Brazil

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

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: 2

Brazil has a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens. In 2018, the Ministry of Health published the National Action Plan for Prevention and Control of Antimicrobial Resistance 2018-2022. The plan outlines a 5-year strategy to manage antimicrobial resistance and limit increases in resistant microbial infections, addressing both the detection, monitoring/surveillance and reporting of AMR. Objective 4 of the plan states that it aims to build and establish a national system for AMR surveillance and monitoring for AMR. [1] Additionally, Brazil also has other AMR plans, such as: the Ministry of Health's "National Plan for Prevention and Control of Microbial Resistance in Health Services" published in 2017, which has operational actions that span from 2017 through 2021; or the Ministry of Agriculture's "National Plan for Prevention and Control of Microbial Resistance in Farming", publsihed in 2018 covering agriculture and farming and spans from 2018 through 2022. [2,3]

[1] Ministry of Health. 2018. "National Action Plan for Prevention and Control of Antimicrobial Resistance for Unified Health (Plano de ação nacional de prevenção e controle da resistência aos antimicrobianos no âmbito da saúde única 2018-2022)". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 27 July 2020.
[2] National Agency for Health Surveillance. 2017. "National Plan for Prevention and Control of Microbial Resistance in Health Services (Plano Nacional para a Prevenção e o Controle da Resistência Microbiana nos Serviços de Saúde)". [http://portal.anvisa.gov.br/documents/33852/271855/Plano+Nacional+para+a+Preven%C3%A7%C3%A3o+e+o+Controle+da+Resist%C3%AAncia+Microbiana+nos+Servi%C3%A7os+de+Sa%C3%BAde/9d9f63f3-592b-4fe1-8ff2-e035fcc0f31d]. Accessed 27 July 2020.
[3] Ministry of Agriculture. 2018. "National Plan for Prevention and Control of Microbial Resistance in Farming (Plano de Ação Nacional de Prevenção e Controle da Resistência aos Antimicrobianos, no Âmbito da Agropecuária)". [http://www.agricultura.gov.br/assuntos/insumos-agropecuarios/insumos-pecuarios/programas-especiais/resistencia-antimicrobianos/arquivos/copy2_of_publ_panagro_web.pdf]. Accessed 27 July 2020.

1.1.1b

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

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

Current Year Score: 2

There is publicly available evidence that Brazil has a national laboratory with designated sentinel sites which tests for all 7+1 priority AMR pathogens. In 2005, the Ministry of Health (MoH) and the National Agency for Health Surveillance (Agência

Nacional de Vigilância Sanitária - ANVISA) set up a surveillance system of hospitals and laboratories reporting on 33 priority AMR pathogens on a monthly basis to detect, prevent and control infections related to antimicrobial resistance. This surveillance network started with 97 sites and reached a total of 1800 by 2014. [1] In 2015 the MoH set-up a sub-network of 7 sentinel sites (large hospitals and laboratories) with advanced capabilities to test and track AMR pathogens using molecular identification methods. [1] The purpose of the network with sentinel sites was to improve the vigilance and monitoring of AMR pathogens in the country. [2] The 2018 National Antimicrobial Resistance (AMR) plan mandates the MoH and ANVISA to support and manage the national laboratory sentinel sites to improve capabilities in monitoring and testing AMR pathogens. [3] The Manual for Biological Samples from the Central Laboratory of the State of Paraná has evidence the hospital can test for: E.coli, K.pneumoniae, Shigella spp, S. aureus, K.pneumoniae, Salmonella spp and Mycobacterium tuberculosis. [4] Additionally, there is evidence several hospitals in Brazil can test for N. gonorrheae. [5,6]

[1] National Agency for Health Surveillance. 2017. "National Plan for Prevention and Control of AMR in Health Services (Plano Nacional para a Prevenção e o Controle da Resistência Microbiana nos Serviços de Saúde)". pp11-15. [http://portal.anvisa.gov.br/documents/33852/271855/Plano+Nacional+para+a+Preven%C3%A7%C3%A3o+e+o+Controle+da+Resist%C3%AAncia+Microbiana+nos+Servi%C3%A7os+de+Sa%C3%BAde/9d9f63f3-592b-4fe1-8ff2-e035fcc0f31d]. Accessed 27 July 2020.
[2] National Agency for Health Surveillance. 2015. "Guidelines for the operation of the Analytical Network of AMR sites in the Health Service (Orientações Gerais para o funcionamento da Sub Rede Analítica de Resistência Microbiana em Serviços de Saúde)". [http://ccihadm.med.br/legislacao/Sub_rede_analitica_de_resistencia_microbiana_ANVISA.pdf]. Accessed 27 July 2020.
[3] Ministry of Health. 2018. "National Action Plan for Prevention and Control of Antimicrobial Resistance for Unified Health (Plano de ação nacional de prevenção e controle da resistência aos antimicrobianos no âmbito da saúde única 2018-2022)". pp11-12. [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 27 July 2020.
[4] Central Laboratory of the State of Paraná. 2012. "Manual of Collection and submission of biological samples to the National Laboratory system (Manual de Coleta e envio de amostras biológicas ao sistema de Laboratórios Centrais" [http://www.lacen.saude.pr.gov.br/arquivos/File/SESLAB/Manual.pdf]. Accessed 27 July 2020.
[5] Travassos Ana et al. 2016. "Anogenital infection by Chlamydia trachomatis and Neisseria gonorrhoeae in HIV-infected men and women in Salvador, Brazil". Braz J Infect Dis vol.20 no.6 Salvador Nov./Dec. 2016. [http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-86702016000600569]. Accessed 27 July 2020.
[6] Barbosa Marcelo. 2010. "Prevalence of Neisseria gonorrhoeae and Chlamydia trachomatis in men treated at STD clinics in six Brazilian capitals (Prevalência de Neisseria gonorrhoeae e Chlamydia trachomatis em Homens atendidos em clínicas de DST de seis capitais brasileiras)". Universidade Federal do Espírito Santo. [http://livros01.livrosgratis.com.br/cp137806.pdf]. Accessed 27 July 2020.

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that the Brazilian government conducts environmental detection or surveillance activities for antimicrobial residues or AMR organisms. Brazil conducts environmental surveillance activities for all communicable diseases, risk factors for chronic non-communicable diseases, environmental and labour health, and public health analysis through the General Coordinating Office for Environmental Health Surveillance (CGVAM). There is no specific information that clearly states that CGVAM covers AMR, and there are no explicit references to antimicrobial residues or AMR organisms. It divides its actions into five areas: water surveillance, air and atmospheric surveillance, chemical surveillance, environmental health

related to natural and technological disasters (chemical and nuclear accidents and radiation emergencies), and environmental health related to phsyical factors (natural sources of ionising and unionising radiation). [1] The CGVAM was established by Federal Decree 3,450 of 10 May 2000, which places it under the jurisdiction of the National Centre for Epidemiology (CENEPI). [2]

[1] Ministry of Health. 2017. "Environmental Surveillance (Vigilância Ambiental)". [https://www.saude.gov.br/vigilancia-em-saude/vigilancia-ambiental]. Accessed 27 July 2020.
[2] Ministry of Health. 2006. "Surveillance and Control of Water Quality for Human Consumption (Vigilânica e Controle da Qualidade da água para Consumo Humano)".
[https://bvsms.saude.gov.br/bvs/publicacoes/vigilancia_controle_qualidade_agua.pdf]. Accessed 27 July 2020.

1.1.2 Antimicrobial control

1.1.2a

Is there national legislation or regulation in place requiring prescriptions for antibiotic use for humans?
Yes = 2 , Yes, but there is evidence of gaps in enforcement = 1 , No = 0

Current Year Score: 1

Brazil has a national legislation in place requiring prescriptions for antibiotic use for humans, but there is evidence of gaps in enforcement. In 2011 the National Agency for Health Surveillance, (Agência Nacional de Vigilância Sanitária - ANVISA) issued Resolution Nr. 20 which specified 119 types of antibiotic drugs that can be sold only with a doctor's prescription. [1] According to this law, pharmacies can only supply antibiotics when patients provide a prescription issued by a certified physician. The original prescription must be retained by the pharmacist for control. [2] There have been studies that show that in some remote regions of the country access to antibiotics is more lenient, despite the laws and regulations. A study published in 2018 showed that 66.2% of patients surveyed in the municipality of Coari (Amazonas state) who were being treated with an antimicrobial did not receive a prescription for the medication. One-third of those cases were being treated for non-infectious or non-bacterial conditions. [3] Furthermore, it is noteworthy that there is currently a Project of Law by the Senate (PLS 545 of 2018) that would allow antibiotics to be supplied without the need of prescriptions in areas that are isolated and do not have regular public health service. As of July 2020, the PLS is in the Commission for Social Affairs and it is being examined by the commission's executive table. However, based on the public survey conducted for this PLS, 97% of the respondents rejected the PLS and its prospects to become law are low. [4]

[1] National Agency for Health Surveillance. 2011. "Resolution 20: Prescription Control of Antibiotic Drugs (Resolução n. 20: controle de medicamentos à base de substâncias classificadas como antimicrobianos, de uso sob prescrição, isoladas ou em associação)". [http://portal.anvisa.gov.br/documents/33880/2568070/rdc0020_05_05_2011.pdf/fa3ec1c1-8045-4402-b17f-ed189fb67ac8]. Accessed 28 July 2020.
[2] Sampaio, Pamella et al. 2018. "Implementation of new regulations for prescribing and dispensing of antibiotics: challenges and possibilities". Cad. Saúde Colet., Rio de Janeiro, 26 [1] : 15-22. [http://www.scielo.br/pdf/cadsc/v26n1/1414-462X-cadsc-26-1-15.pdf]. Accessed 28 July 2020.
[3] Muri-Gama, Abel Santiago, Albert Figueras, and Silvia Regina Secoli. 2018. "Inappropriately prescribed and over-the-counter antimicrobials in the Brazilian Amazon Basin: We need to promote more rational use even in remote places". PLoS ONE 13
[8] : e0201579. [https://doi.org/10.1371/journal.pone.0201579]. Accessed 17 March 2021.
[4] Federal Senate. 2020. "Project of Law of the Senate no. 545, of 2018 (Projeto de Lei do Senado n° 545, de 2018)".
[https://www25.senado.leg.br/web/atividade/materias/-/materia/135021]. Accessed 28 July 2020.

1.1.2b

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

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

Current Year Score: 1

There is national legislation in place requiring prescriptions for antibiotic use for animals in Brazil; however there is evidence that the measures are not completely enforced. Article 21 of the Normative Instruction 26 of 2009 from the Ministry of Agriculture states that antimicrobial products for veterinary use may only be dispensed to the user under a veterinarian's prescription, and the information "Sale under prescription of a veterinary doctor only" should be highlighted in the drug label. [1] In 2011, the National Agency for Health Surveillance, (Agencia Nacional de Vigilância Sanitária - ANVISA) issued Resolution 20 and Technical note 20 of 2011, which state that even if antibiotics intended for use by humans are to be used for veterinary purposes, they still require a prescription by a veterinary doctor. [2,3] However, the legislation is not enforced and the Federal Council of Veterinary Medicine has asked the Ministry of Agriculture for additional measures to reduce antibiotic use in animals, to avoid antimicrobial resistance due to widespread use of this type of drugs across the country's farms. [4,5 (page 4)] There are reports that "pigs showed resistance against a wide range of antibiotics". [5(page 4)] Furthermore, "there is no information available about used/sold quantities of veterinary antibiotics in Brazil". [5(page 4)] The Federal Council of Veterinary Medicine has held campaigns in 2018 and 2019 to promote the rational use of antibiotics to prevent antimicrobial resistance. [6,7] The requests by the Federal Council of Veterinary Medicine and the campaigns it has promoted suggest that the regulations are not fully enforced.

[1] Ministry of Agriculture. 2009. "Normative Instruction 26/2009 (Instrucao Normativa 26/2009)". [http://www.agricultura.gov.br/assuntos/insumos-agropecuarios/insumos-pecuarios/alimentacao-animal/arquivos-alimentacao-animal/legislacao/instrucao-normativa-no-26-de-9-de-julho-de-2009.pdf]. Accessed 28 July 2020.
[2] National Agency for Health Surveillance. 2011. "Resolution nr 20: Prescription Control of Antibiotics (Resolução n. 20: controle de medicamentos à base de substâncias classificadas como antimicrobianos, de uso sob prescrição, isoladas ou em associação)". [http://portal.anvisa.gov.br/documents/33880/2568070/rdc0020_05_05_2011.pdf/fa3ec1c1-8045-4402-b17f-ed189fb67ac8]. Accessed 28 July 2020.
[3] National Agency for Health Surveillance. 2011. "Guidelines and Procedures on Prescription Control of Antibiotics (Orientações de procedimentos relativos ao controle de medicamentos à base de substâncias classificadas como antimicrobianos, de uso sob prescrição, isoladas ou em associação)". [http://www.anvisa.gov.br/sngpc/Informe_Tecnico_Procedimentos_RDC_n_20.pdf]. Accessed 28 July 2020.
[4] Federal Council for Veterinary Medicine. 24 November 2015. "World Organisation for Animal Health Campaigns for Responsible Use of Antibiotics (OIE faz campanha sobre o uso responsável de antibióticos)". [http://www.fiepr.org.br/observatorios/biotecnologia-animal/FreeComponent21755content303469.shtml]. Accessed 15 September 2020.
[5] Livestock Research. 2014. "Antibiotic use in Brazilian broiler and pig production: an indication and forecast of trends". [http://edepot.wur.nl/297414]. Accessed 28 July 2020.
[6] Federal Council for Veterinary Medicine. 2018. "Global campaign defends responsible use of antimicrobial medication (Campanha mundial defende uso responsável de antimicrobianos)". [http://portal.cfmv.gov.br/noticia/index/id/5914/secao/6]. Accessed 28 July 2020.
[7] Federal Council for Veterinary Medicine. 2019. "The future of antibiotics depends on all of us (O futuro dos antibióticos depende de todos nós)". [http://portal.cfmv.gov.br/noticia/index/id/6316/secao/6]. Accessed 28 July 2020.

1.2 ZOONOTIC 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: 1

Brazil has a national plan on zoonotic disease. In 2016 the National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) launched the 'Monitoring, Prevention and Control Guide for Zoonotic Diseases' [1]. The main purpose of the plan is the "protection and promotion of human health, when involving risks of transmission of zoonoses and the occurrence of accidents caused by venomous and poisonous animals of public health relevance". The document outlines multiple initiatives that government agencies should follow in order to prevent and control zoonotic diseases such as rabies, zika and leishmaniases, and identifies actions to prevent transmission of diseases to humans from animals such as dogs, rats and spiders. The document also highlights the importance of collaboration among different government agencies by sharing information and developing joint initiatives in order to improve the efficiency of prevention and control initiatives.

[1] National Agency for Health Surveillance. 2016. "Guidelines for Surveillance, Prevention and Control of Zoonotic Diseases (Manual de vigilância, prevenção e controle de zoonoses : normas técnicas e operacionais)". [http://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_prevencao_controle_zoonoses.pdf]. Accessed 28 July 2020.

1.2.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that the Guidelines for Surveillance, Control and Prevention of Zoonotic Diseases by the National Agency for Health Surveillance (ANVISA) includes measures for risk identification and reduction for zoonoses spillover events from animals to humans. The plan outlines goals for zoonotic disease prevention and control, including plans for rabies in dogs and cats (AgV1, AgV2), rabies in bats and other wild animals, visceral leishmaniasis, and diseases carried by rodents. On pages 56-57, the plan outlines a series of actions to identify risks, analyze data, identify the animal population that is posing the risk, and identify the area or region at risk. This plan includes any potential zoonoses outbreak, any cases of human contamination of zoonoses, any diseases that could transmit from animal to human, and venemous and poisonous animals. The plan does not make any differentiation between wild and domestic animals. [1] The Ministry of Health have also prepared plans to combat epidemics of dengue and microcephaly (caused by Zika), which include measures for risk identification and reduction of spillover events to humans. Measures include the use of insecticides in high-risk areas and removing or covering objects (tyres, vases, bottles, etc) that accumulate still water to prevent the reproduction of Aedes Aegypti, the mosquito that spreads dengue, Zika virus, malaria, chikungunya, and other diseasese. [2,3] The plan against microcephaly also includes already identified measures that can reduce the risk of spillover effects from the mosquito that spreads the disease to humans. [3]

[1] National Agency for Health Surveillance. 2016. "Guidelines for Surveillance, Control and Prevention of Zoonotic Diseases (Manual de vigilância, prevenção e controle de zoonoses : normas técnicas e operacionais)".

[http://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_prevencao_controle_zoonoses.pdf]. Accessed 31 July 2020.
[2] Ministry of Health. 2015. "National Contingency Plan for Dengue Epidemics (Plano de Contingência Nacional para Epidemias de Dengue)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_contingencia_nacional_epidemias_dengue.pdf]. Accessed 31 July 2020.
[3] Ministry of Health. "National Plan: Prevention and Combat Against Dengue, Chikungunya and Zika (Plano Nacional: Prevenção e Combate Contra Dengue, Chikungunya e Zika)". [http://portalarquivos.saude.gov.br/campanhas/combateaedeshtml/index.php/plano-nacional.html]. Accessed 31 July 2020.

1.2.1c

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

Yes = 1 , No = 0

Current Year Score: 1

There is a national plan that accounts for the surveillance and control of multiple zoonotic pathogens of public health concern in Brazil. The 'Monitoring, Prevention and Control Guide for Zoonotic Diseases' issued in 2016 by the National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA), accounts for the surveillance and control of multiple zoonotic pathogens. Examples of zoonotic pathogens covered in the document include toxoplasmosis, brucellosis, bovine tuberculosis, dengue and malaria. The document indicates several initiatives for government agencies to improve pathogen surveillance, such as epidemiological research, or control, such as pet vaccination or chemical disinfestation. [1]

[1] National Agency for Health Surveillance. 2016. "Guidelines for Surveillance, Control and Prevention of Zoonotic Diseases (Manual de vigilância, prevenção e controle de zoonoses : normas técnicas e operacionais)". [http://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_prevencao_controle_zoonoses.pdf]. Accessed 28 July 2020.

1.2.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that there is a department, agency, or similar unit dedicated to zoonotic disease that functions across ministries in Brazil. The Zoonotic Disease Surveillance Units (Unidade Vigilancia Zoonoses - UVZ), which is housed under the Ministry of Health, can function across ministries in specific cases, but its collaboration is not structured and depends on requests from other ministries. The UVZs were created in 2014 by Ordinance 758 of the Ministry of Health, with a mandate of surveillance and control of zoonoses. [1] These units were further regulated by Ordinance 1,138, which outlines the actions and services under the UVZ responsibility. [2] Currently there are 277 Zoonotic Disease Surveillance Units across the country and they operate locally under the Health Surveillance Secretary (Secretaria de Vigilância em Saúde), a unit of the Ministry of Health. These units work collaboratively with several governmental agencies, such as: the Ministry of Health in the case of health emergencies; with other city council agencies in the case of stray dogs and kennels; with environmental agencies in the case of environmental surveillance; or with the Ministry of Agriculture (the Farming Surveillance Units) for issues related to farming, such as animal transport. However, there is no evidence that the UVZ integrate employees from different ministries or govenrment entities outside the Ministry of Health or local Secretariats (at the state level) or Departments of Health (at the municipal level). [3] The UVZs report solely and are under the responsibility of the Ministry of Health and the National Agency for Health Surveillance (ANVISA) Secretary for staff and financing, as reported in several documents such as: the regulations of UVZ (Ordinances 758 and 1138), the Ministry of Health report 'Guidelines of Zoonotic

Surveillance and Control'; or by a Zoonotic Units study carried out by the regional Campinas Zoonoses Team in 2017. [4,5] However, they can function with other ministries in cases of risks related to environmental health (with the Ministry of Environment and agencies related to health surveillance, health services and social services), among other situations that are not directly to public health (such as maltreatment and abuse against animals, illegal practice of professions, raising and/or commerce of wild or exotic animals, slaughter of animals, hoarding of animals, and raising and/or commerce of animals or animal by-products for consumption in urban areas. [6] No other agencies were found in the Ministry of Health or Ministry of Agriculture websites. [7][8]

[1] Ministry of Health. 2014. "Ordinance 758: Zoonotic Diseases Surveillance Unit (Portaria N 758: Unidade de Vigilancia de Zoonoses)". [http://bvsms.saude.gov.br/bvs/saudelegis/sas/2014/prt0758_26_08_2014.html]. Accessed 28 July 2020.
[2] Ministry of Health. 2014. "Ordinance 1138: Actions of Zoonotic Diseases Surveillance Unit (Portaria N 1138: Ações da Unidade de Vigilancia de Zoonoses)". [http://mongagua.sp.gov.br/wp-content/uploads/2018/02/portaria-1138-ministerio-da-saude-ccz.pdf]. Accessed 28 July 2020.
[3] Ministry of Health. 2018. "Surveillance of Zoonotic Diseases (Vigilancia de Zoonoses)". [http://portalms.saude.gov.br/noticias/zoonoses/44152-vigilancia-de-zoonoses]. Accessed 28 July 2020.
[4] Ministry of Health. 2016. " Guidelines of Zoonotic Surveillance and Control (Manual de Vigilância, Prevenção e Controle de Zoonoses)". [http://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_prevencao_controle_zoonoses.pdf]. Accessed 28 July 2020.
[5] Rodrigues Ricardo et al. Campinas City Council Zoonoses Surveillance Unit. 2017. "From CCZ to UVZ: paradigm shift in the control of zoonoses". [http://ses.sp.bvs.br/lildbi/docsonline/get.php?id=6497]. Accessed 28 July 2020.
[6] Federal Council for Veterinary Medicine. 2018. "Centres for Control of Zoonoses - CCZ / Zoonotic Disease Surveillance Units - UVZ: Where we are, Paths for Rescue and Strengthening (Centro de Controle de Zoonoses - CCZ / Unidade de Vigilância de Zoonoses - UVZ: "Onde estamos, Caminhos para o Resgate e Fortalecimento"). [http://portal.cfmv.gov.br/uploads/I%20SPV%20Centro%20Oeste%20-%20Centro%20de%20Controle%20de%20Zoonoses%20-%20Unidade%20de%20Vigil%C3%A2ncia%20de%20Zoonoses%20%E2%80%93Geraldo%20Vieira%20CNSPV-CFMV%20%20.pdf]. Accessed 29 July 2020.
[7] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[8] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 30 August 2020.

1.2.2 Surveillance systems for zoonotic diseases/pathogens

1.2.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has a national mechanism for owners of livestock to report on disease surveillance to a central government agency. Under Normative Instruction 50 from the Ministry of Agriculture (MoA) published in 2013, the notification of diseases among livestock is obligatory for all owners and veterinarians who are aware of the suspicion or of confirmed cases. [1,2] The MoA created a list of diseases with different tiers of reporting requirements: eradicated diseases, diseases never observed in Brazil, or diseases in a priority list (anthrax, for example) require a immediate reporting; the remaining 100 diseases in the list can be reported on a monthly basis. Disease reporting is to be made to the Official Veterinary Services of the MoA, using dedicated forms. [3] The data collected is then made available through the National Zoosanitary Information System (Sistema de Informação Zoosanitária - SIZ), which is a tool managed by the Ministry of Agriculture to collect and disseminate animal

health and disease information [4,5]. Animal disease data is sourced from various sources related to the veterinary services, from institutions in the areas of public health, environment, national security, education and research, as well as private sector agencies. SIZ is used as a reporting tool of surveillance data to health agencies from other public sectors such as the Ministry of Health, the Brazilian Institute of Environment and Renewable Natural Resources, the Ministry of Science Technology and Innovation and the Brazilian Intelligence Agency. [6,7]

[1] Ministry of Agriculture. 2013. "Normative instruction 50: Mandatory Disease Reporting (Instrução Normativa 50, Doenças Notificação Obrigatória)". [https://www.defesa.agricultura.sp.gov.br/legislacoes/instrucao-normativa-mapa-50-de-24-09-2013,978.html]. Accessed 28 July 2020.
[2] Ministry of Agriculture. 2018. "Information System for Animal Health (Sistema de Informação em Saúde Animal)". [http://www.agricultura.gov.br/assuntos/sanidade-animal-e-vegetal/saude-animal/sistema-informacao-saude-animal]. Accessed 28 July 2020.
[3] Ministry of Agriculture. "Notification Form for Potential Animal Disease (Formulário de notificação de suspeita ou ocorrência de doenças animai)s". [http://www.agricultura.gov.br/assuntos/sanidade-animal-e-vegetal/saude-animal/arquivos-das-publicacoes-de-saude-animal/FORMNOTIFICAeInstrutivo.pdf]. Accessed 28 July 2020.
[4] Ministry of Agriculture. "National Zoosanitary Information System (Sistema de Informação Zoosanitária - SIZ)". [http://www.agricultura.gov.br/assuntos/sanidade-animal-e-vegetal/saude-animal/sistema-informacao-saude-animal]. Accessed 29 July 2020.
[5] Ministry of Agriculture. "National Zoosanitary Information System Case Reporting (Sistema de Informação Zoosanitária Reporte de casos)". [http://indicadores.agricultura.gov.br/saudeanimal/index.htm]. Accessed 29 July 2020.
[6] Agency for the Defence of Agriculture and Livestock of Paraná. 2014. "Veterinary Epidemiology (Epidemiologia Veterinária)". [http://www.adapar.pr.gov.br/pagina-94.html]. Accessed 29 July 2020.
[7] Ministry of Agriculture. "User Guide for the National Zoosanitary Information System (Manual do Sistema de Informação Zoosanitária). [https://www.gov.br/agricultura/pt-br/assuntos/sanidade-animal-e-vegetal/saude-animal/arquivos-importacao/Manual_SIZ_DSA_2013_atualizado.pdf/view]. Accessed 29 July 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has laws that safeguard the confidentiality of information generated through surveillance activities for animals. Under Normative Instruction 50 from the Ministry of Agriculture (MoA) published in 2013, the notification of diseases among livestock is obligatory for all owners and veterinarians who are aware of the suspicion or of confirmed cases. [1,2]. The National System for Zoosanitary Information (Sistema Nacional de Informação Zoosanitária, SIZ), which is part of the Ministry of Agriculture, collects, manages and reports on livestock disease data in Brazil. [2] The reports are used by Brazilian governmental agencies and by international agencies such as the World Health Organisation (WHO) to control potential harmful diseases and plan any required public health initiatives. The SIZ website clearly states that all data is subject to the Access to Information Law (Law 12,527 of 2011), as is any other governmental system. [3] Article 31 of the Access to Information Law of 2011 focuses on personal data privacy, including the provision that states that the processing, transfer and display of personal data is deemed unlawful when the owner of the data has not given their free, explicit and conscious consent. [4]

[1] Ministry of Agriculture. 2013. "Normative instruction 50: Mandatory Disease Reporting (Instrução Normativa 50, Doenças Notificação Obrigatória)". [https://www.defesa.agricultura.sp.gov.br/legislacoes/instrucao-normativa-mapa-50-de-24-09-

2013,978.html]. Accessed 28 July 2020.
[2] Ministry of Agriculture. 2018. "Information System for Animal Health (Sistema de Informação em Saúde Animal)". [http://www.agricultura.gov.br/assuntos/sanidade-animal-e-vegetal/saude-animal/sistema-informacao-saude-animal]. Accessed 28 July 2020.
[3] Government of Brazil. 2020. "Access to Information (Acesso à Informação)". [https://www.gov.br/acessoainformacao/pt-br]. Accessed 28 July 2020.
[4] Government of Brazil. 2011. "Law 12.527 of 18 November 2011 (Lei No. 12.527, 18 Novembro 2011". [http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm]. Accessed 28 July 2020.

1.2.2c

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil conducts surveillance of zoonotic diseases in wildlife. The Ministry of Health's website has information on Environmental Health Surveillance plans. [1] However, environmental surveillance for zoonotic diseases is managed at the state level through dedicated Surveillance Teams. Under the supervision of the Ministry of Health (MoH), these teams conduct surveillance for biological and nonbiological risk factors. [2, 3] Health Authorities at the state level produce norms, procedures and plans for surveillance of biological risk factors, incorporating zoonotic diseases that include yellow fever, leishmaniasis, malaria, rabies, etc.. [3] In the state of Minas Gerais, a region in the South East of Brazil with a population of 20 million people, surveillance procedures for hantavirus outline that after the discovery of hantavirus in humans, extensive environmental search should be carried out to identify the prevalent rodent species and, among them, determine the probable source of the variant of circulating hantavirus. Still in the case of hantavirus, procedures also suggest that routine vigilance should be frequently carried out by capturing samples of rodents in the environment so they can be tested for the virus. [4]

[1] Ministry of Health. "Environmental Surveillance (Vigilância Ambiental)". [http://portalms.saude.gov.br/vigilancia-em-saude/vigilancia-ambiental]. Accessed 28 July 2020.
[2] Paraná State Secretariat for Health. "Environmental Surveillance - Zoonotic Diseases and Poisoning (Vigilância Ambiental - Zoonoses e Intoxicações)". [http://www.saude.pr.gov.br/Pagina/Zoonoses-e-intoxicacao]. Accessed 28 July 2020.
[3] Minas Gerais State Secretariat for Health. "Environmental Surveillance (Vigilância Ambiental)". [http://vigilancia.saude.mg.gov.br/index.php/vigilancia-ambiental/]. Accessed 28 July 2020.
[4] Minas Gerais State Secretariat for Health. 2013. "Guidelines for Prevention, Surveillance and Control of Hantaviruses (Manual de prevenção, vigilância e controle de hantaviroses)". [http://vigilancia.saude.mg.gov.br/index.php/download/manual-de-vigilancia-prevencao-e-controle-de-hantaviroses/?wpdmdl=3743]. Accessed 28 July 2020.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

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

Yes = 1 , No = 0

Current Year Score: 1

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: 66.24

2019

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 3.09

2019

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Brazil's national plan on zoonotic disease includes mechanisms for working with the private sector to control and respond to zoonoses, although it mentions the importance of the private sector in controlling and responding to zoonoses and there are mechanisms imposed by other documents, such as reference manuals and strategic plans. In 2016, the National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) launched the 'Monitoring, Prevention and Control Guide for Zoonotic Diseases'. For activities relating to active surveillance, under article 1.1.1.1, the document explicitly proposes a collaboration between Public Surveillance Units and private services or institutions working closely with animals, such as clinics, veterinary hospitals, pet shops, environmental agencies, agricultural entities, animal protection organisations, laboratories and universities. The plan recognises that these private entities can have important resources or skills which can speed-up potential vigilance and control activities, or improve the quality of those initiatives, for example by helping to collect biological samples of animals. Yet, specific mechanisms are not present in the plan. [1] Mechanisms can be found outside the plan. In 2011, by ordinance 2488, veterinarians were included in the Core Support Teams for Family Health (NASF), which is a mechanism to provide basic health care to complement the actions of the

Unified Health System (SUS), and they are especially present in areas where there are no or limited public health services. The teams should collaborate and coordinate their work to address the factos, risks and issues present in their area. [2] In the 2019-2023 Strategic Agenda for Pets, established by the Ministry of Agriculture, the inclusion of private sector veterinarians and pet shops are included in the control and response to zooneses; however, specific mechanisms are not mentioned. [3] In the Technical Reference document for the Functions of Veterinary Services of 2010, all veterinary professionals, both from the public and private sector, must report any cases of zoonoses. No other specific mechanisms are mentioned. [4]

[1] National Agency for Health Surveillance. 2016. "Guidelines for Surveillance, Prevention and Control of Zoonotic Diseases (Manual de vigilância, prevenção e controle de zoonoses : normas técnicas e operacionais)". [http://bvsms.saude.gov.br/bvs/publicacoes/manual_vigilancia_prevencao_controle_zoonoses.pdf]. Accessed 28 July 2020.
[2] Federal Council for Veterinary Medicine. "Core Support Teams for Family Health - NASF (Núcleos de Apoio à Saúde da Família - NASF)". [http://portal.cfmv.gov.br/pagina/index/id/93/secao/2#:~:text=Poder%C3%A3o%20compor%20os%20NASF%201,%3B%20M%C3%A9dico%20Pediatra%3B%20Psic%C3%B3logo%3B%20M%C3%A9dico]. Accessed 28 July 2020.
[3] Ministry of Agriculture. 2019. "Strategic Agenda for Pets 2019-2023 (Agenda Estratégica Pet Brasil 2019-2023)". [https://www.gov.br/agricultura/pt-br/assuntos/camaras-setoriais-tematicas/documentos/camaras-setoriais/animais-e-estimacao/2019/25-ro/agenda-estrategica-camara-pet-2019-2023.pdf]. Accessed 28 July 2020.
[4] National Agency for Health Surveillance. 2020. "Technical Reference for the Function of Veterinary Services (Referência Técnica para o Funcionamento dos Serviços Veterinários)". [http://www.saude.campinas.sp.gov.br/vigilancia/vig_sanitaria/Referencia_tecnica_funcionamento_servicos_veterinarios.pdf]. Accessed 28 July 2020.

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

Brazil does not have in place a record, updated within the past 5 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. There is evidence of an inventory of Biosafety Level 3 (BSL-3) capable laboratories in which dangerous microorganisms are stored, however it was carried out in 2009, in response to a letter from the International Security and Arms Control. [1] Brazil has implemented a Biotechnology Interest Information System, named SICOLNet, which aims at promoting free and open access to the biological data, information, and tools available in the country to any individual or group. [2] However this gives no indication of potentially dangerous pathogens. Guidelines from the Health Ministry on Biosecurity also do not identify any national inventory on dangerous pathogens, however the document mandates every site to keep a rigorous inventory of potentially dangerous pathogens. [3] The Interministerial Commission of Sensitive Goods, has issued Resolution 13/2010 with a list of dangerous pathogens, however sites storing these agents are not required to notify any governmental agency. [4] No evidence of an inventory has been found in the Ministry of Science, namely the department of dangerous goods, nor in the Ministry of Defense, which has launched legislation and guidelines on potentially dangerous biological materials without mention of an inventory. [5, 6] Also there was no evidence of an inventory in the Ministry of

Agriculture or in the National Public Laboratory System. [7, 8] A 2012 article identified the need to Brazil to keep a global inventory of dangerous pathogens. [9] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [10] The United Nations Confidence Building Measures website has 24 reports for Brazil, however their access is restricted and it is not possible to assess if there is additional information on Brazilian inventory management system. [11]

[1] Brazilian Biosafety Association. 2009. "Overview of Biosafety and Biosecurity in High-containment Labs in Brazil: A Report of the Brazilian Biosafety Association". [https://www.ncbi.nlm.nih.gov/books/NBK196149/]. Accessed 28 July 2020.
[2] SIColNet website. [http://sicol.splink.org.br/]. Accessed 28 July 2020.
[3] Ministry of Health. 2015. "Biosecurity: Managing Risk in High Biologic Containment Environments (Biocontenção : o gerenciamento do risco em ambientes de alta contenção biológica)". [http://bvsms.saude.gov.br/bvs/publicacoes/biocontecao_gerenciamento_risco_ambientes_alta_contencao.pdf]. Accessed 28 July 2020.
[4] Interministerial Commission of Sensible Goods. 2010. "Resolution 13 of 10 March 2010: List of Sensible Goods (Resolução 13 de 10/03/2010: Lista de Bens Sensíveis). [https://www.legisweb.com.br/legislacao/?id=113876]. Accessed 18 September 2020.
[5] Ministry of Science. "Sensitive Goods (Bens Sensíveis)". [http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/Coordenacao-Geral/Coordenacao-Geral.html]. Accessed 28 July 2020.
[6] Ministry of Defense. 2013. "Defense Sets Guidelines for Biosafety, Biosecurity and Biological Defense for Major Events (Defesa define diretrizes de biossegurança, bioproteção e defesa biológica para grandes eventos)". [https://www.defesa.gov.br/index.php/noticias/4248-11-03-2013-defesa-defesa-define-diretrizes-de-biosseguranca-bioprotecao-e-defesa-biologica-para-grandes-eventos]. Accessed 28 July 2020.
[7] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br]. Accessed 28 July 2020.
[8] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 28 July 2020.
[9] Macedo, Leila. 2012. "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories: Summary of a Workshop". [https://www.nap.edu/read/13315/chapter/19]. Accessed 28 July 2020.
[10] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 28 July 2020.
[11] United Nations Confidence Building Measures. 2018. "Brazil - Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/brazil]. Accessed 28 July 2020.

1.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has in place 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. Brazil's National Laboratory of Public Health has published regulations on Biosecurity, addressing requirements such as risk assessment, physical security, personnel and visitor safety management, material control or incident response plan to prevent unauthorized possession or loss of dangerous agents. [1] State health departments also have their own guidelines based on regulations established by the Ministry of Health, Federal Council for Veterinary Medicine

and Ministry of Agriculture on Risk Management for High Biological Security Sites, which also outlines safety processes for facilities dealing with dangerous pathogens to prevent misuse or intentional release of these agents. [2] Also, resolution 2/2006 from the National Biosafety Technical Commission includes rules for biologic facilities, including the classification of biosecurity levels, operational procedures, and physical containment for facilities holding biological agents. [3]

[1] Central Laboratory of Public Health. "Guidelines for Quality and Biosecurity (Manual da Qualidade e Biossegurança)". [http://bvsms.saude.gov.br/bvs/publicacoes/biocontecao_gerenciamento_risco_ambientes_alta_contencao.pdf]. Accessed 28 July 2020.
[2] Central Laboratory for Public Health of the State of Espírito Santo. 2017. "Biosecurity: Managing Risk in High Biological Environments (Biocontenção: o gerenciamento do risco em ambientes de alta contenção biológica)". [http://saude.es.gov.br/Media/sesa/LACEN/Manuais/MANUAL%20DE%20BIOSSEGURAN%C3%87A%20LACEN-ES%20REV%2002.pdf]. Accessed 28 July 2020.
[3] Ministry of Science. 2006. "Normative Resolution 2, from 27 November 2006 (Resolução Normativa No. 2, de 27 de novembro de 2006)". [https://agrobiobrasil.org.br/wp-content/uploads/2013/11/RESOLU%C3%87%C3%83O-NORMATIVA-N%C2%BA-2-DE-27-DE-NOVEMBRO-DE-2006.pdf]. Accessed 28 July 2020.

1.3.1c

Is there an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations?
Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Brazil has an established agency responsible for the enforcement of biosecurity legislation and regulations. Resolution 2/2006 from the National Biosafety Technical Commission has rules for biological facilities, including biosecurity, but it did not establish an agency to enforce the legislation. [1] There are several guidelines on Biosecurity: the regulations on Biosecurity Quality Control; the guidelines from the Ministry of Health on Risk Management for High Biologic Security Sites; or the OECD Best Practice Guidelines on Biosecurity, which outline recommendations for good quality management of biological laboratories. [2,3] However there is no evidence of an agency actually enforcing these guidelines in Brazil. [4] State health departments also have their own guidelines based on regulations established by the Ministry of Health, Federal Council for Veterinary Medicine and Ministry of Agriculture on Risk Management for High Biological Security Sites, which also outlines safety processes for facilities dealing with dangerous pathogens to prevent misuse or intentional release of these agents. However, there is no indication of an agency to enforce those biosecurity regulation at the state level in the guidelines. [5] In the website for the Ministry of Health's Secretariat for Health Surveillance, there is a mention of five departments, one of which is the Department for Environmental Health, Worker's Heatlh and Surveillance of Public Health Emergencies (DSASTE). Based on the broad competencies it is listed on the website, its work is related more to biosafety than biosecurity, as it involves workers' safety. No further detail was found on this department. [6] No evidence of an enforcement agency has been found in the Ministry of Science, in the Ministry of Defense, in the Ministry of Agriculture or in the National Public Laboratory System. [7,8,9,10] The Ministry of Health does not function as an enforcement agency—it is an organ of the federal executive branch responsible for the organiztion and development of plans and public policies for the promotion, prevention and provision of health care to Brazilians. [11] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [12]

[1] Ministry of Science. 2006. "Normative Resolution 2, from 27 November 2006 (Resolução Normativa Nº 2, de 27 de novembro de 2006)". [https://agrobiobrasil.org.br/wp-content/uploads/2013/11/RESOLU%C3%87%C3%83O-NORMATIVA-N%C2%BA-2-DE-27-DE-NOVEMBRO-DE-2006.pdf]. Accessed 28 July 2020.
[2] Central Laboratory of Public Health. "Guidelines for Quality and Biosecurity (Manual da Qualidade e Biossegurança)". [http://bvsms.saude.gov.br/bvs/publicacoes/biocontecao_gerenciamento_risco_ambientes_alta_contencao.pdf]. Accessed

28 July 2020.
[3] Organisation for Economic Co-operation and Development (OECD). 2013. "Best Practice Guidelines on Biosecurity for BRCs". [http://www.oecd.org/sti/emerging-tech/38778261.pdf]. Accessed 28 July 2020.
[4] Ministry of Health. "Accreditation of Culture Collections of Biological Resource Centers (Programa de Acreditação de Coleções de Cultura dos Centros de Recursos Biológicos)".
[http://inmetro.gov.br/credenciamento/pdf/projeto_acreditacao_avaliacao_conformidade.pdf]. Accessed 28 July 2020.
[5] Central Laboratory for Public Health of the State of Espírito Santo. 2017. "Biosecurity: Managing Risk in High Biological Environments (Biocontenção: o gerenciamento do risco em ambientes de alta contenção biológica)".
[http://saude.es.gov.br/Media/sesa/LACEN/Manuais/MANUAL%20DE%20BIOSSEGURAN%C3%87A%20LACEN-ES%20REV%2002.pdf]. Accessed 28 July 2020.
[6] Ministry of Health. "Departments (Departamentos)". [https://www.saude.gov.br/secretaria-svs/departamentos]. Accessed 30 August 2020.
[7] Ministry of Science. "Sensitive Goods (Bens Sensíveis)".
[http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/Coordenacao-Geral/Coordenacao-Geral.html]. Accessed 28 July 2020.
[8] Ministry of Defense. 2013. "Defense Sets Guidelines for Biosafety, Biosecurity and Biological Defense for Major Events (Defesa define diretrizes de biossegurança, bioproteção e defesa biológica para grandes eventos)".
[https://www.defesa.gov.br/index.php/noticias/4248-11-03-2013-defesa-defesa-define-diretrizes-de-biosseguranca-bioprotecao-e-defesa-biologica-para-grandes-eventos]. Accessed 28 July 2020.
[9] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br]. Accessed 28 July 2020.
[10] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 28 July 2020.
[11] Ministry of Health. "Institutional (Institucional)". [http://www.saude.gov.br/acesso-a-informacao/institucional]. Accessed 15 September 2020.
[12] Verification Research, Training and Information Centre (VERTIC). "Legislation Database".
[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 28 July 2020.

1.3.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that shows that Brazil has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. In 2009, the Brazilian Biosafety Association carried-out a survey among Biosecurity Laboratories Level 3 (BSL-3) in response to a letter from the International Security and Arms Control, which identified the location of selected agents which can pose a threat to human health. [1] The survey also highlighted that laboratories using these selected agents were not required to notify the government of their inventory, thus there was not national inventory of these agents. Due to this lack of information there has not been any efforts in consolidating inventories in a fewer number of laboratories. There is no evidence of consolidation in guidelines from the Health Ministry on Biosecurity, in the Ministry of Defense, the Ministry of Agriculture, in the Department of Dangerous Goods from the Ministry of Science, or in the National Public Laboratory System. [2,3,4,5,6]. There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [7]

[1] Brazilian Biosafety Association. 2009. "Overview of Biosafety and Biosecurity in High-containment Labs in Brazil: A Report of the Brazilian Biosafety Association". [https://www.ncbi.nlm.nih.gov/books/NBK196149/]. Accessed 28 July 2020.

[2] Ministry of Health. 2015. "Biosecurity: Managing Risk in High Biological Environments (Biocontenção: o gerenciamento do risco em ambientes de alta contenção biológica)". [http://bvsms.saude.gov.br/bvs/publicacoes/biocontecao_gerenciamento_risco_ambientes_alta_contencao.pdf]. Accessed 28 July 2020.
[3] Ministry of Defense. 2013. "Defense Sets Guidelines for Biosafety, Biosecurity and Biological Defense for Major Events (Defesa define diretrizes de biossegurança, bioproteção e defesa biológica para grandes eventos)". [https://www.defesa.gov.br/index.php/noticias/4248-11-03-2013-defesa-defesa-define-diretrizes-de-biosseguranca-bioprotecao-e-defesa-biologica-para-grandes-eventos]. Accessed 28 July 2020.
[4] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br]. Accessed 28 July 2020.
[5] Ministry of Science. "Sensitive Goods (Bens Sensíveis)". [http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/Coordenacao-Geral/Coordenacao-Geral.html]. Accessed 28 July 2020.
[6] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 28 July 2020.
[7] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 28 July 2020.

1.3.1e

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

Yes = 1 , No = 0

Current Year Score: 1

There is 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. The Ministry of Health Surveillance Protocol for Ebola identifies that PCR should be the technique to verify a potential Ebola case in Brazil. [1] The Ministry of Health has determined that the Evandro Chagas Institute, an organization linked to the Health Regulatory Agency which works in biomedical research, will be the national laboratory that will analyse the samples of suspected Ebola cases that may arise in the country using the PCR technique. [2] Moreover, the Instituto Oswaldo Fiocruz, a health agency located in Rio de Janeiro and one of the main public health research institutions in the world which carries out biological services for the Brazilian Health Services, can conduct PCR testing for Anthrax and serves a reference laboratory for the whole country for this test. [3]

[1] Ministry of Health. 2014. "Protocol for the Surveillance and Management of Suspected Cases of Ebola Virus (Protocolo de vigilância e manejo de casos suspeitos de doença pelo vírus Ebola)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/agosto/26/PROTOCOLO-DE-VIGILANCIA-EBOLA-26-08-VERSAO-5-.pdf]. Accessed 28 July 2020.
[2] UOL. 2014. "Ebola Diagnosis in Brazil May Take Days to be Confirmed in the US (Diagnóstico de ebola no Brasil pode levar dias até ser confirmado nos EUA)". [https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2014/08/22/diagnostico-de-ebola-feito-no-brasil-sera-confirmado-nos-eua.htm]. Accessed 28 July 2020.
[3] Institute Oswaldo Cruz. 2016. "Scientific Report 2016 (Relatorio cientifico 2016)". [http://www.fiocruz.br/ioc/media/RelatorioLabs_IOC2016_Final_v02_bx.pdf]. Accessed 28 July 2020.

1.3.2 Biosecurity training and practices

1.3.2a

Does the country require biosecurity training, using a standardized, required approach, such as through a common curriculum or a trainthe-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 Brazil requires biosecurity training, using a standardised, 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. According to Article 5 of the Normative Instruction 585/2013, the Ministry of Defence is mandated to promote biosecurity training for the Armed Forces, but no further regulations or specifications have been issued. [1] The National Laboratory System requires laboratories managing dangerous pathogens to implement training sessions for members. Training usually follows the guidelines from three international standards: The ISO 17025, item 5.2.2; Best Practices in Biosafety from the OECD; and the ISO Guide 34, item 5.2. However, there is no common, standardised curriculum just broad guidelines which are not mandatory. [2] There is no evidence of a standardized approach in the Ministry of Health, in the Ministry of Defense, in the Ministry of Agriculture, in the Ministry of Science, or in the national laboratory system. [3,4,5,6,7] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [8]

[1] Ministry of Defense. 2013. "Normative Portaria 585/2013: Guidelines for Biosecurity, Biosafety and Biologic Defense from the Defense Ministry (Normativa 585/2013: Aprova as Diretrizes de Biossegurança, Bioproteção e Defesa Biológica do Ministério da Defesa)".
[http://www.lex.com.br/legis_24245823_PORTARIA_NORMATIVA_N_585_DE_7_DE_MARCO_DE_2013.aspx]. Accessed 28 July 2020.
[2] Ministry of Health. Oswaldo Cruz Foundation. "Accreditation Program - Culture Collections of Biological Resource Centers (Programa de Acreditação de OAC - Coleções de Cultura dos Centros de Recursos Biológicos)".
[http://www.inmetro.gov.br/credenciamento/pdf/1_bioprotecao.pdf]. Accessed 28 July 2020.
[3] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 28 July 2020.
[4] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 28 July 2020.
[5] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 28 July 2020.
[6] Ministry of Science website [http://www.mctic.gov.br/portal]. Accessed 28 July 2020.
[7] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 28 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). "Legislation Database".
[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 28 July 2020.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

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

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

Current Year Score: 0

There is no evidence of regulations specifying 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. Biosecurity guidelines from the National Laboratory System require that laboratories dealing with dangerous pathogens should institute safety scanning of team members in accordance with national privacy legislation, however these regulation do not enforce explicitly drug testing, background checks or psychological or mental fitness checks. The laboratories are recommended to carry-out background checks of team members whose roles require them to have access to material presenting a high or moderate biosecurity risk. These checks should be made prior to granting access to such biological materials, however the tests are not mandatory. Also there are no explicit rules on which tests are to be completed, namely no mention on drug testing or psychological or mental fitness checks. [1] There is no evidence of regulations enforcing drug testing, background checks, and psychological or mental fitness checks in the Ministry of Health, in the Ministry of Defense, in the Ministry of Agriculture, Ministry of Science or in the National Laboratory system. [2,3,4,5,6] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [7]

[1] Ministry of Health. Oswaldo Cruz Foundation. "Accreditation Program - Culture Collections of Biological Resource Centers (Programa de Acreditação de OAC - Coleções de Cultura dos Centros de Recursos Biológicos)". [http://www.inmetro.gov.br/credenciamento/pdf/1_bioprotecao.pdf]. Accessed 28 July 2020.
[2] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 28 July 2020.
[3] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 28 July 2020.
[4] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 28 July 2020.
[5] Ministry of Science website [http://www.mctic.gov.br/portal]. Accessed 28 July 2020.
[6] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 28 July 2020.
[7] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 28 July 2020.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has publicly available information on national regulations on the safe and secure transport of infectious substances. There are several regulations on the transport of Category A and B infections substances, such as Resolution 20 from 10th April 2014 from the National Agency for Health Surveillance (Agência Nacional Vigilância Sanitária - ANVISA) which establishes the sanitary standards for the transport of biological material of human origin, including rules for Category A and Category B materials. [1] Similarly, Brazil has also passed on legislation for the transport of infectious substances among countries in South America, through Ordinance 472 of 9 March 2009. [2] Additionally there are also specific legislation for blood sample transport, which might contain infectious substances, such as of Decree 370/2014 from the Ministry of Health on the technical regulations for blood transport; or the Surveillance Manual for Blood Transport issued by ANVISA. [3,4] There have been no updates or additions since the publications of those documents.

[1] National Agency for Health Surveillance. 2014. "Resolution 20 from 10 April 2014: Sanitary Regulation for the Transport of Human Biological Material (Resolução 20 de 10 Abril de 2014: Dispõe sobre regulamento sanitário para o transporte de material biológico humano". [http://portal.anvisa.gov.br/documents/10181/2867956/[1] RDC_20_2014_COMP.pdf/fda4b2b9-fd01-483d-b006-b7ffcaa258ba]. Accessed 28 July 2020.
[2] Ministry of Health. 2009. "Ordinance 472 of 9 March 2009: MERCOSUR Technical Regulation for Transport of Infectious Substances and Biological Samples between MERCOSUR States Parties (Regulamento Técnico MERCOSUL para Transporte de Substâncias Infecciosas e Amostras Biológicas entre os Estados Partes do MERCOSUL). [http://bvsms.saude.gov.br/bvs/saudelegis/gm/2009/prt0472_09_03_2009.html]. Accessed 28 July 2020.
[3] Ministry of Health. 2014. "Ordinance 370/2014: Regulation for Blood Trasnport (Portaria 370/2014: Regulamento técnico-sanitário para o transporte de sangue e componentes)". [http://bvsms.saude.gov.br/bvs/saudelegis/sas/2014/poc0370_07_05_2014.html]. Accessed 28 July 2020.
[4] National Agency for Health Surveillance. 2016. "Manual of Sanitary Surveillance for the Transport of Blood and Components in the Scope of Hemotherapy (Manual de Vigilância Sanitária para o transporte de Sangue e Componentes no âmbito da Hemoterapia)". [http://portal.anvisa.gov.br/documents/4048533/4048644/manual_transporte_sangue_componentes.pdf/62ea6ec8-50be-4b22-8209-18acb70be1c1]. Accessed 28 July 2020.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Brazil has regulations in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential.

Argentina, Brazil, Paraguay, and Uruguay are signatories to 'Resolution No. 50/08 MERCOSUR Technical Regulation for the Transport of Infectious Substances and Biological Samples between the States Parties', which includes various measures for cross-border transfer checks and end-user screening. [1, 2] According to the MERCOSUR resolution, the relevant bodies for implementation are: Argentina's Ministry of Health, Brazil's Ministry of Health / ANVISA, Paraguay's Ministry of Public Health and Social Welfare, and Uruguay's Ministry of Public Health. [2] The Resolution includes Category A and B infectious substances, crops, biological samples, and genetically modified organisms (GMOs) in its definition of infectious substances. [2]

This Resolution places responsibilities on Senders, Receivers, and the relevant health bodies. Specifically, Senders are required to organize a written approval from the receiving institution or organisation in advance, determine appropriate transportation including mode of transportation and the most direct route, acquire customs and sanitary clearances from relevant agencies, notify recipients of procedures to be carried out in advance, and follow the WHO "Guide on regulations relating to the transport of infectious substances" for packaging and labelling. [2] The Recipient is also required to obtain necessary authorizations for entry into state, provide Sender with necessary documentation, and notify Sender of received materials. Both the Sender and the Receiver are also mandated to get the relevant health authority in the countries to inspect the respective export and import materials. [2] Required documentation as part of this Resolution includes "commercial shipping / invoice list that includes the recipient's address, number of packages, detail of content, weight and value (if any)" as part of its end-user screening procedures. [2]

Brazil incorporated this Resolution in its national laws under Portaria MS Nº 472 of 03/09/09, published in the DOU on 03/10/09. [1]

[1] MERCOSUR. 28 November 2008. "MERCOSUR / GMC / RES. No. 50/08: MERCOSUR Technical Regulation for the Transport of Infectious Substances and Biological Samples between the States Parties - Regulations details". [https://normas.mercosur.int/public/normativas/277]. Accessed 1 June 2021.
[2] MERCOSUR. 28 November 2008. "(Resolution 50/2008): MERCOSUR Technical Regulation for the Transport of Infectious Substances and Biological Samples between the States Parties (REPEAL OF RES. GMC No. 25/00)". [https://normas.mercosur.int/simfiles/normativas/4072_RES_050-2008_ES_RTM%20TranspSubst%20Infecciosas.pdf]. Accessed 1 June 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: 1

Brazil has national biosafety legislation in place. In 2005, the Ministry of Labour also published Normative Resolution 32 of 2005 with guidelines to protect health workers safety, including rules when dealing with biological substances including non-GMO agents. This regulation defines standards for infection prevention, waste disposal, environmental cleaning, and other safety regulations to minimize risks of accidents for health workers dealing with biological agents. [1] In 2018 the government started setting-up a commission to draft a national policy on biosecurity and biosafety which is to be ready by 2020. [2] Brazil's Law 11,105 of 2005 mainly focusing on safety norms and inspection mechanisms for activities involving GMOs and their by-products, but also covering non agricultural GMOs and embryonic stem cells. The law sets-up safety regulations for GMOs and derivative products and aims to encourage scientific advances in the field of biosafety and biotechnology, always with the view of protecting human, animal and plant life and protecting the environment. The law also sets-up entities to oversee biosafety in Brazil, namely the National Biosafety Council, the National Biosafety Technical Commission, and the Biosafety Information System. [3,4] In addition, the National Agency for Health Surveillance (ANVISA) also issued the technical note 4 in 2020, which provides additional guidance for the biosafety regarding the COVID-19 pandemic, which serves to complement the Normative Resolution 32 of 2005. [5,6]

[1] Labour Ministry. 2005. "Normative Regulation 32/2005: Health and Safety for Health Services (Norma Regulamentadora 32/2005: Segurança e Saude no Trabalho em Serviços de Saude)". [http://www.guiatrabalhista.com.br/legislacao/nr/nr32.htm]. Accessed 28 July 2020.
[2] O Globo. 2018 "Government Creates Group to Develop National Biosafety Policy (Governo cria grupo para elaborar política nacional de biossegurança)". [https://blogs.oglobo.globo.com/lauro-jardim/post/governo-cria-grupo-para-elaborar-politica-nacional-de-biosseguranca.html]. Accessed 28 July 2020.
[3] Government of Brazil. 2005. "Law 11.105 of March 24, 2005 (Lei 11.105 de 24 de Março de 2005)". [http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11105.htm]. Accessed 28 July 2020.
[4] Center for Health Security. 2016. "National Biosafety Systems: Case studies to analyze current biosafety approaches and regulations for Brazil, China, India, Israel, Pakistan, Kenya, Russia, Singapore, the United Kingdom, and the United States".[http://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-

pdfs/2016/National%20Biosafety%20Systems.pdf]. Accessed 28 July 2020.
[5] FUNDACENTRO. 2020. "NR 32 brings useful orientations for the prevention of COVID-19 in health services (NR 32 traz orientações úteis para prevenção à Covid-19 nos serviços de saúde)". [http://www.fundacentro.gov.br/noticias/detalhe-da-noticia/2020/4/nr-32-traz-orientacoes-uteis-para-prevencao-a-covid-19-nos-servicos-de-saude]. Accessed 28 July 2020.
[6] National Agency for Health Surveillance. 2020. "Technical Note GVIMS/GGTES/ANVISA N. 04/2020: Orientations for health services: Measures to prevent and control that must be adopted during the assistance in suspect or confirmed cases of infection by the new coronavirus (SARS-CoV-2) (Nota Técnica GVIMS/GGTES/ANVISA No. 04/2020: Orientações para serviços de saúde: Medidas de prevenção e controle que devem ser adotadas durante a assistência aos casos suspeitos ou confirmados de infecção pelo novo coronavírus (SARS-CoV-2)".
[http://portal.anvisa.gov.br/documents/33852/271858/Nota+T%C3%A9cnica+n+04-2020+GVIMS-GGTES-ANVISA-ATUALIZADA/ab598660-3de4-4f14-8e6f-b9341c196b28]. Accessed 28 July 2020.

1.4.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Brazil has an established agency responsible for the enforcement of biosafety legislation and regulations. Law 11.105 and decree 5591 from 2005, established the Technical Commission on Biosafety (Comissão Técnica Nacional de Biossegurança - CTNBio), created the regulations for stem cells, and outlined the rules on infringements to biosafety, including regulation pertaining to protection of workers from accidental harm from biological substances. This legislation gives powers to three different agencies to oversee biosafety legislation: the Ministry of Agriculture, the Nationa Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA), and the Environment Ministry. These three agencies monitor activities within their remit. For example, the Environment Ministry approves of and applies penalties for products to be released into the environment, whilst ANVISA is responsible for products of human use and Ministry of Agriculture is responsible for overseeing agriculture laboratories. However, there is insufficient evidence to conclude that either of these bodies is responsible for the enforcement of biosafety legislations and regulations. [1,2,3] During the COVID-19 pandemic, state and municipal governments established additional biosafety regulations that apply to the general population as well as specific sectors and professions. The enforcement of the regulations are conducted by state or municipal health agents or police. There are insufficient evidence that agents at the federal level are monitoring and enforcing biosafety regulations. There have been numerous cases where people have been imprisoned or fined and business have lost their licenses for not adhering to the biosafety measures (e.g., refusing to wear a mask, opening during the quarantine). [4,5,6,7,8] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [9]

[1] Government of Brazil. 2005. "Decreto 5591 de 22 Novembro 2005". [http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2005/Decreto/D5591.htm]. Accessed 29 July 2020.
[2] Government of Brazil. 2005. "Lei 11.105 de 24 de Março de 2005". [http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11105.htm]. Accessed 29 July 2020.
[3] Center for Health Security. 2016. "National Biosafety Systems: Case studies to analyze current biosafety approaches and regulations for Brazil, China, India, Israel, Pakistan, Kenya, Russia, Singapore, the United Kingdom, and the United States".[http://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2016/National%20Biosafety%20Systems.pdf]. Accessed 29 July 2020.
[4] Tribuna de Jundiaí. 2020. "Doria announces R$500 fine for those who do not wear a mask in public areas (Doria anuncia multa de R$ 500 para quem não usar máscara em local público)." [https://tribunadejundiai.com.br/saude/coronavirus/doria-anuncia-multa-de-r-500-para-quem-nao-usar-mascara-em-local-publico/]. Accessed 29 July 2020.

[5] UOL. 2020. "'Those who do not wear masks commits crime and can be imprisoned', says attorney-general of Pernambuco ("Quem não usa máscara comete crime e poderá ser preso", diz procurador-geral de Pernambuco)". [https://jc.ne10.uol.com.br/colunas/grande-recife/2020/07/11953838--quem-nao-usa-mascara-comete-crime-e-podera-ser-preso---diz-procurador-geral-de-pernambuco.html]. Accessed 29 July 2020.
[6] último Segundo IG. 2020. "Man is immobilised with stun gun and imprisoned after refusing to wear a mask (Homem é imobilizado com arma de choque e preso após se recusar a usar máscara)". [https://ultimosegundo.ig.com.br/brasil/2020-07-19/homem-e-imobilizado-com-arma-de-choque-e-preso-apos-se-recusar-a-usar-mascara.html]. Accessed 29 July 2020.
[7] Estado de Minas Gerais. 2020. "Kalil: R$100 fine for those who do not wear a mask starts this Tuesday (Kalil: Multa de R$ 100 para quem não usar máscara começa a valer nesta terça)". [https://www.em.com.br/app/noticia/gerais/2020/07/13/interna_gerais,1166594/kalil-multa-de-r-100-para-quem-nao-usar-mascara-comeca-a-valer-terca.shtml]. Accessed 29 July 2020.
[8] Estado de Minas Gerais. 2020. "Six stores in the Northeast Region of Belo Horizonte lost their licenses for breaking the quarantine (Seis lojas na Região Noroeste de BH têm alvarás cassados por quebrar quarentena)". [https://www.em.com.br/app/noticia/gerais/2020/04/11/interna_gerais,1137833/seis-lojas-na-regiao-noroeste-de-bh-tem-alvaras-cassados-por-quebrar-q.shtml]. Accessed 29 July 2020.
[9] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 29 July 2020.

1.4.2 Biosafety training and practices

1.4.2a

Does the country require biosafety training, using a standardized, required approach, such as through a common curriculum or a trainthe-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 Brazil requires biosafety training, using a standardised, required approach, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. There are two main pieces of legislation mandating requirements for biosafety training, but none outlines a common curriculum. The first is the 2010 Ordinance 3204 from the Ministry of Health, which sets-up the biosafety rules for Public Health Laboratories and mandates biosafety training for staff working in these premises, but does not outline a curriculum. [1] The second is Normative Resolution 32, which sets the topics for biosafety training, including hygiene procedures, protective equipment, accident and hazard prevention and emergency plans. This norm also requires employers to maintain a record of which employees attended each training session, as well as the programme and the data of each training session, but does also does not specifies a standard curriculum. [2,3] In addition to the national legislation, Brazil adopted in 2003 the Cartagena Protocol on Biosafety, an environmental treaty that is part of the Convention on Biological Diversity. The main objective is to contribute to a proper safety level when transferring, manipulating and using Genetically Modified Organisms (GMOs), but the protocol also does not specifies a training curriculum. [4] Later in 2004, Brazil's Ministry of Health started providing biosecurity training for specialist staff working in public laboratories across the country, however state public agencies or individual entities (such as universities or public laboratories) can also provide their own training sessions with their own content such as outlines in research papers. [5,6,7] So, despite the long history of biosafety training with more than 4000 staff trained in biosafety educational programs, and the adoption several international guidelines of biosafety training, there were no evidence of standard curriculum for Biosafety training in the Ministry of Health, Agriculture, or in the National Laboratory System. [8,9,10,11,12] There is also no evidence of relevant legislation in the Verification Research,

Training and Information Centre (VERTIC) database. [13]

[1] Ministry of Health. 2010. "Ordinance N 3204/2010: Technical Standard of Biosafety for Public Health Laboratories (Portaria No. 3204/2010: Norma Técnica de Biossegurança para Laboratórios de Saúde Pública)". [http://redsang.ial.sp.gov.br/site/docs_leis/bs/bs2.pdf]. Accessed 29 July 2020.
[2] Ministry of Health. "Normative Resolution 32: Safety and Health at Work in Health Services (Norma Regulamentadora 32: Segurança e Saúde no trabalho em serviços de saúde)". [http://www.guiatrabalhista.com.br/legislacao/nr/nr32.htm]. Accessed 29 July 2020.
[3] Ministry of Health. 2010. "Biosafety in Health: Priorities and Strategies for Action (Biossegurança em Saúde: Prioridades e Estratégias de Ação)". [http://bvsms.saude.gov.br/bvs/publicacoes/biosseguranca_saude_prioridades_estrategicas_acao.pdf]. Accessed 29 July 2020.
[4] Ministry of the Environment. "Cartagena Protocol on Biosafety (Protocolo de Cartagena sobre Biossegurança)". [http://www.mma.gov.br/biodiversidade/conven%C3%A7%C3%A3o-da-diversidade-biol%C3%B3gica/protocolo-de-cartagena-sobre-biosseguranca.html]. Accessed 29 July 2020.
[5] Ministry of the Environment. "Genetic Modification Biosafety Training Courses (Cursos de Capacitação em Biossegurança de Organismos Geneticamente Modificado)". [http://www.mma.gov.br/component/k2/item/7518.html]. Accessed 29 July 2020.
[6] Federal University of Rio de Janeiro. "Training Course on Biosafety in Scientific Research (Curso de Capacitação em Biossegurança na Pesquisa Científica)". [http://www.macae.ufrj.br/nupem/index.php/novidades/461-capacitacao-em-biosseguranca-na-pesquisa-cientifica-a-distancia]. Accessed 29 July 2020.
[7] Pereira, Maria et al. 2010. "The structuring of the Biosafety Professional Training Program in the context of the Project for Modernization of Scientific Management of the Oswaldo Cruz Institute (A estruturação do Programa de Capacitação Profissional de Biossegurança no contexto do Projeto de Modernização da Gestão Científica do Instituto Oswaldo Cruz)". Saude soc. vol.19 no.2 São Paulo June 2010. [http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-12902010000200019&lng=en&nrm=iso&tlng=pt]. Accessed 29 July 2020.
[8] Ministry of Health website. [https://saude.gov.br/]. Accessed 29 July 2020.
[9] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 29 July 2020.
[10] Ministry of Science website [http://www.mctic.gov.br/portal]. Accessed 29 July 2020.
[11] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 29 July 2020.
[12] Center for Health Security. 2016. "National Biosafety Systems: Case studies to analyze current biosafety approaches and regulations for Brazil, China, India, Israel, Pakistan, Kenya, Russia, Singapore, the United Kingdom, and the United States".[http://www.centerforhealthsecurity.org/our-work/pubs_archive/pubs-pdfs/2016/National%20Biosafety%20Systems.pdf]. Accessed 29 July 2020.
[13] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 29 July 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available 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. Law No. 9112 of 1995, classifies dangerous goods as those of use in the nuclear, chemical, biological and missile areas, including dual use goods. [1] This law set-up the Directorate for Dangerous Goods (Coordenação-Geral de Bens Sensíveis, CGBE), comprised of members of the Justice, Defense, Economy, Foreign Affairs and Treasury ministries, who have the responsibility to oversee research handling biological agents with dual use. However there is no evidence in the CGBE, in the Ministry of Health, Ministry of Defence, or the Ministry of Agriculture that any assessment on ongoing research on dangerous pathogens has been carried-out. [2,3,4,5] The CGBE has been focused mainly on controlling the import and export of dangerous goods including dangerous pathogens. [6] Research papers have identified CGBE responsibilities on controlling research, but there is not mention of a research assessment either. [7] The United Nations Confidence Building Measures website has 24 reports for Brazil, however their access is restricted and it is not possible to assess if there is additional information on Brazilian assessment on research about especially dangerous pathogens. [8] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [9]

[1] Government of Brazil. "Law No. 9112 of October 10, 1995: Export of Sensitive Goods and Services Directly Related (Lei no. 9112, de 10 de outubro de 1995: Dispõe sobre a exportação de bens sensíveis e serviços diretamente vinculados)". [https://presrepublica.jusbrasil.com.br/legislacao/110305/lei-9112-95]. Accessed 29 July 2020.
[2] Ministry of Science. Directorate for Dangerous Goods. "Sensitive Good (Bens Sensíveis)". [http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/Coordenacao-Geral/Coordenacao-Geral.html]. Accessed 29 July 2020.
[3] Ministry of Health. "Health Surveillance (Vigilância em Saúde)". [http://portalms.saude.gov.br/vigilancia-em-saude]. Accessed 29 July 2020.
[4] Ministry of Defense. [https://www.gov.br/defesa/pt-br/]. Accessed 29 July 2020.
[5] Ministry of Agriculture. "International Surveillance of Agriculture and Livestock - VIGIAGRO (Vigilância Agropecuária Internacional - Vigiagro)". [https://www.gov.br/agricultura/pt-br/assuntos/vigilancia-agropecuaria]. Accessed 29 July 2020.
[6] Ministry of Science. "COCBS - Implementation and Monitoring of Biological Area (IACB) (COCBS - Implementação e Acompanhamento da área Biológica (IACB))". [http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/COCBS_IACB/COCBS_Implementacao_Acompanhamento_area_Biologica.html]. Accessed 29 July 2020.
[7] Rambauske Dora et al. 2014. "Bioterrorism, biological risks and biosafety measures applicable to Brazil". in Physis Revista de Saúde Coletiva 24
[4] :1181-1205. October 2014.
[https://www.researchgate.net/publication/286617586_Bioterrorism_biological_risks_and_biosafety_measures_applicable_to_Brazil]. Accessed 29 July 2020.
[8] United Nations Confidence Building Measures. 2020. "Brazil - Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/brazil]. Accessed 29 July 2020.
[9] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 29 July 2020.

1.5.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is a national policy requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential in Brazil. Law No. 9112 of 1995, classified dangerous and dual goods and set-up the Directorate for Dangerous Goods (Coordenação-Geral de Bens Sensíveis - CGBE), comprised of members of the Justice, Defense, Economy, Foreign Affairs and Treasury ministries. [1] CGBE is responsible for monitoring the implementation of the policy to control sensitive and dual goods and follow-up of international conventions or treaties in the areas of disarmament and non-proliferation of weapons of mass destruction. Although the CGBE has been focused mainly in controlling the import and export of dangerous goods including dangerous pathogens, the legislation gave it oversight of researchers who handle biologic agents with dual-use research and has also control on equipment that can be used for production, storage and dissemination of potentially dangerous goods. [1,2,3] Research papers have identified CGBE responsibilities on controlling research on dual goods and dangerous pathogens. [4] The United Nations Confidence Building Measures website has 24 reports for Brazil, however their access is restricted and it is not possible to assess if there is additional information on Brazilian policy regarding dual use research. [5]

[1] Government of Brazil. 1995. "Law 9.112 from 10th October 1995: Export of Sensitive Goods (Lei no. 9.112, de 10 de outubro de 1995: Dispõe sobre a exportação de bens sensíveis e serviços diretamente vinculados)". [https://presrepublica.jusbrasil.com.br/legislacao/110305/lei-9112-95]. Accessed 29 July 2020.
[2] Government of Brazil. 2005. "Law 11.105 from 24th March 2005 (Lei 11.105 de 24 de Março de 2005)". [http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11105.htm]. Accessed 29 July 2020.
[3] Ministry of Science. Directorate for Dangerous Goods. "Sensitive Good (Bens Sensíveis)". [http://www.mctic.gov.br/mctic/opencms/institucional/bens_sensiveis/Coordenacao-Geral/Coordenacao-Geral.html]. Accessed 29 July 2020.
[4] Rambauske, Dora et al. 2014. "Bioterrorism, biological risks and biosafety measures applicable to Brazil". Physis Revista de Saúde Coletiva 24
[4] : pp1193. October 2014.
[https://www.researchgate.net/publication/286617586_Bioterrorism_biological_risks_and_biosafety_measures_applicable_to_Brazil]. Accessed 29 July 2020.
[5] United Nations Confidence Building Measures. 2020. "Brazil - Available Confidence Building Measures Reports". [https://bwc-ecbm.unog.ch/state/brazil]. Accessed 29 July 2020.

1.5.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and other dual use research. Law 9,112 of 1995 set-up the Directorate for Dangerous Goods (Coordenação-Geral de Bens Sensíveis - CGBE), giving it powers of oversight of researchers who handle biologic agents with dual-use research and giving CGBE control on equipment that can be used for production, storage and dissemination of potentially dangerous goods. [1, 2, 3] CGBE is comprised of members of the Justice, Defense, Economy, Foreign Affairs and Treasury ministries, who have the responsibility to monitor the implementation of the control policy for sensitive goods and the monitoring of conventions and international treaties in the areas of disarmament and non-proliferation of arms of mass destruction, of which Brazil is a part. [3] The specific products considered as dangerous goods and dual goods were identified explicitly in Resolution 13 of 2010 from the 'Inter Ministerial Commission Controlling Dangerous Goods Exports', including dangerous

pathogens. [4] The United Nations Confidence Building Measures website has 24 reports for Brazil, however their access is restricted and it is not possible to assess if there is additional information on an agency responsible for oversight of research with especially dangerous pathogens. [5]

[1] Ministry of Defence. "Sensitive Goods and Their Strategic Importance for National Defense (Os Bens Sensíveis e sua Importância Estratégica para a Defesa Nacional)". [https://www.gov.br/defesa/pt-br/assuntos/noticias/ultimas-noticias/21092011-defesa-seminario-debate-uso-e-importancia-estrategica-de-bens-sensiveis]. Accessed 29 July 2020.
[2] Rambauske, Dora et al. 2014. "Bioterrorism, biological risks and biosafety measures applicable to Brazil". Physis Revista de Saúde Coletiva 24
[4] : pp1193. October 2014.
[https://www.researchgate.net/publication/286617586_Bioterrorism_biological_risks_and_biosafety_measures_applicable_to_Brazil]. Accessed 29 July 2020.
[3] Government of Brazil. 1995. "Law 9.112 from 10th October 1995: Export of Sensitive Goods (Lei no. 9.112, de 10 de outubro de 1995: Dispõe sobre a exportação de bens sensíveis e serviços diretamente vinculados)".
[https://presrepublica.jusbrasil.com.br/legislacao/110305/lei-9112-95]. Accessed 29 July 2020.
[4] Inter Ministerial Commission Controlling Dangerous Goods Exports "Resolution no. 13 of 10/03/2010: List of Goods Related to the Biological Area and Directly Linked Services (Resolução CIBES no. 13 de 10/03/2010: Lista de Bens Relacionados à área Biológica e Serviços Diretamente Vinculados)". [http://www.normasbrasil.com.br/norma/resolucao-13-2010_113266.html]. Accessed 29 July 2020.
[5] United Nations Confidence Building Measures. 2020. "Brazil - Available Confidence Building Measures Reports".
[https://bwc-ecbm.unog.ch/state/brazil]. Accessed 29 July 2020.

1.5.2 Screening guidance for providers of genetic material

1.5.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of national legislation requiring the screening of synthesised DNA before it is sold in Brazil. Law 11.105, published in 2005, outlines the safety norms and inspection mechanisms for activities involving GMOs, DNA and DNA recombinant products. The law has specific regulations regarding modified DNA and explicitly forbids DNA products which fail to comply with the law. This piece of legislation empowers the National Biosafety Technical Commission (CTNBio), to support the prevention or investigation of accidents resulting from DNA modification activities. However there are no requirements for the screening of these products. [1] There is no regulation requiring the screening of synthesized DNA in the Ministry of Infrastructure (which includes Transportation since 2019), in the Ministry of Health, in the Ministry of Defence, in the Ministry of Agriculture, Ministry of Science or in the National Laboratory system. [2,3,4,5,6,7] There is also no evidence of relevant legislation in the Verification Research, Training and Information Centre (VERTIC) database. [8]

[1] Government of Brazil. 2005. "Law 11.105 from 24 March 2005 (Lei 11.105 de 24 de Março de 2005)".
[http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11105.htm]. Accessed 29 July 2020.
[2] Ministry of Infrastructure website. [https://infraestrutura.gov.br/index.php/]. Accessed 29 July 2020.
[3] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 29 July 2020.
[4] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 29 July 2020.
[5] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 29 July 2020.

[6] Ministry of Science. Website [http://www.mctic.gov.br/portal]. Accessed 29 July 2020.
[7] National Laboratory system. [http://portalms.saude.gov.br/acoes-e-programas/sistema-nacional-de-laboratorios-de-saude-publica-sislab/sistema-nacional-de-laboratorios-de-saude-publica-sislab]. Accessed 29 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). "Legislation Database". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/]. Accessed 29 July 2020.

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

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

Current Year Score: 0

2019

World Health Organization

1.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2020

OIE WAHIS database

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

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

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

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

Current Year Score: 2

The national laboratory system in Brazil has the capacity to conduct diagnostic tests for at least 5 of the 10 World Health Organization (WHO)-defined core tests. The Manual for Biological Samples from the Central Laboratory of Public Health of the State of Paraná has evidence that the site can test for 4 of the WHO core tests: Polymerase chain reaction (PCR) for influenza; serology for HIV; microscopy for tuberculosis; bacterial culture for Salmonella Typhi. [1] Oswaldo Cruz Institute, a leading public health research institution based in Rio de Janeiro and part of the Brazilian Health Laboratory System, has the ability to conduct diagnosis for all four of the above tests, plus an addition WHO core test, the virus culture for polio. The Institute is the national reference laboratory for virus culture for poliovirus and health services around the country send potential samples to be tested in the local laboratory. [2,3,4,5] There is also evidence that Brazil can test for the 6th core-test, rapid diagnostic testing for plasmodium spp. (malaria). Although the main malaria test in Brazil is the thick blood smear, there is evidence of rapid test for malaria across several hospitals, for example in the region of Curitiba. [6] There is no evidence in the National Agency for Health Surveillance website that Brazil has selected the 4 local tests. [7]

[1] Central Laboratory of the State of Paraná. 2012. "Manual de Coleta e Envio de Amostras Biológicas ao Lacen". [http://www.lacen.saude.pr.gov.br/arquivos/File/SESLAB/Manual.pdf]. Accessed 29 July 2020.
[2] Oswaldo Cruz Institute. "Enterovirus Laboratories (Laboratorio de Enterovirus)". [http://www.fiocruz.br/ioclabs/cgi/cgilua.exe/sys/start.htm?sid=161]. Accessed 29 July 2020.
[3] Oswaldo Cruz Institute. 2005. "2005 Report (Relatorio de Actividades 2005)". [http://www.fiocruz.br/ioc/media/relatorio05.pdf]. Accessed 29 July 2020.
[4] FioCruz News. 2009. "Virologist Clarifies Questions About Influenza A (Virologista esclarece questões sobre a influenza A)". [https://agencia.fiocruz.br/virologista-esclarece-quest%C3%B5es-sobre-a-influenza-a-h1n1]. Accessed 29 July 2020.
[5] Oswaldo Cruz Institute. 2016. "Scientific Report 2016 (Relatorio cientifico 2016)". http://www.fiocruz.br/ioc/media/RelatorioLabs_IOC2016_Final_v02_bx.pdf]. Accessed 29 July 2020.
[6] Visioni M, Ribas J. 2015. "The immunochromatography as a triage test to diagnose malaria in Curitiba". Revista Saúde e Desenvolvimento, vol. 8, n.4, Jul-Dez. 2015 [https://www.uninter.com/revistasaude/index.php/saudeDesenvolvimento/article/download/499/304]. Accessed 29 July 2020.
[7] National Agency for Health Surveillance. [http://portalms.saude.gov.br/vigilancia-em-saude]. Accessed 29 July 2020.

2.1.1b

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

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

Current Year Score: 0

There is insufficient evidence that Brazil has a national plan, strategy or similar document for conducting testing during a public health emergency that includes testing for novel pathogens, scaling capacity, and defined goals for testing. There is a plan that recognizes the threat of novel pathogens and acknowledges that they must be tested, but it does not outline how the country would approach testing for a novel pathogen or scaling up testing during an emergency. The Ministry of Health has created the National Focal Point Operation Plan for International Health Regulations (PFN-RSI) in 2016. The document contains basic instructions for the functions and procedures that are aligned with WHO regulations. Its objective is to create systemic procedures to strengthen responses to public health emergencies. The PFN-RSI includes considerations for testing for novel pathogens, but it does not include considerationg for scaling capacity or defined goals goals for testing. On page 15,

it defines "public health emergencies", and it includes "unknown pathogens" as a cause for a public health emergency. On page 116 of the Plan, it outlines a decision tree for the evaluation and notification of public health emergencies. Among the steps, there is one that considers "unknown pathogens", which can also be interpreted as "novel pathogens". [1] Brazil has the National Contingency Plan for Human Infection by the New Coronavirus COVID-19 of 2020. The Plan against COVID-19 includes considerations for testing and diagnostics for the novel coronavirus; however, it does not provide specific plans for testing or goals for testing. The considerations around diagnostics include the development of organizational flux for diagnostic testing of suspect cases of the disease, the establishment of diagosnostic protocols, analysis of laboratorial capacity to respond to the demand for diagnostic testing of COVID-19, the provision of inputs for the diagnostic testing, monitoring of diagnostic testing and their results, and support of reference laboratories to realize diagnostic testing of RT-PCR for COVID-19 infections. There are no mentions of any scaling capacity or testing goals in the document. [2] No further evidence was found in the websites of the Ministry of Health, the Ministry of Agriculture, or the National Agency for Health Surveillance. [3,4,5]

[1] Ministry of Health. 2016. "National Focal Point Operation Plan for International Health Regulations (Plano de Operação do Ponto Focal Nacional para o Regulamento Sanitário Internacional)". [http://www.saude.gov.br/images/pdf/2016/agosto/04/PF-RSI-2016-e.pdf]. Accessed 31 July 2020.
[2] Ministry of Health. 2020. "National Contingency Plan for Human Infection by the New Coronavirus COVID-19 (Plano de Contingência Nacional para Infecção Humana pelo novo Coronavírus COVID-19)". [https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/13/plano-contingencia-coronavirus-COVID19.pdf]. Accessed 19 March 2021.
[3] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 18 September 2020.
[4] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br]. Accessed 18 September 2020.
[5] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 18 September 2020.

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

The national laboratory that serves as a reference facility is quality accredited. The Oswaldo Cruz Institute (FIOCRUZ) in Rio de Janeiro is quality accredited by ISO 15189 (quality and competence of medical laboratories) and ISO 17025 (testing and calibration competence). [1,2,3] The WHO designated FIOCRUZ a reference laboratory for all the Americas in April 2020, placing it alongside the Laboratory for Diagnostics of Respiratory Viruses of the CDC. [4]

[1] Oswaldo Cruz Institute. "Quality, from Management to Research (Qualidade, da gestão à pesquisa)". [http://www.fiocruz.br/ioc/cgi/cgilua.exe/sys/start.htm?infoid=1140&sid=32]. Accessed 29 July 2020.
[2] International Organization for Standardization. "ISO/IEC 15189:2012". [https://www.iso.org/standard/56115.html]. Accessed 29 July 2020.
[3] International Organization for Standardization. "ISO/IEC 17025:2005". [https://www.iso.org/standard/39883.html]. Accessed 29 July 2020.
[4] Agência Brasil. 2020. "COVID-19: FIOCRUZ becomes reference laboratory in the Americas (Covid-19: Fiocruz se torna laboratório de referência nas Américas)". [https://agenciabrasil.ebc.com.br/saude/noticia/2020-04/Covid-19-Fiocruz-se-

torna-laborat%C3%B3rio-refer%C3%AAncia-Am%C3%A9ricas]. Accessed 29 July 2020.

2.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

The national laboratory that serves as a reference facility is subject to external quality assurance review. Oswaldo Cruz Institute in Rio de Janeiro is a national reference laboratory that carries epidemiological, environmental and health surveillance for healthcare services. [1] It was the first scientific research laboratory in Brazil to receive quality accreditation from the Clinical Laboratory Accreditation Programme (Programa de Acreditação de Laboratórios Clínicos) of the Brazilian Society of Laboratory Medicine (Sociedade Brasileira de Patologia Clínica/ Medicina Laboratorial), which carries out technical and procedural audits for hospitals and laboratories. [2,3]

[1] Ministry of Health. "Structuring of the National Network of Environmental Health Surveillance Laboratories (Estruturação da Rede Nacional de Laboratórios de Vigilância em Saúde Ambiental)". [http://www.disaster-info.net/lideres/portugues/curso-brasil08/palestras_pdf/EstruturacaodaRedeNacionaldeLaboratorios.pdf]. Accessed 29 July 2020.
[2] Oswaldo Cruz Institute. "Laboratory Receives Unprecedented Quality Management Accreditation in the Country (Laboratório recebe acreditação de gestão da qualidade inédita no país)". [http://www.fiocruz.br/ioc/cgi/cgilua.exe/sys/start.htm?infoid=119&sid=32]. Accessed 29 July 2020.
[3] Nehme, Nédia. 2009. "Deploying a Quality Management System in a Research Laboratory of the Oswaldo Cruz Institute (Implantação do Sistema de Gestão da Qualidade em um laboratório de pesquisa do Instituto Oswaldo Cruz)". [http://bdtd.ibict.br/vufind/Record/CRUZ_488f308d532aaf59fbf1dfa08943680e]. Accessed 29 July 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 1

Brazil has a nationwide specimen transport system. In 2014, the National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) issued Resolution 20/2014 on the rules for the transport of biological material by public laboratories. [1] Furthermore, in 2015, ANVISA, launched the Surveillance Manual on Transport of Human Biological Material for Clinical Diagnostic Purposes with clear guidelines on how laboratories can securely arrange for the transport of specimen across the country or internationally. [2] Due to the vast network of hundreds of laboratories across the country, with an estimate of 20,000 tests carried out per day in each site, ANVISA recommends that transport is to be made by the Ministry of Health's own services, mostly sourced by ANVISA which can deliver specimens nationwide. However, when that is not possible, then other public services can be used, or even private companies, provided they can comply with the regulations on specimen transport issued by ANVISA. [2,3]

[1] National Agency for Health Surveillance. 2014. "Resolution 20, of 10th April 2014: Regulation on the Transport of Human Biological Material (Resolução 20, de 10 de Abril 2014: Regulamento sanitário para o transporte de material biológico humano)". [http://www.sbpc.org.br/upload/conteudo/anvisa_rdc20_10abr2014.pdf]. Accessed 29 July 2020.
[2] National Agency for Health Surveillance. 2015. "Manual of Sanitary Surveillance on the Transport of Human Biological Material for Clinical Diagnostic Purposes (Manual de Vigilância Sanitária sobre o Transporte de Material Biológico Humano para fins de Diagnóstico Clinico)". [https://www.pncq.org.br/uploads/2015/not%C3%ADcias/Manual%20de%20Transporte%20de%20Material%20Biolo_gico.pdf]. Accessed 29 July 2020.
[3] National Agency for Health Surveillance. 2020. "Transport of human biological material (Transporte de material biológico humano)". [http://portal.anvisa.gov.br/transporte-de-material-biologico]. Accessed 29 July 2020.

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 insufficient evidence that there is a plan in place to rapidly authorise or licence laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak. The National Focal Point Operation Plan for International Health Regulations (PFN-RSI) of 2016 contains basic instructions for the functions and procedures that are aligned with WHO regulations. Its objective is to create systemic procedures to strengthen responses to public health emergencies. However, there are no measures to rapidly authorise or licence laboratories for testing during an outbreak. [1] Laboratory licencing is done by the National Agency for Health Surveillance (ANVISA), and it is regulated by its resolution 302 of 13 October 2005. [2] During the COVID-19 pandemic, in May 2020, ANVISA altered that resolution to allow, only temporarily, the inclusion of other laboratories to expand the network of laboratories for diagnostics of COVID-19. [3] No other evidence was found in the websites of the Ministry of Health or the Ministry of Agriculture. [4][5]

[1] Ministry of Health. 2016. "National Focal Point Operation Plan for International Health Regulations (Plano de Operação do Ponto Focal Nacional para o Regulamento Sanitário Internacional)". [http://www.saude.gov.br/images/pdf/2016/agosto/04/PF-RSI-2016-e.pdf]. Accessed 31 July 2020.
[2] National Agency for Health Surveillance. 2005. "Resolution of the Directors College - RDS N. 302, of 13 October 2005 (Resolução da Diretoria Colegiada - RDC No. 302, de 13 de outubro de 2005)". [http://portal.anvisa.gov.br/documents/10181/5919009/RDC_302_2005_COMP.pdf/bf588e7a-b943-4334-aa70-c0ea690bc79f]. Accessed 31 July 2020.
[3] National Agency for Health Surveillance. 2020. "Network for diagnostics of COVID-19 is expanded (Rede para diagnóstico de Covid-19 é ampliada)". [http://portal.anvisa.gov.br/noticias/-/asset_publisher/FXrpx9qY7FbU/content/ampliada-rede-para-diagnostico-de-covid-19/219201]. Accessed 31 July 2020.
[4] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[5] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 30 August 2020.

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

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

Yes, there is evidence of ongoing event-based surveillance and evidence that the data is being analyzed on a daily basis = 2, Yes, there is evidence of ongoing event-based surveillance, but no evidence that the data are being analyzed on a daily basis = 1, No = 0

Current Year Score: 1

There is evidence of ongoing event-based surveillance in Brazil, but no evidence that the data is being analysed on a daily basis. The Centre for Strategic Information in Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS) acts as the public health emergency operations center for the country. It has 54 active centers throughout Brazil, aiming to monitor outbreaks, epidemics and other public health emergencies. [1] This team manages the Integrated System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME), an event-based surveillance system that captures information about events such as stories or reports that pose a potential public health risk and also captures information by email or phone from regional or local health authorities. This information can be accessed through the different entities within the National Health Services, including data on: clusters of cases of diseases; unusual patterns of occurrence of unexpected illnesses or deaths; or events related to diseases and deaths in animals, or environmental risks, including chemical, biological, radioactive and nuclear agents. Notifications to the System must be made with 24 hours of the event. [2] However there is no evidence in the SIME website or in the Health Surveillance agency that the data in event-based surveillance data from SIME is being analysed on a daily basis, despite collection of the data must be within 24 hours of the observed event. There is no information as to the processing of the data received or any underlying procedural reason for the 24-hour requirement for the notification of an event. [3] The Committee for Monitoring Events (CME) meets weekly, every Friday, to discuss and analyse any potential public health threats. [4,5]

[1] Ministry of Health. "Health Surveillance: Center for Strategic Information in Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde -CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 29 July 2020.
[2] Ministry of Health. "System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)" [http://sime.saude.gov.br/]. Accessed 29 July 2020.
[3] Ministry of Health. 2007. "Notifiable Diseases Information System: Norms and Protocols (Sistema de Informação de Agravos de Notificação: Normas e Rotinas)". [http://portalsinan.saude.gov.br/images/documentos/Aplicativos/sinan_net/Manual_Normas_e_Rotinas_2_edicao.pdf]. Accessed 19 March 2021.
[4] Ministry of Health. "System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)". [http://portalsinan.saude.gov.br/sime]. Accessed 29 July 2020.
[5] Ministry of Health. "National Network for Emergency in Health Responses (Rede Nacional de Alerta e Resposta às Emergências em Saúde Pública)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs/rede-nacional-de-alerta-e-resposta-as-emergencias-em-saude-publica]. Accessed 29 July 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence that Brazil has reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. Brazil has reported several disease outbreaks to the WHO in the last two years, such as Yellow Fever in 2018 and 2019, or Measles in June 2018. In addition, there have been cases of potential public health emergency of international concern, such as the case of zika (microcephaly) in 2015 and 2016. [1] As the WHO declared COVID-19 a pandemic in the end of January, disease outbreak news was not reported for Brazil, which had its first confirmed case on 26 February 2020. [2]

[1] World Health Organization (WHO). 2020. "Disease Outbreak News - Brazil". [https://www.who.int/csr/don/archive/country/bra/en/]. Accessed 29 July 2020.
[2] Ministry of Health. 2020. "Brazil confirms first case of the disease (Brasil confirma primeiro caso da doença). [https://www.saude.gov.br/noticias/agencia-saude/46435-brasil-confirma-primeiro-caso-de-novo-coronavirus]. Accessed 29 July 2020.

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

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

Yes = 1 , No = 0

Current Year Score: 1

The Brazilian Ministry of Health operates an electronic reporting surveillance system at both the national and the sub-national level. The Notification of Injury Information System (SINAN) is a software database system that aims to collect, transmit and disseminate data routinely generated by the Epidemiological Surveillance System. Through a computerized network, SINAN supports the investigation process and gives support to the analysis of epidemiological surveillance information of compulsory notification diseases. It operates at the federal, state and municipal levels of government. The system monitors diseases that are listed in the national list of compulsorily notifiable diseases. State and municipal governments may add their other major health threats that are specific to their region. [1]

[1] Ministry of Health "SINAN, Information System for Notification", 2006. [http://bvsms.saude.gov.br/bvs/publicacoes/sistema_informacao_agravos_notificacao_sinan.pdf]. Accessed 29 July 2020.

2.3.2b

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

Yes = 1 , No = 0

Current Year Score: 1

The government-run electronic reporting surveillance system collects onoing laboratory data. The Notification of Injury Information System (SINAN) system collects information from laboratories. Laboratory results should be reported immediately by the Health Laboratories of Public States (Lacen) and National or Regional Reference Laboratories. Data are entered on to SINAN on a daily as well as a weekly basis. SINAN is a software database system that aims to collect, transmit and disseminate data routinely generated by the Epidemiological Surveillance System. Through a computerized network, SINAN supports the investigation process and gives support to the analysis of epidemiological surveillance information of

compulsory notification diseases. [1]

[1] Ministry of Health "SINAN, Information System for Notification", 2006. [http://bvsms.saude.gov.br/bvs/publicacoes/sistema_informacao_agravos_notificacao_sinan.pdf]. Accessed 29 July 2020.

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

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

Current Year Score: 1

There is evidence of an electronic health record system in place but insufficient evidence that electronic health records are commonly in use in Brazil. The National Health Card is a repository of individual medical records carried out in Brazil for all members of the National Health Service. Since November 2016, the government is mandating all municipalities to upload their local medical information to the National Health Card network so that all public health services can track the history, data and outcome of patient exams. [1,2,3] However in September 2018, the Ministry of Health estimated that only 106 million patients (about 50% of the population) had their records online, sourced from 11 different systems and covering almost 20,000 health units from 3,780 municipalities. [4,5] A survey published in February 2018 infers that about 70% of the Brazilian population do not have a private health insurance and depend on the public health care system, which suggests that about 147 million people depend on the public health care system. [6] As of end-2019, there were reports that the electronic health records system was still being implemented in Brazilian municipalities. [7,8]

[1] Ministry of Health. "National Health Card (Cartão Nacional de Saúde)". [https://www.saude.gov.br/acoes-e-programas/cartao-nacional-de-saude]. Accessed 29 July 2020.
[2] Campinas Municipal Health Agency. 2016. "Old and new challenges for the EHR storing, modelling and sharing clinical information in the Genomic Era". [http://www.fapesp.br/eventos/2016/11/bipmed/Jose_Augusto.pdf]. Accessed 29 July 2020.
[3] eHealth Mentor Institute. 2016. "Brazil eHealth – Overview, Trends & Opportunities". [https://www.rvo.nl/sites/default/files/2017/01/Brazil%20Healthcare%20-%20Guilherme%20Hummel.pdf]. Accessed 29 July 2020.
[4] Ministry of Health. 2018. "National Health Service application approximates citizens of public health services (Aplicativo do SUS aproxima cidadãos dos serviços públicos de saúde)". [http://portalms.saude.gov.br/noticias/agencia-saude/44394-aplicativo-do-sus-aproxima-cidadaos-dos-servicos-publicos-de-saude]. Accessed 29 July 2020.
[5] Segs. 2018. "e-Health: What is the Brazilian Strategic Project (e-Saúde: o que é o Projeto Estratégico Brasileiro)". [https://www.segs.com.br/seguros/130954-e-saude-o-que-e-o-projeto-estrategico-brasileiro/]. Accessed 29 July 2020.
[6] Agência Brasil. 2018. "Survey shows that nearly 70% of Brazilians do not have a private healthcare plan (Pesquisa mostra que quase 70% dos brasileiros não têm plano de saúde particular)". [https://agenciabrasil.ebc.com.br/geral/noticia/2018-02/pesquisa-mostra-que-quase-70-dos-brasileiros-nao-tem-plano-de-saude-particular]. Accessed 29 July 2020.
[7] Municipal News Agency of Campo Grande. 2019. "E-SUS AB: 40% of units can rely on a more efficient system for information control [http://www.campogrande.ms.gov.br/cgnoticias/noticias/e-sus-ab-40-das-unidades-passam-a-contar-com-sistema-mais-eficiente-para-controle-de-informacao/]. Accessed 29 July 2020.
[8] Tribuna de Petrópolis. 2019. "Health: Implementation of electronic health record in the SUS should conclude in November

(Saúde: Implantação do prontuário eletrônico no SUS deve ser concluída em novembro)". [https://tribunadepetropolis.com.br/saude-implantacao-do-prontuario-eletronico-no-sus-deve-ser-concluida-em-novembro]. Accessed 29 July 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

Brazil's national public health system has access to electronic health records of individuals in their country. Brazil's National Health system is one of the largest public systems in the world, covering almost 200 million patients. [1] The National Health Card is a repository of individual medical records carried out in the Brazil for all members of the Unified Health System, the Brazilian universal healthcare system. Since November 2016, the government is mandating all municipalities to upload their local medical information to the National Health Card network so all public health services can track the history, data and outcome of patient exams. [2,3] In September 2018, the Ministry of Health estimated that 106 million patients had their records online, sourced from 11 different system and covering almost 20,000 health units from 3780 municipalities. [4] In July 2019, the Ministry of Health issued an update to the electronic health records system that provides more functions to health professionals in the public health system, such as unifying registrations of users, historic data on the user, editing of patient history, and notification system in cases of deteriorating patient health. [5]

[1] Ministry of Health. "National Health System (Sistema Nacional de Saude)". [http://portalms.saude.gov.br/artigos/681-institucional/40029-sistema-nacional-de-saude]. Accessed 29 July 2020.
[2] Ministry of Health. "National Health Card (Cartão Nacional de Saúde)". [https://www.saude.gov.br/acoes-e-programas/cartao-nacional-de-saude]. Accessed 29 July 2020.
[3] eHealth Mentor Institute. 2016. "Brazil eHealth - Overview, Trends & Opportunities". [https://www.rvo.nl/sites/default/files/2017/01/Brazil%20Healthcare%20-%20Guilherme%20Hummel.pdf]. Accessed 29 July 2020.
[4] Ministry of Health. 2018. "National Health Service application approximates citizens of public health services (Aplicativo do SUS aproxima cidadãos dos serviços públicos de saúde)". [http://portalms.saude.gov.br/noticias/agencia-saude/44394-aplicativo-do-sus-aproxima-cidadaos-dos-servicos-publicos-de-saude]. Accessed 29 July 2020.
[5] Ministry of Health. 2019. "Improvements in the function of the e-SUS AB are presented in the XXXV Congress of CONASEMS (Melhorias nas funcionalidades do e-SUS AB são apresentadas no XXXV Congresso do Conasems)". [https://aps.saude.gov.br/noticia/5527]. Accessed 29 July 2020.

2.4.1c

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

Yes = 1 , No = 0

Current Year Score: 1

There are data standards to ensure that data is comparable in Brazil. The norms and specifications document from the National Health Card outlines that the system was designed using ISO 13606-2, which specifies that the information architecture required for inter-operable communications between systems and services needs to provide electronic health records. [1,2]

[1] Ministry of Health. 2011. "National Health Card: Rules and Procedures for use (Cartão Nacional de Saúde: Normas e Procedimentos de uso)". [http://www.saude.gov.br/images/pdf/2014/janeiro/31/normas-cartaoSUS-JAN2012.pdf]. Accessed 29 July 2020.
[2] International Organization for Standardization (ISO). "ISO 13606-2:2008". [https://www.iso.org/standard/50119.html]. Accessed 29 July 2020.

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence of established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data. The National Zoosanitary Information System (Sistema de Informação Zoosanitária - SIZ) is a tool managed by the Ministry of Agriculture to collect and disseminate animal health and disease information. [1,2] Only animal health data is provided via SIZ. [1] Animal disease data is sourced from various sources related to the veterinary services, from institutions in the areas of public health, environment, national security, education and research, as well as private sector agencies. SIZ is used as a reporting tool of surveillance data to health agencies from other public sectors such as the Ministry of Health, the Brazilian Institute of Environment and Renewable Natural Resources, the Ministry of Science and the Brazilian Intelligence Agency. [3,4] Human health surveillance is conducted by National Agency for Health Surveillance (ANVISA), through its National System of Health Surveillance (SNVS), which compiles human health surveillance data and is accessible to public authorities, from all levels of government. [5] There is no evidence of human, livestock and wildlife health data being shared or analysed together in the websites of the Ministry of Health, the Ministry of Agriculture or the Ministry of Environment. [6,7,8]

[1] Ministry of Agriculture. "National Zoosanitary Information System (Sistema de Informação Zoosanitária - SIZ)". [http://www.agricultura.gov.br/assuntos/sanidade-animal-e-vegetal/saude-animal/sistema-informacao-saude-animal]. Accessed 29 July 2020.
[2] Ministry of Agriculture. "National Zoosanitary Information System Case Reporting (Sistema de Informação Zoosanitária Reporte de casos)". [http://indicadores.agricultura.gov.br/saudeanimal/index.htm]. Accessed 29 July 2020.
[3] Agency for the Defence of Agriculture and Livestock of Paraná. 2014. "Veterinary Epidemiology (Epidemiologia Veterinária)". [http://www.adapar.pr.gov.br/pagina-94.html]. Accessed 29 July 2020.
[4] Ministry of Agriculture. "User Guide for the National Zoosanitary Information System (Manual do Sistema de Informação Zoosanitária). [https://www.gov.br/agricultura/pt-br/assuntos/sanidade-animal-e-vegetal/saude-animal/arquivos-importacao/Manual_SIZ_DSA_2013_atualizado.pdf/view]. Accessed 29 July 2020.
[5] National Agency for Health Surveillance. "National System of Health Surveillance (Sistema Nacional de Vigilância Sanitária (SNVS))". [http://portal.anvisa.gov.br/vigilancia-sanitaria-no-brasil]. Accessed 15 September 2020.
[6] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 18 September 2020.
[7] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 18 September 2020.
[8] Ministry of Environment website. [https://www.mma.gov.br/]. Accessed 18 September 2020.

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

Brazil makes de-identified health surveillance data on disease outbreaks publicly available via reports on government websites, but the epidemiological surveillance are regularly made publicly available on the Ministry of Health website on a monthly and not weekly basis. Weekly reports are made for cases of priority diseases or public health emergencies, such as the case of the COVID-19 pandemic. [1] The report analyses the epidemiological situation of diseases, monitors events and diseases with potential to trigger public health emergencies, and reports on outbreak investigations. [2] As of 30 August 2020, the latest monthly epidemiological surveillance report refers to the month of August 2020, which was published on 13 August 2020. [3] For the COVID-19 pandemic, the Ministry of Health is publishing weekly reports. As of 30 August 2020, the latest weekly report on COVID-19 refers to the week from 16 through 22 August 2020. It was published on 26 August 2020. [4]

[1] Ministry of Health. 2020. "Epidemiological Reports (Boletins Epidemiologicos)". [http://portalms.saude.gov.br/boletins-epidemiologicos]. Accessed 29 July 2020.
[2] National Agency for Health Surveillance. 2020. "Epidemiological Bulletin 29: Microelimination of hepatitis C in hemodialysis clinics (Boletim Epidemiológico 29: Microeliminação da hepatite C nas clínicas de hemodiálise)". [https://www.saude.gov.br/images/pdf/2020/July/29/Boletim-epidemiologico-SVS-29.pdf]. Accessed 29 July 2020.
[3] Ministry of Health. 13 August 2020. "Epidemiological Report 33 (Boletim Epidemiológico 33)".
[4] [https://www.saude.gov.br/images/pdf/2020/August/21/Boletim-epidemiologico-SVS-33.pdf]. Accessed 30 August 2020.
[4] Ministry of Health. 26 August 2020. "Special Epidemiological Report 28: Disease caused by coronavirus COVID-19 (Boletim Epidemiológico Especial 28: Doença pelo Coronavírus COVID-19)".
[https://www.saude.gov.br/images/pdf/2020/August/27/Boletim-epidemiologico-COVID-28-FINAL-COE.pdf]. Accessed 30 August 2020.

2.4.3b

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

Yes = 1 , No = 0

Current Year Score: 1

The Ministry of Health compiles de-identified COVID-19 surveillance data on a daily basis via its website. The website presents the total number of accumulated confirmed cases, the new confirmed cases of the day, the number of confirmed deaths of the day, accumulated number of confirmed deaths, mortality rate, incidence per 100,000 inhabitants in the country and it also provides subnational data for the same indicators. The website has interactive charts that allow a chronological view of the evolution of the pandemic in Brazil. The website is updated daily around 19:00. [1] However, it must be noted that there have been disruptions in the publishing of COVID-19 surveillance data. Between 5 June 2020 and 9 June 2020, the Ministry of Health interrupted the publishing of data, changed the reporting format removing the number of daily confirmed deaths and cases from the website, and pushed back the update time to 22:00 (after peak TV hours). The situation aggravated on 7 June 2020, when the government first published that there were 1,382 deaths in the last 24 hours, but a few hours later it announced that there were 525 deaths, a difference of 857 victims. On 9 June 2020, the Federal

Supreme Court ordered the Ministry of Health to return to its previous format, reporting confirmed daily deaths and cases by 18:00 every day. Despite returning to the previous format, the event caused distrust of government data. The main media outlets in Brazil created a consortium to collect data directly from state sources. Since then, those media outlets have been reporting data compiled by the media consortium rather than the data published by the Ministry of Health. [2,3,4,5]

[1] Ministry of Health. 2020. "Coronavirus / Brazil (Coronvírus / Brasil)". [https://covid.saude.gov.br/]. Accessed 29 July 2020.
[2] BBC. 2020. "Brazil is highlighted in the world for not disclosing data on deaths by COVID-19 (Brasil é destaque no mundo por não divulgar dados de mortes por covid-19)". [https://www.bbc.com/portuguese/brasil-52967730]. Accessed 29 July 2020.
[3] Folha de São Paulo. 2020. "After threatening to withhold data, government promotes confusion with COVID-19 numbers (https://www1.folha.uol.com.br/cotidiano/2020/06/apos-ameacar-sonegar-dados-governo-promove-confusao-com-numeros-a-covid-19.shtml)". [https://www1.folha.uol.com.br/cotidiano/2020/06/apos-ameacar-sonegar-dados-governo-promove-confusao-com-numeros-a-covid-19.shtml]. Accessed 29 July 2020.
[4] Correio Braziliense. 2020. "STF orders government to resume updating COVID-19 numbers; understand the controversy (STF manda governo retomar atualização da covid-19; entenda a polêmica)". [https://www.correiobraziliense.com.br/app/noticia/brasil/2020/06/09/interna-brasil,862250/stf-manda-governo-retomar-atualizacao-da-covid-19-entenda-a-polemica.shtml]. Accessed 29 July 2020.
[5] UOL. 2020. "Covid: with data from SP withheld, Brazil counts 1,554 new deaths in 24 hours (Covid: com dados de SP represados, Brasil conta 1.554 novas mortes em 24 h)". [https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2020/07/29/coronavirus-covid-19-casos-mortos-29-julho.htm]. Accessed 29 July 2020.

2.4.4 Ethical considerations during surveillance

2.4.4a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has laws that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities. Aside from standard data protection laws, there are three main pieces of legislation in Brazil governing the protection of medical data: Resolution 1,821 of 2007 of the Federal Council of Medicine, which establishes the need for increased security when dealing with the digital record of sensitive medical data; Resolutions 44 of 2009 and 36 of 2013 of the National Agency for Health Surveillance, which push for Good Pharmaceutical Practices to provide pharmaceutical services, including the need for privacy of personal medical data; and Law 12,965 of 2014, known as the Internet Civil Registry, which established the rights, limits and obligations of Internet users and services, including health platforms. [1,2,3,4] Additionally, health surveillance data is also subject to the Access to Information Law, namely Law 12,527 of 2011, which applies to any other governmental system. Article 31 of the Law has provisions on personal data privacy, stating that the processing, transfer and display of personal data is deemed unlawful when the owner of the data has not given their free, explicit and conscious consent. [5]

[1] Federal Council of Medicine. 2007. "Resolution Nr 1821/2007 (Resolução N. 1821/2007)". [https://sistemas.cfm.org.br/normas/visualizar/resolucoes/BR/2007/1821]. Accessed 29 July 2020.
[2] National Agency for Health Surveillance. 2009. "Resolution nr 44/2009 (Resolução 44/2009)". [https://www20.anvisa.gov.br/segurancadopaciente/index.php/legislacao/item/rdc-44-2009]. Accessed 29 July 2020.
[3] National Agency for Health Surveillance. 2013. "Resolution nr 36/2013 (Resolução No. 36/2013)".

[http://portal.anvisa.gov.br/documents/10181/2871504/RDC_36_2013_COMP.pdf/36d809a4-e5ed-4835-a375-3b3e93d74d5e]. Accessed 29 July 2020.
[4] Government of Brazil. 2014. "Law 12.965, 23rd April 2014: Principles, guarantees, rights and duties for the use of the Internet in Brazil (Lei No. 12.965, 23 de Abril de 2014: Princípios, garantias, direitos e deveres para o uso da Internet no Brasil)". [http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/l12965.htm]. Accessed 29 July 2020.
[5] Government of Brazil. 2011. "Law 21.527, 18th November 2011 (Lei No. 12.527, de 18 de Novembro de 2011". [http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm]. Accessed 29 July 2020.

2.4.4b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Brazil's laws safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protections from cyber attacks. Brazil's main laws on privacy of medical information for individuals do not have any mention of cyber attacks. These laws are: Resolution 1,821 of 2007 of the Federal Council of Medicine; Resolutions 44 of 2009 and 36 of 2013 of the National Agency for Health Surveillance; Law 12,965 of 2014; and the Access to Information Law (Law 12,527 of 2011). [1,2,3,4,5]

[1] Federal Council of Medicine. 2007. "Resolution 1821/2007 (Resolução CFM No. 1821/2007)". [https://sistemas.cfm.org.br/normas/visualizar/resolucoes/BR/2007/1821]. Accessed 29 July 2020.
[2] National Agency for Health Surveillance. 2009. "Resolution nr 44/2009 (Resolução 44/2009)". [https://www20.anvisa.gov.br/segurancadopaciente/index.php/legislacao/item/rdc-44-2009]. Accessed 29 July 2020.
[3] National Agency for Health Surveillance. 2013. "Resolution 36/2013 (Resolução No. 36/2013)". [http://portal.anvisa.gov.br/documents/10181/2871504/RDC_36_2013_COMP.pdf/36d809a4-e5ed-4835-a375-3b3e93d74d5e]. Accessed 29 July 2020.
[4] Government of Brazil. 2014. "Law 12,965, 23 April 2014: Principles, guarantees, rights and duties for the use of the Internet in Brazil (Lei No. 12.965, 23 de Abril de 2014: Princípios, garantias, direitos e deveres para o uso da Internet no Brasil)". [http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/l12965.htm]. Accessed 29 July 2020.
[5] Brazilian Parliament. 2011. "Law 12,527, 18 November 2011 (Lei No. 12.527, de 18 de Novembro de 2011". [http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm]. Accessed 29 July 2020.

2.4.5 International data sharing

2.4.5a

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

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

Current Year Score: 2

The government has made a commitment via a cooperative agreement to share surveillance data during a public health emergency with other countries in the region for more than one disease. In June 2018 the Health Ministries of Mercosul

countries (Brazil, Argentina, Chile, Paraguay and Uruguay) signed three agreements to cooperate in health emergencies, including epidemics. Health Ministries made a commitment to establish mechanisms of cooperation between countries, including sharing surveillance data during public health emergencies. [1] Brazil is also part of several agreements such as the WHO Global Outbreak Alert and Response Network (GOARN) and has agreed to share information about disease outbreaks with other countries in the network. [2] Brazil also regularly shares information with the WHO about disease outbreaks, with recent examples of Measles, Yellow Fever, Guillain-Barré syndrome and microcephaly. [3]

[1] Ministry of Health. 2018. "Mercosul Countries Sign Deal to Prevent Disease Reintroduction (Países do Mercosul fazem acordo para evitar a reintrodução de doenças)". [http://portalms.saude.gov.br/noticias/agencia-saude/43590-paises-do-mercosul-fazem-acordo-para-manter-eliminacao-de-doencas-transmissiveis]. Accessed 29 July 2020.
[2] World Health Organization (WHO). "Partners: Global Outbreak Alert and Response Network (GOARN)". [http://www.who.int/csr/disease/ebola/partners/en/]. Accessed 29 July 2020.
[3] World Health Organization (WHO). "Disease outbreak news: Brazil". [http://www.who.int/csr/don/archive/country/bra/en/]. Accessed 29 July 2020.

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

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

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

Current Year Score: 0

There is no evidence that there is a national system in place in Brazil to provide support at the sub-national level to conduct contact tracing in the event of a public health emergency. Prior to the outbreak of the COVID-19 pandemic, there have been studies to implement systems for contact tracing. Contact tracing experts proposed including contact tracing in plans and creating systems, taking advantage of the existing universal health care system as well as other family health social programmes; however, funding was not given for the proposal. [1] Contact tracing is mentioned as an important mechanism to combat infectious diseases in the Ministry of Health's "Surveillance Protocol and Management of Suspected Cases of Disease by Ebola Virus" of 2014; however, no national system was put in place to provide support at the sub-national level to conduct contact tracing for this public health emergency. [2] There was one case of Ebola Virus in Brazil in 2014. Local health authorities identified 68 people who had some kind of contact with the infected person and they were placed under surveillance. [3] Contact tracing was also mentioned in the Ministry of Health Technical Document on MERS-CoV of 2014; however, no national system was put in place to provide support at the sub-national level to expand contact tracing for this public health emergency. [4] There is no evidence of any case of MERS-CoV in Brazil. Contact tracing is a recurring mechanism to counter sexually transmitted infections (STIs). There are several clinical protocols and therapeutic guidelines on how to manage STIs. They include contact tracing mechanisms; however, there is no mention of a system in place to provide support at the sub-national level to conduct contact tracing in the event of a public health emergency. [5] Neither the federal government nor state or municipal governments conducted contact tracing at the outbreak of the COVID-19 pandemic. The state government of São Paulo started contact tracing in July 2020. [5] In July 2020, the Ministry of Health added a tool to its mobile phone application that provide information and guidelines to the general population, the Coronavirus-SUS app. The tool alerts users if they had contact with people who tested positive for COVID-19. [6] No other

evidence was found in the website of the Ministry of Health. [7]

[1] Veja. 2020. "Contact tracing: what it is and how can it help contain the coronavirus (Rastreamento de contatos: o que é e como ele ajuda a conter o coronavírus)". [https://saude.abril.com.br/medicina/rastreamento-de-contatos-o-que-e-e-como-ele-ajuda-a-conter-o-coronavirus/]. Accessed 31 July 2020.
[2] Ministry of Health. 8 September 2014. "Surveillance Protocol and Management of Suspected Cases of Disease by Ebola Virus (Protocolo de Vigilância e Manejo de Casos Suspeitos de Doença pelo Vírus Ebola (DVE)". [http://www.saude.gov.br/images/pdf/2014/setembro/10/Protocolo-Ebola-08-09-14--.pdf]. Accessed 16 September 2020.
[3] Jornal Hoje. 10 October 2014. "First suspected case of ebola in Brazil is recorded in the south of the country (Primeiro caso suspeito de ebola no Brasil é registrado no Sul do país)". [http://g1.globo.com/jornal-hoje/noticia/2014/10/primeiro-caso-suspeito-de-ebola-no-brasil-e-registrado-no-sul-do-pais.html]. Accessed 16 September 2020.
[4] Ministry of Health. 2014. "Technical Document - MERS-CoV (New Coronavirus) (Informe Técnico - MERS-CoV (Novo Coronavírus))". [https://portalarquivos2.saude.gov.br/images/pdf/2014/junho/10/Informe-Tecnico-para-Profissionais-da-Saude-sobre-MERS-CoV-09-06-2014.pdf]. Accessed 16 September 2020.
[5] Ministry of Health. "Department of Chronic Conditions and Sexually Transmitted Infections (Departamento de Doenças de Condições Crônicas e Infecções Sexualmente Transmissíveis)". [http://www.aids.gov.br/pt-br/tags/publicacoes/protocolo-clinico-e-diretrizes-terapeuticas]. Accessed 16 September 2020.
[6] Globo. 2020. "Four months after first case, government of SP creates tool to monitor those who had contact with people with coronavirus (Quatro meses após 1o caso, governo de SP cria ferramenta para monitorar quem manteve contato com pessoas com coronavírus)". [https://g1.globo.com/sp/sao-paulo/noticia/2020/07/09/quatro-meses-apos-1o-caso-sp-cria-ferramenta-para-monitorar-quem-manteve-contato-com-pessoas-com-covid-19.ghtml]. Accessed 31 July 2020.
[6] Ministry of Health. 2020. "Coronavirus-SUS application will alert close contacts of patients with Covid-19 (Aplicativo Coronavírus-SUS vai alertar contatos próximos de pacientes com Covid-19)". [https://www.saude.gov.br/noticias/agencia-saude/47292-aplicativo-coronavirus-sus-vai-alertar-contatos-proximos-de-pacientes-com-covid-19]. Accessed 31 July 2020.
[7] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.

2.5.1b

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

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

Current Year Score: 1

There is evidence that the government provides wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly medical attention.

There are no mention of economic support for cases to self-isolate in the Ministry of Health's protocol to address cases of Ebola virus (2014) or MERS (2014). [1,2] While the government of Brazil has provided all parts of the country with economic support and medical attention during the COVID-19 pandemic, there is no evidence of specific supports for those who are required to self-isolate or quarantine. For example, the federal government made available to low-income households and informal workers an emergency subsidy of R$600 for three months, which was later extended for another two additional months. The benefit reached up to 65 million people in Brazil. [3] Additionally, the federal government also implemented measures to provide some job security during the pandemic. Despite Brazil having rigid labour laws, the federal government made more flexible for employers to reduce working hours and salaries, or suspend labour contracts, if employees also agree. While those measures may reduce household income, the intention was to increase job security during the pandemic. The measures implemented are temporary. The limits imposed to reduced working hours and salaries and contract

suspensions are 120 days. [4]

Medical attention is available for free for anyone in Brazil (regardless of nationality or migration status) via the Unified Health System (SUS). For those practicing social isolation at home, SUS also visits people's homes to provide basic healthcare. This service existed before the outbreak of the COVID-19 pandemic. [5] There is no evidence that special wraparound were made available to cases or suspected cases of COVID-19 in the Ministry of Health website. Similarly, there is no further evidence of policies ensuring wraparound services for people isolating as a result of another type of infectious disease. [6]

[1] Ministry of Health. 8 September 2014. "Surveillance Protocol and Management of Suspected Cases of Disease by Ebola Virus (Protocolo de Vigilância e Manejo de Casos Suspeitos de Doença pelo Vírus Ebola (DVE)". [http://www.saude.gov.br/images/pdf/2014/setembro/10/Protocolo-Ebola-08-09-14--.pdf]. Accessed 16 September 2020.
[2] Ministry of Health. 2014. "Technical Document - MERS-CoV (New Coronavirus) (Informe Técnico - MERS-CoV (Novo Coronavírus))". [https://portalarquivos2.saude.gov.br/images/pdf/2014/junho/10/Informe-Tecnico-para-Profissionais-da-Saude-sobre-MERS-CoV-09-06-2014.pdf]. Accessed 16 September 2020.
[3] Agência Brasil. 2020. "Emergency subsidy of R$600 is extended for another two months (Auxílio emergencial de R$ 600 é prorrogado por mais dois meses)". [https://agenciabrasil.ebc.com.br/economia/noticia/2020-06/auxilio-emergencial-de-r-600-e-prorrogado-por-mais-dois-meses]. Accessed 31 July 2020.
[4] Government of Brazil. 2020. "Emergency Programme for Job Security is extended (Programa Emergencial de Manutenção do Emprego é prorrogado)". [https://www.gov.br/pt-br/noticias/trabalho-e-previdencia/2020/07/programa-emergencial-de-manutencao-do-emprego-e-prorrogado]. Accessed 31 July 2020.
[5] Ministry of Health. "Home Care Service (Atenção Domiciliar)". [http://www.saude.gov.br/acoes-e-programas/melhor-em-casa-servico-de-atencao-domiciliar/atencao-domiciliar]. Accessed 31 July 2020.
[6] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.

2.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Brazil makes de-identified data on contact tracing efforts for COVID-19 available on government websites. Neither the federal government nor state or municipal governments conducted contact tracing at the outbreak of the COVID-19 pandemic. The state government of São Paulo started contact tracing in July 2020. [1] In July 2020, the Ministry of Health added a tool to its mobile phone application that provide information and guidelines to the general population, the Coronavirus-SUS app. The tool alerts users if they had contact with people who tested positive for COVID-19. [2] No data can be found in the state health secretariat or the Ministry of Health's COVID-19 dedicated websites. [3,4]

[1] Globo. 2020. "Four months after first case, government of SP creates tool to monitor those who had contact with people with coronavirus (Quatro meses após 1o. caso, governo de SP cria ferramenta para monitorar quem manteve contato com pessoas com coronavírus)". [https://g1.globo.com/sp/sao-paulo/noticia/2020/07/09/quatro-meses-apos-1o-caso-sp-cria-ferramenta-para-monitorar-quem-manteve-contato-com-pessoas-com-covid-19.ghtml]. Accessed 31 July 2020.
[2] Ministry of Health. 2020. "Coronavirus-SUS application will alert close contacts of patients with Covid-19 (Aplicativo Coronavírus-SUS vai alertar contatos próximos de pacientes com Covid-19)". [https://www.saude.gov.br/noticias/agencia-saude/47292-aplicativo-coronavirus-sus-vai-alertar-contatos-proximos-de-pacientes-com-covid-19]. Accessed 31 July 2020.
[3] State Government of São Paulo. "SP Against the New Coronavirus (SP Contra o Novo Coronavírus)".

[https://www.saopaulo.sp.gov.br/coronavirus/]. Accessed 31 July 2020.
[4] Ministry of Health. "Coronavirus / Brazil (Coronavírus / Brasil)". [https://covid.saude.gov.br/]. Accessed 31 July 2020.

2.5.2 Point of entry management

2.5.2a

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

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

Current Year Score: 0

There is no evidence that there is a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travellers and trace and quarantine their contacts in the event of an active or future public health emergency. No joint plan or cooperative agreement was found in the websites of the Ministry of Health, the Federal Police (responsible for border control), the National Agency for Health Surveillance (ANVISA), the Brazilian Company of Airport Infrastrucutre (INFRAERO), or the National Agency for Water Transportation (ANTAQ). [1,2,3,4,5] Indeed, during the COVID-19 pandemic, the installation of sanitary barriers (e.g., the measurement of a person's temperature; if it is determined that the person has a high body temperature, that individual may be taken aside for more questioning to see if he/she poses a public health risk) and travel restrictions were delayed as a result of lack of coordination and there were episodes where imposed measures were taken to the courts to be decided by a judge. There were disputes and lack of coordination between ANVISA (a federal agency) with state governments on jurisdiction in airports. Judges intervened in some states to allow the installtion of sanitary barriers at airports to proceed. According to a case in the state of Pará, ANVISA did not take sufficient action to control travel or monitor health risks at airports in the state, so a federal judge allowed the state government to take action (which would otherwise be outside of the state government jurisdiction). [6] In another case, the president of the Federal Supreme Court, Dias Tóffoli, stopped state governments of Bahia and Maranhão from installing sanitary barriers in restricted areas of airports (e.g., after security checkpoints, in airplanes, or before immigration and customs), alleging that the barriers would go against measures of social isolation. Tóffoli noted that the state government could, however, implement sanitary barriers in unrestricted areas of airports (e.g., before security checkpoints or after immigation and customs). [7]

[1] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[2] Federal Police website. [https://www.gov.br/pf/pt-br]. Accessed 30 August 2020.
[3] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/].Accessed 30 August 2020.
[4] INFRAERO website. [http://www4.infraero.gov.br/]. Accessed 30 August 2020.
[5] ANTAQ website. [http://portal.antaq.gov.br/]. Accessed 31 July 2020. Accessed 30 August 2020.
[6] Federal Justice of Pará. 2020. "Federal court orders sanitary barriers to be installed at all airports in Pará while measures to combat Covid-19 last (Justiça Federal manda instalar barreiras sanitárias em todos os aeroportos do Pará enquanto durarem medidas de combate à Covid-19)". [https://portal.trf1.jus.br/sjpa/comunicacao-social/imprensa/noticias/justica-federal-manda-instalar-barreiras-sanitarias-em-todos-os-aeroportos-do-para-enquanto-durarem-medidas-de-combate-a-covid-19.htm]. Accessed 31 July 2020.
[7] CNN Brasil. 2020. "Toffoli prevents states from adopting sanitary barriers at airports (Toffoli impede estados de adotarem barreiras sanitárias em aeroportos)". [https://www.cnnbrasil.com.br/politica/2020/04/14/toffoli-impede-estados-de-adotarem-barreiras-sanitarias-em-aeroportos]. Accessed 31 July 2020.

2.6 EPIDEMIOLOGY WORKFORCE

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

2.6.1a

Does the country meet one of the following criteria?

- Applied epidemiology training program (such as FETP) is available in country

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

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

Current Year Score: 1

Brazil has applied epidemiology training programs but there is no evidence that resources are provided by the government to send citizens to another country to participate in applied epidemiology training programmes. Brazil has its own applied epidemiology training, named EpiSUS (Applied Epidemiology of the Unified Health System), which has largely come from the Field Epidemiology Training Programme. It is a well-regarded 2 year-programme, specifically designed for the Brazilian Health Service. [1, 2] Launched in 2008, 128 professionals have been trained until 2018. [3] In 2018, the programme took in another 13 candidates and in 2019 another 12. [3,4] The application process of 2020 has been delayed owing to the pandemic, but they still expect to take in another 13 candidates. [5,6] However no evidence was found that Brazil supports citizens to study epidemiology abroad in international networks such as Tephinet, CDC; in regional networks such as RedSur; neither in any of the Ministry of Health websites. [7,8,9,10]

[1] Ministry of Health "EPISUS". [http://bvsms.saude.gov.br/bvs/folder/10006001316.pdf]. Accessed 29 July 2020.
[2] Macário, Eduardo. 2013. "The Training of Field Epidemiologists Through the Training Program in Epidemiology Applied to Health Services Services (A formação de epidemiologistas de campo por meio do Programa de Treinamento em Epidemiologia Aplicada aos Serviços do SUS - EPISUS)". [https://lume.ufrgs.br/handle/10183/99162]. Accessed 29 July 2020.
[3] Ministry of Health. 2018. "Pre-selected List for New Class of the EpiSUS Course (SVS divulga lista de pré-selecionados para nova turma do curso EpiSUS)". [http://portalms.saude.gov.br/noticias/svs/44083-svs-divulga-lista-de-pre-selecionados-para-nova-turma-do-curso-episus]. Accessed 29 July 2020.
[4] Ministry of Health. 2019. "SVS publishes new list of those selected for the 16th class of EpiSUS (SVS divulga nova lista de selecionados para 16a turma do EpiSUS)". [https://www.saude.gov.br/noticias/svs/45923-svs-divulga-nova-lista-de-selecionados-para-16-turma-do-episus]. Accessed 29 July 2020.
[5] Ministry of Health. 2020. "Deadline for applications for the 17th class of EpiSUS is delayed until 17 June (Prazo para inscrições na 17a turma do EpiSUS é prorrogado até 17 de junho). [https://www.saude.gov.br/noticias/agencia-saude/47052-prazo-para-inscricoes-na-17-turma-do-episus-e-prorrogado-ate-17-de-junho]. Accessed 29 July 2020.
[6] Ministry of Health. 2020. "Orientation 2 of 2020: Selection process to the training programme in applied epidemiology for the services of the Unified Health System - EPISUS Advanced/SVS/MS (Edital No. 2/2020: Processo seletivo do programa de treinamento em epidemiologia aplicada aos serviços do Sistema Único de Saúde - EPISUS Avançado/SVS/MS)". (https://www.saude.gov.br/images/pdf/2020/May/15/Edital-02-2020-EpiSUS.pdf). Accessed 29 July 2020.
[7] Tephinet website. [http://www.tephinet.org/]. Accessed 29 July 2020.
[8] CDC website. [https://www.cdc.gov/]. Accessed 29 July 2020.
[9] Red Sur website. [http://redsur.org/]. Accessed 29 July 2020.
[10] National Agency for Health Surveillance website. [http://portalms.saude.gov.br/vigilancia-em-saude]. Accessed 29 July

2020.

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

The available field epidemiology training programmes are explicitly inclusive of animal health professionals. Brazil has its own applied epidemiology training, named the EpiSUS (Applied Epidemiology of the Unified Health System), largely inspired by the Field Epidemiology Training Programme. It is a 2-year training programme specifically designed for the Brazilian Health Service. The application rules for program candidates explicitly includes animal health professionals, such as medical veterinarians. [1]

[1] Ministry of Health. 2020. "Orientation 2 of 2020: Selection process to the training programme in applied epidemiology for the services of the Unified Health System - EPISUS Advanced/SVS/MS (Edital No. 2/2020: Processo seletivo do programa de treinamento em epidemiologia aplicada aos serviços do Sistema Único de Saúde - EPISUS Avançado/SVS/MS)". (https://www.saude.gov.br/images/pdf/2020/May/15/Edital-02-2020-EpiSUS.pdf). Accessed 29 July 2020.

2.6.2 Epidemiology workforce capacity

2.6.2a

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

Yes = 1 , No = 0

Current Year Score: 0

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 2

Brazil has an overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with pandemic potential. Brazil's Health Surveillance Guide from 2019, which is the overarching plan, establishes the emergency procedures in the case of pandemic diseases, such as influenza, cholera or dengue. Aside from a common set of procedures in response to pandemic outbreaks, there are also specific plans for individual diseases such as zika, yellow fever, or chikungunya disease, with information on epidemiology, surveillance and control such as treatment algorithms, patient isolation guidelines, etc. [1] Additionally, Brazil also has specific reports on how to address multiple communicable diseases, such as an dengue or influenza pandemic. [2] The Brazilian Response Plan to an Influenza Pandemic deals with the response in the case of multiple influenza virus, type A, B, and C. The document was a result of inter-ministerial cooperation, between the Ministries of Health, Agriculture, Interior, Defence and Justice. [3]

[1] Ministry of Health. 2019. "Health Surveillance Guide (Guia de Vigilância em Saude)". [http://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf]. Accessed 30 August 2020.
[2] Ministry of Health. "Public Health Emergency Plans (Emergência em Saúde Pública)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica]. Accessed 29 July 2020.
[3] Ministry of Health. 2010. "Brazilian Plan of Preparation for Confronting an Influenza Pandemic (Plano Brasileiro de Preparação para Enfrentamento de uma Pandemia de Influenza)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_brasileiro_pandemia_influenza_IV.pdf]. Accessed 29 July 2020.

3.1.1b

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

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

Current Year Score: 1

Brazil's overarching national public health emergency response plan, the Health Surveillance Guide from 2019, has been updated in the last three years. The main updates in the 2019 version were for Yellow Fever, West Nile Fever, Chickenpox, among several other diseases. [1] Its previous iteration is from 2017. [2]

[1] Ministry of Health. 2019. "Health Surveillance Guide (Guia de Vigilância em Saude)". [http://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf]. Accessed 30 August 2020.
[2] Ministry of Health. 2017. "Health Surveillance Guide (Guia de Vigilância em Saúde)". [http://portalarquivos.saude.gov.br/images/pdf/2017/outubro/06/Volume-Unico-2017.pdf]. Accessed 29 July 2020.

3.1.1c

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

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

Current Year Score: 1

Brazil has a national public health emergency response which includes considerations for pediatric and other vulnerable populations. The Surveillance Health Guide of 2019, which includes response plans for pandemic diseases, has multiple, specific mentions of vulnerable populations. The plan mentions those vulnerable populations under each specific disease it covers, if they are particularly a risk group. The plan has multiple references on how to treat children, for example a designated treatment paradigm in the case of children infected with chikungunya virus. There is also mention of specific diagnosis and treatment pathways for vulnerable populations with higher risk, such as the elderly, homeless or remote population for diseases such as cholera, influenza, yellow fever or plague. The guidelines only cover treatment. There are no considerations for prevention or prioritization of treatment for pediatric or other vulnerable populations. [1]

[1] Ministry of Health. 2019. "Health Surveillance Guide (Guia de Vigilância em Saude)". [http://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf]. Accessed 30 August 2020.

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has mechanisms for engaging with the private sector to assist with outbreak emergency preparedness and response. There is evidence of mechanisms to seek help from the private sector in case of outbreaks of influenza or leishmaniasis, as private entities can provide additional healthcare capacity and to treat at-risk populations faster instead of waiting for a response from the public services. In the "Brazilian Readiness Plan for Confronting the Influenza Pandemic" of 2010 there are rules that prioritise vaccination of at-risk members of the population, namely pregnant women, nursing mothers and children under 1 year of age in the private sector. Usually these groups would be treated in the public sector, however in the case of a pandemic, these at-risk populations would be directed to the private healthcare sector, as these services have excess capacity and can treat the at-risk populations faster than the public sector helping to provide a quicker emergency response. [1] In the 2019 "Health Surveillance Guide" there are also guidelines for suspected patients of leishmaniasis to undertake immunoenzymatic tests in private hospitals, as these are not available in the public healthcare service. In the same report, in the case of a potential pandemic outbreak, one of the steps for the health authorities is to actively collaborate with private health services in search for potential disease cases in case of diseases such as cholera, yellow fever, zika, or influenza. [2]

[1] Ministry of Health. 2010. "Brazilian Readiness Plan for Confronting the Influenza Pandemic (Plano Brasileiro de Preparação para Enfrentamento de uma Pandemia de Influenza)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_brasileiro_pandemia_influenza_IV.pdf]. Accessed 29 July 2020.
[2] Ministry of Health. 2019. "Health Surveillance Guide (Guia de Vigilância em Saude)". [http://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf]. Accessed 30 August 2020.

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

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

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

Current Year Score: 1

There is evidence that Brazil has a policy, plan or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic for one disease. The 2020 National Contingency Plan for Human Infection by the New Coronavirus COVID-19 includes guidelines and criteria for NPIs, such as social distancing, quarantines, school closures and remote work. However, the document is specific for the COVID-19 pandemic. [1] The National Focal Point Operation Plan for International Health Regulations of 2016 does not mention any NPIs. [2] The Health Surveillance Guide of 2019 mentions only isolation for cases of secondary infections (pneumonia) and transmission of diseases when the patient is pregnant or is a child. [3] The Brazilian Readiness Plan for Confronting the Influenza Pandemic of 2010 briefly mentions isolation measures, but does not provide specific criteria. [4] The Public Health Emergency Response Plan of 2014 does not make any mentions to any NPI. [5]

[1] Ministry of Health. 2020. "National Contingency Plan for Human Infection by the New Coronavirus COVID-19 (Plano de Contingência Nacional para Infecção Humana pelo novo Coronavírus COVID-19)". [https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/13/plano-contingencia-coronavirus-COVID19.pdf]. Accessed 31 July 2020.
[2] Ministry of Health. 2016. "National Focal Point Operation Plan for International Health Regulations (Plano de Operação do Ponto Focal Nacional para o Regulamento Sanitário Internacional)". [http://www.saude.gov.br/images/pdf/2016/agosto/04/PF-RSI-2016-e.pdf]. Accessed 31 July 2020.
[3] Ministry of Health. 2019. "Health Surveillance Guide (Guia de Vigilância em Saude)". [http://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf]. Accessed 30 August 2020.
[4] Ministry of Health. 2010. "Brazilian Readiness Plan for Confronting the Influenza Pandemic (Plano Brasileiro de Preparação para Enfrentamento de uma Pandemia de Influenza)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_brasileiro_pandemia_influenza_IV.pdf]. Accessed 31 July 2020.
[5] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?
- Is there evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year?
- Is there evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year?

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

Current Year Score: 1

Brazil has activated a national emergency plan that was created specifically for the COVID-19 pandemic. [1] However, there is no evidence that it completed a national-level biological threat-focused exercise in the past year. According to the WHO extranet, there were no simulation exercises in record. [2] In February 2020, the Ministry of Health developed the National Contingency Plan for Human Infection by the New Coronavirus COVID 19. It was immediately activated at the outbreak of the disease in Brazil. There is no indication in the COVID-19 plan that it was based on the 2019 Health Surveillance Guide, which serve as the country's overarching plan for public health emergencies. According to the document in page 4, the Plan adopts a three-level classification tool for emergencies, which follows the same guidelines used globally for the preparation and response around the world. [1] Additionally, Brazil also has specific national response plans to how to address multiple other communicable diseases, such as an dengue, chikunhunya, chicken pox, and yellow fever. [3]

[1] Ministry of Health. 2020. "National Contingency Plan for Human Infection by the New Coronavirus COVID 19 (Plano de Contingência Nacional para Infecção Humana pelo novo Coronavírus COVID-19)". [https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/13/plano-contingencia-coronavirus-COVID19.pdf]. Accessed 31 July 2020.
[2] World Health Organisation. "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise]. Accessed 31 July 2020.
[3] Ministry of Health. "Public Health Emergency Plans (Emergência em Saúde Pública)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica]. Accessed 30 August 2020.

3.2.1b

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

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

Current Year Score: 0

There is no publicly available evidence that in the past year Brazil has undergone an exercise to identify a list of gaps and best practices through either an after action review (post emergency response) or a biological threat-focused IHR exercise with the WHO. The WHO website does not contain any evidence about a biological threat-focused IHR exercise carried out in Brazil. [1, 2, 3] The Centre of Strategic Information for Health Surveillance (CIEVS) website notes that a drill for a public health

emergency scenario was conducted in 2018. No detail was published on the drill nor are there any other evidence that this drill was repeated in other years. [4] Similarly no evidence was found in the Ministries of Health or Agriculture. [5,6]

[1] World Health Organization (WHO). "After Action Review". [https://extranet.who.int/sph/after-action-review]. Accessed 29 July 2020.
[2] World Health Organization (WHO). "Brazil". [http://www.who.int/countries/bra/en/]. Accessed 29 July 2020.
[3] Pan-American Health Organization (PAHO). "Brasil". [https://www.paho.org/bra/]. Accessed 29 July 2020.
[4] Ministry of Health. "Centre of Strategic Information for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 31 July 2020.
[5] Minsitry of Agriculture. "International Agriculture and Livestock Surveillance (Vigilância Agropecuária Internacional - Vigiagro)". [https://www.gov.br/agricultura/pt-br/assuntos/vigilancia-agropecuaria]. Accessed 29 July 2020.
[6] Ministry of Health. "Health Surveillance (Vigilancia em Saude)". [http://portalms.saude.gov.br/vigilancia-em-saude?view=default]. Accessed 29 July 2020.

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Brazil has undergone a national-level biological threat focused exercise that has included private sector representatives in the past year. There is no evidence that an exercise has been conducted in the past year. The Centre of Strategic Information for Health Surveillance (CIEVS) website notes that that a drill for a public health emergency scenario was conducted in 2018. No detail was published on the drill nor are there any other evidence that this drill was repeated in other years. [1] The WHO website does not contain any evidence about a biological threat-focused exercise carried out in Brazil. [2,3] No evidence of an exercise last year was found in the websites of the Pan-American Health Organisation, Ministry of Agriculture or the Ministry of Health. [4,5,6]

[1] Ministry of Health. "Centre of Strategic Information for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 31 July 2020.
[2] World Health Organization (WHO). "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise]. Accessed 31 July 2020.
[3] World Health Organization (WHO). "Brazil". [http://www.who.int/countries/bra/en/]. Accessed 31 July 2020.
[4] Pan-American Health Organization (PAHO). "Brasil". [https://www.paho.org/bra/]. Accessed 31 July 2020.
[5] Minsitry of Agriculture. "International Agriculture and Livestock Surveillance (Vigilância Agropecuária Internacional - Vigiagro)". [https://www.gov.br/agricultura/pt-br/assuntos/vigilancia-agropecuaria]. Accessed 31 July 2020.
[6] Ministry of Health. "Health Surveillance (Vigilancia em Saude)". [http://portalms.saude.gov.br/vigilancia-em-saude?view=default]. Accessed 31 July 2020.

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has an Emergency Operations Centre in place. The Strategic Information Centre for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS) is an health operational unit that aims to monitor outbreaks, epidemics and other public health emergencies, and acts as a national focal point with the WHO. [1, 2, 3] It has 54 centres throughout Brazil, with representations in 26 states, with additional sites in regional or other priority municipalities that act as sentinels for public health events and expand the capacity for early detection of emergencies. All the centres are integrated by information and communication technology that allows coordinated responses in the case of outbreaks. In the last 18 years CIEVS has participated in 345 field investigations, including cholera outbreak in the region of Pernanbuco, yellow fever in Minas Gerais or Chagas Disease in Santa Catarina, among others. CIEVS responsibilities include disease outbreak identification, coordination of response mechanisms between the multiple health agencies, technical support for health teams in the field or monitoring the implementation of response plans. [1]

[1] Ministry of Health. 2018. "Strategic Information Centre for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 29 July 2020.
[2] Ministry of Health. 2006. "Ordinance Nr 1865/2006: Establishes the Secretariat of Health Surveillance as the National Focal Point for the International Health Regulations with the World Health Organization (Portaria No. 1865/2006: Estabelece a Secretaria de Vigilância em Saúde como Ponto Focal Nacional para o Regulamento Sanitário Internacional junto à Organização Mundial da Saúde)". [http://bvsms.saude.gov.br/bvs/saudelegis/gm/2006/prt1865_10_08_2006.html]. Accessed 29 July 2020.
[3] Teixeira, Maria et al. 2018. "Health Surveillance in Health System - Construction, Effects and Perspectives (Vigilância em Saúde no SUS - construção, efeitos e perspectivas)". Ciênc. saúde coletiva vol.23 no.6 Rio de Janeiro June 2018. [http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232018000601811]. Accessed 29 July 2020.

3.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the Emergency Operations Centre in Brazil is required to conduct a drill at least once per year. There was no evidence the 'Centre of Strategic Information for Health Surveillance' (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVES), Brazil's Emergency Response Operations Centres, is required to perform annual drills. [1] There was no evidence of an annually conducted drill in the CIEVES website, in the Health Surveillance website, in the Emergency Response Operational Plan, or on the website of the Ministry of Health. [1,2,3,4] The CIEVES website does not have an annual report with information about health drills. [5] However, the CIEVS website notes that that a drill for a public health emergency scenario was conducted in 2018. No detail was published on the drill nor are there any

other evidence that this drill was repeated in other years. [1] The Ministry of Health published in 2014 a Reaction Plan to Public Health Emergencies, which states that drill should be performed periodically, but there are no specifications on its frequency. It only notes that it should be conducted as needed. [6]

[1] Ministry of Health. "Centre of Strategic Information for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 29 July 2020.
[2] Ministry of Health. "Health Surveillance (Vigilancia em Saude)". [http://portalms.saude.gov.br/vigilancia-em-saude]. Accessed 29 July 2020.
[3] Ministry of Health. 2016. "Operational Plan of the Focal Point for International Health Regulations (Plano de Operação do Ponto Focal Nacional para o Regulamento Sanitário Internacional)". [http://portalarquivos2.saude.gov.br/images/pdf/2016/agosto/04/PF-RSI-2016-e.pdf]. Accessed 29 July 2020.
[4] Ministry of Health website [http://portalms.saude.gov.br/]. Accessed 29 July 2020.
[5] Ministry of Health. "Health Surveillance publications (Publicações de Vigilância em Saúde)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs/publicacoes]. Accessed 29 July 2020.
[6] Ministry of Health. 2014. "Reaction Plan to Public Health Emergencies (Plano de Resposta às Emergências em Saúde Pública)". [http://www.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 29 July 2020.

3.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence to show that the EOC can conduct, or has conducted within the last year, a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency/scenario. Brazil's Integrated System of Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME), managed by the Centre of Strategic Information in Health Surveillance Unit (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS) monitors epidemiological events or reports from 54 centres spread around the country. [1] There are reports of 233 events monitored during the year 2015 (the latest year where data is available), however there is no data on how quick the response time was. [2] The CIEVES and the Health Surveillance Agency notification website also do not have information on response time. [3,4] In the case of the COVID-19 pandemic, the Brazilian government was late in responding to the crisis. The first confirmed case appeared on 26 February 2020, the first confirmed death was on 17 March, by 21 March all states had at least one confirmed case of COVID-19, and only on 23 March the government began restricting the entrance of foreigners into the country. [5]

[1] Ministry of Health. "Integrated System of Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)". [http://portalsinan.saude.gov.br/sime]. Accessed 29 July 2020.
[2] Ministry of Health. "Integrated System of Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)". [https://sime.saude.gov.br/]. Accessed 29 July 2020.
[3] Ministry of Health. "Centre of Strategic Information in Health Surveillance Unit (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 29 July 2020.
[4] Ministry of Health. "Health Surveillance: Notifications, Communications and Monitoring (Vigilancia em Saude.

Notificações, Comunicações e Verificações)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs/notificacoes-comunicacoes-e-verificacoes]. Accessed 29 July 2020.
[5] DW. 2020. "Timeline of COVID-19 in Brazil (Cronologia da covid-19 no Brasil)". [https://www.dw.com/pt-br/cronologia-da-covid-19-no-brasil/g-52930927]. Accessed 29 July 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

Does the country meet one of the following criteria?
- Is there public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack)?
- Are there publicly available standard operating procedures, guidelines, memorandums of understanding (MOUs), or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e., bioterrorism attack)?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

Brazil has publicly available evidence of standard operating procedures between the public health and security authorities to respond to a potential deliberate biological event and there is also evidence of an exercise to respond to a biological event. In 2014, the Ministry of Health launched the 'Contingency Plan for Public Health Emergency in the case of a Chemical, Biological, Radiological or Nuclear (CBRN) Agent'. The objective of the plan is to guide the activities of the Health Surveillance Agency in response to CBRN events, acting in an articulated manner with the Army, responsible for chemical defence, biological, radiological and nuclear aspects within the Brazilian territory. [1] There is also evidence that in preparation for the 2014 World Cup, the Brazilian Army conducted an exercise in the subway of Belo Horizonte, a city of 1.5 million people in the southeast of the country. The exercise was carried-out on 31 March 2014 and simulated a chemical attack in a subway carriage and involved 70 members of staff from multiple security and health agencies. [2] Another chemical attack simulation was conducted on 28 March 2014 in Pernambuco in preparation for the 2014 World Cup. 300 professionals from various agencies, including health, police, and fire department were involved. [3]

[1] Ministry of Health. 2014. "Contingency Plan for Emergency in Public Health by Chemical, Biological, Radiological and Nuclear Agents (Plano de Contingência para Emergência em Saúde Pública por Agentes Químico, Biológico, Radiológico e Nuclear)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/13/plano-contingencia-agentes-quimico-biologico-10out14.pdf]. Accessed 29 July 2020.
[2] Olhar Direto. 2014. "Simulation of chemical attack in Belo Horizonte subway prepares security agents for the World Cup (Simulação de ataque químico em metrô de Belo Horizonte prepara agentes de segurança para a Copa)". [https://www.olhardireto.com.br/copa/noticias/exibir.asp?noticia=Simulacao_de_ataque_quimico_em_metro_de_Belo_Horizonte_prepara_agentes_de_seguranca_para_a_Copa&id=8484]. Accessed 29 July 2020.
[3] Globo. 2014. "Training at Arena Pernambuco simulates attack with chemical agent (Treinamento na Arena Pernambuco simula ataque com agente químico)". [http://g1.globo.com/pernambuco/noticia/2014/05/treinamento-na-arena-pernambuco-simula-ataque-com-agente-quimico.html]. Accessed 29 July 2020.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that the risk strategy in Brazil outlines how messages will reach populations and sectors with different communications needs. Brazil's Response Plan for Public Health Emergencies, launched by the Ministry of Health in 2014, outlines the actions of the Health Services and other governmental agencies in the case of a public health emergency. The plan outlines the tasks for a spokesperson, including setting a unique channel of communication, gathering information from the Operations Command System and drafting press releases. However the plan does not have any mention of different types of communication, media reach or different languages to maximise the reach and impact of the message. [1] While the risk strategy plan does not include an outline for how messages will reach populations with different communication needs, there are mechanisms and practices that are conducted by government bodies. For example, the municipal government of São Paulo published flyers and booklets about the COVID-19 pandemic in Portuguese, English, Spanish, French and Arabic, so that immigrant and refugee populations in the city are maintained well-informed. [2] There is also Arouca Law (9,836 of 1999), which creates a subsystem for healthcare directed to indigenous populations, which include isolated peoples. The subsystem functions under the National Foundation of Indigenous Peoples (FUNAI) and follows the same guidelines of the Unified Health System (SUS). FUNAI is responsible for communication with the indigenous communities, as well as putting together the teams that reach out to those communities, which include doctors and dentists. They are equipped with radios, medical equipment, IT equipment etc. [3,4]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.
[2] Municipal Government of São Paulo. 2020. "Coronavirus prevention orientation in various languages for immigrants in SP! (Orientações de prevenção ao coronavírus em várias línguas para imigrantes em SP!)". [https://www.prefeitura.sp.gov.br/cidade/secretarias/direitos_humanos/imigrantes_e_trabalho_decente/index.php?p=295728]. Accessed 30 July 2020.
[3] National Foundation of Indigenous Peoples. "Health (Saúde)". [http://www.funai.gov.br/index.php/saude]. Accessed 30 July 2020.
[4] National Foundation of Health. 2009. "Arouca Law: FUNASA in the 10 years of indigenous health (Lei Arouca: a Funasa nos 10 anos de saúde indígena)". [http://www.funasa.gov.br/site/wp-content/files_mf/livro-lei-arouca-10anos.pdf]. Accessed 30 July 2020.

3.5.1 Risk communication planning

3.5.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Brazil has in place, in the national public health emergency response plan, a section detailing a risk communication plan that is specifically intended for use during a public health emergency. Brazil's Response Plan for Public Health Emergencies, launched by the Ministry of Health in 2014, outlines the actions of health services and other governmental agencies in the case of a public health emergency. For any type of public health emergency, the plan requires an emergency team to be set-up, including an Operations Command System, a Technical Advisory Group, and a spokesperson for official communications. The plan clearly outlines the tasks for the spokesperson, including setting a unique channel of communication, gathering information from the Operations Command System and drafting press releases. [1]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.

3.5.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Among its plans, there is a designated primary spokesperson to the public during a public health crisis. The Public Health Emergency Response Plan recognises the position of a spokesperson and provides detail on how the organisation and chain of command will be structured; however, a specific position is not identified as being the spokesperson. [1] The same applies to the National Contingency Plan for Human Infection by the New Coronavirus COVID 19. The Plan for COVID-19 recognises the role of the spokesperson, but does not specifically identify a position to be the spokesperson. [2]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.
[2] Ministry of Health. 2020. "National Contingency Plan for Human Infection by the New Coronavirus COVID 19 (National Contingency Plan for Human Infection by the New Coronavirus COVID 19)". [https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/13/plano-contingencia-coronavirus-COVID19.pdf]. Accessed 31 July 2020.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 2

There is evidence that the Brazilian government utilises media platforms to regularly share information on health concerns. The Secretariat for Health Surveillance (Secretaria Vigilância em Saúde - SVS) frequently publishes news to inform the population of potential public health concerns. The SVS publishes news on its website and also develops press releases, which are then passed on to the local and national media outlets. [1] For example, in March 2018, there was a measles outbreak in the border of Brazil with Venezuela due to the recent wave of migrants. The SVS team published the news in its website and passed on a press release which was quickly followed in the media. [2,3] In another example, in March 2020, the SVS announced that the National Agency for Health Surveillance (ANVISA) approved the extension of the shelf life of yellow fever vaccines to 36 months (from 12 months previously), which eases the constraints in regards to inventory and storage in health units. [4] Additionally the SVS also manages a blog and a Twitter account where it issues potential health emergencies and also posts health and wellness advice for the population. [5,6] The Twitter account is daily updated, with some days having several posts. [5] In order to consolidate information on the COVID-19 pandemic, the Ministry of Health created a separate website to convey all news and information on the new coronavirus. The website includes a section just on fake news. The usual SVS website does not publish news or information on the new coronavirus for that matter. [7]

[1] Ministry of Health. 2018. "Health Surveillance Secretary News (Notícias Secretaria Vigilância em Saúde)". [https://www.saude.gov.br/noticias/svs?limitstart=0]. Accessed 30 July 2020.
[2] Ministry of Health. 2018. "Note from the Ministry of Health Updates Information on Measles in Roraima (Nota do Ministério da Saúde atualiza informações sobre sarampo em Roraima)". [http://portalms.saude.gov.br/noticias/svs/42721-nota-do-ministerio-da-saude-atualiza-informacoes-sobre-sarampo-em-roraima]. Accessed 30 July 2020.
[3] Acritica. 2018. "With Measles Outbreak in Venezuela, Health Surveillance Secretary Issues Technical Note with Alert on the Disease (Com surto de sarampo na Venezuela, FVS emite nota técnica com alerta sobre a doença)". [https://www.acritica.com/channels/manaus/news/com-surto-de-sarampo-na-venezuela-fvs-emite-nota-tecnica-com-alerta-sobre-a-doenca]. Accessed 30 July 2020.
[4] Ministry of Health. 2020. "Expiration date of yellow fever vaccines are extended to 36 months (Prazo de validade da vacina contra febre amarela é estendido para 36 meses)". [https://www.saude.gov.br/noticias/svs/46557-prazo-de-validade-da-vacina-contra-febre-amarela-e-estendido-para-36-meses]. Accessed 30 July 2020.
[5] Twitter account of the Ministry of Health. [https://twitter.com/minsaude]. Accessed 30 July 2020.
[6] Health Blog of the Ministry of Health. [http://www.blog.saude.gov.br/]. Accessed 30 July 2020.
[7] Ministry of Health. 2020. "Coronavirus (Coronavírus)". [https://coronavirus.saude.gov.br/]. Accessed 30 July 2020.

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 0

There is evidence that senior leaders have shared misinformation or disinformation on infectious diseases in the past two years. On 14 May 2020, President Bolsonaro posted on Instagram that the number of deaths by respiratory diseases in the state of Ceará fell from 2019 to 2020, when not considering the COVID-19 pandemic. The post questioned why there were no alarm in 2019 compared to 2020. However, fact checkers found that the figures he presented death from AIDS and cancer. The numbers indeed grew year over year. Instagram marked the post as "False Information". [1] AosFatos.org, a non-profit website dedicated to identify misinformation and disinformation and whose editorial team is composed mostly by journalists from reknowned newspapers and media outlets, keeps track of all declarations by President Bolsonaro that are misinformation or disinformation. Up to 31 July 2020, the website identified 565 statements by President Bolsonaro that are

misinformation or disinformation on coronavirus alone. The website categorises the statements into seven groups: truth, inaccurate, exaggerated, distorted, contradictory, unsustainable and false. [2]

[1] Catraca Livre. 2020. "Instagram marks Bolsonaro's fake news post on covid-19 (Instagram marca como fake news post de Bolsonaro sobre covid-19)". [https://catracalivre.com.br/cidadania/instagram-deleta-post-de-bolsonaro-com-fake-news-sobre-covid-19/]. Accessed 31 July 2020.
[2] Aos Fatos. "All the statements by Bolsonaro (Todas as declarações de Bolsonaro)". [https://www.aosfatos.org/todas-as-declara%C3%A7%C3%B5es-de-bolsonaro/]. Accessed 31 July 2020.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 67.47

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: 98.84

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: 1.0

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: 0

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: 0

There is no evidence that Brazil restricted the import of medical goods, but there is evidence that Brazil restricted the export of medical goods due to an infectious disease outbreak. During the COVID-19 pandemic, Brazil did not impose any restrictions on imports of medical goods; in fact, it removed import taxes on 38 medical products that are used to treat COVID-19. [1] On the other hand, the National Agency for Health Surveillance (ANVISA) imposed restrictions on medical goods used for treatment for COVID-19, including chloroquine, hydroxychloroquine, ivermectin, fentanyl, midazolam, ethosuximide, propofol, pancuronium, vancuronium, rocuronium and succinylcholine. [2] In March 2020, the Federal Senate approved a Project of Law (668/2020) that would restrict exports of products considered essential to treat and prevent COVID-19. [3] The Project of Law was sent to the Chamber of Deputies for approval, but as of July 2020, it was not voted on. [4] There is no evidence that Brazil imposed import or export restrictions on goods during outbreaks of dengue, zika or chikungunya in the past year, according to the websites of the Ministry of Health, Ministry of Agriculture, Ministry of Foreign Relations, Federal Revenue (responsible for executing import/export restrictions or tariffs), and Federal Police (responsible for customs control). [5,6,7,8,9] On the contrary, there is evidence, however, that Brazil lowered import tariffs in 2016 on pesticides that are used to combat the Aedes Aegypti mosquito, which is responsible for disseminating dengue, zika and chikungunya. [10]

[1] Ministry of Economy. 2020. "Government zeroes Import Tax on medication for spinal muscular atrophy and 37 other products (Governo zera Imposto de Importação de medicamento para atrofia muscular espinhal e outros 37 produtos)". [https://www.gov.br/economia/pt-br/assuntos/noticias/2020/julho/governo-zera-imposto-de-importacao-de-medicamento-para-atrofia-muscular-espinhal-e-outros-37-produtos]. Accessed 31 July 2020.
[2] CNN Brasil. 2020. "Anvisa expands list of drugs with export restrictions (Anvisa amplia lista de medicamentos com restrição à exportação)". [https://www.cnnbrasil.com.br/saude/2020/04/13/anvisa-amplia-lista-de-medicamentos-com-restricao-a-exportacao]. Accessed 31 July 2020.
[3] Federal Senate. 2020. "Senate approves restriction on the export of products to combat covid-19 (Senado aprova restrição à exportação de produtos de combate à covid-19)". [https://www12.senado.leg.br/noticias/materias/2020/03/25/senado-aprova-restricao-a-exportacao-de-produtos-de-

combate-a-covid-19]. Accessed 31 July 2020.
[4] Federal Senate. "Project of Law No. 668, of 2020 (Projeto de Lei No. 688, de 2020)". [https://www25.senado.leg.br/web/atividade/materias/-/materia/141110]. Accessed 31 July 2020.
[5] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[6] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 30 August 2020.
[7] Ministry of Foreign Relations website. [http://www.itamaraty.gov.br/en/. Accessed 30 August 2020.
[8] Federal Revenue. "Prohibitions and Restrictions (Proibições e Restrições)". [https://receita.economia.gov.br/orientacao/aduaneira/viagens-internacionais/guia-do-viajante/entrada-no-brasil/proibicoes-restricoes#Bens_restritos]. Accessed 31 July 2020.
[9] Federal Police website. [https://www.gov.br/pf/pt-br]. Accessed 30 August 2020.
[10] IstoÉ Dinheiro. 2 April 2016. "CAMEX reduces import tax of insecticide against dengue mosquito to zero (Camex reduz a zero imposto de importação de inseticida contra mosquito da dengue)". [https://www.istoedinheiro.com.br/noticias/economia/20160401/camex-reduz-zero-imposto-importacao-inseticida-contra-mosquito-dengue/358403]. Accessed 30 August 2020.

3.7.1b

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

Yes = 0 , No = 1

Current Year Score: 1

There is insufficient evidence that Brazil imposed import or export restrictions on non-medical goods due to an infectious disease outbreak. No evidence was found in the website of the Federal Revenue (Receita Federal, responsible for executing import/export restrictions or tariffs), under the Ministry of Economy. [1] There is no evidence available on the open source webspace regarding import/export restrictions of non-medical goods due to an infectious disease outbreak. There is no evidence that Brazil imposed import or export restrictions on goods during outbreaks of dengue, zika or chikungunya in the past year, according to the websites of the Ministry of Health, or Ministry of Agriculture. [2][3]

[1] Federal Revenue. "Prohibitions and Restrictions (Proibições e Restrições)". [https://receita.economia.gov.br/orientacao/aduaneira/viagens-internacionais/guia-do-viajante/entrada-no-brasil/proibicoes-restricoes#Bens_restritos]. Accessed 31 July 2020.
[2] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[3] Ministry of Agriculture website. [https://www.gov.br/agricultura/pt-br/]. Accessed 30 August 2020.

3.7.2 Travel restrictions

3.7.2a

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

Yes = 0 , No = 1

Current Year Score: 0

During the COVID-19 pandemic, Brazil imposed a restriction on the entrance of all foreigners into the country. The restrictions started in March and has been extended through most of July. On 29 July 2020, Brazil reopened its borders for flights, except for entrance through the states of Mato Grosso do Sul, Paraíba, Rondônia, Rio Grande do Sul and Tocantins.

Flights to those states will be restricted until at least the end of August 2020. [1,2] There is no evidence that there were bilateral or international support for those restrictions in the websites of the Ministry of Health, Ministry of Foreign Relations, or the WHO Disease Outbreak News. [3,4,5]

[1] Government of Brazil. 2020. "Government extends restriction on foreigners entering Brazil (Governo prorroga restrição de entrada de estrangeiros no Brasil)". [https://www.gov.br/pt-br/noticias/saude-e-vigilancia-sanitaria/2020/07/governo-prorroga-restricao-de-entrada-de-estrangeiros-no-brasil]. Accessed 31 July 2020.
[2] Globo. 2020. "Government reopens borders for foreigners on flights; restriction continues to apply to five states (Governo reabre fronteiras para estrangeiros em voos; restrição segue valendo para cinco estados)". [https://g1.globo.com/politica/noticia/2020/07/29/governo-prorroga-restricao-a-entrada-de-estrangeiros-no-brasil-ate-o-fim-de-agosto.ghtml]. Accessed 31 July 2020.
[3] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[4] Ministry of Foreign Relations website. [http://www.itamaraty.gov.br/en/. Accessed 30 August 2020.
[5] World Health Organization (WHO). 2020. "Disease Outbreak News - Brazil". [https://www.who.int/csr/don/archive/country/bra/en/]. Accessed 30 August 2020.

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

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

4.1.1 Available human resources for the broader healthcare system

4.1.1a

Doctors per 100,000 people
Input number
Current Year Score: 216.43

2018

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people
Input number
Current Year Score: 1011.9

2018

WHO; national sources

4.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Brazil has a valid health workforce strategy in place to identify fields where there is an insufficient workforce and strategies to address these shortcomings. Although the latest workforce strategy has been updated within the past five years, it is no longer part of the official government strategy. The most recent strategy, was developed in 2015 to support the programme "More Doctors (Mais Médicos)". In 2019, the More Doctors programme was replaced by the programme Doctors for Brazil (Médicos Pelo Brasil)". The "More Doctors" programme was created in 2013 under the administration of President Dilma Rousseff. In December 2019, President Jair Bolsonaro replaced it with the "Doctors for Brazil" programme, while the "More Doctors" programme would be gradually phased-out over a two-year period. [1,2,3] The public workforce strategy from 2015 has a detailed plan to improve health care infrastructure, and increase the number of health staff. Regarding infrastructure, the plan outlines the goal to build or improve 21,163 healthcare units mainly providing primary health services - and progress can be checked online. Regarding staff, the plan aims to increase the number of medical graduates by 11,500 and the number of resident physicians by 12,400 by the end of 2018. The document outlines the specific initiatives designed to reach the goals, including additional funding for medical healthcare, new medical university programmes, salary increases for medical staff, etc. [4] The new "Doctors for Brazil" programme aims to hire 18,000 doctors for primary care that will be placed in small municipalities, rural areas, or isolated communities. [1,2] No new workforce strategy plan was issued to support the new programme. There is evidence that, as of January 2020, there is a workforce study being developed by the University of Sao Paulo. The date of release has not been announced. The workforce study has the objective of defining health public policy once it is completed. [5] The Ministry of Health explained that the 18,000 doctors figure was reached by mapping the workforce needs based on data from the Brazilian Institute of Geography and Statistics (IBGE) and a study by the Organization for Economic Cooperation and Development (OECD). [2]

[1] Ministry of Health. 2019. "Doctors for Brazil is approved by the National Congress (Médicos pelo Brasil é aprovado pelo Congresso Nacional)". [https://saude.gov.br/noticias/agencia-saude/46092-medicos-pelo-brasil-e-aprovado-pelo-congresso-nacional]. Accessed 30 July 2020.
[2] Ministry of Health. 2019. "President Bolsonaro sanctions Law of Doctors for Brazil (Presidente Bolsonaro sanciona Lei do Médicos pelo Brasil)". Accessed 30 July 2020.
[3] Ministry of Health. "More Doctors (Mais Medicos)". [http://maismedicos.gov.br/conheca-programa]. Accessed 30 July 2020.
[4] Ministry of Health. 2015. "More Doctors Program - Two Years (Programa Mais Medicos - Dois Anos)". [http://maismedicos.gov.br/images/PDF/Livro_2_Anos_Mais_Medicos_Ministerio_da_Saude_2015.pdf]. Accessed 30 July 2020.
[5] Jovem Pan. 29 January 2020. "Study will map inequality in the distribution of doctors across Brazil (Estudo vai mapear desigualdade na distribuição de médicos pelo Brasil)". [https://jovempan.com.br/programas/jornal-da-manha/estudo-vai-mapear-desigualdade-na-distribuicao-de-medicos-pelo-brasil.html]. Accessed 15 September 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 209

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: 1

There is evidence that Brazil has the capacity to isolate patients with highly communicable diseases in a patient isolation facility located within the country. Treatment guidelines for infectious diseases, such as Ebola or Influenza, recommend patients to remain in isolation such as positive/negative pressure, decontamination units or Personal protective equipment (PPE) usage. [1,2,3,4] In the 2014 Ebola outbreak there was one suspected patient in isolation in the National Institute of Infectious Diseases Evandro Chagas (Instituto Nacional de Infectologia Evandro Chagas) in Rio de Janeiro. One of the articles also notes that the Emilio Ribas reference hospital has the capacity to receive and treat patients with Ebola. [5, 6] A 2014 article on an Ebola simulation notes that the hospital has an intensive care unit with negative pressure isolation capacity and specialized PPE to allow for safe patient treatment. [7] In the case of the COVID-19 pandemic, in addition to the existing hostpitals, state and municipal governments built temporary hospitals to provide care for the less severe cases; in the meantime, severe cases were still being treated at hospitals. The temporary hospitals freed up some hospital beds in hospitals while maintaining isolation of those patients. [8] The Ministry of Health also published a full list of hospitals that are references for treatment of COVID-19 in every state. They were selected for being specialised on events of public health risk. While those hospitals can take in some patients, owing to the number of cases, the patients are directed to other health facilities to be isolated, a determination that are set by the state governments. The reference hospitals are not the only health facilities that can isolate patients. [9]

[1] Ministry of Health. 2014. "Guidance for Treatment of Patients With Ebola (Guia de orientação para tratamento de pacientes com Ebola)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/31/ORIENTA----O-SOBRE-ATENDIMENTO-E-REMO----O-DE-PACIENTES.pdf]. Accessed 30 July 2020.
[2] Ministry of Health. 2014. "Prevention and Control Measures to be Adopted in the Care of Patients Suspected of Ebola Virus Infection (Medidas de prevenção e controle a serem adotadas na assistência a pacientes suspeitos de infecção pelo Vírus Ebola)". [http://www20.anvisa.gov.br/segurancadopaciente/index.php/alertas/item/nota-tecnica-ebola-n-03-2014-ggtes-anvisa]. Accessed 30 July 2020.
[3] Ministry of Health. "Precautionary and Control Measures to be Adopted in the Care of Patients Suspected of Infection with Influenza A (Medidas de precaução e controle a serem adotadas na assistência a pacientes suspeitos de infecção por influenza A)". [http://www.biologia.seed.pr.gov.br/arquivos/File/PDF/isolamento.pdf]. Accessed 30 July 2020.
[4] Ministry of Health. 2012. "Isolation Manual (Manual do Isolamento)". [http://www.hu.ufsc.br/setores/ccih/wp-content/uploads/sites/16/2014/11/manual_isolamento_2012-13.pdf]. Accessed 30 July 2020.
[5] Globo. 2014. "Patient Suspected of Ebola Arrives in Rio for Exams at Fiocruz (Paciente com suspeita de ebola chega ao Rio

para exames na Fiocruz)". [http://g1.globo.com/rio-de-janeiro/noticia/2015/11/paciente-com-suspeita-de-ebola-chega-ao-rio-para-exames-na-fiocruz.html]. Accessed 30 July 2020.
[6] UOL News. 2014. "Brazil Has 37 Hospitals To Treat Ebola, But They Lack Overalls and Education (Brasil tem 37 hospitais para tratar ebola, mas faltam macacões e instrução). [https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2014/08/20/brasil-tem-37-hospitais-para-tratar-ebola-mas-faltam-macacoes-e-instrucao.htm]. Accessed 30 July 2020.
[7] Globo. September 2014. "Hospital simulates arrival of suspected ebola patient in São Paulo (Hospital simula chegada de paciente com suspeita de ebola em São Paulo)." [http://g1.globo.com/ciencia-e-saude/noticia/2014/09/emilio-ribas-simula-chegada-de-paciente-com-suspeita-de-ebola-em-sp.html]. Accessed 30 July 2020.
[8] Veja. 2020. "Temporary hospitals: how they will work and why are they so important (Hospitais de campanha: como vão funcionar e por que são tão importantes). [https://saude.abril.com.br/medicina/hospitais-de-campanha-como-vao-funcionar/]. Accessed 30 July 2020.
[9] Ministry of Health. 2020. "[MAP] Coronavirus: See the list of hospitals that will be references in Brazil ([MAPA] Coronavírus: Veja lista de hospitais que serão referência no Brasil)". [https://www.saude.gov.br/noticias/agencia-saude/46257-mapa-hospitais-referencia-novo-coronavirus]. Accessed 30 July 2020.

4.1.2c

Does the country meet one of the following criteria?
- Is there evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years?
- Is there evidence that the country has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years?
Yes = 1, No = 0

Current Year Score: 1

There is evidence that Brazil expanded isolation capacity in response to an infectious disease outbreak in the past two years. There is insufficient evidence that Brazil has developed a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years. To combat the COVID-19 pandemic, several state and municipal governments built temporary hospitals with isolation capacity (note: the federal government is not responsible for providing public healthcare services, it is responsible for setting policies). The state government of São Paulo, for example, in March 2021 announed the establishment of another 11 temporary hospitals across the state to address a wave of new cases of COVID-19. This increase will bring the total number of temporary hospitals to 15 in the state. This increase in temporary hospitals means that the state will be adding another 140 intensive-care unit (ICU) beds and another 140 beds in emergency care. [1] The National Agency for Health Surveillance (ANVISA) issued a technical note in April 2020 (NT 69/2020) on guidelines for temporary hospitals. [2] The technical note refers to another technical note first issued in January 2020 but then updated last in May 2020 (NT 4/2020) that provides prevention and control guidelines for suspect and confirmed cases of COVID-19. Those guideliness include isolation capacity measures, such as negative pressure rooms, decontamination units and PPP usage. [3] Neither technical notes mention the possibility of expanding the guidelines for any other future public health crisis. It explicitly states that its objective is to provide guidelines for responding to the COVID-19 pandemic. [2,3] No evidence of a plan to expand isolation capacity was found via the Ministry of Health. [4]

[1] State Government of São Paulo. 8 March 2021. "Government of SP announces the implementation of 11 temporary hospitals in the state (Governo de SP anuncia a implantação de 11 hospitais de campanha em todo o Estado)". [https://www.saopaulo.sp.gov.br/noticias-coronavirus/governo-de-sp-anuncia-a-implantacao-de-11-hospitais-de-campanha-em-todo-o-estado-2/]. Accessed 19 March 2021.
[2] National Agency for Health Surveillance. Technical Note 69/2020/SEI/GRECS/GGTES/DIRE1/ANVISA.

[https://www.gov.br/anvisa/pt-br/arquivos-noticias-anvisa/650json-file-1]. Accessed 19 March 2021.
[3] National Agency for Health Surveillance. Technical Note GVIMS/GGTES/ANVISA Nº 04/2020. [https://www.gov.br/anvisa/pt-br/centraisdeconteudo/publicacoes/servicosdesaude/notas-tecnicas/nota-tecnica-n-04-2020-gvims-ggtes-anvisa-atualizada.pdf/view]. Accessed 19 March 2021.
[4] Ministry of Health. "Health Surveillance (Vigilancia em Saude)". [http://portalms.saude.gov.br/vigilancia-em-saude?view=default]. Accessed 19 March 2021.

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: 2

There is a national procurement protocol in place which can be utilised by the Ministries of Health and Agriculture for the acquisition of laboratory and medical supplies. Decree 7892/2013 regulates the norms for public procurement and establishes the Price Registry System (Sistema de Registro de Preços, SRP) as the central procurement platform for all government agencies. [1] Agencies can use the platform to acquire any supplies they may need, including laboratory testing kits, reagents, cleaning detergents, medical supplies, medical equipment and personal protection equipment. [2,3,4] State and municipal governments are responsible for making the purchases of laboratory and medical supplies to be used in the Unified Health System, Brazil's universal public health care system. If the purchase is for a federal entity (e.g., federal universities), then the federal government would be responsible for making the acquisitions. In the case of the COVID-19 pandemic, however, owing to the international scarcity of laboratory supplies and medical equipment, the federal government stepped in to purchase large volumes and then passed it down to the state and municipal governments. [5] Furthermore, in May 2020, the federal government suspended the need to follow procurement protocol in the case of purchasing medical supplies such as hand sanitiser, masks, gloves and other personal protection equipment for organs and agencies related to the Ministry of Justice and Public Security in order to fast-track its supply under the emergency circumstances. [6,7]

[1] Government of Brazil. 2013. "Decreto 7892 / 2013: Regulamenta o Sistema de Registro de Preços". [https://www2.camara.leg.br/legin/fed/decret/2013/decreto-7892-23-janeiro-2013-775083-publicacaooriginal-138773-pe.html]. Accessed 29 July 2020.
[2] Price Registry Systems. 2017. "Sistema de Registo de Preços". [https://www.comprasgovernamentais.gov.br/images/conteudo/ArquivosCGNOR/SEBRAE/Sistema-de-Registro-de-Preos---SRP.pdf]. Accessed 29 July 2020.
[3] Central Procurement Commission. 2018. "Price Registry System - Minutes of the Government of the State of Maranhão (Registro de Preços - Atas do Governo do Estado do Maranhão)". [http://www.ccl.ma.gov.br/2017/view/registro_preco/rp_atas.php]. Accessed 29 July 2020.
[4] University of São Paulo. 2018. "Record of Price Registries (Ata de Registo de Preços)". [https://uspdigital.usp.br/mercurioweb/listarLicEditalAta]. Accessed 29 July 2020.
[5] Ministry of Health. 2020. "Over 163mn in personal protection equipment are distributed by the Government of Brazil

(Mais de 163 milhões de Equipamentos de Proteção Individual distribuídos pelo Governo do Brasil)". [https://www.saude.gov.br/noticias/agencia-saude/47183-mais-de-163-milhoes-de-equipamentos-de-protecao-individual-distribuidos-pelo-governo-do-brasil]. Accessed 29 July 2020.
[6] Government of Brazil. 2020. "Waiver for Procuration no. 1/2020 (Dispensa de Licitação no. 1/2020)". [https://www.gov.br/economia/pt-br/acesso-a-informacao/licitacoes-e-contratos/arquivos-contratos/doacoes/chamamento-covid-19/arquivo/chamamento-publico-covid-19-no-1-2020]. Accessed 29 July 2020.
[7] Agência Brasil. "Government will buy R$69mn in PPEs for police and prison agents (Governo comprará R$ 69 mi em EPIs para policiais e agentes de prisões)". [https://agenciabrasil.ebc.com.br/economia/noticia/2020-05/governo-comprara-r-691-mi-em-epi-para-policiais-e-agentes-de-prisoes]. Accessed 29 July 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 2

There is evidence that Brazil maintains a stockpile of some medical supplies for national use during a public health emergency, particularly of medical countermeasures (MCMs), and there is evidence of what the stockpile contains. In 2017, the Ministry of Health procured 11.5 million yellow fever vaccines, after the largest outbreak seen for 20 years. 5.5 million doses were immediately sent to the states at higher risk. The stockpile is managed directly by the Ministry of Health, who is also managing stockpiles of other vaccines such as influenza or Meningitis C. [1,2,3,4] The government has agreements with manufacturers to procure multiple vaccines, but these are for routine vaccination programs, not for medical emergencies. Instituto Butantan, a pharmaceutical manufacturer established in Brazil, reported that: "the Institute signed a contract with the Ministry of Health to supply 4.5 million doses of the hepatitis A vaccine and 5 million doses of the dTPa vaccine, which began to be made available to the National Immunization Program, for prevention of diseases in children and pregnant women". [5,6] During the COVID-19 pandemic, the Brazilian government stockpiled on chloroquine, despite there being insufficient evidence on its effectiveness against the new coronavirus. The Ministry of Defense informed that, as of end-June 2020, it had 1.8mn pills of chloroquine in the Army Laboratory. The figure represents 18 times the annual production of the medication in previous years. [7] State governments reported having difficulty in acquiring some MCMs, such as sedatives, which are needed for the intubation of patients in severe cases. The state government of São Paulo informed that, in end-June, that it was lacking 10 out of the 22 products used to intubate patients. [8] While there is evidence of stockpiling of some MCMs, there is no evidence of stockpiling of PPE, equipment, and other medical supplies prior to the COVID-19 pandemic. Only during the COVID-19 pandemic, a stockpile system was created to address the public health crisis. The National Agency for Health Surveillance (ANVISA) developed guidelines for health services to stockpile on medical supplies via its Technical Norm N. 4/2020. The guideline was created specifically for COVID-19, but it recognizes that it can also be used to address other respiratory diseases. [9] Furthermore, there is evidence that the stockpile held is insufficient to supply the demand for PPE. States avoid providing information on how long the stockpile of PPE will last. [10] As early as 2 April 2020, the Ministry of Health announced that their stockpile of PPE has already been depleted. [11] Some states have resorted to confiscating medical supplies from private companies, such as the case of the state government of São Paulo that confiscated 500,000 masks from 3M, a manufacturer, and when the state government of Pernambuco took all the masks available in a store specialized in medical equipment. [12,13] Personal Protective Equipment in Brazil is regulated by Ministerial Norms 6 and 15 from the Ministry of Labor, which states that employers are required to: acquire PPE appropriate to the risk of each activity; require its use; provide the worker with only the PPE approved by the national body; train the worker on proper use; replace immediately when damaged; be responsible for hygiene and periodic maintenance. [14,15,16] PPEs are mentioned in

the "Contingency Plan to deal with Emergencies from Chemical, Biological, Radiological or Nuclear Agents", requiring healthcare workers to wear suitable PPE when entering zones potentially infected with hazardous materials. [17] No evidence of a stockpile of PPE and medical equipment before the COVID-19 pandemic was found in the websites of the Ministry of Health, Ministry of Defense, or the National Agency for Health Surveillance. [18,19,20]

[1] Diário de Noticias. 2017. "Brazil Orders 11.5 million Yellow Fever Vaccines (Brasil encomenda 11,5 milhões de vacinas contra a febre-amarela)". [https://www.dn.pt/sociedade/interior/brasil-encomenda-115-milhoes-de-vacinas-contra-a-febre-amarela-5629572.html]. Accessed 30 July 2020.
[2] Estado de São Paulo. 2017. "Orders of Yellow Fever Vaccine to be Maintained, Reports Ministry of Health (Encomendas de vacina de febre amarela serão mantidas, informa Ministério da Saúde)". [https://brasil.estadao.com.br/noticias/geral,encomendas-de-vacina-de-febre-amarela-serao-mantidas-informa-ministerio-da-saude,70002059889]. Accessed 30 July 2020.
[3] BOL News. 2018. "Problem in Distribution Affects Stocks of Meningitis Vaccine C (Problema em distribuição afeta estoques de vacina contra meningite C)". [https://noticias.bol.uol.com.br/ultimas-noticias/brasil/2018/07/27/problema-em-distribuicao-afeta-estoques-de-vacina-contra-meningite-c.htm]. Accessed 30 July 2020.
[4] Folha de São Paulo. 2018. "Flu vaccine (Vacina Para a Gripe)". [https://www1.folha.uol.com.br/cotidiano/2018/04/tire-suas-duvidas-sobre-a-vacina-contra-a-gripe.shtml]. Accessed 30 July 2020.
[5] Institute Butantan. 2018. "Butantan Will Produce 6 New Drugs and Will Provide 2 More Vaccines to the National Health Service (Butantan vai produzir 6 novos medicamentos e passa a fornecer mais 2 vacinas ao SUS)". [http://www.butantan.gov.br/noticias/Paginas/Butantan-vai-produzir-6-novos-medicamentos-e-passa-a-fornecer-mais-2-vacinas-ao-SUS.aspx]. Accessed 30 July 2020.
[6] Ministry of Health. 2018. "20th National Influenza Vaccination Campaign (20ª Campanha Nacional de Vacinação contra a Influenza)". [http://portalarquivos2.saude.gov.br/images/pdf/2018/abril/18/Informe-Cp-Influenza---01-03-2018-Word-final-28.03.18%20final.pdf]. Accessed 30 July 2020.
[7] Globo. 2020. "Brazilian Army has stockpile of chloroquine for 18 years (Exército brasileiro tem estoque de cloroquina para 18 anos)". [https://extra.globo.com/noticias/brasil/exercito-brasileiro-tem-estoque-de-cloroquina-para-18-anos-rv1-1-24500378.html]. Accessed 1 August 2020.
[8] Estado de São Paulo. 2020. "States run out of drugs used to intubate patients with covid-19 (Estados ficam sem medicamentos usados para entubar pacientes com covid-19)". [https://saude.estadao.com.br/noticias/geral,estados-ficam-sem-medicamentos-usados-para-entubar-pacientes-com-covid-19,70003343806]. Accessed 1 August 2020.
[9] National Agency for Health Surveillance. 2020. "Technical Norm GVIMS/GGTES/ANVISA N. 04/2020: Orientations for health services: Prevention and control measures that must be adopted during the assistance in suspect or confirmed cases of infection by the new coronavirus (SARS-CoV-2) (Nota Técnica GVIMS/GGTES/ANVISA No. 04/2020: Orientações para serviços de saúde: Medidas de prevenção e controle que devem ser adotadas durante a assistência aos casos suspeitos ou confirmados de infecção pelo novo coronavírus (SARS-CoV-2))". [http://portal.anvisa.gov.br/documents/33852/271858/Nota+T%C3%A9cnica+n+04-2020+GVIMS-GGTES-ANVISA/ab598660-3de4-4f14-8e6f-b9341c196b28]. Accessed 1 August 2020.
[10] Folha de São Paulo. 2020. "States avoid saying how long mask and gloves stockpiles against coronavirus will last (Estados evitam dizer quanto dura estoque de máscara e luvas contra coronavírus)". [https://www1.folha.uol.com.br/cotidiano/2020/04/estados-evitam-dizer-quanto-dura-estoque-de-mascara-e-luvas-contra-coronavirus.shtml]. Accessed 1 August 2020.
[11] Exame. 2020. "Inventory of personal protective equipment for SUS is zeroed (Estoque de equipamento de proteção individual para SUS está zerado)". [https://exame.com/brasil/estoque-de-equipamento-de-protecao-individual-para-sus-esta-zerado/]. Accessed 1 August 2020.
[12] Globo. 2020. "Coronavirus: SP government confiscates 500,000 masks from company in Sumaré (Coronavírus: governo de SP confisca 500 mil máscaras de empresa em Sumaré)". [https://g1.globo.com/sp/campinas-regiao/noticia/2020/03/27/governo-de-sp-confisca-500-mil-mascaras-de-empresa-em-sumare.ghtml]. Accessed 1 August

2020.
[13] Globo. 2020. "Government of Pernambuco takes stock of masks from store in Recife without paying, based on decree (Governo de Pernambuco leva estoque de máscaras de loja em Recife sem pagar, com base em decreto)". [https://valorinveste.globo.com/mercados/brasil-e-politica/noticia/2020/03/20/governo-de-pernambuco-leva-estoque-de-mscaras-de-loja-em-recife-sem-pagar-com-base-em-decreto.ghtml]. Accessed 1 August 2020.
[14] Ministry of Labour. "Ministerial Normative 6 (Norma Regulamentadora N. 6)". [http://www.guiatrabalhista.com.br/legislacao/nr/nr6.htm]. Accessed 1 August 2020.
[15] Ministry of Labour. "Ministerial Normative 15 (Norma Regulamentadora N. 15)". [http://www.guiatrabalhista.com.br/legislacao/nr/nr15.htm]. Accessed 1 August 2020.
[16] Fernandes, Márcia et al. 2017. "Use of Personal Protective Equipment (Utilização de Equipamentos de Proteção Individual)". [https://www.researchgate.net/publication/321872183_UTILIZACAO_DE_EQUIPAMENTOS_DE_PROTECAO_INDIVIDUAL_INTERFACES_COM_O_CONHECIMENTO_DOS_PROFISSIONAIS_DE_SAUDE]. Accessed 1 August 2020.
[17] Ministry of Health. 2014. "Contingency Plan for Emergency in Public Health by Chemical, Biological, Radiological and Nuclear Agents (Plano de Contingência para Emergência em Saúde Pública por Agentes Químico, Biológico, Radiológico e Nuclear)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_contingencia_emergencia_saude_quimico.pdf]. Accessed 1 August 2020.
[18] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[19] Ministry of Defense website. [https://www.gov.br/defesa/pt-br/]. Accessed 30 August 2020.
[20] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 30 August 2020.

4.2.2b

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

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

Current Year Score: 0

There is no evidence that the country maintains a stockpile of laboratory supplies for national use during a public health emergency. During the COVID-19 pandemic, reports in April 2020 show that laboratories had stopped testing because they were lacking inputs, such as reagents. Up to 90,000 samples were waiting to be tested, but testing could not be done due to lack of reagents. [1] Reports of lack of laboratory supplies also appeared in the following months. The Central Laboratory in the state of Rio Grande do Norte lacked supplies, which caused it to reduce its testing capacity by 75% in May. [2] In June, in the state of Santa Catarina, there were also reports of lack of supplies, causing a backlog of 1,000 tests. [3] An anonymous source in the government identified the main issue behind the lack of laboratory supplies as being the lack of coordination between the Ministry of Health and Ministry of Agriculture. [1] State and municipal governments are responsible for making the purchases of laboratory to be used in the Unified Health System (SUS), Brazil's universal public health care system. If the purchase is for a federal entity (e.g., federal universities), then the federal government would be responsible for making the acquisitions. In the case of the COVID-19 pandemic, however, owing to the international scarcity of laboratory supplies, the federal government stepped in to purchase large volumes and then passed it down to the state and municipal governments. [4] No evidence of a stockpile of laboratory supplies was found in the websites of the Ministry of Health, Ministry of Defense, or the National Agency for Health Surveillance. [5,6,7]

[1] CNN Brasil. 2020. "National laboratories do not test for COVID-19 due to lack of material (Laboratórios nacionais não fazem teste para COVID-19 por falta de material)". [https://www.cnnbrasil.com.br/saude/2020/04/15/laboratorios-nacionais-nao-fazem-teste-para-covid-19-por-falta-de-material]. Accessed 1 August 2020.
[2] Globo. 2020. "With missing reagent, LACEN reduces 75% of Covid-19's testing capacity in RN (Com reagente em falta,

Lacen reduz 75% da capacidade de realização de testes da Covid-19 no RN)". [https://g1.globo.com/rn/rio-grande-do-norte/noticia/2020/05/15/com-reagente-em-falta-lacen-reduz-75percent-da-capacidade-de-realizacao-de-testes-da-covid-19-no-rn.ghtml]. Accessed 1 August 2020.
[3] ND Mais. 2020. "Lack of reagent delays 1,000 Covid-19 tests in Santa Catarina (Falta de reagente atrasa 1 mil testes de Covid-19 em Santa Catarina)". [https://ndmais.com.br/saude/falta-de-reagente-atrasa-1-mil-testes-de-covid-19-em-santa-catarina/]. Accessed 1 August 2020.
[4] Ministry of Health. 2020. "Over 163mn in personal protection equipment are distributed by the Government of Brazil (Mais de 163 milhões de Equipamentos de Proteção Individual distribuídos pelo Governo do Brasil)". [https://www.saude.gov.br/noticias/agencia-saude/47183-mais-de-163-milhoes-de-equipamentos-de-protecao-individual-distribuidos-pelo-governo-do-brasil]. Accessed 30 August 2020.
[5] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.
[6] Ministry of Defense website. [https://www.gov.br/defesa/pt-br/]. Accessed 30 August 2020.
[7] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 30 August 2020.

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Brazil conducts or requires an annual review of the national stockpile of medical supplies to ensure that the supply is sufficient for a public health emergency. No evidence has been found in the websites of the Minsitry of Health, the Ministry of Defense or the National Agency for Health Surveillance (ANVISA). [1,2,3] However, there is evidence that ANVISA started tracking the stock of medical supplies specific in the combat against the COVID-19 pandemic. The tracking system started on 14 August 2020 and it is updated daily. [4,5] There is no indication that this tracking will continue after the pandemic subsides or if it will cover medications for other diseases.

[1] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 19 March 2021.
[2] Ministry of Defense website. [https://www.gov.br/defesa/pt-br/]. Accessed 19 March 2021.
[3] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/]. Accessed 19 March 2021.
[4] National Council of Health Secretaries. 18 September 2020. "Panel shows data on medications for COVID-19 (Painel mostra dados sobre medicamentos para Covid-19)". [https://www.conass.org.br/painel-mostra-dados-sobre-medicamentos-para-covid-19/]. Accessed 19 March 2021.
[5] National Agency for Health Surveillance. "Production and Stock of Medications (Produção e estoque de medicamentos)". [https://app.powerbi.com/view?r=eyJrIjoiMzgyYTllNDgtNDAyYi00ZDVjLWI1NDgtOGI1ZTI4MzIwMmY1IiwidCI6ImI2N2FmMjNmLWMzZjMtNGQzNS04MGM3LWI3MDg1ZjVlZGQ4MSJ9&pageName=ReportSection255cb87f555de69e1841]. Accessed 19 March 2021.

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 Brazil developed an agreement to leverage domestic manufacturing capacity to produce medical supplies—including PPE, medical countermeasures (MCMs), medicines, equipment, and vaccines—for national use during a public health emergency or a plan/mechanism to procure medical supplies for national use during a public health emergency. However, during the COVID-19 pandemic, the government developed an agreement with the industrial sector to expand production of non-woven masks and N95 masks. The plan was not in place before the outbreak of the public health crisis and there is no evidence it will be extended beyond the current crisis. [1,2] For example, textile factories have been producing masks to be distributed to the population. [2] Regarding MCMs and vaccines, according to the president of the Brazilian Association of Industries of Fine Chemicals, Biotechnologies and its Specialities (ABIFINA), Brazil imports 95% of the inputs for pharmaceutical and medical goods. So, its domestic manufacturing capacity of MCMs and vaccines is limited. [3] In terms of procurement of medical supplies and goods, there are no plans or mechanisms in place. Procurement for the public health system follows the guidelines of the national procurement protocol in place. Decree 7892/2013 regulates the norms for public procurement and establishes the Price Registry System (Sistema de Registro de Preços, SRP) as the central procurement platform for all government agencies. [4,5,6] Furthermore, in May 2020, the federal government suspended the need to follow procurement protocol in the case of purchasing medical supplies such as hand sanitizer, masks, gloves and other personal protection equipment for organs and agencies related to the Ministry of Justice and Public Security to fast-track its supply under the emergency circumstances. [7,8] Some municipal governments has issued a waiver for the need of going through a procuration process to acquire some MCMs, such as ivermectin and chloroquine. The waivers would last between 30 days and until the end of the year, depending on the municipal government. The examples found are of small municipalities in rural areas. Similar documents were not found for larger cities. [9,10] Ivermectin is produced in Brazil and there are reports that companies are increasing its production. [11] However, those measures are not part of plan or mechanism and they are not uniform across the country. No other relevant information was found in the websites of the Ministry of Health, Ministry of Defense, or the National Agency for Health Surveillance. [12,13,14]

[1] Government of Brazil. 2020. "President highlights partnerships in the country for the production of protective equipment against the new coronavirus (Presidente destaca parcerias no País para produção de equipamentos de proteção contra o novo coronavírus)". [https://www.gov.br/planalto/pt-br/acompanhe-o-planalto/noticias/2020/4/presidente-destaca-parcerias-no-pais-para-producao-de-mascaras]. Accessed 1 August 2020.
[2] National Confederation of Industry. 2020. "Companies can apply for reusable mask production (Empresas podem se inscrever para produção de máscaras reutilizáveis)". [https://noticias.portaldaindustria.com.br/noticias/saude-e-qualidade-de-vida/empresas-podem-se-inscrever-para-producao-de-mascaras-reutilizaveis/#:~:text=Empresas%20do%20setor%20do%20vestu%C3%A1rio,no%20combate%20ao%20novo%20coronav%C3%ADrus.]. Accessed 1 August 2020.
[3] National Confederation of Industry. 2020. "Industry vs. coronavirus: how Brazilian production was transformed to combat the pandemic (Indústria x coronavírus: como a produção brasileira se transformou para combater a pandemia)". [https://noticias.portaldaindustria.com.br/especiais/especial-dia-da-industria-2020/]. Accessed 1 August 2020.
[4] Government of Brazil. 2013. "Decreto 7892 / 2013: Regulamenta o Sistema de Registro de Preços". [https://www2.camara.leg.br/legin/fed/decret/2013/decreto-7892-23-janeiro-2013-775083-publicacaooriginal-138773-pe.html]. Accessed 1 August 2020.
[5] Price Registry Systems. 2017. "Sistema de Registo de Preços". [https://www.comprasgovernamentais.gov.br/images/conteudo/ArquivosCGNOR/SEBRAE/Sistema-de-Registro-de-Preos---SRP.pdf]. Accessed 1 August 2020.
[6] Central Procurement Commission. 2018. "Price Registry System - Minutes of the Government of the State of Maranhão

(Registro de Preços - Atas do Governo do Estado do Maranhão)".
[http://www.ccl.ma.gov.br/2017/view/registro_preco/rp_atas.php]. Accessed 1 August 2020.
[7] Government of Brazil. 2020. "Waiver for Procuration no. 1/2020 (Dispensa de Licitação no. 1/2020)".
[https://www.gov.br/economia/pt-br/acesso-a-informacao/licitacoes-e-contratos/arquivos-contratos/doacoes/chamamento-covid-19/arquivo/chamamento-publico-covid-19-no-1-2020]. Accessed 1 August 2020.
[8] Agência Brasil. "Government will buy R$69mn in PPEs for police and prison agents (Governo comprará R$ 69 mi em EPIs para policiais e agentes de prisões)". [https://agenciabrasil.ebc.com.br/economia/noticia/2020-05/governo-comprara-r-691-mi-em-epi-para-policiais-e-agentes-de-prisoes]. Accessed 1 August 2020.
[9] Municipal Government of Acará (Pará). 2020. "Procuration waiver N 7A/2020: Acquisition of medication (ivermectin 6mg, chloroquine 400mg) for prevention and treatment against COVID-19 (Dispensa de Licitação No. 7A/2020: Aquisição de medicamentos (ivermectina 6mg, cloroquina 400mg) de prevenção e enfrentamento à COVID-19)".
[https://acara.pa.gov.br/dispensa-de-licitacao-no-007a-2020-aquisicao-de-medicamentosivermectina-6mg-cloroquina-400mgde-prevencao-e-enfrentamento-a-covid-19/]. Accessed 1 August 2020.
[10] Municipal Government of São Domingos do Capim (Pará). 2020. "Procuration waiver N 7/2020-00019: Acquisition of medication (ivermectin pill) to combat public health emergency of international importance cause by coronavirus - COVID-19 (Dispensa de Licitação No. 7/2020-00019: Aquisição de medicamentos (ivermectina comprimido) destinado ao enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus - COVID-19)".
[https://saodomingosdocapim.pa.gov.br/dispensa-de-licitacao-no-7-2020-00019-aquisicao-de-medicamento-ivermectina-comprimido-destinado-ao-enfrentamento-da-emergencia-de-saude-publica-de-importancia-internacional-decorrente-do-coronaviru/]. Accessed 1 August 2020.
[11] Barifouse, Rafael and Vinícius Lemos. BBC News Brasil. 22 July 2020. "Ivermectin: what science says about the 'new chloroquine' (Ivermectina: o que a ciência diz sobre a 'nova cloroquina')". [https://www.bbc.com/portuguese/brasil-53494836]. Accessed 30 August 2020.
[12] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 15 September 2020.
[13] Ministry of Defense website. [https://www.gov.br/defesa/pt-br/]. Accessed 15 September 2020.
[14] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/]. Accessed 15 September 2020.

4.2.3b

Does the country meet one of the following criteria?
- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency?
- Is there evidence of a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is insufficient evidence that Brazil has either a plan or agreement to leverage domestic manufaturing capacity to produce laboratory supplies or has a plan or mechanism to procure laboratory supplies for national use during a public health emergency. According to the president of the Brazilian Association of Industries of Fine Chemicals, Biotechnologies and its Specialities (ABIFINA), Brazil imports 95% of the inputs for pharmaceutical goods. So, its manufacturing capacity is already limited. [1] Most inputs for laboratories in Brazil are imported, with Brazilian production of laboratory supplies are concentrated in specific niches and are produced by small factories. [2,3] No plan or agreement to leverage domestic manufacturing capacity to produce laboratory supplies was found in the websites of the Ministries of Health or Defence, the National Agency for Health Surveillance, or the Centre for Strategic Information in Health Surveillance. [4,5,6,7] No plan or mechanism was found to procure laboratory supplies. The procurement of laboratory supplies for the public health system is conducted following the guidelines of the national procurement protocol in place. Decree 7892/2013 regulates the norms for

public procurement and establishes the Price Registry System (Sistema de Registro de Preços, SRP) as the central procurement platform for all government agencies. [8,9,10]

[1] National Confederation of Industry. 2020. "Industry vs. coronavirus: how Brazilian production was transformed to combat the pandemic (Indústria x coronavírus: como a produção brasileira se transformou para combater a pandemia)". [https://noticias.portaldaindustria.com.br/especiais/especial-dia-da-industria-2020/#:~:text=A%20ind%C3%BAstria%20de%20brinquedos%20mudou,f%C3%A1bricas%20do%20setor%20se%20adequaram.]. Accessed 1 August 2020.
[2] Frias, Maria Cristina. Folha de São Paulo. 11 February 2018. "Imports of laboratory inputs go back up in 2017 (Importação de insumo para laboratórios volta a subir em 2017)". [https://www1.folha.uol.com.br/colunas/mercadoaberto/2018/02/importacao-de-insumo-para-laboratorios-volta-a-subir-em-2017.shtml]. Accessed 30 August 2020.
[3] Bond, Letícia. Agência Brasil. 4 April 2020. "Researchers at USP launch platform to share inputs (Pesquisadores da USP lançam plataforma de compartilhamento de insumos)". [https://agenciabrasil.ebc.com.br/saude/noticia/2020-04/pesquisadores-da-usp-lancam-plataforma-de-compartilhamento-de-insumos]. Accessed 30 August 2020.
[4] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 1 August 2020.
[5] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 1 August 2020.
[6] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 1 August 2020.
[7] Ministry of Health. "Centre of Strategic Information for Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde - CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 1 August 2020.
[8] Government of Brazil. 2013. "Decreto 7892 / 2013: Regulamenta o Sistema de Registro de Preços". [https://www2.camara.leg.br/legin/fed/decret/2013/decreto-7892-23-janeiro-2013-775083-publicacaooriginal-138773-pe.html]. Accessed 1 August 2020.
[9] Price Registry Systems. 2017. "Sistema de Registo de Preços". [https://www.comprasgovernamentais.gov.br/images/conteudo/ArquivosCGNOR/SEBRAE/Sistema-de-Registro-de-Preos---SRP.pdf]. Accessed 1 August 2020.
[10] Central Procurement Commission. 2018. "Price Registry System - Minutes of the Government of the State of Maranhão (Registro de Preços - Atas do Governo do Estado do Maranhão)". [http://www.ccl.ma.gov.br/2017/view/registro_preco/rp_atas.php]. Accessed 1 August 2020.

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

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

4.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Brazil has plans in place for dispensing medical countermeasures for national use during a public health emergency. There are disease-specific plans with initiatives to distribute medical countermeasures from a central facility to the regions suffering a health emergency; however, there is no evidence of plans to dispense those countermeasures to individuals. For example, the "Measles Contingency Plan" proposes for the Central Health System to

'distribute vaccines among at risk states for the rapid inoculation of the local population'. In a case of an outbreak, the Ministry of Health should send additional doses to the 'focus region' to help contain the disease spreading. [1] Similarly, the "Yellow Fever Contingency Plan" also proposes an initial assessment of vaccine stockpiles in each region and supply additional units for the States in need. The plan outlines that a region where a potential outbreak is identified should immediately ask for additional yellow fever vaccine doses from the national strategic stockpile. [2] Even the most recent National Contingency Plan for Human Infection by the New Coronavirus COVID-19 does not include a plan, programme or guidelines for dispensing medican countermeasures. It mentions dispensing, but only briefly, orienting pharmacies to dispense MCMs as they are demanded. [3] However there is no evidence in the Ministry of Health, the Ministry of Defense or the emergency planning agency of plans to dispense these vaccines, or other countermeasures to the individuals in need. [4,56]

[1] Ministry of Health. 2016. "Contingency Plan for Emergency Response in Public Health - Measles (Plano de Contingência para Resposta às Emergências em Saude Publica - Sarampo)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_contingencia_resposta_emergencias_sarampo.pdf]. Accessed 30 July 2020.
[2] Ministry of Health. 2016. "Contingency Plan for Emergency Response in Public Health Yellow Fever (Plano de Contingência para Resposta às Emergências em Saúde Pública Febre Amarela)"[http://bvsms.saude.gov.br/bvs/publicacoes/plano_contingencia_emergencias_febre_amarela.pdf]. Accessed 30 July 2020.
[3] Ministry of Health. 2020. "National Contingency Plan for Human Infection by the New Coronavirus COVID 19 (National Contingency Plan for Human Infection by the New Coronavirus COVID 19)". [https://portalarquivos2.saude.gov.br/images/pdf/2020/fevereiro/13/plano-contingencia-coronavirus-COVID19.pdf]. Accessed 31 July 2020.
[4] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.
[5] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 30 July 2020.
[6] Ministry of Health. "Public Health Emergency Plans (Emergência em Saúde Pública)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica]. Accessed 30 July 2020.

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 evidence of a public plan in place in Brazil to receive health personnel from other countries to respond to a public health emergency. The 2014 Public Health Emergency Plan outlines the actions to be taken upon a potential health emergency in Brazil. The plan identifies the need to quickly set-up a Health Emergency Operating Centre (Centro de Operações de Emergência em Saúde - COES), a coordinating committee to manage the health emergency situation. Depending on the severity of the situation COES can request for additional resources from the Ministry of Health, and eventually also request international specialized support. However the plan does not outline any steps to facilitate the arrival of foreign health personnel during an emergency, such as bringing them into the country or transporting them to the emergency areas. [1] In 2015, during the Zika outbreak in Brazil, the Ministry of Health declared a health emergency and asked for support from the World Health Organisation, requesting specialist physicians to support the efforts in surveillance and control initiatives, but no evidence could be found of a previous plan to facilitate their arrival and transport. [2,3] No

evidence of a plan to receive foreign health personal was found in the Ministries of Health or Defense, or the Public Health Emergency Agency. [4,5,6]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". p. 14. [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.
[2] UOL. 2015. "For the First Time in the World, Zika Virus is Related to Microcephaly in Baby (Pela primeira vez no mundo, zika vírus é relacionado a microcefalia em bebê". [https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2015/11/17/pela-primeira-vez-zika-virus-e-relacionado-a-microcefalia-de-bebes.htm]. Accessed 30 July 2020.
[3] Ministry of Health. "WHO Helps Rio de Janeiro to Face Zika, Dengue and Chikungunya Through a Medical Supply Program (OMS ajuda Rio de Janeiro a enfrentar zika, dengue e chikungunya por meio de programa de provimento de médicos)". [http://www.rets.epsjv.fiocruz.br/noticias/opasoms-ajuda-rio-de-janeiro-enfrentar-zika-dengue-e-chikungunya-por-meio-de-programa-de]. Accessed 30 July 2020.
[4] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.
[5] Ministry of Defence website. [https://www.gov.br/defesa/pt-br/]. Accessed 30 July 2020.
[6] Ministry of Health. "Public Health Emergency (Emergência em Saúde Publica)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica]. Accessed 30 July 2020.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 2

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 99.2

2015

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: 404.21

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 that the government of Brazil has issued legislation, a policy or a public statement committing to provide prioritised healthcare services to healthcare workers who become sick as a result of responding to a public health emergency. Healthcare works are entitled to healthcare under the national public system. [1] Health care workers are also routinely provided with seasonal human influenza vaccines and pandemic influenza vaccines. [2, 3] However there is no evidence in the Public Health Emergency Plans or in Disease Specific Response Plans that healthcare workers who become sick as a result of responding to a public health emergency are to receive prioritised coverage. [4, 5] The Ministry of Health website does not have any evidence that healthcare workers who become sick as a result of responding to a public health emergency are to receive prioritised coverage. [6] However, on 8 July 2020, Law 14,023 was approved that prioritises healthcare workers and public safety professionals in the testing for COVID-19. The law clearly states that it applies to the COVID-19 pandemic, without any provisions that those measures will be applicable to any other future public health emergency. [7,8] The Brazilian Association for Intensive Care Medicine (AMIB) and the Brazilian Association for Emergency Medicine (ABRAMEDE) has issued a "Protocol for the allocation of scarce resources during the COVID-19 pandemic". It is not a government document, rather a recommentation of criteria to select patients who receive intensive care in areas or facilities were intensive care units are limited. The profession of the patient is not listed as a criteria. The objective of the document is to ease the difficult ethical and technical decisions medical professionals must exercise under the stress of the COVID-19 pandemic. [9,10]

[1] Ministry of Health. "Principles of the Unified Health Service (Principios do SUS)". [http://portalms.saude.gov.br/sistema-unico-de-saude/principios-do-sus]. Accessed 30 July 2020.

[2] Ministry of Health. 2018. "20th National Influenza Vaccination Campaign (20a Campanha Nacional de Vacinação contra a Influenza)". [http://portalarquivos2.saude.gov.br/images/pdf/2018/abril/18/Informe-Cp-Influenza---01-03-2018-Word-final-28.03.18%20final.pdf]. Accessed 30 July 2020.
[3] Ministry of Health. 2018. "Começa campanha de vacinação contra a gripe". [http://portalms.saude.gov.br/noticias/agencia-saude/43046-comeca-campanha-de-vacinacao-contra-a-gripe]. Accessed 30 July 2020.
[4] Ministry of Health. 2010. "Brazilian Plan of Preparation for Confronting an Influenza Pandemic (Plano Brasileiro de Preparação para Enfrentamento de uma Pandemia de Influenza)". [https://bvsms.saude.gov.br/bvs/publicacoes/plano_brasileiro_pandemia_influenza_IV.pdf]. Accessed 30 July 2020.
[5] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed 30 July 2020.
[6] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.
[7] Senado Notícias. 2020. "Law prioritises coronavirus testing for professionals in contact with those infected (Lei prioriza teste do coronavírus para profissionais em contato com infectados)". Accessed 30 July 2020.
[8] Government of Brazil. 2020. "Law 14,023, of 8 July 2020 (Lei No. 14.023, de 8 de julho de 2020)". [http://www.in.gov.br/en/web/dou/-/lei-n-14.023-de-8-de-julho-de-2020-265869301#:~:text=Altera%20a%20Lei%20n%C2%BA%2013.979,do%20coronav%C3%ADrus%20respons%C3%A1vel%20pelo%20surto]. Accessed 30 July 2020.
[9] UOL. 2020. "Chances, survival and capacity: how patients are selected in the ICU queue (Chances, sobrevida e capacidade: como se escolhem pacientes na fila de UTI)". [https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2020/05/05/chances-sobrevida-e-idade-como-e-a-escolha-de-pacientes-na-fila-de-uti.htm]. Accessed 30 July 2020.
[10] Brazilian Association for Intensive Care Medicine (AMIB), Brazilian Association for Emergency Medicine (ABRAMEDE). 2020. "Recommendations by AMIB (Brazilian Association of Intensive Care Medicine), ABRAMEDE (Brazilian Association of Emergency Medicine), SBGG (Brazilian Society of Geriatrics and Gerontology) and ANCP (National Academy of Palliative Care) for allocating scarce resources during the COVID-19 pandemic (Recomendações da AMIB (Associação de Medicina Intensiva Brasileira), ABRAMEDE (Associação Brasileira de Medicina de Emergência, SBGG (Sociedade Brasileira de Geriatria e Gerontologia) e ANCP (Academia Nacional de Cuidados Paliativos) de alocação de recursos em esgotamento durante a pandemia por COVID-19)". [https://www.amib.org.br/fileadmin/user_upload/amib/2020/abril/24/VJS01_maio_-_Versa__o_2_-_Protocolo_AMIB_de_alocac__a__o_de_recursos_em_esgotamento_durante_a_pandemia_por_COVID.pdf]. Accessed 30 July 2020.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of a system in place in Brazil for public health officials and healthcare workers to communicate during a public health emergency. The 2014 Health emergency Response Plan has a section that describes the importance of

communications and the role of a spokesperson. [1] However there is no mention of a specific system for communication during a public health emergency. There is a national surveillance system called the Integrated System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME) which was designed to capture information about events that pose a potential public health risk, but it is a Health Surveillance tool, and not for live communication during an emergency. [2] There is no evidence of a system in place for public health officials and healthcare workers to communicate during a public health emergency in the Ministry of Health website. [3]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_resposta_emergencias_saude_publica.pdf]. Accessed 30 July 2020.
[2] Ministry of Health. "Integrated System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)" [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs/sistema-integrado-de-monitoramento-de-eventos]. Accessed 30 July 2020.
[3] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.

4.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of a system in place in Brazil for public health officials and healthcare workers to communicate during a public health emergency and hence not of one that encompass healthcare workers in both the public and private sector. The 2014 Health emergency Response Plan has a section that describes the importance of communications and the role of a spokesperson. [1] However there is no mention of a specific system for communication during a public health emergency. There is a national surveillance system called the Integrated System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME) which was designed to capture information about events that pose a potential public health risk, but it is a Health Surveillance tool, and not for live communication during an emergency. [2] There is no evidence of a system in place for public health officials and healthcare workers to communicate during a public health emergency in the Ministry of Health website. [3]

[1] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_resposta_emergencias_saude_publica.pdf]. Accessed 30 July 2020.
[2] Ministry of Health. "Integrated System of Public Health Event Monitoring (Sistema Integrado de Monitoramento de Eventos - SIME)" [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs/sistema-integrado-de-monitoramento-de-eventos]. Accessed 30 July 2020.
[3] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that the national public health system in Brazil monitors and tracks the number of healthcare associated infections that take place in healthcare facilities. The Ministry of Health has a national plan for the Prevention and Control of Healthcare Associated Infections, updated in 2016, which sets the procedures for healthcare units in preventing, controlling and reporting any healthcare associated infections. [1] There is a system in place for healthcare units to report any event, and the data is publicly available, with 547 reported cases in 2019. [2,3] Additionally, objectives 4.3.1 and 4.7 of the 2018 Brazilian AMR plan, the National Action Plan for Prevention and Control of Antimicrobial Resistance for the Unified Health System, seek to improve the system to track and monitor healthcare infections in the National Health System. [4]

[1] National Agency for Health Surveillance. 2016 "Programa Nacional de Prevenção e Controle de Infecções Relacionadas à Assistência a Saúde (National Program for Prevention and Control of Infections Related to Health Care)". [https://www20.anvisa.gov.br/segurancadopaciente/index.php/publicacoes/item/pnpciras-2016-2020]. Accessed 30 July 2020.
[2] Ministry of Health. "Notification of Case Aggregation and Outbreak in Health Services (Notificação de Agregado de casos e surto em serviços de Saude)". [http://formsus.datasus.gov.br/site/formulario.php?id_aplicacao=8934]. Accessed 30 July 2020.
[3] Ministry of Health. "National case Notification (Notificação nacional de agregado de casos)". [http://formsus.datasus.gov.br/site/resultado.php?id_aplicacao=8934]. Accessed 30 July 2020.
[4] Ministry of Health. 2018. "National Action Plan for Prevention and Control of Antimicrobial Resistance for the Unified Health System (Plano de ação nacional de prevenção e controle da resistência aos antimicrobianos no âmbito da saúde única 2018-2022)". [https://pesquisa.bvsalud.org/bvsms/resource/pt/mis-40062]. Accessed 30 July 2020.

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is a national requirement for ethical review before beginning a clinical trial in Brazil. The National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) is the Brazilian regulatory agency that is responsible for the approval and supervision of pharmaceuticals and healthcare services. ANVISA has launched a set of rules requiring ethical reviews before beginning a clinical trial, namely Resolution N.9 of 2015 for new drug submission and for clinical trials. Article 2 of the Resolution requires the initial site to perform a new clinical trial in the country to ask for ethical approval from Ethical Research Committee. [1,2]

[1] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 30 July 2020.
[2] Ministry of Health. 2015. "Resolution N.9 of 2015 - Regulation for Conducting Clinical Trials with Drugs in Brazil (Resolução N.9 de 2015 - Regulamento para a realização de ensaios clínicos com medicamentos no Brasil)". [http://portal.anvisa.gov.br/documents/10181/3503972/RDC_09_2015_.pdf/843a88bd-3381-489e-8711-aca256cb4360]. Accessed 30 July 2020.

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics. Resolution 204 from the National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA), released in 2017, established the framework for the prioritisation of drug registration and clinical trials authorisation in Brazil. The regulation identified the criteria for eligibility for the priority pathways, including a potential pandemic or addressing a public health emergency. Other reasons for priority pathways for approving clinical trials are: trials addressing paediatric population, rare diseases, emerging or reemerging diseases, serious debilitating conditions, vaccines to be included in the National Immunisation Program, or risk of shortage in the market. [1] During the COVID-19 pandemic, ANVISA has expedited clinical studies of new treatments. As part of this strategy, ANVISA created a dedicated committee to evaluate clinical studies, registrations and changes post-registrations of drugs for the prevention or treatment of COVID-19. [2]

[1] National Agency for Health Surveillance. 2017. "Resolution 204/2017: Framework for Priority Registration Petitions, Post-registration and Prior Consent in Clinical Drug Research (Resolução RDC 204/2017: Enquadramento na categoria prioritária, de petições de registro, pós-registro e anuência prévia em pesquisa clínica de medicamentos)".[http://portal.anvisa.gov.br/documents/10181/2718376/RDC_204_2017_.pdf/b2d4ae64-2d91-44e9-ad67-b883c752c094]. Accessed 30 July 2020.
[2] Government of Brazil. 2020. "ANVISA authorises two more studies with drugs against COVID-1 (Anvisa autoriza mais dois estudos com medicamentos contra Covid-19)". [https://www.gov.br/pt-br/noticias/saude-e-vigilancia-sanitaria/2020/06/anvisa-autoriza-mais-dois-estudos-com-medicamentos-contra-covid-19]. Accessed 30 July 2020.

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is a government agency responsible for approving new medical countermeasures for humans in Brazil. The National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) is an independent department of the Ministry of Health which coordinates the Brazilian Health Regulatory System. It is mandated to provide market authorisation for products, enforce sanitary regulations and control the import and export of goods subject to medical regulations, including vaccines or other medical products/devices used in a public health emergency. The term "medical countermeasure" is not specifically used. [1,2]

[1] National Agency for Health Surveillance website. [http://portal.anvisa.gov.br/english]. Accessed 20 July 2020.
[2] World Health Organisation (WHO). "ANVISA".
[http://www.who.int/medicines/areas/quality_safety/regulation_legislation/WA_1.pdf]. Accessed 20 July 2020.

4.7.2b

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

Yes = 1 , No = 0

Current Year Score: 1

There is an expedited process for approving medical countermeasures for human use during public health emergencies in Brazil. In 2017, National Agency for Health Surveillance (Agência Nacional de Vigilância Sanitária - ANVISA) passed on resolution 204 which establishes the framework for the prioritisation of drug registration. The regulation identified the eligibility criteria for priority pathways. Companies seeking to register or approve medical countermeasures (such as drugs, vaccines or medical devices) to address a public health emergency have the right to an expedited process which shortens the approval time for quicker market introduction. Other reasons for an expedited approval process include countermeasures addressing rare diseases, emerging or reemerging diseases, serious debilitating conditions, or vaccines to be included in the National Immunization Program. [1] During the COVID-19 pandemic, ANVISA has expedited clinical trials on humans of new treatments and vaccines. As part of this strategy, ANVISA created a dedicated committee to evaluate clinical studies and trials on humans, registrations and changes post-registrations of drugs for the prevention or treatment of COVID-19. [2]

[1] National Agency for Health Surveillance. 2017. "Resolution 204/2017: Framework for Priority Registration Petitions, Post-registration and Prior Consent in Clinical Drug Research (Resolução RDC 204/2017: Enquadramento na categoria prioritária, de petições de registro, pós-registro e anuência prévia em pesquisa clínica de medicamentos)".
[http://portal.anvisa.gov.br/documents/10181/2718376/RDC_204_2017_.pdf/b2d4ae64-2d91-44e9-ad67-b883c752c094]. Accessed 30 July 2020.
[2] National Agency for Health Surveillance. 2020. "COVID-19: ANVISA authorises new test for vaccine (Covid-19: Anvisa autoriza novo teste para vacina)".
[http://portal.anvisa.gov.br/noticias?p_p_id=101_INSTANCE_FXrpx9qY7FbU&p_p_col_id=column-2&p_p_col_pos=1&p_p_col_count=2&_101_INSTANCE_FXrpx9qY7FbU_groupId=219201&_101_INSTANCE_FXrpx9qY7FbU_urlTitle=anvisa-autoriza-novo-teste-para-vacina-contra-covid-19&_101_INSTANCE_FXrpx9qY7FbU_struts_action=%2Fasset_publisher%2Fview_content&_101_INSTANCE_FXrpx9qY7FbU_assetEntryId=5936568&_101_INSTANCE_FXrpx9qY7FbU_type=content]. Accessed 30 July 2020.

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 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 that pandemics are integrated into the national risk reduction strategy nor there is a standalone national disaster risk reduction strategy for pandemics. Brazil has a National Plan for Risk Management and Response to Natural Disasters (Plano Nacional de Gestão de Riscos e Resposta a Desastres Naturais) of 2012, run by the National Centre for Monitoring and Alerts of Natural Disasters (CEMADEN) under the Ministry of Regional Development; however the plan only covers natural disasters such as floods or hurricanes, whilst pandemics are not included. [1] There are contingency plans for pandemic diseases, but they are not risk reduction plans. [2] A risk mitigation plan for pandemics cannot be found in the Ministry of Health, in the Integration Ministry, in the National Centre for Natural Disaster Monitoring and Alert, or in the Brazilian Association for Natural Risk Mitigation sources. [3,4,5,6]

[1] National Centre for Monitoring and Alerts of Natural Disasters (CEMADEN). "CEMADEN and its competencies in the National Plan for Risk Management and Response to Natural Disasters (O CEMADEN e sua competência no âmbito do Plano Nacional de Gestão de Risos e Resposta a Desastres Nacionais)". [http://www.cemaden.gov.br/o-cemaden-e-sua-competencia-no-ambito-do-plano-nacional-de-gestao-de-risco-de-riscos-e-resposta-a-desastres-naturais/]. Accessed 30 July 2020.
[2] Ministry of Health. "Brazilian Plan of Preparation for Confronting an Influenza Pandemic (Plano Brasileiro de Preparação para Enfrentamento de uma Pandemia de Influenza)". [http://bvsms.saude.gov.br/bvs/publicacoes/plano_brasileiro_pandemia_influenza_IV.pdf]. Accessed 30 July 2020.
[3] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 July 2020.

[4] Ministry of Regional Development website [https://www.mdr.gov.br/]. Accessed 30 July 2020.
[5] National Center for Natural Disaster Monitoring and Alert website. [https://www.cemaden.gov.br/]. Accessed 30 July 2020.
[6] Brazilian Association for Natural Risk Mitigation. [https://www.abrrd.org/documentos]. Accessed 30 July 2020.

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

5.2.1 Cross-border agreements

5.2.1a

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

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

Current Year Score: 1

There is evidence that Brazil has agreements with a regional group regarding public health emergencies; however, there is some evidence of gaps in its implementation. Brazil is part of MERCOSUL (Common Market of the Southern Cone), a group of South American countries (Argentina, Brazil, Chile, Paraguay and Uruguay) promoting free trade and increased integration. [1] Within MERCOSUL, there are collaboration agreements for Health, Food and Agriculture and Human Rights, which are deposited with the Government of Paraguay. [2] The member countries have been collaborating on many health topics, such as preventing the outbreak of zika, increasing health surveillance of migrants in the region, or improving immunisation of communicable diseases such as polio. [3,4,5] In the case of the COVID-19 pandemic, in March 2020, the leaders of the member countries of MERCOSUL, including Brazil, signed a joint declaration agreeing on collective measures to fight and mitigate the coronavirus and its impact. Among the measures are: facilitation of repatriation of nationals of member countries, faciliate trade of goods and services necessary to combat the pandemic, and promote communication of measures being adopted in each member country to combat the pandemic. [6] However, there were gaps in its implementation, as the repatriation of nationals to their respective countries during the pandemic faced challenges. Despite the joint declaration, member countries of MERCUL still had to resort to diplomatic means to resolve repatriation issues that arised during the COVID-19 pandemic. Argentina imposed limitations for return of their own citizens during the crisis. [7] Brazil faced difficulties in bringing back its own nationals as borders were closed, which included member countries of MERCOSUL. [8]

[1] MERCOSUL website. [http://www.MERCOSUL.gov.br/saiba-mais-sobre-o-MERCOSUL]. Accessed 30 July 2020.
[2] Governement of Paraguay. "Consultation - Mercosur (Consulta - Mercosur)". [https://www.mre.gov.py/tratados/public_web/ConsultaMercosur.aspx]. Accessed 30 July 2020.
[3] Ministry of Health. "Brazil Offers the MERCOSUL Countries Training for Zika Test (Brasil oferece os paises do MERCOSUL treinamento para teste de Zika)". [http://www.saude.gov.br/saude-de-a-z/microcefalia/perguntas-e-respostas]. Accessed 30 July 2020.
[4] Ministry of Health. 2018. "Plan of Action for the Sustainability of the Elimination of Measles, Rubella and Congenital Rubella Syndrome in the Americas 2018-2023 (Plano de ação para a sustentabilidade da eliminação do sarampo, a rubéola e a síndrome da rubéola congênita nas Américas 2018-2023)". [http://portalarquivos2.saude.gov.br/images/pdf/2018/junho/18/Reintroducao.pdf]. Accessed 30 July 2020.
[5] Ministry of Health. 2018. "Agreement of MERCOSUL Health Ministers on Migration in the Region (Acordo dos Ministros de Saude do MERCOSUL sobre migração na região)". [http://portalarquivos2.saude.gov.br/images/pdf/2018/junho/18/Migracao.pdf]. Accessed 30 July 2020.
[6] MERCOSUL. 2020. "The presidents of MERCOSUL agree on measures against coronavirus (Os presidentes do MERCOSUL

acordam medidas contra o coronavírus)". [https://www.mercosur.int/pt-br/os-presidentes-do-MERCOSUL-acordam-medidas-contra-o-coronavirus/]. Accessed 30 July 2020.
[7] State Government of Rio Grande do Sul. 2020. "Argentina authorises repatriation after dialogue with Brazilian government (Argentina autoriza repatriação após diálogo com governo brasileiro)". [https://estado.rs.gov.br/argentina-autoriza-repatriacao-apos-dialogo-com-governo-brasileiro]. Accessed 30 July 2020.
[8] CNN. 2020. "MERCOSUL will work to repatriate citizens detained because of coronavirus (MERCOSUL trabalhará para repatriar cidadãos detidos por causa do coronavírus)". [https://www.cnnbrasil.com.br/internacional/2020/03/18/MERCOSUL-trabalhara-para-repatriar-cidadaos-detidos-por-causa-do-coronavirus]. Accessed 30 July 2020.

5.2.1b

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

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

Current Year Score: 0

There is insufficient evidence that Brazil has cross-border agreements, as part of a regional group, with regards to animal health emergencies. Brazil is a member of MERCOSUL, a group of South American countries promoting free trade and increased integration. The bloc has signed an Environmental Emergency Agreement in 2012, which only very superficially mentions domesticised animals. The Agreement mentions domestic animals once when it refers to potential ecosystems that could be affected or threatened by an emergency or crisis. There are no mentions of wild animals. The Agreement was promulgated in 2013. [1] No other relevant treaties were found in the MERCOSUL treaty depository. [2] No other relevant information was found in the Ministry of Agriculture website or the Ministry of Health's Centre for Strategic Information in Health Surveillance. [3,4]

[1] DomTotal. 2013. "Agreement Protocol Between MERCOSUL Countries on Environmental Emergencies (Promulgado protocolo de acordo entre países do MERCOSUL sobre emergências ambientais)". [http://domtotal.com/direito/pagina/detalhe/36084/promulgado-protocolo-de-acordo-entre-paises-do-MERCOSUL-sobre-emergencias-ambientais]. Accessed 1 August 2020.
[2] Government of Paraguay. "Consultation - Mercosur (Consulta - Mercosur)". [https://www.mre.gov.py/tratados/public_web/ConsultaMercosur.aspx]. Accessed 1 August 2020.
[3] Ministry of Agriculture. "Animal health (Saúde animal)". [https://www.gov.br/agricultura/pt-br/assuntos/sanidade-animal-e-vegetal/saude-animal]. Accessed 1 August 2020.
[4] Ministry of Health. "Health Surveillance: Centre for Strategic Information in Health Surveillance (Centro de Informações Estratégicas em Vigilância em Saúde -CIEVS)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica/cievs]. Accessed 29 July 2020.

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

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

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

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

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

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

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

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

- Membership in the Australia Group (AG)
- Membership in the Proliferation Security Initiative (PSI)

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

Current Year Score: 0

2021

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

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

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

5.4.1a

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

5.4.1b

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

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

5.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.4.2b

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

Yes = 1 , No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that the government of Brazil has allocated national funds to improve capacity to address epidemic threats within the past three years. In December 2019, the Ministry of Health approved funds to be allocated to strengthen the National Network for Surveillance and Response to Public Health Emergencies (Rede CIEVS). The total amount to be allocated through this decision was of R$20.7mn. [1] Additionally, in April 2020, the government passed a complementary law (172 of 2020) that frees up resources destined for state and municipal governments so that they can have more flexibility in fighting againts the COVID-19 pandemic as well as other epidemic threats. It is estimated that this law frees up R$6bn. [2] This law is based on Project of Law 232 of 2019, which had the objective of passing remaining funds from the year to be used in public services and health, focused on health surveillance. [3] The project of law was under discussion in Congress during the outbreak and it was then modified to specifically address the COVID-19 pandemic, but it maintained that the funds could be used to address other epidemic threats as well. The funds can be used for epidemiological surveillance, distribution of medication and investments in physical capital (hospitals, health units, etc). [2,4] Over the evolution of the pandemic in Brazil, the Government of Brazil expanded financing to health services, including health services outside of the public Unified Health System (SUS). It transferred nearly R$2bn to religious and philanthorpic hospitals and R$1bn on ICU hospital bed, for example. [5]

[1] Ministry of Health. 2019. "Ordinance N. 3,238, of 9 December 2019 (Portaria No. 3.238, de 9 de dezembro de 2019)". [https://www.in.gov.br/web/dou/-/portaria-n-3.238-de-9-de-dezembro-de-2019-232670546]. Accessed 5 August 2020.
[2] Chamber of Deputies. 2020. "It was published the law that frees up health fund resources to combat COVID-19 (Publicada lei que libera recursos de fundos de saúde para combate à Covid-19)". [https://www.camara.leg.br/noticias/654567-publicada-lei-que-libera-recursos-de-fundos-de-saude-para-combate-a-covid-19/]. Accessed 31 July 2020.

[3] Chamber of Deputies. 2020. "Project flexibilises utilization of balance from federal transfers to health (Projeto flexibiliza utilização de saldo de repasses federais para saúde)". [https://www.camara.leg.br/noticias/631606-PROJETO-FLEXIBILIZA-UTILIZACAO-DE-SALDO-DE-REPASSES-FEDERAIS-PARA-SAUDE]. Accessed 31 July 2020.
[4] Chamber of Deputies. 2020. "Project of Law 232/2019 (PL 232/2019)". [https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2190741]. Accessed 31 July 2020.
[5] National Health Fund. 2020. "Check the actions to combat COVID-19 (Confira as ações para enfrentamento ao Covid-19]". [https://portalfns.saude.gov.br/orientacoes-tecnicas/2489-publicada-portaria-que-regulamenta-aplicacao-dos-recursos-de-emendas-parlamentares-preferencialmente-para-o-enfrentamento-ao-coronavirus-covid-20]. Accessed 31 July 2020.

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

5.5.2a

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

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

Current Year Score: 0

2021

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

5.5.2b

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

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

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

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

Yes = 1 , No = 0

Current Year Score: 0

Brazil does not have a publicly identified special emergency public financing mechanism which the country can access in the face of a public health emergency. Brazil is not eligible for the World Bank pandemic financing facilities. [1] Although Brazil received financial support from the World Health Organization (WHO) to deal with the outbreak of Zika, there is no evidence of mechanisms at the national, regional or state level that can be used immediately in the face of a public health emergency. [2,3,4] Health Emergency Plans do not have any information about such funding, nor does the Ministry of Health website. [5,6] A search in the Globo website, one of the main news networks in Brazil, did not provide any evidence of news of emergency funding following the zika outbreak. [7]

[1] World Bank. "IDA Borrowing Countries". [http://ida.worldbank.org/about/borrowing-countries]. Accessed June 2021.
[2] National Public Radio (NPR). 2016. "WHO: Birth Defect Linked To Zika Virus Is 'Public Health Emergency'". [https://www.npr.org/sections/goatsandsoda/2016/02/01/465169748/who-birth-defect-linked-to-zika-virus-is-public-health-emergency]. Accessed June 2021.
[3] CBS News. 2016. "What's thwarting Brazil's battle against Zika virus?". [https://www.cbsnews.com/news/brazil-zika-outbreak-too-much-for-government-health-to-handle/]. Accessed June 2021.
[4] Muzaka, Valbona. 2017. "Lessons from Brazil: on the difficulties of building a universal health care system". J Glob Health. 2017 Jun; 7[1] : 010303. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5344008/]. Accessed June 2021.
[5] Ministry of Health. 2014. "Public Health Emergency Response Plan (Plano de Resposta às Emergências em Saúde Pública)". [http://portalarquivos2.saude.gov.br/images/pdf/2014/outubro/07/plano-de-resposta-emergencias-saude-publica-2014.pdf]. Accessed June 2021.
[6] Ministry of Health. 2018. "Public Health Emergency (Emergência em Saude Publica)". [http://portalms.saude.gov.br/vigilancia-em-saude/emergencia-em-saude-publica]. Accessed June 2021.
[7] Globo. "Search: emergency funding zika (Procura: fundo emergencia zika). [https://www.globo.com/busca/?q=fundo+emergencia+zika]. Accessed June 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 insufficient evidence that senior leaders of the government, in past three years, have made public commitments to support other countries to improve capactiy to address epidemic threats by providing financing or support. There is also insufficient evidence that senior leaders of the government have made public commitments to improve the country's own domestic capacity to address epidemic threats by expanding financing. Minister of Health Luiz Henrique Mandetta, in March 2020, stated that the government will transfer R$600mn to municipalities to fight the COVID-19 pandemic. [1] However, since the statement was not in preparation of a public health emergency—it was a response to an ongoing crisis—his statement is not evidence of a public commitment to improve the country's own domestic capactiy to address epidemic threats by expanding financing. In the depository of speeches, articles and interviews by the President and the Minister of Foreign Relations, there are no public commitments to support other countries to improve capacity to address epidemic threats by providing financing or support. [2] No other statements were found by the Minister of Health on the issue in the

website of the Ministry of Health. [3]

[1] National Health Fund. 2020. "Health marks over R$600mn for actions against the pandemic (Saúde destina mais R$ 600 mi para ações de combate à pandemia)". [https://portalfns.saude.gov.br/sem-categoria/2496-saude-destina-mais-r-600-mi-para-acoes-de-combate-a-pandemia]. Accessed 31 July 2020.
[2] Ministry of Foreign Relations. 2020. "Speeches, articles, interviews and reviews (Discursos, artigos, entrevistas e resenhas)". [http://www.itamaraty.gov.br/pt-BR/discursos-artigos-e-entrevistas]. Accessed 31 July 2020.
[3] Ministry of Health website. [http://www.saude.gov.br/]. Accessed 30 August 2020.

5.5.4b

Is there evidence that the country has, in the past three years, either:
- Provided other countries with financing or technical support to improve capacity to address epidemic threats?
- Requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 1

There is evidence that in the last three years Brazil has provided financial and technical support to other countries to improve capacity to address epidemic threats, and that it received financing or technical support from donors to improve the country's domestic capacity to address epidemic threats. The Ministries of Health of Brazil, Argentina, Paraguay, Uruguay and Chile have developed an action plan to improve health surveillance across the borders to support fighting against communicable diseases such as measles and committed to deploy additional resources for polio immunisation, as per joint press release of the Health Ministries. [1,2,3] MERCOSUL, of which Brazil is a founding member, approved an US$16mn emergency fund to combat COVID-19 in April 2020. The fund will support member countries of the MERCOSUL to purchase necessary equipment for treatment and prevention. The funding comes from the member countries themselves, including Brazil. [4] According to the Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker, since 2017, Brazil received US$694.6mn in funds from donors such as the Inter-American Development Bank, the International Bank for Reconstruction and Development, the Bill & Melinda Gates Foundation, the United Nations Children's Fund, the World Health Organisation, the International Labour Organisation, and countries like Germany, Netherlands and Canada. The funds were aimed to improve several core capacities, such as emergency response operations, national laboratory system, immunization, workforce development, preparedness, zoonotic diseases, real time surveillance and reporting. [5] According to the Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker, Brazil last provided other countries with financing or technical support to improve capacity to address epidemic threats in 2016. Brazil has not committed or disbursed funds since 2017. [6]

[1] Ministry of Health. 2018. "Action plan for the Sustainability of the Elimination of Measles, Rubella and Congenital Rubella Syndrome in the Americas 2018-2023 (Plano de ação para a sustentabilidade da eliminação do sarampo, a rubéola e a síndrome da rubéola congênita nas Américas 2018-2023".
[http://portalarquivos2.saude.gov.br/images/pdf/2018/junho/18/Reintroducao.pdf]. Accessed 31 July 2020.
[2] Ministry of Health. 2018. "Agreement of Mercosul Health Ministers on Migration in the Region (Acordo dos Ministros de Saúde do Mercosul sobre migração na região)".
[http://portalarquivos2.saude.gov.br/images/pdf/2018/junho/18/Migracao.pdf]. Accessed 31 July 2020.
[3] World Health Organization. 2017. "Action plan for the Sustainability of the Elimination of Measles, Rubella and Congenital Rubella Syndrome in the Americas 2018-2023 (Plano de ação para a sustentabilidade da eliminação do sarampo, a rubéola e a síndrome da rubéola congênita nas Américas 2018-2023".
[http://iris.paho.org/xmlui/bitstream/handle/123456789/34417/CSP29.R11-

p.pdf;jsessionid=89FDEE9FD2BB2C8390D86B0BE8202EF9?sequence=4]. Accessed 31 July 2020.
[4] MERCOSUL. 2020. "Regional effort against the pandemic: MERCOSUL approves an emergency fund of US$16 million that will be used to combat COVID-19 (Esforço regional contra a pandemia: o MERCOSUL aprovou um fundo de emergência de US$ 16 milhões que serão destinados totalmente para ao combate contra o COVID-19)". [https://www.mercosur.int/pt-br/esforco-regional-contra-a-pandemia-o-mercosul-aprovou-um-fundo-de-emergencia-de-us-16-milhoes-que-serao-destinados-totalmente-para-o-combate-contra-o-covid-19/]. Accessed 31 July 2020.
[5] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. "Recipient Profile: Brazil". [https://tracking.ghscosting.org/details/898/recipient]. Accessed 31 July 2020.
[6] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. "Recipient Profile: Brazil". [https://tracking.ghscosting.org/details/898/funder]. Accessed 19 March 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

There is insufficient evidence of a publicly available plan in Brazil for sharing genetic data, epidemiological data, clinical specimens, and/or isolated specimens (biological materials) with international organisations and/or other countries that goes beyond influenza. There is evidence that Brazil has been sharing information and biological material with the US Centre for Disease Control and Prevention (CDC), such as in 2016 during the zika outbreak, where zika samples were sent to the US; or the case of HIV samples sent to the US for testing. [1,2] However there is no evidence of a plan to share data or specimens with international organizations or other countries in the Ministry of Health website, Ministry of Health news website, the Ministry of Agriculture, or the Ministry of Science. [3,4,5,6]. Also, search in leading Brazilian media agencies on 'Plan to Share Health Data' does not provide any results. [7,8] In the case of COVID-19, there has been international cooperation with universities and laboratories in other countries. Brazil participated in the clinical trials for a potential vaccine against COVID-19 developed by Oxford University in the UK. [9] Brazil is also participating in the clinical trials for another potential vaccine developed by Sinovac Research & Development, a company based in China. [10] Clinical trials requires the sharing of genetic

data and specimens. However, those measures are not part of a plan or policy.

[1] Center for Disease Control and Prevention. "CDC in Brazil". [https://www.cdc.gov/globalhealth/countries/brazil/pdf/Brazil_Factsheet.pdf]. Accessed 30 August 2020.
[2] Deutsche Welle (DW). 2016. "Brazil and US Start Development of Vaccine Against Zika (Brasil e EUA iniciam desenvolvimento de vacina contra o zika)". [https://www.dw.com/pt-br/brasil-e-eua-iniciam-desenvolvimento-de-vacina-contra-o-zika/a-19025787]. Accessed 30 August 2020.
[3] Ministry of Health website. [http://portalms.saude.gov.br/]. Accessed 30 August 2020.
[4] Ministry of Health. 2019. "News (Noticias)". [http://portalms.saude.gov.br/noticias]. Accessed 30 August 2020.
[5] Ministry of Agriculture website. [http://www.agricultura.gov.br/]. Accessed 30 August 2020.
[6] Ministry of Science. Website [http://www.mctic.gov.br/portal]. Accessed 30 August 2020.
[7] Globo news website. [https://oglobo.globo.com/busca/?q=plano+partilha+dados+saude]. Accessed 30 August 2020.
[8] Folha de Sao Paulo website. [https://search.folha.uol.com.br/?q=plano+partilha+dados+saude&site=todos]. Accessed 30 August 2020.
[9] Ministry of Science. 2020. "CNTBio approves clinical studies with vaccine for coronavirus and new project for development of rapid diagnostic of the illness (CTNBio aprova estudos clínicos com vacina para o coronavírus e novo projeto para desenvolvimento de diagnóstico rápido da doença)". [http://www.mctic.gov.br/mctic/opencms/salaImprensa/noticias/arquivos/2020/06/CTNBio_aprova_estudos_clinicos_com_vacina_para_o_coronavirus_e_novo_projeto_para_desenvolvimento_de_diagnostico_rapido_da_doenca.html]. Accessed 30 August 2020.
[10] National Agency for Health Surveillance. 2020. "COVID-19: ANVISA authorises new test for vaccine (Covid-19: Anvisa autoriza novo teste para vacina)". http://portal.anvisa.gov.br/coronavirus/noticias/-/asset_publisher/3WSYdp5mIC2e/content/anvisa-autoriza-novo-teste-para-vacina-contra-covid-19/219201?inheritRedirect=false&redirect=http%3A%2F%2Fportal.anvisa.gov.br%2Fcoronavirus%2Fnoticias%3Fp_p_id%3D101_INSTANCE_3WSYdp5mIC2e%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1]. Accessed 31 July 2020.

5.6.1b

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

Yes = 0 , No = 1

Current Year Score: 1

There is no public evidence that Brazil has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years. According to the PIP website, in 2016 Brazil shared influenza samples (original species IVTM-ORG2417) with the Centre of Disease Control and Prevention in the US. [1] There is no evidence of a lack of shared samples via media reports.

[1] Pandemic Influenza Preparedness (PIP). "Influenza Virus Traceability". [https://extranet.who.int/ivtm/GeoNav.aspx]. Accessed 31 July 2020.

5.6.1c

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

Yes = 0 , No = 1

Current Year Score: 1

There is no public evidence that the country has not shared pandemic pathogen samples during an outbreak in the past two years. In the case of COVID-19, Brazil has shared pandemic pathogen samples. Brazil participated in the clinical trials for a potential vaccine against COVID-19 developed by Oxford University in the UK. [1] Brazil is also participating in the clinical trials for another potential vaccine developed by Sinovac Research & Development, a company based in China. [2] Clinical trials requires the sharing of genetic data and specimens. No evidence was found in the websites of the WHO or international and local media outlets. [3]

[1] Ministry of Science. 2020. "CNTBio approves clinical studies with vaccine for coronavirus and new project for development of rapid diagnostic of the illness (CTNBio aprova estudos clínicos com vacina para o coronavírus e novo projeto para desenvolvimento de diagnóstico rápido da doença)". [http://www.mctic.gov.br/mctic/opencms/salaImprensa/noticias/arquivos/2020/06/CTNBio_aprova_estudos_clinicos_com_vacina_para_o_coronavirus_e_novo_projeto_para_desenvolvimento_de_diagnostico_rapido_da_doenca.html]. Accessed 31 July 2020.
[2] National Agency for Health Surveillance. 2020. "COVID-19: ANVISA authorises new test for vaccine (Covid-19: Anvisa autoriza novo teste para vacina)". http://portal.anvisa.gov.br/coronavirus/noticias/-/asset_publisher/3WSYdp5mIC2e/content/anvisa-autoriza-novo-teste-para-vacina-contra-covid-19/219201?inheritRedirect=false&redirect=http%3A%2F%2Fportal.anvisa.gov.br%2Fcoronavirus%2Fnoticias%3Fp_p_id%3D101_INSTANCE_3WSYdp5mIC2e%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_count%3D1]. Accessed 31 July 2020.
[3] World Health Organization. "Brazil". [https://www.who.int/countries/bra/en/]. Accessed 30 August 2020.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

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

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1b

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

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 38

2020

Transparency International

6.1.1f

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1g

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

Input number

Current Year Score: 2

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: 0

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: 1

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

No armed conflict exists = 4, Yes; sporadic conflict = 3, Yes; incursional conflict = 2, Yes, low-level insurgency = 1, Yes; territorial conflict = 0

Current Year Score: 4

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

Does the government's authority extend over the full territory of the country?

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

Is there a threat that international disputes/tensions could have a negative effect?

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

Current Year Score: 3

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: 93.23

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: 1.6

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

In the first week of August 2020, the percentage of working Brazilians in the informal sector was 34.2% according to a press release from the national statistical office. It was marginally up from 33.6% in July 2020, but down from 34.8% in June 2020. [1] [2]

[1] Barros, Alerrandre. Agência IBGE Notícias. 28 August 2020. "Away from the pandemic, 1.1 million people return to work in the first week of August (Afastadas pela pandemia, 1,1 milhão de pessoas retornam ao trabalho na 1a; semana de agosto)". [https://agenciadenoticias.ibge.gov.br/agencia-noticias/2012-agencia-de-noticias/noticias/28697-afastadas-pela-pandemia-1-1-milhao-de-pessoas-retornam-ao-trabalho-na-1-semana-de-agosto]. Accessed 29 August 2020.
[2] Vasconcelos Gabriel and Alessandra Saraiva. Valor Econômico. 20 August 2020. "Unemployment rises with layoffs and not with the return of people to the labor force, says IBGE (Desemprego cresceu com demissões e não pela volta de pessoas para força de trabalho, diz IBGE)". [https://valor.globo.com/brasil/noticia/2020/08/20/29-milhoes-de-trabalhadores-estavam-na-informalidade-em-julho-aponta-ibge.ghtml]. Accessed 29 August 2020.

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: 0

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: 2

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: 1

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

What is the risk that air transport will prove inadequate to meet needs?

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

Current Year Score: 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: 2

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 86.82

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: -2.44

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: 4

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: 75.67

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: 424.5

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 9.25

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 16.5

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 22.1

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: 98.19

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 88.29

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: 637.92

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