5.4b

Trust medical and health advice from medical workers

Share of population that trust medical and health advice from health professionals , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018