

Belize

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

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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: 1

Although there is some evidence that Belize may have a national AMR plan in place, it is not publicly available and there is insufficient evidence that it addresses surveillance, detection and reporting. The World Health Organisation (WHO) Global Database for Antimicrobial Resistance (AMR) Country Self Assessments reports for 2019 that Belize has a national AMR action plan developed and that the country has a national system of surveillance of AMR that is in line with intergovernmental standards. However, for 2020, the WHO Global Database for AMR does not have any data available concerning Belize [1]. In addition, the WHO library of national action plans for AMR does not list entry for Belize [2]; and there is no evidence of the AMR plan on the Ministry of Health or Ministry of Agriculture websites [3,4]. There has been only efforts on AMR Strengthening Integrated Surveillance co-organized by the Public Health Agency of Canada (PHAC) and PAHO Belize [5]; and the Epidemiology Unit's "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" mentions surveillance, detection and reporting for foodborne diseases that include pathogens, but does not mention AMR [6]. Also, a pilot project was launched in 2016 as part of the Caribbean Integrated Surveillance system on Antimicrobial Resistance in Agriculture (CISARA). It aimed to provide data on the prevalence of Salmonella in the poultry production chain and the associated antimicrobial resistance profiles. However, there is no evidence that this led to an AMR plan. [7] Belize has completed a Joint External Evaluation (JEE) of International Health Regulations Core Capacities, but the report is not available on the WHO website. [8]

[1] World Health Organisation (WHO). "Global Database for Antimicrobial Resistance Country Self Assessments". [<http://amrcountryprogress.org/>]. Accessed February 2021.

[2] World Health Organisation (WHO). "Library of National Action Plans". [<http://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed February 2021.

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] PAHO Belize. "The Public Health Agency of Canada (PHAC) and PAHO Belize co-organize workshop on Antimicrobial Resistance (AMR)-Strengthening Integrated Surveillance".

[https://www.paho.org/blz/index.php?option=com_content&view=article&id=238:the-public-health-agency-of-canada-phac-and-paho-belize-co-organize-workshop-on-antimicrobial-resistance-amr-strengthening-integrated-surveillance&Itemid=0]. Accessed February 2021.

[6] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[7] Caribbean Animal Health Network. "Caribbean Integrated Surveillance system on Antimicrobial Resistance in Agriculture (CISARA) pilot projects". [<https://www.caribvet.net/news/cisara-pilot-projects>]. Accessed February 2021.

[8] World Health Organisation (WHO). "Strategic Partnership for International Health Regulations (2005) and Health Security (SPH): IHR Monitoring & Evaluation". [<https://extranet.who.int/sph/ihr-monitoring-evaluation>]. Accessed February 2021.

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: 0

There is insufficient evidence of a national laboratory/laboratory system, which tests for the priority AMR pathogens in Belize. The Ministry of Health's "Epidemiology Unit Strategic Plan 2009 - 2011" lists a plan to conduct routine identification of Salmonella, Shigella, pathogenic E.coli, and S.aureus infection by the Central Medical Laboratory (CML), in between other tests. There is no specific information that it is the AMR or drug resistant testing for these pathogens [1]. While The Central Laboratory Unit website does not list exactly the tests for these AMR pathogens [2], the Ministry of Health Epidemiology Unit's "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" plan confirms that these tests are currently performed at the Central Medical Laboratory and the Central Investigation Laboratory, which are both under the Central Laboratory Unit [3]. There is no evidence of this through the Ministry of Agriculture or the Ministry of Health [4,5].

[1] The Ministry of Health. "Epidemiology Unit Strategic Plan 2009 - 2011". [<http://health.gov.bz/www/plan-2009-2011epi>]. Accessed February 2021. [link was functional at the time of research]

[2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[3] The Ministry of Health. Epidemiology Unit. March 2009. "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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 Belize's government conducts detection or surveillance activities (e.g. in soil, waterways, and others) for antimicrobial residues or AMR organisms. The Ministry of Health Epidemiology Unit's "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" mentions surveillance, detection and reporting for foodborne diseases that include pathogens, but does not address AMR organisms or antimicrobials residues, nor lists an environmental agency conducting these activities [1]. The Department of the Environment, under the Ministry of Agriculture, does not mention any actions of the kind [2]; and the Environmental Health unit under the Ministry of Health suggests surveillance activities, but is not specific on AMR [3]. The World Health Organization (WHO) library of national action plans for antimicrobial resistance does not list entry for Belize [4]. There is a mention of the need to enhance surveillance systems to include antimicrobial

resistance data collection and dissemination through a Caribbean Public Health Agency (CARPHA) report, of which Belize is a member of [5]. There is only evidence that a pilot project was launched in 2016 as part of the Caribbean Integrated Surveillance system on Antimicrobial Resistance in Agriculture (CISARA). It aimed to provide data on the prevalence of Salmonella in the poultry production chain and the associated antimicrobial resistance profiles. However, there is no evidence that this has led to comprehensive detection or surveillance activities outside this pilot project. [6] The World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) evaluation report for Belize, does not provide any relevant information on surveillance activities for antimicrobial residues or AMR organisms [7].

[1] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[2] Department of the Environment. [<http://www.doe.gov.bz/>]. Accessed February 2021.

[3] The Ministry of Health. Environmental Health. [<http://health.gov.bz/www/units/public-health>]. Accessed February 2021. [link was functional at the time of research]

[4] World Health Organisation (WHO). "Global Database for Antimicrobial Resistance Country Self Assessments". [<http://amrcountryprogress.org/>]. Accessed February 2021.

[5] Caribbean Public Health Agency. [<http://carpha.org/Who-We-Are/Member-States>]. Accessed February 2021.

[6] Caribbean Animal Health Network. "Caribbean Integrated Surveillance system on Antimicrobial Resistance in Agriculture (CISARA) pilot projects". [<https://www.caribvet.net/news/cisara-pilot-projects>]. Accessed February 2021.

[7] World Organisation for Animal Health (OIE). May 2009. "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

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: 1

There is evidence of national legislation in place requiring prescriptions for antibiotic use for humans. However, there is evidence of gaps in enforcement. Section 12 of the Antibiotics Act stipulates that subject to section 6, no antibiotic shall be issued to any person except on the prescription of a medical practitioner, dentist or veterinary surgeon. [1] According to one of the main newspapers in Belize, one can buy medicines without prescription at smaller pharmacies [2]. The World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) evaluation report for Belize of 2009, mentions that Belize has adequate authority to register and control the use of veterinary drugs but its requirements are not being implemented, as the country needs to exert control over the sale and use of powerful antibiotics and other veterinary drugs by requiring prescriptions issued by registered veterinary surgeons. However, it does not mention regulations for human use [3] Finally, a report issued by Oxfam in 2011 mentions the lack of financing resources as one of the main gaps for enforcement. [4]

[1] Law Revision Commissioner. December 2000. "Antibiotics Act".

[<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap033.pdf>]. Accessed February 2021.

[2] Belize.com. "Belize Pharmacies and Medical Services". [<https://belize.com/pharmacy/>]. Accessed February 2021.

[3] World Organisation for Animal Health (OIE). May 2009. "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed

February 2021.

[4] Oxfam. 2011. "Eye on the ball-Medecine Regulation". [https://www-cdn.oxfam.org/s3fs-public/file_attachments/bp143-eye-on-the-ball-medicine-regulation-020211-es_3.pdf]. Accessed February 2021.

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: 1

There is evidence of national legislation in place requiring prescriptions for antibiotic use for animals. However, there is evidence of gaps in enforcement. Section 12 of the Antibiotics Act stipulates that subject to section 6, no antibiotic shall be issued to any person except on the prescription of a medical practitioner, dentist or veterinary surgeon, and clarifies that if the prescription is given by a veterinary surgeon, the prescription has to have written or typed the words "for animal treatment only" [1]. According to one of the main newspapers in Belize, one can buy medicines without prescription at smaller pharmacies [2]. The World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) evaluation report for Belize of 2009, mentions that Belize has adequate authority to register and control the use of veterinary drugs but its requirements are not being implemented, as the country needs to exert control over the sale and use of powerful antibiotics and other veterinary drugs by requiring prescriptions issued by registered veterinary surgeons [3].

[1] Law Revision Commissioner. December 2000. "Antibiotics Act".

[<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap033.pdf>]. Accessed February 2021.

[2] Belize.com. "Belize Pharmacies and Medical Services". [<https://belize.com/pharmacy/>]. Accessed February 2021.

[3] World Organisation for Animal Health (OIE). May 2009. "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

1.2 ZONOTIC 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 evidence of Belize having a national law, plan, or equivalent strategy document specifically on zoonotic disease. The World Organisation for Animal Health (OIE) does list a Performance of Veterinary Services (PVS) evaluation report for Belize, which mentions zoonotic diseases. However, the report consists on a performance evaluation rather than a strategic document on zoonotic diseases, and discusses issues like the creation of a Zoonoses Committee to improve stakeholder engagement on animal health, but does not explicitly discuss zoonotic diseases in terms of being a risk to human health. The report also mentions the creation of a future "National Advisory Committee on Animal Health" to be created under the new Animal Health Bill, but no evidence of such a bill or Committee exists [1]. A 2011 "Belize's Agricultural Health Authority Act Chapter 21" is however in place and discusses animal diseases, including anthrax, brucellosis, and rabies. The document, however, has no specific mention to zoonotic diseases but only a list of animal diseases, some of which happen to be zoonotic, and it also does not discuss zoonotic diseases in terms of being a risk to human health [2]. The Animal Health

Department of the Belize Agriculture Health Authority mentions their work on zoonotic diseases, and states that the country is Belize is "implementing a national traceability system which may assist in the control of zoonotic diseases." However, no evidence of a document outlining a plan is found [3]. There is no evidence of such a plan on the Ministry of Agriculture website [4]; and the Environmental Health Unit of the Ministry of Health mentions prevention and control of Malaria, Chagas, and Dengue, but has no strategic document in place [5]. In 2012, the Caribbean Community (CARICOM), of which Belize is a Member State, signed an agreement with the World Organization for Animal Health (OIE) "to prevent the spread of animal diseases, to improve the animal health", and to "harmonize legislation and regulations on animal diseases and zoonoses", but there is no specific mention of advancements by the country on this issue. [6]

[1] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize".

[http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[2] Belize Agriculture Health Authority. December 2011. "Belize's Agricultural Health Authority Act Chapter 21".

[http://www.vertic.org/media/National%20Legislation/Belize/BZ_Agricultural_Health_Authority_Act.pdf]. Accessed February 2021.

[3] Belize Agriculture Health Authority. Animal Health Department. [<http://baha.org.bz/departments/animal-health/veterinary-public-health/>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. Environmental Health. [<http://health.gov.bz/www/units/public-health>]. Accessed February 2021. [link was functional at the time of research]

[6] The World Organization for Animal Health (OIE). 2012. "Agreement Between the Caribbean Community (CARICOM) and the World Organization for Animal Health (OIE)".

[http://www.oie.int/fileadmin/Home/eng/About_us/docs/pdf/accords/CARICOM_ANG.pdf]. Accessed February 2021.

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 no publicly available evidence that there is national legislation, plans or equivalent strategy document(s) which include measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. There is no such evidence in the World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) evaluation report for Belize, published in 2009 or in the "Belize's Agricultural Health Authority Act Chapter 21". [1,2] There is no further evidence in the Animal Health Department of the Belize Agriculture Health Authority ; the Ministry of Agriculture or the Environmental Health Unit of the Ministry of Health. [3,4,5]

[1] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize".

[http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[2] Belize Agriculture Health Authority. December 2011. "Belize's Agricultural Health Authority Act Chapter 21".

[http://www.vertic.org/media/National%20Legislation/Belize/BZ_Agricultural_Health_Authority_Act.pdf]. Accessed February 2021.

[3] Belize Agriculture Health Authority. Animal Health Department. [<http://baha.org.bz/departments/animal-health/veterinary-public-health/>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. Environmental Health. [<http://health.gov.bz/www/units/public-health>]. Accessed February 2021. [link was functional at the time of research]

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

While activities are carried out, there is insufficient evidence of a national plan, guidelines, or laws that account for the surveillance and control of multiple zoonotic pathogens of public health concern. The Environmental Health Unit of the Ministry of Health is the established authority to monitor and carry out surveillance for animal and plant diseases [1]. The Unit site describes that its Vector Control Program has the responsibility for maintaining a healthy environment that provides for the prevention and control of Malaria, Chagas, and Dengue, however, no further information or documentation on how they address prevention and control is provided [2]. The Animal Health Department of the Belize Agriculture Health Authority only mentions that the department frequently conducts rabies vaccination campaigns in partnership with the Public Health Department (Environmental Health) [3]. The 2009 World Organisation for Animal Health (OIE) lists a Performance of Veterinary Services (PVS) evaluation report for Belize, and the report mentions zoonotic diseases. They mention that before 2008-2009, active surveillance was conducted when funding was available from international projects for work on zoonoses like CSF, FMD and AI, but that there was "no active surveillance at this time" (around 2008-2009). The document mentions that future surveillance plans should reflect national disease control plans and priorities and that if the government is committed to increasing self-sufficiency, they should increase zoonotic disease surveillance and zoonotic disease control programs such as for rabies, tuberculosis, Brucellosis, and others. [4]. There is no further evidence in the Ministry of Agriculture or the Ministry of Health. [5,6]

[1] Belize Agriculture Health Authority. December 2011. "Belize's Agricultural Health Authority Act Chapter 21". [http://www.vertic.org/media/National%20Legislation/Belize/BZ_Agricultural_Health_Authority_Act.pdf]. February 2021.

[2] The Ministry of Health. Environmental Health. "Vector Control". [<http://health.gov.bz/www/organogram/214-vector-control>]. Accessed February 2021. [link was functional at the time of research]

[3] Belize Agriculture Health Authority. Animal Health Department. [<http://baha.org.bz/departments/animal-health/veterinary-public-health/>]. Accessed February 2021.

[4] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. February 2021.

[5] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[6] Ministry of Health. [<http://health.gov.bz/www/index.php>]. Accessed February 2021. [link was functional at the time of research]

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 evidence of a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries in Belize. The OIE's Performance of Veterinary Services (PVS) evaluation report for Belize, mentions the existence of a Zoonoses Committee to improve stakeholder engagement on animal health, however, it mentions that this Committee back in 2008-2009 had "seen reduced activity in recent times". The Committee as well does not consist of a department, agency or unit, nor does it show evidence of cross-ministry/department functioning beyond references to simple collaboration [1]. The Animal Health Department of the Belize Agriculture Health Authority and the Environmental Health Unit of the Ministry of Health mention both their work on zoonotic diseases, but neither suggests a cross-ministry/department cooperation beyond collaboration with each other on specific issues [2,3]. There is no evidence of this on the Ministry of Agriculture website or in the Ministry of Health [4,5].

[1] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[2] Belize Agriculture Health Authority. Animal Health Department. [<http://baha.org.bz/departments/animal-health/veterinary-public-health/>]. Accessed February 2021.

[3] The Ministry of Health. Environmental Health. [<http://health.gov.bz/www/units/public-health>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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: 0

There is no public evidence that Belize has a national mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency. The OIE's Performance of Veterinary Services (PVS) evaluation report for Belize mentions a series of controls towards livestock and diseases, but no mention regarding mechanisms for owners to conduct and report on disease surveillance [1]. The Animal Health Department of the Belize Agriculture Health Authority and the Environmental Health Unit of the Ministry of Health, both which deal with zoonotic diseases, do not mention any mechanism of the sort [2,3]. There is no evidence of this on the Ministry of Agriculture website or in the Ministry of Health[4,5].

[1] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[2] Belize Agriculture Health Authority. Animal Health Department. [<http://baha.org.bz/departments/animal-health/veterinary-public-health/>]. Accessed February 2021.

[3] The Ministry of Health. Environmental Health. [<http://health.gov.bz/www/units/public-health>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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 evidence that Belize has laws or guidelines that safeguard the confidentiality of information generated through surveillance activities for animals. The Freedom of Information Act of 2000 mentions guidelines to safeguard the confidentiality of information, but there is no specific mention to surveillance activities for animals [1]. The OIE's Performance of Veterinary Services (PVS) evaluation report for Belize has no mention of information generated through surveillance activities for animals [2]. There is no evidence of this on the Ministry of Health or Ministry of Agriculture websites [3,4]

[1] Law Revision Commissioner. December 2000. "Freedom of Information Act". <https://ombudsman.gov.bz/wp-content/uploads/2017/02/Freedom-of-Information-Act.pdf>. Accessed February 2021.

[2] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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 Belize conducts surveillance of zoonotic disease in wildlife. The Environmental Health Unit of the Ministry of Health has a Vector Control Program, with the responsibility of preventing and controlling Malaria, Chagas, and Dengue. Among services listed are surveillance of the vector and outdoor spraying with ULV against the Dengue vector [1]. A Ministry of Health news article confirms this by mentioning the purchase of two pickup trucks for the vector control program to assist with ULV spraying [2]. The Ministry of Health has indications on how to prevent and avoid the Chagas disease as indications for the citizens to work with them [3]. The Ministry of Health also issued in 2016 a Policy newsletter mentioning that the entire country is considered to be at risk for "Dengue, Chikungunya, and Zika transmission", and therefore over the past months the Ministry had developed a Zika National Preparedness and Response Plan, focusing on strengthening surveillance, diagnosis, and vector control [4].

[1] The Ministry of Health. Environmental Health. "Vector Control". [<http://health.gov.bz/www/organogram/214-vector-control>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. "Ministry of Health get two additional pickup trucks to increase ULV Spraying of Mosquitoes". [<http://health.gov.bz/www/events/events/730-ministry-of-health-get-two-additional-pickup-trucks-to-increase-ulv-spraying-of-mosquitoes>]. Accessed February 2021. [link was functional at the time of research]

[3]. Ministry of Health. "Chagas Disease. What you need to know."

[http://health.gov.bz/www/attachments/brochure_PAGE_1.jpg]. Accessed February 2021. [link was functional at the time of research]

[4]. Ministry of Health. April 2016. "Policy, Planning and Project Management. The Newsletter".

[http://health.gov.bz/www/attachments/article/878/PAPU%20Newsletter%202016_Volume%202,%20Issue%201.pdf].

Accessed February 2021.[link was functional at the time of research]

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: 8.71

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 5.89

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 no evidence of a national plan on zoonotic disease or other legislation, regulation or plan that includes mechanisms for working with the private sector in controlling or responding to zoonoses. The OIE's "Tool for the evaluation of Performance of Veterinary Services - Belize" states that "there are no current accreditation or authorization programs for the use of private veterinarians (or laboratories) to participate in government animal disease control programs" [1]. There is no mention on possible cooperation in the "National Communicable Disease Surveillance Manual" [2]; nor in the Ministry of Health, Ministry of Agriculture or the Central Laboratory Unit websites [3,4,5]

[1] World Organisation for Animal Health (OIE). "Tool for the evaluation of Performance of Veterinary Services - Belize". [http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/FinalReport-Belize.pdf]. Accessed February 2021.

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research].

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 no evidence of Belize having 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. The 2009 Hazard Waste Regulations, which includes dangerous pathogens, has a section on storage, but it refers to regulations for safekeeping [1]. The "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" (2011) provides guidelines for facilities storing hazardous material, including pathogens, but no mention of a record of storage facilities, and it dates back to 2011 [2]. There are no mention of such storage in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [3,4,5,6]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [7]. Finally, there is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [8]

- [1] Food and Agriculture Organization. 2009. "Hazard Waste Regulations" [<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.
- [2] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" [<https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>]. Accessed February 2021.
- [3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [6] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.
- [7] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021
- [8] VERTIC. "Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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: 0

There is not enough evidence that Belize has in place legislation related to biosecurity which addresses requirements such as physical containment, operation practices, and cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed. The 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" provides guidelines for the storage, maintenance and operation practices of facilities storing hazardous material (including pathogens), but does not mention biosecurity, nor does it have instructions for cybersecurity [1]. The 2009 Hazard Waste Regulations, which also includes dangerous pathogens, has a section on storage, transportation, treatment, and land disposal, but not on operations and cybersecurity [2]. There are mentions of an effort by the government in collaboration with FAO to upgrade an existing legal framework for biosecurity, however, neither does this document include topics such as containment of cybersecurity nor can the current framework on biosecurity can be found [3]. There is no mention of biosecurity legislation in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [4,5,6,7]. No such law is listed for Belize in the VERTIC Biological Weapons Convention Legislation Database [8]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [9]

- [1] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" [<https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>]. Accessed February 2021.
- [2] Food and Agriculture Organization. 2009. "Hazard Waste Regulations" [<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.
- [3] Foods and Agricultural Organization. "Upgrading Belize's legal framework for biosecurity". [http://www.fao.org/docs/eims/upload/275850/Belize_final.doc]. Accessed February 2021.

- [4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.
- [8] VERTIC. "Biological Weapons Convention Legislation Database". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.
- [9] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

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: 0

There is not enough evidence that Belize has in place an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations. FAO's "Upgrading Belize's legal framework for biosecurity", an effort by the government in collaboration with FAO to upgrade an existing legal framework for biosecurity (although the existing biosecurity legislation is not available), mentions that the Belize Agriculture Health Authority (BAHA) handles biosecurity activities and is collaborating on enhancing the national legislative framework on biosecurity [1]. However, when entering the BAHA website, only limited information on Biosafety can be found, and no information on Biosecurity. Therefore, it is not possible to confirm BAHA's input on biosecurity as for the terms of this study [2]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [3] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [4] There is no mention of such an agency on the Ministry of Health, Ministry of Agriculture, Ministry of Defense websites. [5,6,7]

- [1] Foods and Agricultural Organization. "Upgrading Belize's legal framework for biosecurity". [http://www.fao.org/docs/eims/upload/275850/Belize_final.doc]. Accessed February 2021.
- [2] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.
- [3] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021
- [4] VERTIC. " Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.
- [5] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [6] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

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

No public evidence shows that Belize has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. Neither the "2009 Hazard Waste Regulations", nor the 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" provide any information on consolidating Belize's inventories of dangerous pathogens into a minimum number of facilities [1,2]. The "National Chemical Profile for Chemicals Management Belize 2015" states that "Belize does not have any centralized or dedicated hazardous chemical and waste storage, treatment or disposal facilities", which leads to assume that there is no work done towards minimizing the number of facilities [3]. There is no mention of such storage in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [4,5,6,7]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [8] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [9]

[1] Food and Agriculture Organization. 2009. "Hazard Waste Regulations"

[<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.

[2] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" <https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>. Accessed February 2021.

[3] Basel Convention Regional Centre for Training and Technology Transfer (BCRC-Caribbean. "National Chemical Profile for Chemicals Management Belize 2015". [<http://www.pic.int/Portals/5/download.aspx?d=UNEP-FAO-RC-NCP-Belize-201509.En.pdf>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[8] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[9] VERTIC. " Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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. There is no mention of PCR testing on the Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit/Central Medical Laboratory websites [1,2,3]. There are numbers of mentions regarding Zika in the country in the Ministry of Health website, including an article that mentions that the Centers for Disease Control of the US detected a Zika case in the United States linked to Belize, but no mention of PCR-based diagnosis [4]. PCR testing for Zika is conducted at

the laboratories of the Caribbean Public Health Agency (CARPHA), of which Belize is a member of [5]. However, CARPHA has only released a statement in 2014 on bolstering Regional Preparedness and Response to Ebola [6], but no explicit mention on conducting diagnosis for Ebola nor Anthrax [7]

- [1] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [3] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.
- [4] The Ministry of Health. April 7 2016. "Centers for Disease Control Says Zika Case Detected in the United States Links to Belize"[<http://health.gov.bz/www/component/content/article/177-general-health/874-centers-for-disease-control-says-zika-case-detected-in-the-united-states-links-to-belize>]. Accessed February 2021. [link was functional at the time of research].
- [5] Caribbean Public Health Agency. "Zika: Surveillance and Laboratory Testing". [http://carpha.org/Portals/0/docs/CPHD/2017/Zika_surveillance.pdf]. Accessed February 2021.
- [6] Caribbean Public Health Agency (CARPHA). 30 October 2014. "Carpha Statement on Ebola Virus Disease". [<http://carpha.org/Portals/0/articles/documents/GeneralEbolaStatement.pdf>]. Accessed February 2021.
- [7] Caribbean Public Health Agency (CARPHA). "Laboratory Services and Networks". [<http://carpha.org/what-we-do/laboratory-services-and-networks>]. Accessed February 2021.

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 no public evidence that Belize requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer programme, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Neither the "2009 Hazard Waste Regulations", nor the 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" provide any information on any training for personnel working in facilities housing dangerous pathogens [1,2]. The "National Chemical Profile for Chemicals Management Belize 2015" has a section mentions a workshop held in 2001 titled "Train-the-Trainers" on Good Practices in Refrigeration, however, the workshop refers only to chemicals [3]. There is no mention of any training of the sort in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [4,5,6,7]. FAO's "Upgrading Belize's legal framework for biosecurity," an effort by the government in collaboration with FAO to upgrade an existing legal framework for biosecurity (although the current biosecurity legislation is not available), does not mention anything on biosecurity training [8]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [9] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [10]

[1] Food and Agriculture Organization. 2009. "Hazard Waste Regulations"

[<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.

[2] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction,

Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" <https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>. Accessed February 2021.

[3] Basel Convention Regional Centre for Training and Technology Transfer (BCRC-Caribbean. "National Chemical Profile for Chemicals Management Belize 2015". [<http://www.pic.int/Portals/5/download.aspx?d=UNEP-FAO-RC-NCP-Belize-201509.En.pdf>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[8] Foods and Agricultural Organization. "Upgrading Belize's legal framework for biosecurity". [http://www.fao.org/docs/eims/upload/275850/Belize_final.doc]. Accessed February 2021.

[9] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[10] VERTIC. "Biological Weapons Convention Legislation Database". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 public evidence that regulations or licensing conditions specify that security and other personnel in Belize with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to drug testing, background checks, and psychological or mental fitness checks. Neither the "2009 Hazard Waste Regulations", the 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities", or the "National Chemical Profile for Chemicals Management Belize 2015" provide any information on such requirements for personnel working in facilities housing dangerous pathogens [1,2,3]. There is no mention of such a requirement in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [4,5,6,7]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [8] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [9]

[1] Food and Agriculture Organization. 2009. "Hazard Waste Regulations"

[<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.

[2] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" <https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>. Accessed February 2021.

[3] Basel Convention Regional Centre for Training and Technology Transfer (BCRC-Caribbean. "National Chemical Profile for

Chemicals Management Belize 2015". [<http://www.pic.int/Portals/5/download.aspx?d=UNEP-FAO-RC-NCP-Belize-201509.En.pdf>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[8] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[9] VERTIC. "Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 not enough evidence of Belize having national regulations on the safe and secure transport of infectious substances. The 2009 Hazard Waste Regulations, which includes dangerous pathogens, has a section on safe and secure transportation, including measures such as contingency plans, emergency procedures, and personnel training, among others [1]. While the above document does not mention either Category A or B, the "Belize Civil Aviation Regulations The Safe Transport of Dangerous Goods by Air" does list regulations for safe transportation and includes "infectious substances of Category A", but does not include Category B [2]. The 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" cites the Hazard Waste Regulations as the document that guides safe transport of infectious substances [3]. The United Nations Road Safety Conventions mentions that Belize has ratified or signed the Dangerous Goods by Road (ADR) act of 1957 [4]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [5]. The Caribbean Public Health Agency (CARPHA), of which Belize is a member of, provides guidelines and requirements under the Laboratory User Manual for the preparation, packaging, and shipping of specimens, including Category A and B infectious substances. The guidelines are according to Annex 2 of the World Health Organization (WHO) Guidance on regulations for the Transport of Infectious Substances 2011-2012. However, there is no information to confirm that Belize complies with these guidelines. [6] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database or in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [7,8,9,10,11]

[1] Food and Agriculture Organization. 2009. "Hazard Waste Regulations"

[<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.

[2] Department of Civil Aviation. "Belize Civil Aviation Regulations the Safe Transport of Dangerous Goods by Air".

[<http://civilaviation.gov.bz/index.php/technical-library/belize-civil-aviation-regulations-bcars?download=132:bcar-18-issue-2-rev-0>]. Accessed February 2021.

[3] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction,

Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" <https://belizeswama.com/technical-guidelines-for-hazardous-waste-facilities/>. Accessed February 2021.

[4] United Nations Economic Commission for Europe. "The United Nations Road Safety Conventions". [https://www.unece.org/fileadmin/DAM/road_Safety/Documents/UN_Conventions_brochure_FINAL.pdf]. Accessed February 2021.

[5] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[6] Caribbean Public Health Agency (CARPHA). "Laboratory User Manual - Guidelines for Preparation, Packing and Shipping Specimens". [<http://carpha.org/publications/LaboratoryUserManual/manual/transportation.html>]. Accessed February 2021.

[7] VERTIC. "Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

[8] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[9] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[10] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[11] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 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. The "Belize Civil Aviation Regulations The Safe Transport of Dangerous Goods by Air", published in 2009, lists a series of regulations for safe transportation including international transfer, but does not mention specifically dangerous pathogens or toxins with pandemic potential [1]. The 2009 Hazard Waste Regulations and the 2011 "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities", which include dangerous pathogens, have mentions of safe transportation but none on cross-border transfer [3]. There is no mention of such a requirement in the Ministry of Health, Ministry of Agriculture, Ministry of Defense or the Central Laboratory Unit websites [4,5,6,7]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [8] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [9]

[1] Department of Civil Aviation. "Belize Civil Aviation Regulations the Safe Transport of Dangerous Goods by Air"(2009). [<http://civilaviation.gov.bz/index.php/technical-library/belize-civil-aviation-regulations-bcars?download=132:bcar-18-issue-2-rev-0>]. Accessed February 2021.

[2] Food and Agriculture Organization. 2009. "Hazard Waste Regulations" [<http://extwprlegs1.fao.org/docs/pdf/blz129033.pdf>]. Accessed February 2021.

[3] Solid Waste Management Authority (SWaMA). March 2011. "Technical Guidelines for the Siting, Design, Construction, Operations, Maintenance, Closure and Post Closure of Hazardous Waste Facilities" <https://belizeswama.com/technical->

guidelines-for-hazardous-waste-facilities/]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Ministry Responsible for Investment Trade & Commerce. [<http://www.itc.gov.bz/>]. Accessed February 2021.

[7] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[8] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[9] VERTIC. "Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 no evidence of national biosafety legislation and/or regulations in Belize. According to a Belize Agriculture Health Authority (BAHA) representative, Belize has a draft Biosafety Bill and an approved policy on use and imports of GM [1]. There is no Biosafety Bill publicly available, but there is a National Biosafety Policy. This policy, however, pertains only to GMOs from a nutrition/environmental perspective and does not mention harmful biological substances, despite mentioning possible negative effects on humans [2]. There is no mention to biosafety legislation on the Ministry of Health, Ministry of Agriculture, or the Central Laboratory Unit websites [3,4,5]. BAHA, while being the National Competent Authority for Biosafety in Belize [2], has only limited information on Biosafety on its site, and no reference to a Biosafety Bill [6]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [7] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [8]

[1] Food and Agriculture Organization. FAO GM Foods Platform. [<http://www.fao.org/food/food-safety-quality/gm-foods-platform/browse-information-by/country/country-page/en/?cty=BLZ>]. Accessed February 2021.

[2] Regional Project for Implementing National Biosafety Frameworks in the Caribbean Sub-Region. March 2009. "National Biosafety Policy- Belize". [<https://caribbeanbiosafety.org/wp-content/uploads/2015/10/Approved-Belize-National-Biosafety-Policy.pdf>]. Accessed February 2021.

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[6] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[7] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[8] VERTIC. " Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 evidence of an established agency responsible for the enforcement of biosafety legislation and regulations; however, there is no mention of Biosafety policy beyond GMO from a nutrition/environmental perspective. Belize's National Biosafety Policy establishes the Belize Agricultural Health Authority (BAHA) as the National Competent Authority for Biosafety in Belize [1]. However, the BAHA website has only limited information on Biosafety, including its adherence to the Cartagena Protocol, focal points for Biosafety, and mentions to the National Biosafety Committees [2]. There is no evidence of a Biosafety legislation, but according to a Belize Agriculture Health Authority (BAHA) representative, Belize has a draft Biosafety Bill [3]. This policy, however, pertains only to the development of GMOs and does not mention harmful biological substances, despite mentioning possible negative collateral effects on humans [1]. There is no mention to biosafety legislation on the Ministry of Health, Ministry of Agriculture, or the Central Laboratory Unit websites [4,5,6]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [7]. The Caribbean Public Health Agency (CARPHA), of which Belize is a member state, was mentioned under a Caribbean regional forum in 2017 on its role in assisting Member States in areas of biosafety and biosecurity, but did not mention any information on an established agency for enforcement. [8] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [9]

[1] Regional Project for Implementing National Biosafety Frameworks in the Caribbean Sub-Region. March 2009. "National Biosafety Policy- Belize". [<https://caribbeanbiosafety.org/wp-content/uploads/2015/10/Approved-Belize-National-Biosafety-Policy.pdf>]. Accessed February 2021.

[2] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[3] Food and Agriculture Organization. FAO GM Foods Platform. [<http://www.fao.org/food/food-safety-quality/gm-foods-platform/browse-information-by/country/country-page/en/?cty=BLZ>]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[7] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[8] Caribbean Public Health Agency (CARPHA). "Regional Laboratories Prepare to Detect and Respond to New and Emerging Diseases". [<http://carpha.org/articles/ArticleType/ArticleView/ArticleID/150>]. Accessed February 2021.

[9] VERTIC. " Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 no evidence that Belize 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. Belize's National Biosafety Policy pertains only to GMOs from a nutrition/environmental perspective and does not mention harmful biological substances, despite mentioning possible negative effects on humans, and has no mentions on training on any kind [1]. There is no mention to biosafety legislation on the Ministry of Health, Ministry of Agriculture, or the Central Laboratory Unit websites [2,3,4]. BAHA, the National Competent Authority for Biosafety in Belize [1], has only limited information on Biosafety on its site, and no reference to a Biosafety Bill [5]. Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [6]. The Caribbean Public Health Agency (CARPHA), of which Belize is a member of, has a Training Unit with a strategic framework for the agency's training function, including Laboratory Quality Assurance and Management as part of the Public Health priority area. However, there is no mention of required biosafety training for the country [7]. A 2014 article mentions training workshops for participants from 12 Caribbean countries on the shipping of infectious substances and biosafety practices in clinical laboratory, but it doesn't mention if Belize was one of the participating countries. [8] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database. [9]

[1] Regional Project for Implementing National Biosafety Frameworks in the Caribbean Sub-Region. March 2009. "National Biosafety Policy- Belize". [<https://caribbeanbiosafety.org/wp-content/uploads/2015/10/Approved-Belize-National-Biosafety-Policy.pdf>]. Accessed February 2021.

[2] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[5] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[6] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[7] Caribbean Public Health Agency (CARPHA). "Monitoring and Evaluation - Training Strategy". [<http://carpha.org/What-We-Do/Research-Training-and-Policy-Development/Monitoring-and-Evaluation>]. Accessed February 2021

[8] Caribbean Public Health Agency (CARPHA). "CARPHA Trains Laboratory Personnel to Better Manage Outbreak Situations in the Region". [<http://carpha.org/articles/ID/41/CARPHA-Trains-Laboratory-Personnel-to-Better-Manage-Outbreak-Situations-in-the-Region>]. Accessed February 2021

[9] VERTIC. "Biological Weapons Convention Legislation Database". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

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 evidence that Belize has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, or other dual-use research. There is no mention to such an assessment on the Ministry of Health, Ministry of Agriculture, the Belize Agriculture Health Authority, or the Central Laboratory Unit websites [1, 2,3,4]. None of Belize' laws listed on the VERTIC Biological Weapons Convention Legislation Database deal with dual-use research. [5] Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [6]. A summary of 2013 activities of the Caribbean Public Health Agency (CARPHA), of which Belize is a member of, indicates that "need assessments and capacity building for biorisk management in 5 member states" were conducted, however, it is not specified which countries and no additional details are available. [7] There is no further evidence in the VERTIC Biological Weapons Convention Legislation Database or in the Ministry of Defense. [8,9]

[1] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[5] VERTIC. "Biological Weapons Convention Legislation Database". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s.php>]. Accessed February 2021.

[6] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[7] Caribbean Public Health Agency (CARPHA). "Laboratory Services and Networks - 2013 Activities at a Glance". [<http://carpha.org/What-We-Do/Laboratory-Services-and-Networks>]. Accessed February 2021

[8] VERTIC. " Biological Weapons Convention Legislation Database ". [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/b/>]. Accessed February 2021.

[9] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

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 no evidence of a national policy requiring oversight of dual-use research, such as research with especially dangerous pathogens, toxins, or pathogens with pandemic potential. There is no mention to such a policy on the Ministry of Health, Ministry of Agriculture, the Belize Agriculture Health Authority, or the Central Laboratory Unit websites [1, 2,3,4]; nor in the National Biosafety Policy for Belize [5]. None of Belize' laws listed on the VERTIC Biological Weapons Convention Legislation Database deal with dual-use research. [6] Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [7]. There is no evidence of a Belizean policy of the sort on the Caribbean Public Health Agency (CARPHA) Laboratory Services or in the Ministry of Defense. [8,9]

[1] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[5] Regional Project for Implementing National Biosafety Frameworks in the Caribbean Sub-Region. March 2009. "National Biosafety Policy- Belize". [<https://caribbeanbiosafety.org/wp-content/uploads/2015/10/Approved-Belize-National-Biosafety-Policy.pdf>]. Accessed February 2021.

[6] VERTIC. "Biological Weapons Convention Legislation Database". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s.php>]. Accessed February 2021.

[7] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021

[8] Caribbean Public Health Agency (CARPHA). [<http://carpha.org/>]. Accessed February 2021

[9] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

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 evidence of an agency in Belize specifically responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, or other dual-use research. There is no mention to such an agency on the Ministry of Health or Ministry of Agriculture [1,2]. Neither the Belize Agriculture Health Authority or the Central Laboratory Unit oversees research with dangerous pathogens [3,4]. There is no mention to an agency tasked to monitor this type of research on the National Biosafety Policy [5]. None of Belize' laws listed on the VERTIC Biological Weapons Convention Legislation Database deal with dual-use research. [6] Although Belize is party to the Biological Weapons Convention, it has not submitted Confidence Building Measures (CBMs) since 2003. Access to the most recent CBM report is restricted, and the contents of the report are not publicly available [7]. The Caribbean Public Health Agency (CARPHA), of which Belize is a part of, is quipped "to investigate and manage communicable diseases through its security laboratories, a variety of specialized units such as an experimental mosquito colony". However, it shows no evidence of it being responsible for oversight of

research with especially dangerous pathogens. [8] There is no further evidence in the Ministry of Defense. [9]

- [1] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [4] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.
- [5] Regional Project for Implementing National Biosafety Frameworks in the Caribbean Sub-Region. March 2009. "National Biosafety Policy- Belize". [<https://caribbeanbiosafety.org/wp-content/uploads/2015/10/Approved-Belize-National-Biosafety-Policy.pdf>]. Accessed February 2021.
- [6] VERTIC. "Biological Weapons Convention Legislation Database". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s.php>]. Accessed February 2021.
- [7] BWC Electronic Confidence Building Measures Portal. "Belice. Available Confidence Building Measures Reports." [<https://bwc-ecbm.unog.ch/state/belize>]. Accessed February 2021
- [8] Caribbean Public Health Agency (CARPHA). "Public Health Activities - Communicable Diseases". [<http://carpha.org/What-We-Do/Public-Health-Activities>]. Accessed February 2021
- [9] Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

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 publicly available 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. There is no such evidence in the epidemiology section of the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [1,2] There is no further evidence in the Ministry of Health, the Ministry of Agriculture and the national laboratory. [3,4,5]

- [1] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]
- [2] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]
- [3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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: 0

There is not enough evidence to confirm that Belize's national laboratory system can conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests, also, the Central Laboratory Unit does not list in detail the diagnostic tests it provides [1]. Indeed, the 2007 "National Communicable Disease Surveillance Manual" states that the Central Medical Laboratory can perform 4 of the 10 WHO-defined core tests: HIV 1/2, Salmonella Typhi, TB smear and Malaria (plasmodium). Nevertheless,

the document does not mention the type of test it conducts for these diseases [2]. The Trinidad and Tobago-located Caribbean Public Health Agency (CARPHA) Laboratory, of which Belize is a part of, can perform only 4 of the 10 WHO-defined core tests, including polymerase chain reaction (RT-PCR) surveillance for influenza, PCR identification and drug sensitivity testing for pulmonary tuberculosis; microscopy for malaria; and identification and serotyping for typhoid [3]. There is no relevant information on the Ministry of Health Website [4].

[1] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[3] Caribbean Public Health Agency (CARPHA). "Laboratory Testing Services". [<http://carpha.org/publications/LaboratoryUserManual/manual/testing.html>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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: 0

There is no publicly available 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. There is no such evidence in the epidemiology section of the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [1,2] There is no further evidence in the Ministry of Health, the Ministry of Agriculture and the national laboratory. [3,4,5] Belize has a webpage of decrees and measures adopted in the midst of the coronavirus crisis, however, there is no evidence of a COVID-19-specific testing strategy. [6]

[1] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 not enough information to confirm that Belize has a national laboratory that serves as a reference facility that is accredited (eg ISO 15189:2003, CLIA). There is not enough evidence to confirm that Belize's national laboratory has an accreditation. The "Central Medical Laboratory Plan 2009 - 2011" states a plan to form "capacity building workshops to sensitize staff on policies, manuals, and SOPs (ISO Standards 15189)", but no further information on these workshops or of the Laboratory acquisition of the ISO 15189 can be found [1]. No relevant information is available within the Ministry of Health and Ministry of Agriculture websites. [2,3]. ISO 15189 is a standard of the International Organization for Standardization (ISO) that recognizes quality and competence in medical laboratories. [4]

[1] Central Laboratory Unit. "Central Medical Laboratory Plan 2009 - 2011". [<http://health.gov.bz/www/plan-2009-2011clu>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] International Organization for Standardization (ISO). "SO 15189:2012 Medical laboratories -- Requirements for quality and competence". [<https://www.iso.org/standard/56115.html>]. Accessed February 2021.

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 evidence of a national laboratory that serves as a reference facility subject to external quality assurance review. At a national level, there is not enough evidence to confirm that Belize's national laboratory is subject to EQA review. The "Central Medical Laboratory Plan 2009 - 2011" provides no information on EQA, nor is any information to be found on the Central Laboratory website [1,2]. No relevant information is available within the Ministry of Health and Ministry of Agriculture websites. [3,4] Caribbean Public Health Agency (CARPHA) assists in coordinating EQA review for member country laboratories, but does not share information about its EQA status on their website [5,6]

[1] Central Laboratory Unit. "Central Medical Laboratory Plan 2009 - 2011". [<http://health.gov.bz/www/plan-2009-2011clu>]. Accessed February 2021. [link was functional at the time of research]

[2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Caribbean Public Health Agency (CARPHA). "Laboratory Services and Networks". [<http://carpha.org/What-We->

Do/Laboratory-Services-and-Networks]. Accessed February 2021

[6] Caribbean Public Health Agency (CARPHA). "Progress on 2010/2011 Recommendations".

[http://carpha.org/Portals/0/docs/MEETINGS/Epid_LabDir/04_2014%20Progress_RecommendationsOfThe2011_NE_LDMeeting.pdf]. Accessed February 2021

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 not enough evidence that Belize has a nationwide specimen transport system for transporting specimens from the site of collection to a laboratory for testing. The 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation", has a Specimens Collection and Transport section, providing guidelines about proper ways of transporting specimens to the laboratory (timeframe, cautions, temperature, and others), but does not mention if the transport system that can reach all parts of the country. [1]. The 2007 "National Communicable Disease Surveillance Manual" also has a Specimens Collection and Transport section, however, it mentions to consult the laboratory about proper collection procedures and to refer to a User Manual For Sample Collection from the Medical Laboratory Services, and does not mention if the transport system can reach all parts of the country [2]. This user manual and other references besides the ones listed to the specimen transport system are not available through the Ministry of Health, Ministry of Agriculture, the Central Laboratory Unit, or the Belize Agriculture Health Authority [3,4,5,6]. The Caribbean Public Health Agency (CARPHA), of which Belize is a part of, has guidelines for the preparation, packing, and shipping of specimens within member countries [7]. The Belize Country Cooperation Strategy 2017-2021, a publication of the Pan American Health Organisation (PAHO) and the World Health Organisation (WHO) Regional Office for the Americas, does not mention specimen transport [8].

[1] The Ministry of Health. Epidemiology Unit. March 2009. "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research]

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[6] Belize Agriculture Health Authority. [<http://baha.org.bz/#>]. Accessed February 2021.

[7] Caribbean Public Health Agency (CARPHA). Guidelines for Preparation, Packing and Shipping Specimens [<http://carpha.org/publications/LaboratoryUserManual/manual/transportation.html#>]. Accessed February 2021

[8] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-

strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

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 publicly available 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. There is no such evidence in the epidemiology section of the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [1,2] There is also no evidence of arrangements formed due to Covid-19 for increasing testing capacity in the Ministry of Health, the Ministry of Agriculture and the national laboratory. [3,4,5]

[1] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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: 1

There is evidence that Belize is conducting ongoing event-based surveillance and analysis for infectious disease; however it is not clear if it is being analyzed on a daily basis.

The Caribbean Public Health Agency (CARPHA) hosts a Tourism and Health Information System (THIS), a real-time system for hotel management and public health officials to identify events such as outbreaks early. Belize is one of the eight countries participating in THIS. [1, 2] However, there is no evidence of national-level event-based surveillance. The National Emergency Management Organization (NEMO) has the responsibility "to preserve life and property throughout the country of Belize in the event of an emergency, threatened or real, and to mitigate the impact on the country and its people". However, NEMO's

work focuses on natural disasters management, and there is no evidence that it is conducting ongoing event-based surveillance [3]. No relevant information is available within the Ministry of Health, Ministry of Agriculture or the Central Laboratory websites [4,5,6].

[1] Caribbean Public Health Agency (CARPHA). "Tourism and Health Programme". [<https://carpha.org/THP/About-The-Program>]. Accessed 21 January 2021.

[2] Caribbean Public Health Agency (CARPHA). "THP: THiS Hotel Based Surveillance". [<https://carpha.org/THP/THiS-Hotel-Based-Surveillance>]. Accessed 14 August 2020.

[3] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 evidence available via the Ministry of Health (Ministerio de Salud) or the World Health Organisation (WHO) Disease Outbreak News webpage that Belize has reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. [1,2] Indeed, the WHO Disease Outbreak News site displays no results for a potential PHEIC reported by Belize, nor is there evidence that it reported COVID-19. [2] There are few reports on the possibility of public health emergencies, but none for the past two years. In 2016, Belize confirmed a case of Zika in the country [3], and in 2018, the Ministry of Health advised on the presence of measles in the region (namely in Guatemala) [4]. However, for both of these events, there is no mention if these were reported to the WHO. An Epidemiological Bulletin from the Pan American Health Organisation (PAHO) which is meant to complement WHO Disease Outbreak News only hyperlinks Belize to its Ministry of Health's Epidemiology Unit publications [5]. There is no relevant information on the Epidemiology Unit website [1].

[1] Ministry of Health. Epidemiology Unit. "Epidemiology". [<http://health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]

[2] World Health Organisation (WHO). "Disease Outbreak News: Belize". [<https://www.who.int/csr/don/en/>]. Accessed February 2021

[3] Ministry of Health. 16 May 2016. "Belize confirms first case of Zika" [<http://health.gov.bz/www/component/content/article/177-general-health/885-belize-confirms-first-case-of-zika>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Health. 29 January 2018. "The Ministry of Health advises on the present Measles Situation in Central America and the Caribbean" [<http://health.gov.bz/www/component/content/article/177-general-health/968-the-ministry-of-health-advises-on-the-present-measles-situation-in-central-america-and-the-caribbean>]. Accessed February 2021. [link was functional at the time of research]

[5] Pan American Health Organisation (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 February 2021

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: 1

There is public evidence to confirm that Belize operates an electronic reporting surveillance system at both the subnational and national level. The "National Communicable Disease Surveillance Manual" has a "Description of the National Communicable Disease Surveillance System" section where it is mentioned that the system's objective is to collect and analyse data. Data is reported through the Belize Health Information System (BHIS) or District Health Information Units (at the sub-national level). It also provides a protocol for reporting of data in the absence of the BHIS (e.g., from private providers) [1]. The BHIS website (under the Ministry of Health) mentions that to date, modules have been installed and are functioning in 32 facilities (and 14 private companies) throughout Belize, but that it's planning to become an "all-inclusive application (that) will be felt not only in the nation's hospitals but everywhere" [2]. The BHIS brochure mentions its vision to be the leader in the region with a "communication technology supported system that provides quality information for evidence-based decision making" [3]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021. [link was functional at the time of research]

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 insufficient evidence to confirm that the Belize Health Information System (BHIS) system collects ongoing/real-time laboratory data. The BHIS brochure mentions the existence of BHIS interdependent modules surrounding the central Electronic Health Record (EHR), and among its modules, there is one called "Laboratory and Testing", which covers a range of laboratory tests, vitals, and radiology, enabling users to create orders and record and publish results [1]. The BHIS website (under the Ministry of Health) mentions that to date, modules have been installed and are functioning in 32 facilities (and 14 private companies) throughout Belize, but that it's planning to become an "all-inclusive application (that) will be felt not only in the nation's hospitals but everywhere" [2]. Besides mentioning that the BHIS is "dynamic" [2], none of these sources mention if the collection of laboratory data happens on an ongoing basis. There is no mention of the collection of laboratory data through the BHIS on the Ministry of Health or the Central Laboratory Unit/Central Medical Laboratory websites [3,4]. The Caribbean Public Health Agency (CARPHA) hosts a Tourism and Health Information System (THIS), a real-time system for

hotel management and public health officials to identify events such as outbreaks early. CARPHA also has the Caribbean Vessel Surveillance System (CVSS) for rapid information flow and coordinated multisectoral response for public health events occurring among visitors from passenger ships. [5] However, there is no indication of a system that collects ongoing/real time laboratory data through CARPHA. [6]

[1] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021. [link was functional at the time of research]

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[5] Caribbean Public Health Agency (CARPHA). "Tourism and Health Programme - Surveillance and Response System". [<http://carpha.org/What-We-Do/Tourism-and-Health-Programme/Surveillance-and-Response-System>]. Accessed February 2021.

[6] Caribbean Public Health Agency (CARPHA). [<http://carpha.org>]. Accessed February 2021.

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 evidence of an electronic health record system in place but insufficient evidence to confirm that Electronic health records (EHR) are commonly in use in Belize. The Belize Health Information System (BHIS), the system that collects and analyses health data, mentions that it provides "every citizen with an Electronic Health Record", and that it "connects the Government with every citizen, hospital, clinic, lab, and pharmacy in every corner of the nation". The official brochure also mentions that BHIS "captures more than 80% of national individual health encounters" [1]. The BHIS website mentions that to date, modules of the BHIS have been installed and are functioning in 37 facilities (and 14 private companies) throughout Belize, but that it's planning to become an "all-inclusive application (that) will be felt not only in the nation's hospitals but everywhere". It is uncertain, however, that the information has been updated to evidence all health facilities that are using the BHIS [2]. When looking for an estimate of health facilities in the country, the BHIS website is the first website to appear, followed by a not-so-reliable site that estimates the number on 60 [3]. However, a 2009 WHO report on mental health mentions that "in terms of primary care, there are 98 physician-based primary health care clinics in the country (11 in the public sector and 87 in the private), and 34 non-physician based primary health care clinics, all of which are in the public sector" [4]. By contrasting only information provided on official sources (37 facilities plus 14 private companies) and the report by the WHO (137 overall primary care facilities), evidence suggests that EHR is used in less than 40% of the country.

[1] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021. [link was functional at the

time of research]

[2] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021. [link was functional at the time of research]

[3] Belize.com. "Medical Care In Belize". [<https://belize.com/medical-care-in-belize/>]. Accessed February 2021.

[4] World Health Organization. 2009. "Mental Health System in Belize". [<https://iris.paho.org/handle/10665.2/7686>]. Accessed February 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: 1

There is publicly available evidence to confirm that Belize's national public health system has access to electronic health records of individuals in their country. Belize's Ministry of Health organizes its services into four Health Regions (Northern Region, Central Region, Western Region, and Southern Region), headed by Regional Health Managers. All the regional hospitals are urban-based, and the rural population is served by a network of health clinics, health posts, and mobile health clinics. The National Health Insurance (NHI) scheme works with poor communities in the South Side of Belize City (2002), Southern Region (2006), and Corozal District (2016) [1]. The Belize Health Information System (BHIS), the system that provides citizens with Electronic Health records, mentions that it "connects the Government with every citizen, hospital, clinic, lab, and pharmacy in every corner of the nation", and that users could be "clinicians, policymakers, public health officers", in between others [2]. The BHIS website does not provide any additional information [3], and it not possible to access to the surveillance system itself. However, a report from 2009 of the World Health Organization (WHO) states that, through the BHIS, doctors have access to the electronic health records of individuals. This access to personal records also causes concerns related to security as it cannot prevent someone with the right access from looking at a patient's medical records and then leaking information to someone else. [4] There is no relevant information on the Ministry of Health or Central Laboratory Unit websites [5,6]. There is no indication that the Caribbean Public Health Agency (CARPHA) has EHR in use. [7]

[1] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[2] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021. [link was functional at the time of research]

[4] World Health Organisation. 2009. "Belize health information goes digital".

[<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2636185/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[7] Caribbean Public Health Agency (CARPHA). [<http://carpha.org>]. Accessed February 2021.

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 insufficient evidence to confirm that there are data standards to ensure patient health data used by Belize's national public health system is comparable. The Belize Health Information System (BHIS), the system that provides citizens with electronic health records, has a "standardization" very short subsection, stating that "captured data must be understandable and sharable; selection of data standards must be done with this in mind". However, it does not provide any data standards for this [1]. The BHIS website neither mentions any information on data standards [2], and neither does the "National Communicable Disease Surveillance Manual" published in 2007 [3]. It is not possible to access the surveillance system itself [3]. There is no relevant information on the Ministry of Health or Central Laboratory Unit websites [4,5]. There is no indication that the Caribbean Public Health Agency (CARPHA) has EHR in use. [6]

[1] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[2] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021. [link was functional at the time of research]

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[6] Caribbean Public Health Agency (CARPHA). [<http://carpha.org>]. Accessed February 2021.

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

There is not enough evidence of established mechanisms at the relevant ministries in Belize responsible for animal, human and wildlife surveillance to share data (such as through mosquito surveillance, brucellosis surveillance, etc.). No relevant information is found within the Ministry of Health; Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development, and Immigration; or the Central Laboratory Unit [1,2,3]. There is no mention of mechanisms for surveillance data sharing in the "National Communicable Disease Surveillance Manual" published in 2007 [4] or the "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" published in 2009 [5]. Belize is a partner to One Health One Caribbean One Love project, which mentions the importance of data sharing, and documents a case study where the Belize

One Health team centralized efforts and shared information and resources across private sectors, Ministry of Health, Agriculture and Environment responding to an increase in the numbers of cattle rabies cases transmitted by bats in the Corozal, Orange Walk, Cayo and Toledo Districts of Belize. The document mentions that historically the response to rabies outbreaks has been uncoordinated across sectors, but that the cross-sectoral approach that was implemented "can result in financial and resource savings, compared to sectors working separately". The document, however, does not give any indicator of an established mechanism for data sharing within the country but more of an external aid provided to the country by this group [5]. There is no mention of One Health on the Ministry of Health; Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development, and Immigration; or the Central Laboratory Unit [1,2,3]

[1] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[5] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] One Health Caribbean. 2017. "Caribbean Resilience and Prosperity Through".

[[http://onehealthcaribbean.org/images/pdf/Caribbean%20Resilience%20and%20Prosperity%20Through%20One%20Health.p](http://onehealthcaribbean.org/images/pdf/Caribbean%20Resilience%20and%20Prosperity%20Through%20One%20Health.pdf)df]. Accessed February 2021

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 no evidence that Belize makes de-identified health surveillance data on disease outbreaks publicly available on government websites.

Overall, there are few reports on disease outbreaks. In the midst of the coronavirus crisis, there is evidence that Belize shares health surveillance data on disease outbreaks publicly available on government websites in a daily basis. However, before this crisis, there are a few examples to confirm that Belize makes de-identified health surveillance data on a daily basis. [1] In 2016, Belize confirmed one case of Zika in the country, and while no names were given in this particular disease case, there was no additional information on any surveillance data resulting from the outbreak [2]. The "National Communicable Disease Surveillance Manual" does not address making de-identified health surveillance data [3]. No relevant information is available through the Ministry of Health, the Central Laboratory Unit, the Statistical Institute of Belize, or the Belize Health Information System (BHIS) website [4,5,6,7,8]. The Caribbean Public Health Agency (CARPHA) includes surveillance data from Belize on their reports, including reported cases of Salmonella and Malaria in the country in the State of Public Health in the Caribbean

2014-2016, published in 2017. [9]

[1] Facebook. "Government of Belize Press Office".

[https://www.facebook.com/GOBPressOffice/?hc_ref=ARTD2xOn7e4_D2IIJvdZWBxJJ8gSKt9FroQnQdJcOeddP2qDdPvy_rQV6KQP_JgkjQQ&fref=fnf&__tn__=kC-R]. Accessed February 2021.

[2] Ministry of Health. 16 May 2016. "Belize confirms first case of Zika"

[<http://health.gov.bz/www/component/content/article/177-general-health/885-belize-confirms-first-case-of-zika>]. Accessed February 2021

[3] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual".

[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021.

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021.

[6] Statistical Institute of Belize. [<http://sib.org.bz/>]. Accessed February 2021.

[7] Ministry of Health. "Belize Health Information System". [<http://health.gov.bz/www/health-projects/health-information-system/bhis-expansion>]. Accessed February 2021.

[8] Ministry of Health. "Belize Health Information System".

[<http://health.gov.bz/www/attachments/article/169/BHISBooklet02.pdf>]. Accessed February 2021.

[9] Caribbean Public Health Agency (CARPHA). 2017. "State of Public Health in the Caribbean 2014-2016".

[<http://carpha.org/downloads/State-of-Public-Health-in-the-Caribbean-2014-2016.pdf>]. Accessed February 2021.

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 publicly available evidence that the country makes 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). These reports are shared via social medias (Facebook). [1] The government also created a website specifically dedicated to COVID-19, <https://www.covid19.bz/>. [2] The reports present the daily number of new positive cases; the number of people that are being treated at the hospital and the ones that are in intensive care.

[1] Facebook. "Government of Belize Press Office".

[https://www.facebook.com/GOBPressOffice/?hc_ref=ARTD2xOn7e4_D2IIJvdZWBxJJ8gSKt9FroQnQdJcOeddP2qDdPvy_rQV6KQP_JgkjQQ&fref=fnf&__tn__=kC-R]. Accessed February 2021.

[2] COVID-19. [<https://www.covid19.bz/>]. Accessed February 2021.

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 evidence that Belize has laws or guidelines that safeguard the confidentiality of health information for individuals, such as that generated through health surveillance activities. While there is no Data Protection Bill, there is a "Freedom of Information Act" of 2000 that mentions guidelines to safeguard the confidentiality of information, and a section that discusses exemptions of releasing information that may affect the mental health of a person, but no regulations in case of health surveillance activities [1]. There is no evidence of this on the Ministry of Health [2], the Central Laboratory Unit [3] or the Statistical Institute of Belize, which is the "sole body having authority to approve, monitor and coordinate the processes of data collection, compilation and analyses by any public body" [4]

[1] Law Revision Commissioner. December 2000. "Freedom of Information Act". [<https://ombudsman.gov.bz/wp-content/uploads/2017/02/Freedom-of-Information-Act.pdf>]. Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] Statistical Institute of Belize. [<http://sib.org.bz/>]. Accessed February 2021.

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 that Belize has laws or guidelines that safeguard the confidentiality of health information for individuals, such as that generated through health surveillance activities, let alone any that specifically mention cyber attacks. While there is no Data Protection Bill, there is a "Freedom of Information Act" of 2000 that specifies guidelines to safeguard confidentiality of information, and a section that discusses exemptions of releasing information that may affect the mental health of a person, but no regulations in case of health surveillance activities, and no information on cyber attacks [1]. There is no evidence of this on the Ministry of Health, the Central Laboratory Unit or the Statistical Institute of Belize [2,3,4]

[1] Law Revision Commissioner. December 2000. "Freedom of Information Act". <https://ombudsman.gov.bz/wp-content/uploads/2017/02/Freedom-of-Information-Act.pdf>. Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] Statistical Institute of Belize. [<http://sib.org.bz/>]. Accessed February 2021.

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 not enough evidence that Belize's government has 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 for one or more diseases.

A Caribbean Public Health Agency (CARPHA) presentation in 2014 proposed the development and implementation of a CARPHA public health information sharing agreement between CARPHA and its Member States, including Belize, to confront the fact that while the existing data sharing systems are functional, they are undocumented, and there are no recorded agreements that govern CARPHA sharing of country-reported data to stakeholders. The agreement was to document regional surveillance systems, outline best practices in terms of data storage and security for CARPHA regional databases, and detail guidelines for sharing of country-reported data by CARPHA. The proposed timeline was for 2015 [1]. However, there is no evidence that the agreement was created, and there is no evidence of such a commitment (or any other surveillance data sharing commitment) through the Ministry of Health, or the Central Laboratory Unit [2,3]

Also, there is a regional contingency plan in the face of COVID-19 as part of the System of Central American Integration (SICA). It is composed of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Belize and the Dominican Republic. However, there is no evidence of an agreement to share surveillance data during a public health emergency with other countries in the region. [4]

[1] Caribbean Public Health Agency (CARPHA). "CARPHA Data and Information Sharing Agreement: A Proposal." [http://carpha.org/Portals/0/docs/MEETINGS/Epid_LabDir/Crooks_CARPHA_Data_and_Information_Sharing_Agreement.pdf] . Accessed February 2021.

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[4] SICA. "Regional Contingency Plan". [<https://www.sica.int/coronavirus/plan>]. Accessed February 2021.

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 no publicly available 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.

Such evidence could not be found via the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [1,2] There is no further evidence in the Ministry of Health, the Ministry of Agriculture and the national laboratory. [3,4,5] There is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, none of them are related to the development of measures 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. [6]

[1] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[6] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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: 0

There is no publicly available 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) and medical attention.

There is no such evidence in the epidemiology section of the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [1,2] There is no further evidence in the Ministry of Health and the national laboratory. [3,4] There is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, none of them mention the provision of wraparound services to enable cases and suspected cases to self-isolate as recommended, particularly economic support (paycheck, job security) and medical attention.[5] Or in the website specifically dedicated to COVID-19. [6]

[1] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[5] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[6] COVID-19. [<https://www.covid19.bz/>]. Accessed February 2021.

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: 0

There is no publicly available 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 (such as the Ministry of Health, or similar). There is no such evidence in the Ministry of Health, the national laboratory or in the website specifically dedicated to COVID-19. [1,2,3]

[1] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[3] COVID-19. [<https://www.covid19.bz/>]. Accessed February 2021.

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: 0

There is no publicly available evidence that the country 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 or future public health emergency.

There is no such evidence in the Ministry of Health, the national laboratory or in the website specifically dedicated to COVID-19. [1,2,3] There is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, however, there is no evidence of a joint plan or cooperative agreement between the public health system and border control authorities. [4]

[1] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[3] COVID-19. [<https://www.covid19.bz/>]. Accessed February 2021.

[4] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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: 1

There is sufficient evidence to conclude that Belize has an applied epidemiology training program available in the country, but no evidence that resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs. The Ministry of Health has been conducting Field Epidemiology Training Programs in collaboration with the United States Centers for Disease Control (CDC) and Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), among others [1], and according to the latest article available on the Ministry of Health website, they are currently on their sixth cohort [2]. This information is confirmed in the TEPHINET website, mentioning that since "its inception in 2010, there have been a total of 53 graduates of the basic level, 11 of the intermediate level, and one from the advanced (MSc) level". [3]. The Caribbean Public Health Agency (CARPHA), of which Belize is a part of, runs the Caribbean Regional Field Epidemiology and Laboratory Training Programme (CR-FELTP). However, there is no mention of Belize having participated or sent citizens to the training program [4]. There is no mention of resources for sending citizens to an applied epidemiology training program in another country in the Ministry of Health website [5]. Belize is a member of RedSur, the network of Central and South American FETPs [6]

[1] Ministry of Health. "Ministry of Health conducts Field Epidemiology Training Program".

[<http://health.gov.bz/www/events/events/705-ministry-of-health-conducts-field-epidemiology-training-program>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. "Belize Field Epidemiology Training Program 2018".

[<http://health.gov.bz/www/component/content/article/91-health-information-system/962-belize-field-epidemiology-training-program-2018>]. Accessed February 2021. [link was functional at the time of research]

[3] Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET). "Belize Field Epidemiology Training Program". [<https://www.tephinet.org/training-programs/belize-field-epidemiology-training-program>]. Accessed February 2021.

[4] Caribbean Public Health Agency (CARPHA). "FELTP". [<http://carpha.org/feltp>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Centres for Disease Control and Prevention (CDC). "Field Epidemiology Training Program: Partners & Networks". [<https://www.cdc.gov/globalhealth/healthprotection/fetp/partners.html>]. Accessed February 2021.

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 not enough available evidence to conclude that available field epidemiology training programs are explicitly inclusive of animal health professionals. The Ministry of Health has been conducting Field Epidemiology Training Programs in collaboration with the "Training Programs in Epidemiology and Public Health Interventions Network" (TEPHINET) [1]. Although the "TEPHINET Member Programs" report does not list Belize under the countries that have received a FETPV training program, Belize's Field Epidemiology Training Program indicates in the area of work, veterinary medicine and zoonotic diseases [2,3]. There is no other relevant information on the Ministry of Health website [4]. Belize is a member of RedSur, the network of Central and South American FETPs [5]

[1] Ministry of Health. "Ministry of Health conducts Field Epidemiology Training Program".

[<http://health.gov.bz/www/events/events/705-ministry-of-health-conducts-field-epidemiology-training-program>]. Accessed February 2021. [link was functional at the time of research]

[2] Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET). October 2018 "TEPHINET Member Programs". [<https://www.tephinet.org/sites/tephinet/files/content/attachment/2018-11-05/TEPHINET%20Member%20Programs%20at%20a%20Glance.pdf>]. Accessed February 2021.

[3] TEPHINET. "Belize Field Epidemiology Training Program". [<https://www.tephinet.org/training-programs/belize-field-epidemiology-training-program>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Centres for Disease Control and Prevention (CDC). "Field Epidemiology Training Program: Partners & Networks". [<https://www.cdc.gov/globalhealth/healthprotection/fetp/partners.html>]. Accessed February 2021.

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: 1

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

There is evidence that Belize has an overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential, but the plan is not publicly available any longer. The 2007 "National Communicable Disease Surveillance Manual" works towards detection of communicable disease outbreaks for implementation of control measures and has a section called "Outbreak Alert and Response", where it provides guidelines in case of an outbreak, including investigation and management of an outbreak. The document also mentions under "Notifiable Diseases and Syndromes" that it deals with diseases that have pandemic potential, such as respiratory diseases [1]. Further information on the section called "Outbreak Alert and Response" could not be provided as the National Communicable Disease Surveillance Manual is no longer available online. The Disaster Preparedness and Response Act of 2000, which guides the National Emergency Management Organization, handles only natural disasters [2].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] National Emergency Management Organization. December 2000. Disaster Preparedness and Response Act. [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

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 publicly available evidence that the overarching plan which is in place in Belize has been updated in the last 3 years. There is no evidence that Belize's National Communicable Disease Surveillance Manual has been updated since it was published in 2007. The "National Communicable Disease Surveillance Manual", which covers diseases with pandemic potential, works towards detection of communicable disease outbreaks for implementation of control measures, and has a section called "Outbreak Alert and Response", where it provides guidelines in case of an outbreak, including investigation and management of an outbreak [1]. The only version of the document available on the website of the Ministry of Health is from 2007 [2]. No versions of the document are available through the National Emergency Management Organization [3].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual". [<http://health.gov.bz/www/publications/epidemiology-publications/270-national-communicable-diseases-surveillance-manual>]. Accessed February 2021. [link was functional at the time of research]

[2] National Emergency Management Organization. "Publications" [<http://site.nemo.org.bz/publications/>]. Accessed February 2021.

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 no publicly available evidence that the overarching plan which is in place include considerations for pediatric and/or other vulnerable populations. There is no such evidence in Belize's National Communicable Disease Surveillance Manual which has a short section called "Outbreak Alert and Response", that does not mention any work with paediatric and other vulnerable populations during the investigation and management of an outbreak [1]. There is no relevant information on the Ministry of Health or the National Emergency Management Organization websites [2,3].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[2] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

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 no evidence that Belize has a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. The "National Communicable Disease Surveillance Manual" section on "Outbreak Alert and Response" does not mention any guidelines for involving the private sector in case of an outbreak [1]. The Disaster Preparedness and Response Act of 2000 barely suggests voluntary cooperation of the private sector in cases of disasters, but no mechanism. Additionally, the Act refers to natural disasters only [2]. There is no relevant information on the Ministry of Health or the National Emergency Management Organization websites [3,4]. Finally, there is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, none of them are related to a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. [5]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] National Emergency Management Organization. December 2000. Disaster Preparedness and Response Act. [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

[5] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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: 0

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

The webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis mentions some NPIs, such as the closure of some places or social distancing measures; however, it is not a comprehensive plan around NPIs. [1] There is also a regional contingency plan in the face of COVID-19 as part of the System of Central American Integration (SICA). However, there is no mention of a comprehensive NPIs programme. [2] There is no further mention in the National Emergency Management Organization websites, the "National Communicable Disease Surveillance Manual" of 2007, in the section of the Ministry of Health or in Belize's Health Sector Strategic Plan 2014-2024 [3,4,5,6] There is no further evidence in the Ministry of Health or in the national laboratory. [7,8]

[1] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[2] SICA. "Regional Contingency Plan". [<https://www.sica.int/coronavirus/plan>]. Accessed February 2021.

- [3] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.
- [4] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].
- [5] Ministry of Health. "Epidemiology". [<http://www.health.gov.bz/www/publications/epidemiology-publications>]. Accessed February 2021. [link was functional at the time of research]
- [6] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]
- [7] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [8] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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: 0

There is insufficient publicly available evidence that the country has activated a national emergency response plan for an infectious disease outbreak in the past year or that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year.

Belize does not appear on the World Health Organization's (WHO) list of national-level biological threat-focused exercise (either with WHO or separately) and there is no indication of such exercises on the WHO country and regional page (PAHO). [1,2] There is also no indication of such exercise on the Ministry of Health or the National Emergency Management Organization websites [3,4].

On the other hand, there is no evidence that the country has activated its national emergency response plan for an infectious disease outbreak in the past year. In the midst of the COVID-19 crisis, Belize issued decrees and measures but there is no evidence that it activated its national emergency response plan. [5] There is only one decree announcing a state of emergency in a particular region in Belize. [6] There are no further evidence on the Ministry of Health or the National Emergency Management Organization websites [3,4].

[1] World Health Organization (WHO). "Simulation Exercise". [<https://extranet.who.int/sph/simulation-exercise?region=All&country=246>]. Accessed February 2021.

[2] Pan American Health Organization / World Health Organization (WHO) - Regional Office for the Americas. [<https://www.paho.org/hq/index.php?lang=en>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

[5] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[6] Belize Press Office. "State of Emergency Declared for Ambergris Caye".

[<https://twitter.com/quesnelc/status/1242176963609014288/photo/1>]. Accessed February 2021.

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 has, in the past year, 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. Belize does not appear on the World Health Organization's (WHO) list of after action reviews, and there is no indication of an after action review on the WHO country and regional page (PAHO). [1, 2] There is also no indication of an after action review or a biological threat-focused IHR on the Ministry of Health or the National Emergency Management Organization websites [3,4]

[1] World Health Organization (WHO). "Strategic Partnership for International Health Regulations (2005) and Health Security (SPH) - After Action Review". [<https://extranet.who.int/sph/after-action-review>]. Accessed February 2021.

[2] Pan American Health Organization / World Health Organization (WHO) - Regional Office for the Americas. [<https://www.paho.org/hq/index.php?lang=en>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

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 publicly available evidence that the country in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives. There is no such evidence on the website of the World Health Organization's (WHO) list of after action reviews, and there is no indication of an after action review on the WHO country and regional page (PAHO). [1, 2] Nor is there evidence in the Ministry of Health, the National Emergency Management Organization or the Ministry of Agriculture [3,4,5]. Finally, there is no such evidence in the simulation exercise

page of the WHO. [6]

[1] World Health Organization (WHO). "Strategic Partnership for International Health Regulations (2005) and Health Security (SPH) - After Action Review". [<https://extranet.who.int/sph/after-action-review>]. Accessed February 2021.

[2] Pan American Health Organization / World Health Organization (WHO) - Regional Office for the Americas. [<https://www.paho.org/hq/index.php?lang=en>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

[5] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[6] World Health Organization (WHO). "Simulation Exercise". [<https://extranet.who.int/sph/simulation-exercise?region=All&country=246>]. Accessed February 2021.

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

While there is public evidence that the country has in place an Emergency Operations Center, there is no evidence that its work includes health-specific emergencies. The National Emergency Management Organization (NEMO) has Emergency Operations Centers that "are established to serve as 24-hour coordination centers", with staff capable of managing various aspects of an emergency including response and relief operations. However, NEMO's work concentrates only on natural disasters management, not mentioning health-related emergencies [1]. The Disaster Preparedness and Response Act of 2000, which guides the National Emergency Management Organization, handles only natural disasters [2]. The WHO website mentions only disasters-related reports in the case of Belize, but no relevant information on health-related disasters [3]. There is no further evidence in the Ministry of Health or in the National Emergency Management Organization [4,5].

[1] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[2] National Emergency Management Organization. December 2000. Disaster Preparedness and Response Act. [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[3] Pan-American Health Organization. "Belize Situation Report - 23 August". [https://www.paho.org/disasters/index.php?option=com_content&view=article&id=878:belize-situation-report-23-august&Itemid=909&lang=es]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] National Emergency Management Organization. [<http://site.nemo.org.bz/>]. Accessed February 2021.

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 insufficient public evidence to confirm that Belize's Emergency Operations Centers, housed within the National Emergency Management Organization (NEMO), is required to conduct a drill at least once a year or that it has this requirement.

The Disaster Preparedness and Response Act of 2000, which guides NEMO's work, only mentions drills for shelters operators in cases of disasters not involving health-related emergencies [1]. The "This is NEMO" section does not mention anything on drills or simulations, and pertains only to natural disasters [2]. There is also no relevant information on drills or simulations in the "Public service Regulations Governing Participation in Disaster Management" document [3], or the "Belize National Hazard Management Plan" [4]. NEMO does not list an annual report under its publications [5]. There is no relevant information on the Ministry of Health website [6]. The WHO website mentions only disasters-related reports in the case of Belize, but no relevant information on health-related disasters [7].

[1] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[2] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[3] National Emergency Management Organization. "Public service Regulations Governing Participation in Disaster Management". [http://site.nemo.org.bz/wp-content/publications/Disaster_Management_Regulations.pdf]. Accessed February 2021.

[4] National Emergency Management Organization. "Belize National Hazard Management Plan" [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[5] National Emergency Management Organization. "Publications" [<http://site.nemo.org.bz/publications>]. Accessed February 2021.

[6] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[7] Pan-American Health Organization. "Belize Situation Report - 23 August". [https://www.paho.org/disasters/index.php?option=com_content&view=article&id=878:belize-situation-report-23-august&Itemid=909&lang=es]. Accessed February 2021.

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 public evidence to show that Belize's Emergency Operations Centers can conduct, or has conducted within the last year, coordinated emergency response or emergency response exercise activated within 120 minutes of the

identification of the public health emergency/scenario. The 2007 "National Communicable Disease Surveillance Manual" section on "Outbreak Alert and Response" does not mention any emergency response exercise after the identification of a public health emergency or scenario [1]. The "Disaster Preparedness and Response Act of 2000", the "Belize National Hazard Management Plan" published in 2003 and the "Relief and Supplies Management Committee Operational Plan" [unknown date of publication] mention the importance of response in a timely manner, but none has any evidence of requiring the EOC or NEMO to conduct a coordinated emergency response or exercise within a timeframe of fewer than 120 minutes [2,3,4]. The "This is NEMO" section does not mention anything on emergency response exercises and only concentrates on natural disasters management, not mentioning health-related emergencies [5]. None of NEMO's publications provide any information on the issue [6]. There is no relevant information on the Ministry of Health website [7]. The WHO website mentions only disasters-related reports in the case of Belize, but no relevant information on health-related disasters [8].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[3] National Emergency Management Organization. "Belize National Hazard Management Plan". 2003 [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[4] National Emergency Management Organization. "Relief and Supplies Management Committee Operational Plan" [http://site.nemo.org.bz/wp-content/publications/Relief_and_Supplies_Management_Plan.pdf]. Accessed February 2021.

[5] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[6] National Emergency Management Organization. "Publications" [<http://site.nemo.org.bz/publications>]. Accessed February 2021.

[7] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[8] Pan-American Health Organization. "Belize Situation Report - 23 August". [https://www.paho.org/disasters/index.php?option=com_content&view=article&id=878:belize-situation-report-23-august&Itemid=909&lang=es]. Accessed February 2021.

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 evidence that Belize's public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event, nor are there publicly available standard operating procedures, guidelines, or agreements between those entities regarding such events. There is no publicly available Biological Weapons legislation, but only a "Chemical Weapons (Prohibition) Act" of 2011, which only records prohibition to the use of chemical weapons but no actions to respond to a deliberate event [1]. The "War Material Act" of December 2000 does not deal with exercises to respond to a potential deliberate biological event [2], and neither do all of Belize' laws listed on the VERTIC Biological Weapons Convention Legislation Database [3]. There is no mention of SOPs in the event of deliberate biological events in the "Disaster Preparedness and Response Act of 2000" published in 2003 [4] or in the "Belize National Hazard Management Plan" published in 2003 [5]. Neither the website of the Ministry of Health or the National Emergency Management Organization provides any relevant information [6,7].

[1] Belize Judiciary. December 2011. "Chemical Weapons (Prohibition) Act".

[[http://www.belizejudiciary.org/download/LAWS%20of%20Belize%20rev2011/Law%20s%20Update%202011/Data/VOLUME%202/Cap%2021.02%20%20Chemical%20Weapons%20\(Prohibition\)%20Act.pdf](http://www.belizejudiciary.org/download/LAWS%20of%20Belize%20rev2011/Law%20s%20Update%202011/Data/VOLUME%202/Cap%2021.02%20%20Chemical%20Weapons%20(Prohibition)%20Act.pdf)]. Accessed February 2021

[2] Belize Law. December 2000. "War Material Act" [<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap146.pdf>]. Accessed February 2021

[3] VERTIC. "Biological Weapons Convention Legislation Database".

[<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/b.php>]. Accessed February 2021

[4] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act".

[http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[5] National Emergency Management Organization. "Belize National Hazard Management Plan".

2003[http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[6] National Emergency Management Organization. [<http://site.nemo.org.bz>]. Accessed February 2021.

[7] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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 no public evidence Belize has in place a risk communication plan that is specifically intended for use during a public health emergency and which outlines how messages will reach populations and sectors with different communications needs. The 2007 "National Communicable Disease Surveillance Manual" section on "Outbreak Alert and Response", has no risk communication plan beyond mentioning the importance of being aware of having communication available when arriving on the field of a public health emergency [1]. Neither the "Disaster Preparedness and Response Act of 2000", or the "Belize National Hazard Management Plan" published in 2003 provide any detailed risk communication plans, and none deal with public health emergencies [2,3]. There is no relevant information on the Ministry of Health website [4], and the National

Emergency Management Organization does not handle public health emergencies [5].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[3] National Emergency Management Organization. "Belize National Hazard Management Plan". 2003 [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

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 no public evidence Belize has in place a risk communication plan that is specifically intended for use during a public health emergency. The 2007 "National Communicable Disease Surveillance Manual" section on "Outbreak Alert and Response", has no risk communication plan beyond mentioning the importance of being aware of having communication available when arriving on the field of a public health emergency [1]. Neither the "Disaster Preparedness and Response Act of 2000", or the "Belize National Hazard Management Plan" published in 2003 provide any detailed risk communication plans, and none deal with public health emergencies [2,3]. There is no relevant information on the Ministry of Health website [4], and the National Emergency Management Organization does not handle public health emergencies [5].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[3] National Emergency Management Organization. "Belize National Hazard Management Plan". 2003 [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

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 publicly available evidence that 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. The Health Sector Strategic Plan 2014-2024 and the 2007 "National Communicable Disease Surveillance Manual" do not mention such a specific position within the government nor does any of the decrees that were issued by Belize in the midst of the coronavirus crisis. [1,2,3] There is no further evidence in the Ministry of Health and the national laboratory. [4,5]

[1] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[3] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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: 1

There is evidence that the government has the capacity to use social media platforms to inform the public about public health emergencies. However, public health system shares information only during active emergencies, but does not regularly utilize online media platforms. In the midst of the COVID-19, the Government of Belize Press Office Facebook page shares daily posts on the situation of COVID-19. [1] In 2016, the Government of Belize Press Office posted in Facebook several Ministry Of Health's press releases warning the public about the Zika situation in the country, as cases of Zika went to be confirmed [2,3]. The Ministry of Health also released information on their government website confirming cases of Zika in the country [4,5], and last year The Ministry of Health advised on the presence of measles in the region (namely in Guatemala), urging to take precautions [6]. The Ministry of Health does not appear to have a Twitter page, and the National

Emergency Management Organization does not handle public health emergencies [7]

- [1] Facebook. "Government of Belize Press Office".
[<https://www.facebook.com/login/?next=https%3A%2F%2Fwww.facebook.com%2FGOBPressOffice%2F>]. Accessed February 2021.
- [2] Government of Belize Press Office. 5 May 2016. "Press Release # 3 – Zika Situation in Belize"
[<https://www.facebook.com/GOBPressOffice/photos/press-release-3-zika-situation-in-belizebelmopan-may-5-2016-the-ministry-of-heal/999093663459470/>]. Accessed February 2021.
- [3] Government of Belize Press Office. 20 June 2016. "PRESS RELEASE - Ministry of Health Continues to Caution Public as new Zika Cases Emerge"
[<https://www.facebook.com/GOBPressOffice/photos/a.150654578303387/1025338440834992/?type=1&theater>]. Accessed February 2021.
- [4] The Ministry of Health. April 7 2016. "Centers for Disease Control Says Zika Case Detected in the United States Links to Belize" [<http://health.gov.bz/www/component/content/article/177-general-health/874-centers-for-disease-control-says-zika-case-detected-in-the-united-states-links-to-belize>]. Accessed February 2021. [link was functional at the time of research].
- [5] Ministry of Health. 16 May 2016. "Belize confirms first case of Zika"
[<http://health.gov.bz/www/component/content/article/177-general-health/885-belize-confirms-first-case-of-zika>]. Accessed February 2021.
- [6] Ministry of Health. 29 January 2018. "The Ministry of Health advises on the present Measles Situation in Central America and the Caribbean" [<http://health.gov.bz/www/component/content/article/177-general-health/968-the-ministry-of-health-advises-on-the-present-measles-situation-in-central-america-and-the-caribbean>]. Accessed February 2021. [link was functional at the time of research]
- [7] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

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 publicly available evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases (in the past two years). Evidence of misinformation or disinformation on infectious diseases could not be found on the website of the Ministry of Health or in the national laboratory or in any of the main newspapers of the country, such as Belize News and Amandala. (1,2,3,4)

- [1] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [2] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [3] Belize News. [<http://belizenews.com/>]. Accessed February 2021.
- [4] Amandala.
[<https://amandala.com.bz/news/#:~:text=Amandala%20Newspaper%20%7C%20%22Belize's%20Leading%20Newspaper%22>]. Accessed February 2021.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 47.08

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: 65.3

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

There is no publicly available evidence that In the past year, the country has 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. There is no such evidence in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, further evidence in the Ministry of Health, the Ministry of Agriculture, the national laboratory or the Ministry of Foreign Affairs, Foreign Trade and Immigration or in the Belize News and Amandala newspapers.

[1,2,3,4,5,6,7]

[1] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[2] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021

[3] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[4] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

[5] Ministry of Foreign Affairs, Foreign Trade and Immigration. [<https://mfa.gov.bz/>]. Accessed February 2021.

[6] Belize News. [<http://belizenews.com/>]. Accessed February 2021.

[7] Amandala.

[<https://amandala.com.bz/news/#:~:text=Amandala%20Newspaper%20%7C%20%22Belize's%20Leading%20Newspaper%22>]. Accessed February 2021.

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

There is no publicly available evidence that, in the past year, Belize has 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. There is no evidence of restrictions in 2019 in the BAHA website, the WHO Disease Outbreak News site reports, in the Ministry of Health, the Ministry of Agriculture, the national laboratory, the Ministry of Foreign Affairs, Foreign Trade and Immigration or in the Belize News and Amandala newspapers or in a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [1,2,3,4,5,6,7,8,9] There is only evidence that the 27th of November of 2018, the Belize Agriculture Health Authority (BAHA) released a statement to temporarily prohibit import of romaine lettuce from the USA and Canada, based

on a health alert from the United States Centre for Disease Control regarding an outbreak of Shiga toxin-producing *Escherichia coli* [10].

- [1] Belize Agriculture Health Authority. [<http://baha.org.bz>]. Accessed February 2021.
- [2] World Health Organisation (WHO). "Disease Outbreak News: Belize". [<https://www.who.int/csr/don/archive/country/blz/en/>]. Accessed February 2021.
- [3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]
- [4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [6] Ministry of Foreign Affairs, Foreign Trade and Immigration. [<https://mfa.gov.bz/>]. Accessed February 2021.
- [7] Belize News. [<http://belizenews.com/>]. Accessed February 2021.
- [8] Amandala. [<https://amandala.com.bz/news/#:~:text=Amandala%20Newspaper%20%7C%20%22Belize's%20Leading%20Newspaper%22>]. Accessed February 2021.
- [9] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.
- [10] Belize Agriculture Health Authority. 23 November 2018. "Belize Position on Outbreak of *E. coli* Infections Linked to Romaine Lettuce". [<http://baha.org.bz/2018/11/27/belize-position-on-outbreak-of-e-coli-infections-linked-to-romaine-lettuce/>]. Accessed February 2021.

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

There is publicly available evidence that, in the past year, 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 Belize, from April to June, the county completely closed its borders to travelers, and only cargo and emergency flights were permitted to enter the country. [1]

- [1] WorldAware. April 30. "COVID-19 Alert: Belize Modifies Restrictions April 30, to Remain Through June 30". [<https://www.worldaware.com/covid-19-alert-belize-modifies-restrictions-april-30-remain-through-june-30>]. Accessed February 2021.

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: 112.29

2017

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 234.14

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: 1

There is sufficient evidence that Belize has a public workforce strategy in place (which has been updated in the past five years) to identify fields where there are an insufficient workforce and strategies to address these shortcomings.

The recently released "Belize Human Resources for Universal Health Strategic Plan 2019-2024" addresses the shortcomings of not only health staff in general, but also the public health workforce including public health nurses, public health inspectors, health educators, community health workers, among others. It provides data on shortages and corresponding strategies to address shortcomings in the four-defined health sectors of the country. Objective 1 aims to strengthen leadership and consolidate governance in human resources for health, by investing in the leadership and management capacity at all levels of the MOH and in public health facilities. Objective 2 aims to develop capacities in human resources, while objective 3 aims at increasing investment on the matter. Overall, this plan establishes a roadmap to ensure that health

workers have the right profile and competencies; are available where and when they are needed; and are motivated to provide quality care. The plan for Belize highlights inequalities in the availability, distribution and quality of health workers. [1].

This is the only plan which is up-to-date that addresses the public health workforce. The "Belize Health Sector Strategic Plan 2014-2024" lists a series of shortages of health staff (including specialized doctors, nurses and health care providers) and broad strategies to address these shortages, but none directed towards public health officials. Additionally, the document dates back from 2014 and hasn't been updated ever since [2].

The 2007 "National Communicable Disease Surveillance Manual" faces the same issue of not having been updated in the past five years, and does not address shortages of the public workforce [3]. The 2017 "Belize Country Cooperation Strategy 2017-2021", while being up-to-date, addresses only the shortages of health care professionals (health staff) and not the public health workforce [4].

[1] Ministry of Health. "Belize Human Resources for Universal Health Strategic Plan 2019-2024". [http://health.gov.bz/www/attachments/article/982/BELIZE%20HUMAN%20RESOURCES%20FOR%20UNIVERSAL%20HEALTH%20STRATEGIC%20PLAN%202019-2024.pdf]. Accessed February 2021. [link was functional at the time of research]

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf]. Accessed February 2021. [link was functional at the time of the research].

[3] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf]. February 2021. [link was functional at the time of research].

[4] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 104

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 insufficient evidence to confirm that Belize 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. The 2007 "National Communicable Disease Surveillance Manual", the principle document in matters of communicable diseases in Belize, mentions containment of infections under its "Four Goals of Emergency Activities in Outbreak Control". However, it does not provide detail on how to contain diseases beyond mentioning the need to prevent further spread of infection and does not mention anything on isolation units [1]. Both the "Belize Health Sector Strategic Plan 2014-2024" and the "Belize Country Cooperation Strategy 2017-2021", while discussing communicable diseases, has no strategies dealing with isolating patients [2,3]. Neither the Ministry of Health website nor the three biggest hospitals in the country provide any information on biocontainment, biosafety labs or isolation units [4,5,6,7]. There is also no evidence in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8] Finally, there is evidence of isolation units during covid-19 times in the Werstern Regional Hospital and the Central Health Region. [9,10]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2]. Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] Ministry of Health. [<http://health.gov.bz/>]. Accessed February 2021. [link was functional at the time of research]

[5] Karl Heusner Memorial Hospital Authority. [<https://www.khnh.bz/>]. Accessed February 2021.

[6] Western Health Region Hospital. [<http://www.health.gov.bz/whr/>]. Accessed February 2021.

[7] Southern Regional Hospital. [http://shr.health.gov.bz/index.php?option=com_content&view=article&id=22&Itemid=34]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

[9] United Nations Belize. May 2020. "Coronavirus Disease - COVID 19 Situation Note No.4" [<https://reliefweb.int/sites/reliefweb.int/files/resources/COVID%2019%20Situation%20Report%20No%204%20BELIZE%20Final.pdf>]. Accessed March 2021.

[10] Research Square. "Containing Coronavirus Disease 2019 (COVID-19) in Belize". [<https://assets.researchsquare.com/files/rs-32462/v1/75e13748-6c09-4f18-a1d8-52cd453c7ae4.pdf>]. Accessed March 2021.

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: 0

There is no publicly available evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years or 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. Such evidence could not be found in the National Emergency Management Organization (NEMO), the "Belize National Hazard Management Plan" or in Belize's Health Sector Strategic Plan 2014-2024 [1,2,3] There is no further evidence in the Ministry of Health or in the national laboratory. [4,5]

[1] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[2] National Emergency Management Organization. "Belize National Hazard Management Plan" [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[3] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 publicly available evidence that there is 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.

Belize has national procurement protocols in place. The 2011 Revised Edition of the "Finance and Audit (Reform)" governs in matters of "Government Procurement and Sale Contracts". While these regulations do not specifically deal with or mention the Ministries of Public Health and Agriculture, nor does it mention procurement of laboratory equipment or medical supplies, they serve as the governing regulations for all public procurement in Belize and mention that all contracts may be lawfully signed by a Minister or Permanent Representative, in between other actors [1]. There is a Supreme Audit Institution of Belize that holds the government (Ministries, Departments, and Statutory Bodies) accountable for its stewardship of public funds [2]. The "Licensing & Accreditation Unit Strategic Plan 2009 - 2011" of the Ministry of Health's Regulatory unit establishes a plan to "develop policies to support procurement and utilization of medical equipment", but none of these policies are publicly available, nor does the plan mentions procurement of lab equipment or medical supplies [3]. Also, there

is evidence of a Limited Tendering Procedure which is being used in case of emergencies and for protection of public health. However, for this procedure there is not a specific measures of laboratory and medical supplies. [4,5] There is no further information on the Ministry of Agriculture or the Central Unit Laboratory websites [6,7]

[1] The Supreme Audit Institution of Belize. December 2011. "Finance and Audit (Reform)". [<https://www.audit.gov.bz/wp-content/uploads/2018/08/Finance-and-Audit-Reform-Act.pdf>]. Accessed February 2021

[2] The Supreme Audit Institution of Belize. [<https://www.audit.gov.bz/>]. Accessed February 2021

[3] Ministry of Health. Regulatory Unit. "Licensing & Accreditation Unit Strategic Plan 2009 - 2011".

[<http://health.gov.bz/www/plan-2009-2011ru>]. Accessed February 2021. [link was functional at the time of research]

[4] Belize Government. "Questionnaire on the provisions of the Inter-American convention against corruption selected in the second round and for follow-up on the recommendations formulated in the first round - Meeting of the Mesicic".

[http://www.oas.org/juridico/spanish/mesicic2_blz_resp_en.pdf]. Accessed February 2021.

[5] Government of Belize. 2012. "Public Procurement Procedures Handbook".

[http://www.oas.org/juridico/PDFs/mesicic5_blz_annex27.pdf]. Accessed February 2021.

[6] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[7] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 to conclude that Belize maintains a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency.

The 2007 "National Communicable Disease Surveillance Manual", the only document with emergency response in case of a public health outbreak, does not mention a stockpile of medical supplies for national use during a public health emergency [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 Belize Country Cooperation Strategy 2017-2021, and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to a stockpile of medical supplies for national use during a public health emergency [2,3,4]. There is no relevant information on the Ministry of Health and the Ministry of National Security websites [5,6], or on the National Emergency Management Organization, since NEMO does not handle public health emergencies [7]. Nor is there in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country

Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] The Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[7] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 to conclude that Belize maintains a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency. The 2007 "National Communicable Disease Surveillance Manual", the only document with emergency response in case of a public health outbreak, does not mention a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 Belize Country Cooperation Strategy 2017-2021, and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency [2,3,4]. There is no relevant information on the Ministry of Health and the Ministry of National Security websites [5,6], or on the National Emergency Management Organization, since NEMO does not handle public health emergencies [7]. Nor is there in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] The Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[7] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 publicly available 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. Such evidence could not be found in the National Emergency Management Organization (NEMO), the "Belize National Hazard Management Plan" or in Belize's Health Sector Strategic Plan 2014-2024 [1,2,3] There is no further evidence in the Ministry of Health or in the national laboratory. [4,5]

[1] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[2] National Emergency Management Organization. "Belize National Hazard Management Plan"[http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.

[3] Ministry of Health. 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://www.archive.healthycaribbean.org/newsletters/may-2014/Belize-Health-Sector-Strategic-Plan-2014-2024-April-2014.pdf>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 insufficient evidence that Belize has published 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, or a plan/mechanism to procure medical supplies.

The 2007 "National Communicable Disease Surveillance Manual", the most relevant document with a section on emergency response in case of a public health emergencies, only mentions that Personal Protective Equipment should be decided upon in preparation for fieldwork during an outbreak investigation and response, but has no strategy to address PPE supply issues. It has no mention of medical countermeasures for national use [1]. The 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" mentions only that "laboratory personnel operates with appropriate safety equipment and safeguards for personal protection", but no strategy for PPE [2]. Neither the "Belize Health Sector Strategic Plan 2014-2024" or the 2017 "Belize Country Cooperation Strategy 2017-2021" mention personal protective equipment, including for routine use or refer to the capacity to produce or procure medical countermeasures [3,4]. There is no relevant information on the Ministry of Health website [5], or on the National Emergency Management Organization and the 2000 "Disaster Preparedness and Response Act", since NEMO does not handle public health emergencies [6,7]. A webpage on the public procurement in response to covid-19 mentions that one of the measures for approaching the private sector and civil society was the " procurement of equipment [ventilators, PPEs] provided by the private sector, following the guidelines stated by the Ministry of Health, which also recommends Direct Payment to the Supplier". However, no evidence of a plan/agreement could be found. [8] Finally, there is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, but there are no reference made to such a plan/agreement. [9]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[3] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[4] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[7] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[8] Inter-American Network on Government Procurement. "Public procurement in response to covid-19". [<http://ricg.org/en/special-section/>]. Accessed February 2021.

[9] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 insufficient evidence to conclude that Belize has a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency or a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency. The 2007 "National Communicable Disease Surveillance Manual", the only document with emergency response in case of a public health outbreak, has no mention of laboratory supplies for national use to mitigate and stop the effect of an emerging disease [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to laboratory supplies [2,3,4]. There is no relevant information on the Ministry of Health and the Ministry of National Security websites [5,6], or on the National Emergency Management Organization, since NEMO does not handle public health emergencies [7]. Finally, there is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, but there are no reference made to such a plan/agreement. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] The Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[7] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 no evidence that a plan, program, or guidelines is in place for dispensing medical countermeasures (MCMs) for national use during a public health emergency. The 2007 "National Communicable Disease Surveillance Manual", the document with a section on emergency response in case of a public health outbreak, has no mention of dispensing medical countermeasures for national use to mitigate and stop the effect of an emerging disease [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to dispensing medical countermeasures [2,3,4]. There is no relevant information on the Ministry of Health and the Ministry of National Security websites [5,6], or on the National Emergency Management Organization, since NEMO does not handle public health emergencies [7]. Finally, there is a webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis, but there are no reference made to the dispensing medical countermeasures (MCMs). [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] The Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[7] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 public plan in place to receive health personnel from other countries to respond to a public health emergency. However there are mentions of regional organizations, of which Belize is a member State, that can assist during a public health emergency. The Caribbean Public Health Agency (CARPHA), in accordance with the Inter-Governmental Agreement (IGA), is mandated to respond to emergencies, including pandemics, in Member States [1], and so does the Caribbean Disaster Emergency Management Agency's (CDEMA), which can deploy health specialists by a Rapid Needs Assessment Team (RNAT) during an emergency [2]. This happened in 2017 after Hurricane Maria left disastrous consequences in Dominica. Both CARPHA and CDEMA assisted in the event [3]. However, neither CARPHA or CDEMA provide detail on a plan to facilitate the arrival and movement of foreign personnel during an emergency, and neither do the institutions in Belize. There is no mention on facilities for receiving foreign health personnel during an emergency on the 2007 "National Communicable Disease Surveillance Manual", or the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to medical countermeasures [4,5]. There is no relevant information on the Ministry of Health and the Ministry of National Security websites [6,7], or on the National Emergency Management Organization and the 2000 "Disaster Preparedness and Response Act", since NEMO does not handle public health emergencies [8,9]. No mention of such a plan is available in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [10]

[1] Caribbean Public Health Agency (CARPHA). "Agreement Establishing the Caribbean Public Health Agency (CARPHA)".

[http://carpha.org/Portals/0/docs/CARPHA_IGA.pdf]. Accessed February 2021.

[2] Caribbean Disaster Emergency Management Agency's (CDEMA). 2016. "Regional Response Mechanism".

[https://www.cdema.org/RRM_Booklet_Final_PDF_version.pdf]. Accessed February 2021.

[3] CARICOM Today. 25 September 2017. "CARPHA ready to assist Dominica".

[<https://today.caricom.org/2017/09/21/carpha-ready-to-assist-dominica/>]. Accessed February 2021.

[4] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[5] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[6] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[7] The Ministry of National Security. [<https://mns.gov.bz/>]. Accessed February 2021.

[8] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[9] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[10] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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: 0

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 96.8

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: 116.19

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 evidence of legislation, policies, or public statements regarding prioritized health care services to healthcare workers who become sick as a result of responding to a public health emergency. The 2007 "National Communicable Disease Surveillance Manual", the most relevant document with an emergency response section in case of a public health emergencies, has no mention of prioritizing health care services to healthcare workers who become sick responding to an emergency [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" have such a policy [2,3,4]. There is no relevant information on the Ministry of Health website [5], or on the National Emergency Management Organization and the 2000 "Disaster Preparedness and Response Act", since NEMO does not handle public health emergencies [6,7]. No mention of such a legislation, a policy, or a public statement is available in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org/bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[7] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org/bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize". [<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 no evidence that there is a system in place for public health officials and healthcare workers to communicate during a public health emergency in Belize. The 2007 "National Communicable Disease Surveillance Manual", the most relevant document with a section on emergency response in case of public health emergencies, has no mention of a system in place for facilitating communication for public health officials during an emergency. [1]

None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" have such a system [2,3,4]. There is no relevant information on the Ministry of Health website [5], or on the National Emergency Management Organization and the 2000 "Disaster Preparedness and Response Act", since NEMO does not handle public health emergencies [6,7]. Finally, there is no mention of such a system in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org/bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[7] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org/bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 no evidence that there is a system in place for public health officials and healthcare workers to communicate during a public health emergency in Belize. Thus there is no evidence of a system that encompasses healthcare workers in both the public and the private sector.

The 2007 "National Communicable Disease Surveillance Manual", the most relevant document with a section on emergency response in case of a public health emergencies, has no mention of a system in place for facilitating communication for public health officials during an emergency. Prioritizing health care services to healthcare workers who become sick responding to an emergency [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" have such a system [2,3,4]. There is no relevant information on the Ministry of Health website [5], or on the National Emergency Management Organization and the 2000 "Disaster Preparedness and Response Act", since NEMO does not handle public health emergencies [6,7]. Finally, there is no mention of such a system in the webpage of decrees and measures adopted by Belize in the midst of the coronavirus crisis. [8]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDsurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

[7] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.

[8] Regional Observatory SICA-COVID19. "Decrees and Measures adopted by Belize".

[<https://www.sica.int/coronavirus/observatorioSICACOVID19/medidas/belize>]. Accessed February 2021.

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 evidence that Belize's public health system monitors for and tracks the number of health care-associated infections (HCAIs) that take place in healthcare facilities. The 2013 "Recommendations for Infection Prevention and Outbreak Control" on the Karl Heusner Memorial Hospital explicitly mentions that "there is no knowledge of rates of healthcare-acquired infections (HAIs) being reported by the hospital". The report provides a series of guidelines to prevent infections [1]. There is no mention on HCAIs on the "Belize Health Sector Strategic Plan 2014-2024" or the 2017 "Belize Country Cooperation Strategy 2017-2021" [2,3]. There is no relevant information on the Ministry of Health or the Central Laboratory Unit websites [4,5].

[1] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. 17 June 2013. "Recommendations for Infection Prevention and Outbreak Control" [<http://edition.channel5belize.com/wp-content/uploads/2013/06/PAHO-Report.pdf>]. Accessed February 2021

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]

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 no evidence that Belize has a national requirement for ethical review (e.g. from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial. Neither the 2000 "Medical Practitioners' Registration Act" or the 2003 "Medical Service and Institutions Act" have any mentions on human-subject medical trials [1,2]. There is neither mention on this on the "Belize Health Sector Strategic Plan 2014-2024" or the 2017 "Belize Country Cooperation Strategy 2017-2021" [3,4]. There is no relevant information on the Ministry of Health website [5]. There are mentions on recruitment for International Clinical Trials in Belize on the World Health Organization, but no information on a requirement for ethical review is given [6]

[1] Belize Law. 31 December 2000. "Medical Practitioners' Registration Act".

[<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap318.pdf>].

[2] Belize Law. 31 October 2003. "Medical Service and Institutions Act".

[<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap039s.pdf>]

[3] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[4] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] World Health Organisation. "International Clinical Trials Registry Platform". [<http://apps.who.int/trialsearch/default.aspx>]. Accessed February 2021.

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 evidence of an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics since there is no strategy for medical countermeasures or guidelines for clinical trials. The 2007 "National Communicable Disease Surveillance Manual", a document with a section on emergency response in case of a public health outbreak, has no mention of medical countermeasures or clinical trials [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to medical countermeasures or clinical trials [2,3,4]. There is no relevant information on the Ministry of Health, or on the National Emergency Management Organization since NEMO does not handle public health emergencies [5,6].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance

Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.

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: 0

There is no evidence of a government agency responsible for approving new medical countermeasures for humans since there is no strategy for medical countermeasures. The "Food and Drugs Act" of 2000 has no reference to medical countermeasures or to a regulatory agency, besides local authorities or authorized officers, that regulates, approves, or licenses new drugs and medication for human use [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", the 2007 "National Communicable Disease Surveillance Manual", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to an agency of the sort [2,3,4,5]. The Ministry of Health website provides some information on regulations for importing pharmaceuticals, stating that this process is governed by the Competent Authority of Belize, the Director of Health Services of the Ministry of Health, but no information of the existence of an agency for regulation besides importing drugs is mentioned [6]. The Health Research for Action assessment on drug registration in CARICOM countries states that some regulatory functions, such as inspection and taking food and drug samples for analysis, are delegated to authorized officers and local authorities assigned by the Minister responsible for health, but no reference to a specific agency. It also mentions that laws are not comprehensive enough to provide for all the key regulatory functions [7]. There is no mention of such an agency on the World Health Organization list of identified websites of Medicine Regulatory Authorities [8].

[1] Belize Law. December 2000. "Food and Drugs Act". [<http://www.belizelaw.org/web/lawadmin/PDF%20files/cap291.pdf>] Accessed February 2021.

[2] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[3] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024->

April%202014.pdf]. Accessed February 2021. [link was functional at the time of the research].

[4] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[5] The Ministry of Health. Epidemiology Unit. March 2009. "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[6] Ministry of Health. "Procedures for Importing Pharmaceuticals". [http://health.gov.bz/www/phardocs/procedures-for-importing-pharmaceuticals]. Accessed February 2021. [link was functional at the time of research]

[7] Health Research for Action. July 2009. "Regional Assessment of Drug Registration and Regulatory Systems in CARICOM Member States and the Dominican Republic". [http://apps.who.int/medicinedocs/documents/s18706en/s18706en.pdf]. Accessed February 2021.

[8] World Health Organization (WHO). "List of Globally identified Websites of Medicines Regulatory Authorities". [https://www.who.int/medicines/areas/quality_safety/regulation_legislation/list_mra_websites_nov2012.pdf]. Accessed February 2021.

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 evidence of an expedited process for approving medical countermeasures for human use during public health emergencies. The 2007 "National Communicable Disease Surveillance Manual", a document with a section on emergency response in case of a public health outbreak, has no mention of medical countermeasures [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to medical countermeasures [2,3,4]. There is no relevant information on the Ministry of Health [5]

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. March 2009. "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [http://health.gov.bz/www/]. Accessed February 2021. [link was functional at the time of

research]

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: 1

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: 0

There is no evidence to show that Belize has pandemics integrated into its national risk reduction strategy, and there is no standalone national disaster risk reduction strategy for pandemics. There are, however, mentions on epidemics. The 2007 "National Communicable Disease Surveillance Manual", the most relevant document with an emergency response section on public health outbreaks, mentions guidelines and a strategy for data surveillance and early detection of epidemics "so that a timely and relevant response can be activated". However, it does not discuss risk reduction planning [1]. None of the other relevant documents on public health, including the "Belize Health Sector Strategic Plan 2014-2024", the 2017 "Belize Country Cooperation Strategy 2017-2021", and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation" refer to either epidemics or pandemics [2,3,4]. There is no mention on pandemics or public health emergencies in the "Disaster Preparedness and Response Act of 2000", the "Belize National Hazard Management Plan" and the "Relief and Supplies Management Committee Operational Plan" [5,6,7]. The National Emergency Management Organization does not handle pandemics or public health emergencies [8]. There is no relevant information on the Ministry of Health website [9].

- [1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual" [<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].
- [2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024". [<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].
- [3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021". [https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.
- [4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]
- [5] National Emergency Management Organization. December 2000. "Disaster Preparedness and Response Act". [http://site.nemo.org.bz/wp-content/publications/Belize_Disaster_Preparedness_and_Response_Act.pdf]. Accessed February 2021.
- [6] National Emergency Management Organization. "Belize National Hazard Management Plan". 2003 [http://site.nemo.org.bz/wp-content/publications/Search_Rescue_and_Evacuation_Plan.pdf]. Accessed February 2021.
- [7] National Emergency Management Organization. "Relief and Supplies Management Committee Operational Plan" [http://site.nemo.org.bz/wp-content/publications/Relief_and_Supplies_Management_Plan.pdf]. Accessed February 2021.
- [8] National Emergency Management Organization. "This is NEMO" [http://site.nemo.org.bz/wp-content/publications/This_is_NEMO_Brochure_2008.pdf]. Accessed February 2021.
- [9] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

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

There is evidence that Belize has cross-border agreements as part of a regional group, with regards to public health emergencies and there is no evidence of gaps in implementation. Belize is a member of the Caribbean Public Health Agency (CARPHA). Article 4 of the Belize-signed Agreement Establishing the Caribbean Public Health Agency (CARPHA) states as an objective to support the Caribbean Community in "preparing for and responding to public health emergencies" [1]. Emergency preparedness and response is one of the five roles established in CARPHA's website [2]. As an example, CARPHA has conducted work on Zika, a virus that is a major concern in the region and infections of which have been observed in Belize. In the midst of the covid crisis, CARPHA has been working closely with member states to respond to the threat through the activation of its Incident Management Team (IMT) and the issuance of Situation Reports (SITREPS) and guidelines. Also, the Security Cluster has been activated for tracking of passengers from China [3,4] Belize is also a member of

the Caribbean Disaster Emergency Management Agency (CDEMA), which has the mandate to be the " facilitator, driver, coordinator and motivating force for the promotion and engineering of Comprehensive Disaster Management (CDM)" for all member states. CDEMA does not specifically include public health emergencies in its mandate. [5] However, the website of the Caribbean Community (CARICOM), of which Belize is a part of, indicates that "health and disastrous assistance" is CDEMA's area of work [6], and the CDEMA appears as one of the members of the 2008 PAHO-established Caribbean Health Disaster Risk Reduction Committee [7].

- [1] Caribbean Public Health Agency (CARPHA). "Agreement Establishing the Caribbean Public Health Agency (CARPHA)". [http://carpha.org/Portals/0/docs/CARPHA_IGA.pdf]. Accessed February 2021.
- [2] Caribbean Public Health Agency (CARPHA). "The Role and Functions of the Caribbean Public Health Agency (CARPHA)". [<http://carpha.org/Who-We-Are/Role-and-Functions>]. Accessed February 2021.
- [3] Caribbean Public Health Association (CARPHA). "CARPHA Member States (CMS) and Surrounding Territories with Laboratory-Confirmed Cases of Zika Virus, 2015-2016". [<http://carpha.org/What-We-Do/Public-Health-Activities/Zika/Zika-Map>]. Accessed February 2021.
- [4] CARPHA. "COVID-19 Background". <https://carpha.org/What-We-Do/Public-Health/Novel-Coronavirus/COVID-19-Background>]. Accessed March 2021.
- [5] Caribbean Disaster Emergency Management Agency (CDEMA). "About Us". [<https://www.cdema.org/about-us#what-is-cdema-s-mandate>]. Accessed February 2021.
- [6] Caribbean Community (CARICOM). "Caribbean Disaster Emergency Management Agency (CDEMA)". [<https://www.caricom.org/about-caricom/who-we-are/institutions1/caribbean-disaster-emergency-management-agency-cdema>]. Accessed February 2021.
- [7] Pan-American Health Organization. 2008. "Caribbean Health Disaster Risk Reduction Committee. Terms of Reference" [https://www.paho.org/disasters/index.php?option=com_docman&view=download&category_slug=meetings-1&alias=948-caribbean-health-disaster-risk-reduction-committee-terms-of-reference&Itemid=1179&lang=es]. Accessed February 2021.

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: 2

Belize has a cross-border agreement as part of a regional group, with regards to animal health emergencies and there is no evidence of gaps in implementation. Belize is a partner to the Caribbean animal health network (CaribVET) [1,2]. CaribVET is responsible for "prevention and emergency preparedness plans for priority diseases" [3] Among other functions, CaribVet assists both in prevention and response of emergencies, by "implementation of early warning, early detection and quick response mechanisms for animal and zoonotic diseases", and by strengthening "national capacities related to preparedness, surveillance, monitoring and management of animal and zoonotic diseases" [4].

- [1] CaribVET. [<https://www.caribvet.net/>]. Accessed February 2021.
- [2] CaribVET. "Countries and territories". [<http://www-old.caribvet.net/en/caribvet/partners/countries-and-territories>]. Accessed February 2021.
- [3] Caribbean Animal Health Network (CaribVET). "About the Network". [<https://www.caribvet.net/about-the-network>]. Accessed February 2021.
- [4] CaribVET. "About the Network: Objectives". [<https://www.caribvet.net/about-the-network/objectives>]. Accessed February 2021.

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: 0

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: 1

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 publicly available evidence that the country has allocated national funds to improve capacity to address epidemic threats within the past three years. There is no such evidence in the "Belize Health Sector Strategic Plan 2014-2024" or in the 2017 "Belize Country Cooperation Strategy 2017-2021" [1,2]. There is no relevant information in the Ministry of Health, the Ministry of Agriculture, the national laboratory and the national budget for 2018, 2019 and 2020. [3,4,5,6,7,8]

[1] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[2] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[3] Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

- [4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.
- [5] Central Laboratory Unit. [<http://health.gov.bz/www/units/central-laboratory-unit>]. Accessed February 2021. [link was functional at the time of research]
- [6] Belize.2018. "Approved Estimates fo Revenue and Expenditure for Fiscal year 2018/2019". [<https://www.mof.gov.bz/uploads/files/0nmnmacu.pdf>]. Accessed February 2021.
- [7] Belize.2019. "Approved Estimates fo Revenue and Expenditure for Fiscal year 2019/2020". [<https://www.mof.gov.bz/uploads/files/j54t1vst.pdf>]. Accessed February 2021.
- [8] Belize.2020. "Approved Estimates fo Revenue and Expenditure for Fiscal year 2020/2021". [<https://www.mof.gov.bz/uploads/files/pmokx5oc.pdf>]. Accessed February 2021.

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: 1

There are publicly identified special emergency public financing mechanism and funds which Belize can access in the face of a public health emergency. The Stop Epidemics There and Here (SETH) Fund states that "CARPHA and Governments of CARPHA Member States (CMS) can access the Fund", which include financial support and assistance in managing outbreaks and emergencies with health and humanitarian consequences. To access the funds, a formal declaration of an outbreak or a public health emergency by the responsible authorities of the member state in collaboration with CARPHA has to be made. Activities included are immediate response interventions against vaccine-preventable diseases and deployment of rapid response personnel during outbreaks, public health emergencies and other events with health consequences. [1]. Belize is not a qualified borrower from the World Bank's International Development Association (IDA).[2]

[1] Caribbean Public Health Agency (CARPHA) Foundation. "Stop Epidemics There and Here (SETH) Fund ".

[<http://carphafoundation.carpha.org/SETH-Fund>]. Accessed February 2021.

[2] International Development Association (IDA) - World Bank Group. "Borrowing Countries".

[<http://ida.worldbank.org/about/borrowing-countries>]. Accessed February 2021.

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 no evidence that Belize's senior leaders (president or ministers) have made a public commitment to support other countries to improve capacity to address epidemic threats by providing financing or support, nor is there evidence they have committed towards improving its domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity in the past three years. The 2007 "National Communicable Disease Surveillance Manual" and the 2009 "A Guideline for Foodborne Disease Surveillance and Outbreak Investigation", both with mention health emergencies, do not address epidemic threats and haven't been updated in years [1,2]. Neither the "Belize Health Sector Strategic Plan 2014-2024" or the 2017 "Belize Country Cooperation Strategy 2017-2021" states references by senior leaders committing to improve its domestic capacity to address an epidemic threat or any commitment for other countries [3,4]. There is no evidence on this in the Ministry of Health or the Ministry of Foreign Affairs sites or in the United Nations and WHO webpages [5,6,7,8].

[1] Ministry of Health. Epidemiology Unit. December 2007. "National Communicable Disease Surveillance Manual"[<http://health.gov.bz/www/attachments/article/270/National%20Comm%20Dis%20Surveillance%20Manual%20Apr%202008.pdf>]. February 2021. [link was functional at the time of research].

[2] Ministry of Health. April 2014. "Belize Health Sector Strategic Plan 2014-2024".

[<http://health.gov.bz/www/attachments/article/801/Belize%20Health%20Sector%20Strategic%20Plan%202014-2024-April%202014.pdf>]. Accessed February 2021. [link was functional at the time of the research].

[3] Pan American Health Organisation and World Health Organisation, Regional Office for the Americas. "Belize Country

Cooperation Strategy 2017-2021".

[https://www.paho.org/hq/index.php?option=com_docman&view=download&alias=44758-belize-country-cooperation-strategy-2017-2021-758&category_slug=country-cooperation-strategy-1764&Itemid=270&lang=en]. Accessed February 2021.

[4] The Ministry of Health. Epidemiology Unit. 2009. "Guideline for Foodborne Disease Surveillance and Outbreaks". [http://health.gov.bz/www/attachments/274_FBDSurveillanceManual-Revised2009.pdf]. Accessed February 2021. [link was functional at the time of research]

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[6] Ministry of Foreign Affairs. [<http://www.mfa.gov.bz/>]. Accessed February 2021.

[7] United Nations. "Belize". [<https://belize.un.org/>]. Accessed February 2021.

[8] World Health Organisation. "Belize". [https://www.who.int/gho/countries/blz/country_profiles/en/]. Accessed February 2021.

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 no publicly available evidence that the country has, in the past three years, provided other countries with financing or technical support to improve capacity to address epidemic threats. However, there is evidence that Belize has invested finances from donors to improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity in the past three years.

There is evidence via the Global Health Security Funding Tracker that Belize has invested donor financed to improve domestic capacity to address epidemic threats. The tracker notes that Belize has received funding from multiple donors to enhance their capacity on global security preparedness, including just over US\$96,000 from the World Health Organisation to establish processes for long-term poliovirus risk management, including containment of all residual polioviruses, and the certification of polio eradication globally. [1]

Also, in 2020, in the midst of the COVID-19 crisis, the Inter-American Development Bank (IDB) approved a loan of US\$6.2 million for Belize following the government's request to the Bank to reprogram 10% of the undischursed balance of the country's current investment portfolio to assist the government with its response to the impact of the crisis resulting from the COVID-19 pandemic. Among the activities to be conducted are the provision of medical and personal protective equipment, as well as ensuring the continuity of essential care for the entire population during the emergency, etc. [2] There is no further evidence on this in the Ministry of Health or the Ministry of Foreign Affairs [3,4].

[1] Global Health Security Funding Tracker. [<https://tracking.ghscosting.org/#/data>]. Accessed February 2021.

[2] Inter-American Development Bank (IDB). June 2020. "IDB approves loan to support Belize's COVID-19 immediate health response"; [<https://www.iadb.org/en/news/idb-approves-loan-support-belizes-covid-19-immediate-health-response>]. Accessed February 2021.

[3] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[4] Ministry of Foreign Affairs. [<http://www.mfa.gov.bz/>]. Accessed February 2021.

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

Although there is an available plan for sharing genetic data with international organizations and/or other countries that goes beyond influenza, it is not inclusive of pathogens with pandemic potential. The "National Biodiversity Strategy and Action Plan" for 2016-2020 mention that Belize is a signatory of the Convention on Biological Diversity (CBD), and that as such it plans for "fair and equitable sharing of the benefits arising from the utilization of genetic resources". However, the statement does not mention if its inclusive of pathogens with pandemic potential [1]. The Convention on Biological Diversity does not mention as well if its inclusive of pathogens [2]. However, the Nagoya Protocol, and extension of the convention does mention to provide foundation "for a global common approach to accessing pathogens and sharing benefits arising from their use" [3]. However, it's uncertain if Belize has adhered to the Nagoya Protocol, and if their sharing data is inclusive of pathogens. No relevant information is available through the Ministry of Health or Ministry of Agriculture websites [4,5]

[1] Convention on Biological Diversity. May 2018. ""National Biodiversity Strategy and Action Plan for 2016-2020". [<https://www.cbd.int/doc/world/bz/bz-nbsap-v2-p1-en.pdf>]. Accessed February 2021.

[2] Convention on Biological Diversity. "Convention on Biological Diversity". [<https://www.cbd.int/doc/legal/cbd-en.pdf>]. Accessed February 2021.

[3] Convention on Biological Diversity. "Implementation of The Nagoya Protocol And Pathogen Sharing: Public Health Implications" [https://www.who.int/un-collaboration/partners/Nagoya_Full_Study_English.pdf?ua=1]. Accessed February 2021.

[4] Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration of the Government of Belize. [<https://www.agriculture.gov.bz/>]. Accessed February 2021.

[5] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of

research]

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 Belize has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past year. There are no relevant references on the official Government website [1] or international and local outlets. The 2016 External Evaluation of the Pandemic Influenza Preparedness Partnership Contribution does not refer to Belize not sharing samples, nor does it list Belize as a priority country for improving the "national ability to detect, monitor and share novel influenza viruses". [2]

[1] Government of Belize. [<http://www.belize.gov.bz/>]. Accessed February 2021.

[2] World Health Organisation (WHO). 2016. "External Evaluation of the Pandemic Influenza Preparedness Partnership Contribution-High-Level Implementation Plan 2013-2016".

[http://www.who.int/about/evaluation/pip_evaluation_report.pdf]. Accessed February 2021.

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 public evidence that Belize has not shared pandemic pathogen samples during an outbreak in the past two years. Belize is part of the WHO Global COVID-19 Clinical Data Platform for clinical characterization and management of hospitalized patients with suspected or confirmed COVID-19. As part of this global strategy Belize has shared COVID samples. [1] There is no further evidence in the Ministry of Health or in national and international media [2,3,4,5]. The World Health Organization Disease Outbreak News site reports no recent outbreaks of reportable diseases. [6]

[1] Pan American Health Organization. November 2020. "COVID-19".

[https://iris.paho.org/bitstream/handle/10665.2/52993/COVID-19SitRep32_eng.pdf?sequence=1&isAllowed=y˜]. Accessed March 2021..

[2] The Ministry of Health. [<http://health.gov.bz/www/>]. Accessed February 2021. [link was functional at the time of research]

[3] Belize News. [<http://belizenews.com/>]. Accessed February 2021.

[4] Amandala.

[<https://amandala.com.bz/news/#:~:text=Amandala%20Newspaper%20%7C%20%22Belize's%20Leading%20Newspaper%22>]. Accessed February 2021

[5] Le Monde. [<https://www.lemonde.fr/>]. Accessed February 2021

[6] World Health Organisation (WHO). "Disease Outbreak News: Belize". [<https://www.who.int/csr/don/en/>]. Accessed February 2021.

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: 2

2020

Economist Intelligence

6.1.1b

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

Input number

Current Year Score: 1

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: 2

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 40.61

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: 3

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: 2

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: 0

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: 3

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: 2

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: 93.7

2008-2018

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: 0.61

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: 1

According to a report from the OECD, Belize has 46.8% of the total employed in the informal sector, according to data from 2000. While the report is from 2019, the most reliable data available online on informality is from 2000. [1]

[1] Organisation for Economic Co-operation and Development. 2019. "LATIN AMERICAN AND CARIBBEAN COMPETITION FORUM - Session I: Informal Economy in Latin America and the Caribbean: Implications for Competition Policy". [[https://one.oecd.org/document/DAF/COMP/LACF\(2018\)4/en/pdf](https://one.oecd.org/document/DAF/COMP/LACF(2018)4/en/pdf)]. Accessed February 2021.

6.2.3c

Coverage of social insurance programs (% of population)

Scored in quartiles (0-3, where 3=best)

Current Year Score: 2

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: 1

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: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.53

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: 2

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: 2

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: 45.87

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: -4.63

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: 0

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: 74.5

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: 451.3

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 4.87

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 14.78

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 24.1

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: 97.99

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 87.86

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: 347.33

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