Ecuador

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

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

Ecuador has a national AMR plan for the surveillance, detection, and reporting of priority AMR pathogens. The Ministry of Public Health (MSP) issued the "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") in August 2019. [1] In terms of surveillance, the plan's Objective 2 is to "strengthen the surveillance of antimicrobial resistance" and Strategic Guideline 2.1 is to strengthen the national AMR surveillance system "with an intersectoral focus". Specific activities include continually updating which microorganisms should be surveilled. [1] In terms of detection, Strategic Guideline 2.2 is to "develop laboratory capacity to produce high-quality microbiological data aimed at supporting surveillance using a 'One Health' approach". Specific activities include continuous improvement of detection techniques for emergent and reemerging organisms and training for staff. [1] In terms of reporting, specific activities include "standardizing the methodologies used by different laboratories with a goal of handling homogenous and correct data to input in the national database", as well as connecting reporting of healthcare-associated infections (HCAI) with other surveillance subsystems and extending HCAI surveillance and reporting to second and third tier hospitals. [1] In terms of priority AMR pathogens, the plan specifically mentions surveillance of Klebsiella pneumoniae, Providencia rettgeri, E. coli, K. oxytoca, Serratia marcescens, Citrobacter freundii, Enterobacter cloacae, and Proteus mirabilis in Ecuador. [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 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

Ecuador's National Institute of Public Health Research (INSPI) Antimicrobial Resistance National Reference Centre, which is in charge of the national sentinel AMR surveillance system that tests for all 7 + 1 priority AMR pathogens in the country. According to Ecuador's "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"), the sentinel system comprises 44 hospitals in the public and private healthcare systems. [1] In addition to providing early detection and response to AMR risks in Ecuador, the

system also provides training and improvement programs to laboratories. [1] The National Reference Centre's diagnostic service offering includes testing for E. coli, K. pneumonia, S. aureus, S. pneumoniae, Salmonella spp., Shigella spp, and N. gonorrheae. [2, 3] In addition, the INSPI has undergone training to perform diagnostic testing for AMR in Mycobacterium tuberculosis. [4] Ecuador's Antimicrobial Resistance Surveillance Network was created in 1999, was active until at least 2005, and was restarted in 2014 by the Ministry of Public Health. [5, 6]

[1] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "INSPI Service Offering" ("CARTERA DE SERVICIOS DEL INSPI"). [http://www.investigacionsalud.gob.ec/wp-content/uploads/2018/11/Cartera-de-Servicios-del-INSPI-.pdf]. Accessed 23 July 2020.
[3] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2016. "Antimicrobial Resistance Surveillance – Ecuador" ("VIGILANCIA DE RESISTENCIA ANTIMICROBIANA-ECUADOR"). [http://www.investigacionsalud.gob.ec/webs/ram/wp-content/uploads/2016/09/Instructivo-de-An%C3%A1lisis-Acumulado-de-Susceptibilidad-Antimicrobiana-AASA.pdf]. Accessed 23 July 2020.
[4] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "INSPI carried out Practical Technical Training for the Susceptibility of Mycobacterium Tuberculosis, MGIT Proportions Method" ("INSPI realizó Capacitación Teórica Práctica Susceptibilidad de Mycobacterium Tuberculosis, Método de las Proporciones MGIT"). [http://www.investigacionsalud.gob.ec/inspi-realizo-capacitacion-teorica-practica-susceptibilidad-de-mycobacterium-tuberculosis-metodo-de-las-proporciones-mgit/]. Accessed 23 July 2020.
[5] Pan American Health Organization. 2005. "Annual Report for the Antibiotic Resistance Surveillance Network" ("Informe Anual de la Red de Monitoreo/Vigilancia de la Resistencia a los Antibióticos"). [https://www.paho.org/paho-usaid/dmdocuments/GRT_Red_Monitoreo_Vigilancia_Resistencia_Antibioticos_Informe_2005.pdf?ua=1]. Accessed 23 July 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2018. "Ecuador participates in the World Week for Antibiotic Use Awareness" ("Ecuador participa en la Semana Mundial de la Concienciación sobre el Uso de Antibióticos"). [https://www.salud.gob.ec/ecuador-participa-en-la-semana-mundial-de-la-concienciacion-sobre-el-uso-de-antibioticos/]. Accessed 23 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 public evidence that the government of Ecuador conducts AMR environmental detection or surveillance activities. There is one study that documents AMR surveillance in waterways, but no public evidence of ongoing efforts. The National Institute of Public Health Research (INSPI) has reported that it is implementing a project to evaluate "the presence of emergent determinants of resistance to antibiotics in irrigation and surface waters in Ecuador". Academia and other government agencies are stated to be involved, but the webpage mentioning the project does not provide further details. [1] The "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") does not include environmental detection or surveillance in its objectives or activities, although the Ministry of Environment (MAE) is named as an actor involved in the plan. [2] The plan's activities for "Strengthening the national antimicrobial resistance surveillance system with an intersectoral focus" include the

healthcare and veterinary sectors, but do not mention environmental monitoring. [2] The MAE's website only mentions monitoring of antimicrobial resistance regarding the Galapagos Islands: one case in a live wild bird and another in livestock for meat consumption. [3, 4] The MAE's Subsecretariat of Environmental Quality carries out water testing at sites throughout the country. The description of the program does not mention detection or surveillance activities for antimicrobial residues or AMR organisms. [5] The website of the MAE does not contain additional information regarding environmental detection or surveillance activities for antimicrobial residues or AMR organisms. [4]

[1] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). "INSPI's NRC for Antimicrobial Resistance has projects that benefit Surveillance for Public Health" ("CRN de Resistencia Antimicrobiana del INSPI cuenta con proyectos que benefician a la Vigilancia de la Salud Pública"). [http://www.investigacionsalud.gob.ec/crn-de-resistencia-antimicrobiana-del-inspi-cuenta-con-proyectos-que-benefician-a-la-vigilancia-de-la-salud-publica/]. Accessed 23 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[3] Ministry of the Environment (Ministerio del Ambiente). 2019. "Agency for the Regulation and Control of Biosafety and Quarantine for the Galapagos – Annual Report" ("AGENCIA DE REGULACIÓN Y CONTROL DE LA BIOSEGURIDAD Y CUARENTENA PARA GALÁPAGOS – ABG INFORME DE RENDICIÓN DE CUENTAS 2019") [https://www.ambiente.gob.ec/wp-content/uploads/downloads/2020/03/Agencia-de-Regulaci%C3%B3n-y-Control-de-la-Bioseguridad-y-Cuarentena-para-Gal%C3%A1pagos.pdf]. Accessed 23 July 2020.
[4] Ministry of the Environment (Ministerio del Ambiente). 2020. "MAE". [https://www.ambiente.gob.ec/]. Accessed 23 July 2020.
[5] Ministry of the Environment (Ministerio del Ambiente). 2019. "Environmental Quality" ("Calidad Ambiental"). [http://www.ambiente.gob.ec/calidad-ambiental/]. Accessed 23 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

Legislation and regulations in Ecuador require prescriptions for antibiotic use for humans, but there is evidence of gaps in enforcement. In terms of legislation and regulations, Article 153 of the General Health Law (Ley Organica de Salud, Law No. 2006-67) states that all medicines require a prescription from a medical professional for sale to the public, except for those included on the over-the-counter list. [1] The Over-the-Counter List, which lists medicines that do not require a prescription, was last updated September 14, 2018. The list does not contain antibiotics, which means they are only available with a prescription, according to the National Agency of Health Regulation, Control and Surveillance (ARCSA). [2, 3] ARCSA regulates the sale of medicines in Ecuador and has implemented a public communications campaign stating that a medical prescription is required for the purchase of antibiotics in Ecuador. [4, 5] in terms of gaps in enforcement, the "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") notes the requirement for a prescription for use of antibiotics in humans, while also including an objective for "training for compliance with medical prescriptions for sales of antibiotics" and listing "self-medication on the part of patients and antibiotic sales without prescriptions" as one of the principal causes of AMR in Ecuador. [6] In addition, the plan notes that technical regulations need to be issued for dispensing and prescription of antimicrobial medications, a

registry of licensed prescribers needs to be created, and clinical practice guides for common pathologies that require antimicrobial drugs need to be written. [6]

[1] National Congress. 2006. "General Health Law, Law No. 2006-67" ("Ley Organica de Salud"). [http://www.ambiente.gob.ec/wp-content/uploads/downloads/2012/09/salud.pdf]. Accessed 23 July 2020.
[2] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2018. "Over-the-Counter Medicines List" ("LISTADO DE MEDICAMENTOS DE VENTA LIBRE - OTC"). [https://www.controlsanitario.gob.ec/wp-content/uploads/downloads/2018/09/LISTADO-DE-MEDICAMENTOS-OTC-LIBRE-VENTA.pdf]. Accessed 23 July 2020.
[3] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). "Database". [https://www.controlsanitario.gob.ec/base-de-datos/]. Accessed 23 July 2020.
[4] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2018. "Arcsa reminds that the prohibition on the sale of antibiotics without a medical prescription remains in place" ("Arcsa recuerda que se mantiene prohibición de venta de antibióticos sin receta médica"). [https://www.controlsanitario.gob.ec/arcsa-recuerda-que-se-mantiene-prohibicion-de-venta-de-antibioticos-sin-receta-medica/]. Accessed 23 July 2020.
[5] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2018. "Arcsa informs on the dispensing of antibiotics with a medical prescription" ("Arcsa informa sobre dispensación de antibióticos con receta médica"). [https://www.controlsanitario.gob.ec/arcsa-informa-sobre-dispensacion-de-antibioticos-con-receta-medica/]. Accessed 23 July 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 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

National regulations in Ecuador require prescriptions for antibiotic use for animals, but there is evidence of gaps in enforcement. The Agency for Phyto and Zoosanitary Regulation and Control's (AGROCALIDAD) Resolution 0018 of 2016 updated instructions for the control of veterinary products in Ecuador. Section 5.1.1.2 classifies antibiotics (as well as antifungals and antivirals) as Group II veterinary products, which require a medical prescription from a veterinary doctor registered with the Secretariat of Higher Education, Science, Technology and Innovation (SENESCYT). [1] A 2018 government presentation on AMR states that the veterinary sector needs to implement a "digital system for the emission, control and auditing of prescriptions for the sale of antimicrobials for veterinary use" to improve monitoring of the use of these products. [2] The "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") states that the "lack of control of sales at facilities for products for veterinary use" is one of the principal causes of AMR in Ecuador. [3] The plan also states the need to issue regulations on the use of "critical antimicrobials" in animals, as well as to undertake actions "to ensure the prudent use of antimicrobial agents in land and aquatic animals and in agriculture". [3]

[1] The Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. "Resolution 0018 of 2016". [http://web.agrocalidad.gob.ec/documentos/registros/drip/Resolucion.0018.pdf]. Accessed 23 July 2020.

[2] Government of Ecuador. 2018. “Intersectorial Governance and National Action Plan for the Containment of Resistance to Antimicrobials – AMR” (“GOBERNANZA INTERSECTORIAL Y PLAN DE ACCIÓN NACIONAL PARA LA CONTENCIÓN DE LA RESISTENCIA A LOS ANTIMICROBIANOS - RAM”). [https://www.gob.mx/cms/uploads/attachment/file/385738/ECUADOR_TALLER_RAM_SLP_2018.pdf]. Accessed 23 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. “National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023” (“Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023”). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 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

There is evidence that Ecuador has a strategy document on zoonotic disease. In November 2019, the Ministry of Public Health (MSP) issued the "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"), which covers several diseases transmitted by mosquitos, including dengue, Zika, Chikungunya, yellow fever, and Mayaro virus disease. [1] The strategy's specific objectives include strengthening national capacities to detect, diagnose and manage cases of dengue; strengthening the integrated surveillance system for arboviruses; and strengthening integrated management of vectors and socioenvironmental factors. [1] In addition to the arbovirus strategy and in support of its objectives, the MSP's 2019 Annual Committed Plan (PAC) included strategy 20.4 to "Promote entomological surveillance and integrated risk factor and/or vector control programs for transmitting agents of vector-borne and zoonotic diseases". [2] The MSP's website does not contain additional information regarding these activities or programs. [3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). June 2019. "Annual Committed Plan (PAC)". [https://www.salud.gob.ec/wp-content/uploads/2019/06/Plan_Anual_Comprometido_2019-6.pdf]. Accessed 27 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "MSP". [https://www.salud.gob.ec/]. Accessed 27 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: 0

There is no public evidence that Ecuador has 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. The Ministry of Public Health's (MSP) 2019 "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador") does not mention spillover events specifically. It does note that the epidemiological situation regarding arboviral diseases is affected by the distribution and density of different species of mosquitos that serve as vectors. [1] In addition, the MSP's 2014 "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE)" ("Manual de procedimientos del subsistema alerta acción SIVE –ALERTA") states that in cases of yellow fever in humans, field investigations should consider establishing surveillance of death from yellow fever among monkey populations as an early warning system that the virus is circulating in an area. However, this surveillance does not appear to refer specifically to spillover events. [2] The websites of the MSP, Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), the National Agency of Health Regulation, Control and Surveillance (ARCSA), and the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) do not contain additional information regarding documents that include measures for risk identification and reduction for zoonotic disease spillover events. [3, 4, 5, 6, 7]

[1] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System" ("Manual de procedimientos del subsistema alerta acción SIVE–ALERTA"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 27 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[5] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 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

Ecuador has national guidelines that account for the surveillance and control of multiple zoonotic pathogens of public health concern. In terms of surveillance, the Ministry of Public Health (MSP) includes zoonotic diseases on its list for required reporting to public health authorities. These diseases are plague, Taeniasis, Cysticercosis, Echinococcosis, Leptospirosis, Typhus, Brucellosis, Equine fever, human rabies and canine rabies. [1, 2] The MSP's weekly epidemiological bulletins from 2020 include statistics for brucellosis and dengue. [3, 4] In terms of control, the MSP's 2019 "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para

la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador") covers several diseases transmitted by mosquitos, including dengue, Zika, Chikungunya, yellow fever, and Mayaro virus disease. [5] Control activities in the strategy include strengthening national capacities to detect, diagnose and manage cases of dengue; and strengthening integrated management of vectors and socioenvironmental factors that contribute to the spread of the diseases. [5] In addition to the MSP's arbovirus strategy, the Ministry of Agriculture and Ranching (MAG) has two control programs for zoonotic pathogens: bovine brucellosis and bovine rabies. MAG Resolution 0131 of 2016 issued a Procedures Manual for the Control of Bovine Brucellosis. The Manual includes recommendations such as vaccination of animals at risk, timely notification of suspected cases, sacrifice of infected animals and pasteurization of dairy products from infected animals. [6] MAG Resolution 0144 of 2016 issued the Procedures Manual for the Prevention and Control of Bovine Rabies in Ecuador. Specific activities include strengthening passive surveillance and diagnosis of bovine rabies, establishing vaccination programs, controlling the population of bats that could infect farm animals, strengthening the regulatory framework and increased education and communication activities. [7]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2013. "Epidemiological Surveillance" ("VIGILANCIA EPIDEMIOLOGICA").
[http://instituciones.msp.gob.ec/dps/cotopaxi/index.php?view=article&id=13%3Aepimedologia&format=pdf&option=com_content&Itemid=44]. Accessed 27 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System" ("Manual de procedimientos del subsistema alerta acción SIVE–ALERTA").
[https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 27 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). July 2020. "Zoonotic diseases". [https://www.salud.gob.ec/wp-content/uploads/2020/07/Leptospira-SE-29-zoonosis.pdf]. Accessed 28 July 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). July 2020. "Diseases transmitted by vectors".
[https://www.salud.gob.ec/wp-content/uploads/2020/07/VECTORES-SE-29.pdf]. Accessed 28 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador").
[https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.
[6] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2016. "Resolution 0131 of 2016".
[http://web.agrocalidad.gob.ec/documentos/dcz/resolucion%200131%20rt%20-%20sa%20-%20manual%20de%20procedimientos%20para%20la%20atencion%20y%20control%20de%20brucelosis%20bovina.pdf]. Accessed 28 July 2020.
[7] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2016. "Resolution 0144 of 2016".
[http://web.agrocalidad.gob.ec/documentos/dcz/sa-cz-rb-r2-resolucion-0144-manual-de-procedimientos-para-la-prevencion-y-control-de-rabia-bovina-en-el-ecuador.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 public evidence that Ecuador has a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. In the animal health sector, the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) is the agency named in the Ministry of Agriculture and Ranching's (MAG) campaigns against brucellosis and

rabies. [1, 2] However, AGROCALIDAD's website does not contain any information regarding a mission function across ministries to deal with zoonotic disease. [3] In addition, the Institute for Research in Public Health and Zoonoses (CIZ) at the Central University of Ecuador is tasked with "developing and strengthening basic and applied research for academic and scientific formation in zoonotic diseases, with a One Health focus, in support of the public policies of Ecuador", but there is no evidence that it coordinates activities beyond the research sector. [4] The CIZ has cooperated with MAG on training and surveillance of zoonoses. [5] In the human health sector, the National Service for Control of Diseases Transmitted by Arthropod Vectors (SNEM) was dissolved in 2015, and its functions were devolved to local health districts and absorbed into the Ministry of Public Health's (MSP) National Directorate of Strategies for Prevention and Control at the national level. [6] A proposal circulated in 2015 to create a new, specialized agency for zoonoses, the National Directorate for Control of Vector-Borne and Zoonotic Diseases, but MSP's website contains no public evidence that the proposed directorate was created. [6, 7] The National Institute of Public Health Research (INSPI) houses the National Zoonosis Reference Centre, which carries out diagnostic testing related to zoonotic diseases. [8] The MSP's 2019 "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador") lists several agencies and bodies responsible for activities in the strategy, but none has a role to deal with all zoonotic diseases and function across ministries. [9] The websites of the MSP, MAG, INSPI, the National Agency of Health Regulation, Control and Surveillance (ARCSA), and AGROCALIDAD do not contain additional information regarding a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. [3, 7, 10, 11, 12]

[1] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2016. "Resolution 0131 of 2016". [http://web.agrocalidad.gob.ec/documentos/dcz/resolucion%200131%20rt%20-%20sa%20-%20manual%20de%20procedimientos%20para%20la%20atencion%20y%20control%20de%20brucelosis%20bovina.pdf]. Accessed 28 July 2020.
[2] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2016. "Resolution 0144 of 2016". [http://web.agrocalidad.gob.ec/documentos/dcz/sa-cz-rb-r2-resolucion-0144-manual-de-procedimientos-para-la-prevencion-y-control-de-rabia-bovina-en-el-ecuador.pdf]. Accessed 28 July 2020.
[3] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[4] Central University of Ecuador – International Zoonosis Centre (Universidad Central del Ecuador - Centro Internacional de Zoonosis). 2020. "Mission and Vision". [https://www.uce.edu.ec/web/ciz]. Accessed 28 July 2020.
[5] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2017. "Implementación de la red de laboratorios de diagnóstico rápido veterinario". [https://www.agricultura.gob.ec/implementacion-de-la-red-de-laboratorios-de-diagnostico-rapido-veterinario/]. Accessed 28 July 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Instructions for the Transfer of Human Capital, Fixed Assets and Technical Methodology from the SNEM to the Deconcentrated Operational Entitities of the Ministry of Public Health" ("INSTRUCTIVO PARA LA TRANSFERENCIA DEL TALENTO HUMANO, ACTIVOS FIJOS Y METODOLOGIA TÉCNICA DEL SNEM A LAS ENTIDADES OPERATIVAS DESCONCENTRADAS DEL MINISTERIO DE SALUD PÚBLICA"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/sigobito/tareas_seguimiento/1756/instructivo_26_de_enero_2015.pdf]. Accessed 28 July 2020.
[7] Ministry of Public Health (Ministerio de Salud Publica). 2019. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[8] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "Reference Centers". [http://www.investigacionsalud.gob.ec/centros/]. Accessed 28 July 2020.
[9] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.

[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[12] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 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

Ecuador has a mandatory national mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency. In 2013, the Ministry of Agriculture and Ranching's (MAG) Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) issued Resolution No. DAJ-2013461-0201.0214, which states that notification of animal diseases is compulsory for "all natural and legal persons" in cases of "any suspicion, evidence, diagnosis o presences" of listed diseases that are present in one's own animals or those belonging to others, whether alive or dead. [1] The list includes the following zoonoses: leishmaniasis, avian flu, cysticercosis, brucellosis, anthrax and others. [1] AGROCALIDAD manages the Epidemiological Surveillance System (SVE) for animal health in Ecuador. The SVE depends on immediate notification from livestock owners that suspect the presence of animal diseases, including zoonoses. AGROCALIDAD performs follow-up visits and laboratory tests to confirm suspected illnesses. AGROCALIDAD operates local offices throughout the country that individuals can visit or call in order to communicate suspected animal diseases, including zoonoses. The agency also operates a national toll-free telephone number. [2]

[1] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2013. "Resolution No. DAJ-2013461-0201.0214". [http://web.agrocalidad.gob.ec/documentos/dvz/DAJ-2013461-0201.0214.pdf]. Accessed 28 July 2020.
[2] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "Training Project for Sanitary Notifiers". [http://web.agrocalidad.gob.ec/wp-content/uploads/16-3-2020-CartillaSensores2020.pdf]. Accessed 28 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: 0

There is insufficient evidence that Ecuador has any legislation and/or regulations that safeguard the confidentiality of information generated through surveillance activities for animals (for owners). In November 2019, Ecuador issued updated regulations for the "General Regulations for the Framework Agricultural Health Law" ("Reglamento General de la Ley Organica de Sanidad Agropecuaria") via Executive Decree 919. Article 169 of the Regulations states "Information Generated by the Epidemiological Surveillance System. – The information generated by the Epidemiological Surveillance System, shall

observe the principles of confidentiality and discretion, when the case merits such treatment, or has not been confirmed by official techniques and by official laboratories". [1] In addition, regulations on the use of statistical information require all statistical information compiled by the government respect the "principle of confidentiality", although animal health surveillance activities are not mentioned specifically. The National Institute of Statistics and Censuses' (INEC) Resolution No. 001-INEC-DIJU-NT-2015 states that "the entities of the National Statistics System that implement statistics production processes must ensure strict compliance with the principle of statistical confidentiality". [2] INEC defines the National Statistics System as "all public sector institutions that carry out work related to statistics". [3] Ecuador does not have a personal data protection law. Instead, the protections for personal data that exist are codified in sectoral norms and regulations. [4]

[1] Constitutional President of the Republic. 29 November 2019. "General Regulations for the Framework Agricultural Health Law" ("Reglamento General de la Ley Organica de Sanidad Agropecuaria").
[http://www.epmrq.gob.ec/images/servicios/Reglamento_LOSA.pdf]. Accessed 29 July 2020.
[2] National Institute of Statistics and Censuses (Insituto Nacional de Estadistica y Censos). 2015. "Resolution No. 001-INEC-DIJU-NT-2015". [http://sipa.agricultura.gob.ec/descargas/metodologias/normas/resolucion_no_001-inec-diju-nt-2015.pdf]. Accessed 29 July 2020.
[3] National Institute of Statistics and Censuses (Insituto Nacional de Estadistica y Censos). 2019. "Sistema Estadístico Nacional". [http://www.ecuadorencifras.gob.ec/sistema-estadistico-nacional/]. Accessed 29 July 2020.
[4] National Directorate of Public Data Registry (DINARDAP). 2020. "Project for data protection law".
[https://www.dinardap.gob.ec/programas-servicios/servicios/anteproyecto-de-ley-de-proteccion-de-datos/]. Accessed 29 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

Ecuador conducts surveillance of zoonotic disease in wildlife. The Ministry of Agriculture and Ranching's (MAG) Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) manages the Program for the Prevention of Avian Influenza. Resolution No. 031 of 2011 instructs AGROCALIDAD to coordinate activities with the Ministry of the Environment (MAE) to conduct surveillance of migratory birds and wild birds to detect potential vectors of avian flu. [1] In addition, MAG's Resolution 0074 of 2017 created the National Health Program for Prevention and Control of Bovine Rabies. The Resolution instructs AGROCALIDAD to carry out passive surveillance to identify populations of bats that can serve as reservoirs of the illness, as well as active surveillance to identify specific bat populations when an outbreak of the illness is detected. [2] Article 171 of the 2019 "General Regulations for the Framework Agricultural Health Law" ("Reglamento General de la Ley Organica de Sanidad Agropecuaria") instructs AGROCALIDAD to interconnect its epidemiological surveillance system with those of public health authorities in cases of zoonosis and with the MAE in cases involving wildlife. [3] In addition, the MAE's Agency for the Regulation and Control of Biosafety and Quarantine for the Galapagos (ABG) carries out some surveillance of zoonotic disease in wildlife, although this is not its primary mission. In 2019, the ABG performed surveillance of parasites in birds, as well as diseases in wolves, turtles and sea lions. [4]

[1] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2011. "Resolution No. 031 of 2011".
[https://www.agrocalidad.gob.ec/wp-content/uploads/2020/05/a2.pdf]. Accessed 29 July 2020.
[2] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2017. "Resolution 0074 of 2017".
[http://web.agrocalidad.gob.ec/documentos/dcz/sa-cz-rb-r2-resolucion-0144-manual-de-procedimientos-para-la-prevencion-y-control-de-rabia-bovina-en-el-ecuador.pdf]. Accessed 29 July 2020.

[3] Constitutional President of the Republic. 29 November 2019. “General Regulations for the Framework Agricultural Health Law” (“Reglamento General de la Ley Organica de Sanidad Agropecuaria”). [http://www.epmrq.gob.ec/images/servicios/Reglamento_LOSA.pdf]. Accessed 29 July 2020.
[4] Ministry of the Environment (Ministerio del Ambiente). 2019. “Agency for the Regulation and Control of Biosafety and Quarantine for the Galapagos – Annual Report” (“AGENCIA DE REGULACIÓN Y CONTROL DE LA BIOSEGURIDAD Y CUARENTENA PARA GALÁPAGOS – ABG INFORME DE RENDICIÓN DE CUENTAS 2019”) [https://www.ambiente.gob.ec/wp-content/uploads/downloads/2020/03/Agencia-de-Regulaci%C3%B3n-y-Control-de-la-Bioseguridad-y-Cuarentena-para-Gal%C3%A1pagos.pdf]. Accessed 23 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: 0

2019

OIE WAHIS database

1.2.4 Animal health workforce

1.2.4a

Number of veterinarians per 100,000 people

Input number

Current Year Score: 15.13

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 15.61

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 1

Ecuador's regulations and plans for epidemiological surveillance for animal and human health and zoonotic disease include mechanisms for working with the private sector in controlling and responding to zoonoses. The Ministry of Public Health's (MSP) 2019 "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador") states that the strategy is "directed to all actors in the National Health System", emphasizing the technical, practical and necessary role all health facilities (including private) play in prevention and control of arboviral diseases. [1] In the animal health sector, the Ministry of Agriculture and Ranching's (MAG) Resolution 0131 of 2016 issued a Procedures Manual for the Control of Bovine Brucellosis. The Manual includes recommendations such as vaccination of animals at risk, timely notification of suspected cases, sacrifice of infected animals and pasteurization of dairy products from infected animals. The Manual states that private sector participation is "indispensable" via professional technical advice and implementation of control measures. [2] There is no public evidence regarding implementation of this program or the extent of the private sector network. [3, 4] The Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) manages the Epidemiological Surveillance System (SVE) for animal health. SVE's guidelines state that the SVE's operation would not be possible "without the committed, professional and systematic participation of the private sector". [5] AGROCALIDAD manages a program allowing private individuals and businesses to register as Health Notifiers ("Sensores Sanitarios"). Notifiers may be farm owners, animal traders, veterinarians, transporters, livestock owner associations, dairy processors, and others. Notifiers receive training and official recognition from AGROCALIDAD to prevent and detect animal diseases, notifying AGROCALIDAD if they find a disease. [6] The 2019 "General Regulations for the Framework Agricultural Health Law" ("Reglamento General de la Ley Organica de Sanidad Agropecuaria") mention collaboration with the private sector for animal health, but evidence of implementation is lacking. Article 170 states that AGROCALIDAD "shall establish inter-institutional technical cooperation agreements with public and private entities connected to the agricultural sector, with the goal of obtaining information related to the situation and development of diseases at the national level". Article 171 mentions a Consultative Council for Agricultural Health. Article 177 states that AGROCALIDAD "shall establish coordination mechanisms" with "producer organizations, industry, traders, exporters or importers, as well as with other persons related to animal agriculture activities". [7] However, AGROCALIDAD'S 2018 and 2019 Annual Accountability Reports state that the agency did not implement any Consultative Councils, Sectoral Citizen Councils, periodic deliberation dialogues, public agendas for citizen consultation, public audiences or any other mechanisms for citizen participation during those years. [8, 9]

[1] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.
[2] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2016. "Resolution 0131 of 2016". [http://web.agrocalidad.gob.ec/documentos/dcz/resolucion%200131%20rt%20-%20sa%20-%20manual%20de%20procedimientos%20para%20la%20atencion%20y%20control%20de%20brucelosis%20bovina.pdf]. Accessed 28 July 2020.
[3] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.

[4] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[5] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. "Epidemiological Surveillance System" ("SISTEMA DE VIGILANCIA EPIDEMIOLOGICA"). [http://web.agrocalidad.gob.ec/wp-content/uploads/2016/08/Sistema-de-Vigilancia-Epidimemiolgica-de-Agrocalidad.pptx-1.pdf]. Accessed 29 July 2020.
[6] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "Training Project for Sanitary Notifiers". [http://web.agrocalidad.gob.ec/wp-content/uploads/16-3-2020-CartillaSensores2020.pdf]. Accessed 28 July 2020.
[7] Constitutional President of the Republic. 29 November 2019. "General Regulations for the Framework Agricultural Health Law" ("Reglamento General de la Ley Organica de Sanidad Agropecuaria"). [http://www.epmrq.gob.ec/images/servicios/Reglamento_LOSA.pdf]. Accessed 29 July 2020.
[8] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2018. "Annual Accountability Report". [http://web.agrocalidad.gob.ec/wp-content/uploads/Rpt_Funciones-3.pdf]. Accessed 29 July 2020.
[9] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "Annual Accountability Report". [http://web.agrocalidad.gob.ec/wp-content/uploads/informe_te%CC%81cnico_excel-1.pdf]. Accessed 29 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

There is insufficient public evidence that Ecuador has 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. Ecuador's 2014 report to the Biological Weapons Convention (BWC) stated that the country was working with international experts to strengthen biosecurity ("biocustodia") controls at its national laboratories. Further, the report stated that during 2013 Ecuador updated its list of microbiology and biotechnology research laboratories, finding a total of 15 laboratories. The text does not state if those 15 laboratories store or process especially dangerous pathogens and toxins. [1] A 2013 press report noted that Ecuador had implemented "technical infrastructure" at its university and public enterprise laboratories to exert greater control over chemical substances and biological agents. [2] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding a record of the facilities in which especially dangerous pathogens and toxins are stored or processed. [3] The National Agency of Health Regulation, Control and Surveillance's (ARCSA) guidelines for good manufacturing practices at pharmaceutical facilities covers handling of highly toxic pathogens, viruses and bacteria, but does not contain specific requirements for an inventory of facilities or pathogens. [4] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, ARCSA, the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding a record, updated within the past five years, of

the facilities in which especially dangerous pathogens and toxins are stored or processed. [5, 6, 7, 8, 9, 10, 11, 12] The national laboratory system does not have its own website. [7]

[1] Permanent Mission of Ecuador to the United Nations and Other International Organizations in Geneva. 2014. "Intervention of Minister Leon Pablo Aviles". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/3B5C5A3EDDC76978C1257DA100621CC9/$file/Ecuador.pdf]. Accessed 29 July 2020.
[2] Confirmado.net. 2013. "Ecuador works on the prevention of the use of biological weapons" ("Ecuador trabaja en la prevención del uso de armas biológicas"). [https://confirmado.net/2013/10/14/ecuador-trabaja-en-la-prevencion-del-uso-de-armas-biologicas/]. Accessed 29 July 2020.
[3] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[4] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "External Instructions Registration of GMP Certificate (INSTRUCTIVO EXTERNO Registro del Certificado de BPM)". [https://www.controlsanitario.gob.ec/wp-content/uploads/downloads/2019/12/Instructivo-Externo-de-Registro-del-Certificado-de-BPM-de-Laboratorios-Farmaceuticos-Extranjeros.pdf]. Accessed 29 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[8] Ministry of National Defense (Ministerio de Defensa Nacional). 2019. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[9] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[10] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[11] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[12] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 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: 0

There is insufficient public evidence that Ecuador has 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. Article 15 of the Constitution of Ecuador prohibits the development, production, possession, sale, import, transport, storage and use of biological weapons, highly toxic persistent organic pollutants, noxious experimental biological agents and genetically modified organisms harmful to human health. [1] In 2016, the Ministry of Defense issued Ministerial Agreement No. 270, which stated (Articles 11 and 16)

that importers and consumers of biological and toxic agents must present a "biosafety and biosecurity plan in the handling of the controlled biological and toxic agents" ("bioseguridad" and "biocustodia"). [2] The Agreement does not specify requirements for this plan, nor does the website of the Ministry of Defense contain such requirements. [2, 3] Ecuador's 2014 report to the Biological Weapons Convention stated that the country was working on a Chemical and Biological Weapons bill. [4] There is no public evidence that the bill was passed into law. [5] In 2015, Ecuador participated in two working groups with other Latin American countries as well as Spain in favor of implementation of the Biological Weapons Convention. [6] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding regulations related to biosecurity. [7] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding biosecurity legislation or regulations. [3, 8, 9, 10, 11, 12, 13, 14] The national laboratory system does not have its own website. [14]

[1] Government of Ecuador. 2008. "Constitution of the Republic".
[https://www.vertic.org/media/National%20Legislation/Ecuador/EC_Constitution_2008.pdf]. Accessed 29 July 2020.
[2] Ministry of National Defense (Ministerio de Defensa Nacional). 2016. "Ministerial Agreement No. 270".
[https://controlarmas.ccffaa.mil.ec/2016/10/21/acuerdo-ministerial-no-270-del-26-de-septiembre-del-2016/]. Accessed 29 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Permanent Mission of Ecuador to the United Nations and Other International Organizations in Geneva. 2014. "Intervention of Minister Leon Pablo Aviles".
[https://www.unog.ch/80256EDD006B8954/(httpAssets)/3B5C5A3EDDC76978C1257DA100621CC9/$file/Ecuador.pdf]. Accessed 29 July 2020.
[5] National Assembly. 2019. "Asamblea Nacional del Ecuador". [https://www.asambleanacional.gob.ec/es]. Accessed 29 July 2020.
[6] Biological Weapons Convention. 2017. "Voluntary Visits: A Tool for Better Cooperation in the BWC Framework".
[https://www.unog.ch/80256EDD006B8954/(httpAssets)/210B96E3554ED73AC12581EA005505F4/$file/BWC.+2017+MSP.+WP+VISITAS+VOLUNTARIAS+(Espana,+.....).pdf]. Accessed 29 July 2020.
[7] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[8] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[9] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[10] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[11] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[12] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador".
[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[13] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG".
[https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[14] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI".

[http://www.investigacionsalud.gob.ec/]. Accessed 27 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 public evidence that Ecuador has established an agency to enforce biosecurity legislation and regulations. Ecuador's Sectoral Security Council assumed the role of National Authority for Chemical and Biological Weapons in 2013, via Executive Decree 1406. Article 1 of the Decree tasks the Council with tasks related to Ecuador's commitments in international biological and chemical weapons treaties. The Decree does not specifically mention biosecurity. [1] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defence, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding an agency to enforce legislation and/or regulations related to biosecurity. [2, 3, 4, 5, 6, 7, 8, 9] The national laboratory system does not have its own website. [2] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding an agency to enforce biosecurity legislation and regulations. [10]

[1] Constitutional President of the Republic. 2013. "Executive Decree No. 1406". [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Decreto_Autoridad__Armas_Bio.pdf]. Accessed 29 July 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[10] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 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 public evidence that Ecuador has acted to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. Ecuador's 2014 report to the Biological Weapons Convention stated that the country was working with international experts to strengthen biosecurity controls at its national laboratories. Further, the report stated that during 2013 Ecuador updated its list of microbiology and biotechnology research laboratories, finding a total of 15 laboratories. The text does not state if those 15 laboratories store or process especially dangerous pathogens and toxins. [1] A 2013 press report noted that Ecuador had implemented "technical infrastructure" at its university and public enterprise laboratories to exert greater control over chemical substances and biological agents. [2] In 2016, the Ministry of Defense issued Ministerial Agreement No. 270, which stated (Articles 11 and 16) that importers and consumers of biological and toxic agents must present a "biosafety and biosecurity plan in the handling of the controlled biological and toxic agents" ("bioseguridad" and "biocustodia"). [3] The Agreement does not specify requirements for this plan, nor does it mention consolidating inventories of especially dangerous pathogens and toxins. [3] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. [4] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding the consolidation of inventories of especially dangerous pathogens and toxins into a minimum number of facilities. [5, 6, 7, 8, 9, 10, 11, 12] The national laboratory system does not have its own website. [9]

[1] Permanent Mission of Ecuador to the United Nations and Other International Organizations in Geneva. 2014. "Intervention of Minister Leon Pablo Aviles". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/3B5C5A3EDDC76978C1257DA100621CC9/$file/Ecuador.pdf]. Accessed 29 July 2020.
[2] Confirmado.net. 2013. "Ecuador works on the prevention of the use of biological weapons" ("Ecuador trabaja en la prevención del uso de armas biológicas"). [https://confirmado.net/2013/10/14/ecuador-trabaja-en-la-prevencion-del-uso-de-armas-biologicas/]. Accessed 29 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2016. "Ministerial Agreement No. 270". [https://controlarmas.ccffaa.mil.ec/2016/10/21/acuerdo-ministerial-no-270-del-26-de-septiembre-del-2016/]. Accessed 29 July 2020.
[4] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[5] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.

[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. “MAG”. [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[12] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. “Defensa”. [https://www.defensa.gob.ec/]. Accessed 29 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

Ecuador has in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for Ebola, but there is no public evidence that the country has this capacity for anthrax. The Ministry of Public Health’s (MSP) 2014 Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE) states that MSP can confirm suspected Ebola cases via PCR diagnostic testing. [1] The Manual also states that MSP can confirm suspected anthrax cases via culture but does not list PCR as a possible diagnostic testing method for anthrax. [1] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), and the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) do not contain additional information regarding the capacity to conduct PCR diagnostic testing for anthrax. [2, 3, 4, 5, 6, 7, 8] The national laboratory system does not have its own website. [2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. “Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System” (“Manual de procedimientos del subsistema alerta acción SIVE–ALERTA”). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 27 July 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. “INSPI”. [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[3] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. “MAG”. [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. “Senescyt”. [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. “ARCSA”. [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019. “AGROCALIDAD”. [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. “Defensa”. [https://www.defensa.gob.ec/]. Accessed 29 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 public evidence that Ecuador requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. There is insufficient public evidence that Ecuador has in place legislation and/or regulations related to biosecurity. Ecuador's 2014 report to the Biological Weapons Convention stated that the country was working on a Chemical and Biological Weapons bill. [1] There is no public evidence that the bill was passed into law. [2] In 2015, Ecuador participated in two working groups with other Latin American countries as well as Spain focusing on the implementation of the Biological Weapons Convention. As part of this work, Ecuador used a questionnaire developed by one of the working groups to externally and internally evaluate biosecurity practices at 20 different laboratories in the country. The documentation does not state if any training activities were conducted following the results of the evaluations. [3] The National Institute of Public Health Research (INSPI) reported that it has carried out training of public health workers at the subnational level on "taking, handling and transport of biological samples", including biosecurity ("biocustodia") aspects. The article does not mention a standardized, required approach, such as through a common curriculum or a train-the-trainer program. [4] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding standardized, required biosecurity training. [5] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding biosecurity training. [6, 7, 8, 9, 10, 11, 12, 13] The national laboratory system does not have its own website. [9]

[1] Permanent Mission of Ecuador to the United Nations and Other International Organizations in Geneva. 2014. "Intervention of Minister Leon Pablo Aviles". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/3B5C5A3EDDC76978C1257DA100621CC9/$file/Ecuador.pdf]. Accessed 29 July 2020.
[2] National Assembly. 2019. "Asamblea Nacional del Ecuador". [https://www.asambleanacional.gob.ec/es]. Accessed 29 July 2020.
[3] Biological Weapons Convention. 2017. "Voluntary Visits: A Tool for Better Cooperation in the BWC Framework". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/210B96E3554ED73AC12581EA005505F4/$file/BWC.+2017+MSP.+WP+VISITAS+VOLUNTARIAS+(Espana,+.....).pdf]. Accessed 29 July 2020.
[4] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). "Course on taking, handling and transport of biological samples". [http://www.investigacionsalud.gob.ec/curso-de-toma-manejo-y-transporte-de-muestras-biologicas/]. Accessed 29 July 2020.
[5] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2019.

"AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2019. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[12] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[13] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2019. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 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 public evidence that Ecuador's 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. There is insufficient public evidence that Ecuador has in place legislation and/or regulations related to biosecurity. The Regulations for the Framework Law for Ground Transport, Transit and Road Safety (Decree No. 1738 of 2009) state that drivers of vehicles transporting toxic or dangerous substances are prohibited from transporting unrelated third parties along with the dangerous cargo. [1] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding personnel vetting. [2] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defence, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC do not contain additional information regarding personnel vetting for workers with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential. [3, 4, 5, 6, 7, 8, 9, 10] The national laboratory system does not have its own website. [9]

[1] Constitutional President of the Republic. 2009. "Decree No. 1738 Regulations for the Framework Law for Ground Transport, Transit and Road Safety". [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Regalmento_Ley_Organica_Transporte.pdf]. Accessed 29 July 2020.
[2] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.

[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[5] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 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: 0

There is insufficient public evidence that Ecuador has national regulations on the safe and secure transport of infectious substances (Categories A and B). The Framework Law for Ground Transport, Transit and Road Safety includes provisions regarding the safe transport of biological and infectious substances. Article 49 of the law specifically mentions these types of substances and states that they are subject to the law's accompanying regulations. The law does not mention Category A or B substances. [1] The Regulations for the Framework Law for Ground Transport, Transit and Road Safety (Decree No. 1738 of 2009) regulate transport of toxic and dangerous substances in Title VI. Article 53 specifically mentions biological and infectious substances as covered under the regulation. Article 54 requires transporters to present an Industrial Safety Plan in order to apply for permission to transport such substances. The regulations do not describe the contents of this Plan. The regulations do not mention Category A or B substances. [2] The International Civil Aeronautics Organization's Technical Instructionfs for Air Transport of Dangerous Goods without Risks notes that the private airline LAN Ecuador will transport infectious substances with special provisions. The provisions mention Category B substances, but not Category A. [3] In addition, some technical standards exist for Category B substances in the country, but they are voluntary. Ecuadorian Technical Regulation INEN 2266:2013 sets standards for the "Transport, Storage and Handling of Dangerous Materials". The regulation specifically names biological and infectious substances, and mentions Category B biological substances. However, the regulation is voluntary for transporters. It does not mention Category A substances. [4] Although Ecuador has submitted Confidence Building Measures for the BWC since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding national regulations on the safe and secure transport of infectious substances (Categories A and B). [5] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), and VERTIC

do not contain additional information regarding national regulations on the safe and secure transport of infectious substances. [6, 7, 8, 9, 10, 11, 12, 13] The national laboratory system does not have its own website. [9]

[1] Constituent Assembly. 2008. "Framework Law for Ground Transport, Transit and Road Safety" ("LEY ORGÁNICA DE TRANSPORTE TERRESTRE, TRÁNSITO Y SEGURIDAD VIAL"). [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Ley_organica_transporte_terrestre_transito_y_seguridad_vial.pdf]. Accessed 29 July 2020.
[2] Constitutional President of the Republic. 2009. "Decree No. 1738 Regulations for the Framework Law for Ground Transport, Transit and Road Safety". [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Regalmento_Ley_Organica_Transporte.pdf]. Accessed 29 July 2020.
[3] International Civil Aeronautics Organization. 2014. "Technical Instructions for Air Transport of Dangerous Goods without Risks". [https://www.icao.int/publications/Documents/9284_2013_2014_add_02_corr_01_es.pdf]. Accessed 29 July 2020.
[4] Ecuadorian Institute of Standardisation (Instituto Ecuatoriano de Normalizacion). 2013. "Ecuadorian Technical Regulation INEN 2266:2013". [http://www.ambiente.gob.ec/wp-content/uploads/downloads/2014/05/NTE-INEN-2266-Transporte-almacenamiento-y-manejo-de-materiales-peligrosos.pdf]. Accessed 29 July 2020.
[5] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[12] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[13] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 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 publicly available evidence that Ecuador has national 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.

Article 15 of the Constitution of Ecuador prohibits the development, production, possession, sale, import, transport, storage and use of biological weapons, highly toxic persistent organic pollutants, noxious experimental biological agents and genetically modified organisms harmful to human health. [1] The Regulations for the Law on Arms, Munitions, Explosives and Accessories (Executive Decree No. 169 of 1997) prohibit individuals and organizations from creating, importing, exporting, selling, possessing, transporting or using biological or bacteriological weapons or substances and materials intended for their creation. Though, notably, the regulations do not mention pathogens or toxins not in weapons or not meant to be used as weapons. [2] The Comprehensive Framework Penal Code (Articles 254 and 362) sets criminal penalties for violations of these prohibitions ranging from three to 19 years in prison. [3] The Ministry of National Defense's Ministerial Agreement No. 270 of 2016 regulates commercial activities with controlled biological agents and toxins. Article 11 establishes a procedure for the importation of these substances that includes screening of the end user. However, the Agreement does not establish an export procedure or describe end-user screening for exports of controlled biological agents and toxins. [4] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding the cross-border transfer and end-user screening of especially dangerous pathogens, toxins and pathogens with pandemic potential. [5] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, Ministry of Production, Foreign Trade, Investments and Fishing, and VERTIC database do not contain additional information regarding the cross-border transfer and end-user screening of especially dangerous pathogens, toxins and pathogens with pandemic potential. [6, 7, 8, 9, 10, 11, 12].

[1] Government of Ecuador. 2008. "Constitution of the Republic". [https://www.vertic.org/media/National%20Legislation/Ecuador/EC_Constitution_2008.pdf]. Accessed 29 July 2020.
[2] Interim Constitutional President. 2012. "Executive Decree No. 169 of 1997". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2014/01/Reglamento-a-la-ley-sobre-armas-municiones-explosivos-y-accesorios.pdf]. Accessed 31 July 2020.
[3] National Assembly of the Republic of Ecuador. 2017. "Law 0". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2018/01/COIP_ene18.pdf]. Accessed 31 July 2020.
[4] Ministry of National Defence (Ministerio de Defensa Nacional). 2016. "Ministerial Agreement No. 270 of 2016". [https://controlarmas.ccffaa.mil.ec/wp-content/uploads/sites/13/2016/10/ACUERDO-270-REQUISITOS-PARA-AUTORIZACIONES-PERMISOS-Y-TRAMITES-ADMINISTRATIVOS-2.pdf]. Accessed 31 July 2020.
[5] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[7] Ministry of Production, Foreign Trade, Investments and Fishing (Ministerio de Producción Comercio Exterior Inversiones y Pesca). 2020. "Actual". [https://www.produccion.gob.ec/#]. Accessed 31 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[12] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/].

Accessed 29 July 2020.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There are biosafety regulations in Ecuador that apply to all healthcare facilities in the country. In 2017, the Ministry of Public Health (MSP) issued Agreement No. 0005-2017 containing the "Manual for biosafety in healthcare facilities 2016". Article 2 of the Agreement states that the Manual's regulations are compulsory for all health care facilities in Ecuador. [1] The Manual defines biosafety as preventative measures to control risks from biological, physical or chemical agents that could threaten health care workers, patients, visitors and the environment. The Manual covers topics such as hand hygiene, personal protection equipment, waste management, disinfection, and sterilization. [2] In addition, Ecuador has adopted the voluntary ISO 15190:2003 standard for biosafety measures for clinical laboratories as regulation NTE INEN-ISO 15190. [3] The MSP's "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") includes an activity to "update the biosafety manual (as needed according to scientific progress on the topic)", but there is no evidence of implementation so far. [4] Ecuador's National Risk Management and Emergencies Service has compiled various biosafety manuals and protocols issued relating to the COVID-19 pandemic, including for reopening professional sports, national parks, beaches and tourism. [5] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding biosafety regulations. [6]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Agreement No. 0005-2017". [https://enlace.17d07.mspz9.gob.ec/biblioteca/promo/saludambiente/BIOSEGURIDAD/Manual%20de%20Bioseguridad%20AM-005-2017-PARTE-1-1.pdf]. Accessed 31 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Manual for biosafety in healthcare facilities 2016" ("Manual Bioseguridad para los establecimientos de salud"). [http://hospitalgeneralchone.gob.ec/wp-content/uploads/2018/03/Manual-de-Bioseguridad-02-2016-1.pdf]. Accessed 31 July 2020.
[3] Ecuadorian Normalisation Service. 2015. "NTE INEN-ISO 15190". [http://181.112.149.204/buzon/normas/nte_inen_iso_ext_15190.pdf]. Accessed 31 July 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[5] National Risk Management and Emergencies Service (Servicio Nacional de Gestión de Riesgos y Emergencias). 2020. "Protocols and Manuals". [https://www.gestionderiesgos.gob.ec/protocolos-y-manuales/]. Accessed 31 July 2020.
[6] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 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: 1

The Ministry of Public Health (MSP) is responsible for the enforcement of biosafety legislation and regulations in Ecuador. Article 4 of the General Health Law (Ley Organica de Salud, Law No. 2006-67) states that the MSP is the "National Health Authority" responsible for applying, controlling and supervising health laws and regulations. [1] MSP's Agreement No. 0005-2017 that issued the "Manual for biosafety in healthcare facilities 2016" states that the following agencies within the MSP are responsible for enforcing the biosafety regulations: the National Subsecretariat of Health Services Provision via the National Directorates of Primary Care, and the National Subsecretariat of Health Governance via the National Directorate of Organization of the Public and Complementary Health Network. [2] According to the MSP's "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"), the task of updating the national biosafety manual is the responsibility of the MSP's National Directorate of Regulation and the National Directorate of Healthcare Services Quality. [3] Ecuador has a National Biosafety Commission headed by the Ministry of Environment, but it is focused on GMOs and protecting biodiversity. [4] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding a biosafety agency. [5]

[1] National Congress. 2006. "General Health Law, Law No. 2006-67" ("Ley Organica de Salud").
[http://www.ambiente.gob.ec/wp-content/uploads/downloads/2012/09/salud.pdf]. Accessed 3 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Agreement No. 0005-2017".
[https://enlace.17d07.mspz9.gob.ec/biblioteca/promo/saludambiente/BIOSEGURIDAD/Manual%20de%20Bioseguridad%20AM-005-2017-PARTE-1-1.pdf]. Accessed 31 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[4] Ministry of the Environment (Ministerio del Ambiente). 2015. "Agreement No. 013 of 2015".
[http://extwprlegs1.fao.org/docs/pdf/ecu154790.pdf]. Accessed 3 August 2020.
[5] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. 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: 1

In Ecuador, there is limited public evidence of required biosafety training, using a standardized approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The Ministry of Public Health's (MSP)

Agreement No. 0005-2017 issued the "Manual for biosafety in healthcare facilities 2016". Article 2 of the Agreement states that the Manual's regulations are compulsory for all health care facilities in Ecuador. [1] The Manual defines biosafety as preventative measures to control risks from biological, physical or chemical agents that could threaten health care workers, patients, visitors and the environment. The Manual states that continuous training programs must exist for health care workers. The Manual also provides standardized training material on topics including hand hygiene, waste management, disinfection, and sterilization. [2] The MSP has carried out biosafety training for health care workers virtually and at a subnational level. In October 2019, the MSP's Infectious Diseases Hospital carried out a 3-day training with 50 employees on biosafety practices and proper use of personal protection equipment. [3] In 2017, MSP hosted a virtual course on management of biological waste that included recommended biosafety practices. Publicly available evidence does not further describe who conducted the course or its contents. [4] MSP's virtual course website did not list any biosafety courses as of August 2020. [5] A 2015 Annual Training Plan for one of MSP's regional hospitals lists trainings on biosafety for the nursing and epidemiological surveillance services, as well as for all hospital officials. [6] In addition, the National Institute of Public Health Research (INSPI) has provided at least one subnational training on biosafety for taking, handling and transporting biological specimens for MSP personnel. [7] In the animal health sector, the Ministry of Agriculture and Ranching (MAG) has issued Good Practice Production Guides for pork, poultry, beef and guinea pig producers. These guides include standardized biosafety practices for producers. [8, 9, 10, 11] MAG has used train-the-trainer programs to train extension agents on these biosafety and production practices so they can train producers. [12] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding biosafety training. [13]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Agreement No. 0005-2017". [https://enlace.17d07.mspz9.gob.ec/biblioteca/promo/saludambiente/BIOSEGURIDAD/Manual%20de%20Bioseguridad%20AM-005-2017-PARTE-1-1.pdf]. Accessed 31 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Manual for biosafety in healthcare facilities 2016" ("Manual Bioseguridad para los establecimientos de salud"). [http://hospitalgeneralchone.gob.ec/wp-content/uploads/2018/03/Manual-de-Bioseguridad-02-2016-1.pdf]. Accessed 31 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Infectious Diseases trains personnel in biosafety". [http://www.hospital-infectologia.gob.ec/index.php/sala-de-prensa/noticias/55-noticias/361-infectologia-capacita-a-personal-de-salud-en-prendas-de-bioseguridad]. Accessed 3 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2017. "First virtual course on Comprehensive Management of Health Waste" ("Primer curso virtual Gestión Integral de Desechos Sanitarios"). [https://www.salud.gob.ec/primer-curso-virtual-gestion-integral-de-desechos-sanitarios/]. Accessed 3 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Courses". [https://capacitacion.msp.gob.ec/]. Accessed 3 August 2020.
[6] Vicente Corral Moscoso Hospital. 2015. "Annual Training Plan". [http://hvcm.gob.ec/wp-content/uploads/2015/03/PLAN-CAPACITACION.pdf]. Accessed 3 August 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). "Course on taking, handling and transport of biological specimens". [http://www.investigacionsalud.gob.ec/curso-de-toma-manejo-y-transporte-de-muestras-biologicas/]. Accessed 3 August 2020.
[8] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2012. "Technical Regulation No. 0217 of 2012". [http://web.agrocalidad.gob.ec/wp-content/uploads/Gui%CC%81a-de-Buenas-Pra%CC%81cticas-Porci%CC%81colas_compressed.pdf]. Accessed 3 August 2020.
[9] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. "Resolution No. 0060 of 2016". [http://web.agrocalidad.gob.ec/wp-content/uploads/Gui%CC%81a-de-Buenas-Pra%CC%81cticas-Avi%CC%81colas-1.pdf]. Accessed 3 August 2020.
[10] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016.

"Resolution No. 0244 of 2016". [http://web.agrocalidad.gob.ec/wp-content/uploads/Buenas-Pra%CC%81cticas-Pecuarias-en-la-Produccio%CC%81n-de-Ganaderi%CC%81a-de-Carne.pdf]. Accessed 3 August 2020.
[11] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2013. "Resolution DAJ-2013401-0201.0149". [http://web.agrocalidad.gob.ec/wp-content/uploads/Gu%C3%ADa-de-BPP-en-la-Producci%C3%B3n-de-Cuyes_compressed.pdf]. Accessed 3 August 2020.
[12] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2011. "Good Production Practices for Pork" ("BUENAS PRÁCTICAS PORCÍCOLAS").
[http://capacitacion.agricultura.gob.ec/pluginfile.php/6912/course/summary/Presentaci%C3%B3n%20BPP.pdf]. Accessed 3 August 2020.
[13] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. 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 public evidence that Ecuador 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. The Ministry of National Defense's (MIDENA) organizational management framework (Agreement No. 350 of 2014) describes the responsibilities of the Directorate of Military Innovation and Technology Development. They include coordinating research with other organizations and establishing research policies, but there is no mention of assessing dual use research. [1] MIDENA's 2019-2030 National Plan for Comprehensive Security does not mention dual use technology or research. [2] In 2014, MIDENA's Directorate of Arms Control and the National Authority on Chemical and Biological Weapons shared information regarding the extent of the use of dual-use chemicals in Ecuadorian industry, according to a press report. However, the report does not mention any broader information gathering regarding dual-use research or biological substances. [3] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding ongoing dual use research. [4] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) and the VERTIC database do not contain additional information regarding an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, and/or other dual use research. [5, 6, 7, 8, 9, 10, 11, 12] The national laboratory system does not have its own website. [5]

[1] Ministry of National Defense (Ministerio de Defensa Nacional). 2014. "Agreement No. 350 of 2014". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2014/02/ESTATUTO-ORG%C3%81NICO-DE-GESTION-ORGANIZACIONAL-POR-PROCESOS-DEL-MIDENA-2014.pdf]. Accessed 4 August 2020.
[2] Ministry of National Defense (Ministerio de Defensa Nacional). 2019. "2019-2030 National Plan for Comprehensive

Security". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2019/07/plan-matriz-web.pdf]. Accessed 4 August 2020.
[3] El Universo. 2014. "Armed Forces in control of purchases of chemicals" ("Fuerzas Armadas en control a compra de químicos"). [https://www.eluniverso.com/noticias/2014/02/07/nota/2147256/ffaa-control-compra-quimicos]. Accessed 4 August 2020.
[4] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[7] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[12] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 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: 0

There is insufficient public evidence that Ecuador has a national policy requiring oversight of dual use research. The Ministry of National Defense's (MIDENA) 2014-2017 Defense Sector Research, Technological Development and Innovation Agenda states the goal of "creating new dual use capabilities". The Agenda expresses the Ministry's goal to develop dual use technologies in order to benefit the national defense, comprehensive security and national development. The Agenda mentions biology, including the study of pathogenicity, as one of its research priorities. However, the Agenda does not establish a policy requiring oversight of dual use research. [1] According to MIDENA's organizational management framework (Agreement No. 350 of 2014), the Directorate of Military Innovation and Technology Development is only tasked with supervising research inside the Ministry. Other responsibilities include coordinating research with other organizations and establishing research policies, but there is no mention of a specific policy for dual use research. [2] MIDENA's 2019-2030 National Plan for Comprehensive Security does not mention dual use technology or research. [3] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding a policy for dual use research. [4] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) and the VERTIC database do not

contain additional information regarding a national policy requiring oversight of dual use research. [5, 6, 7, 8, 9, 10, 11, 12] The national laboratory system does not have its own website. [5]

[1] Ministry of National Defence (Ministerio de Defensa Nacional). 2014. "2014-2017 Defence Sector Research, Technological Development and Innovation Agenda" ("AGENDA DE INVESTIGACIÓN, DESARROLLO TECNOLÓGICO E INNOVACIÓN PARA EL SECTOR DEFENSA 2014 – 2017"). [https://www.defensa.gob.ec/wp-content/uploads/downloads/2014/11/agenda_de_investigaci%C3%B3n_desarrollo_tecnol%C3%B3gico_e_innovaci%C3%B3n_para_el_sector_defensa_2014-2017.pdf]. Accessed 4 August 2020.
[2] Ministry of National Defense (Ministerio de Defensa Nacional). 2014. "Agreement No. 350 of 2014". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2014/02/ESTATUTO-ORG%C3%81NICO-DE-GESTION-ORGANIZACIONAL-POR-PROCESOS-DEL-MIDENA-2014.pdf]. Accessed 4 August 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2019. "2019-2030 National Plan for Comprehensive Security". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2019/07/plan-matriz-web.pdf]. Accessed 4 August 2020.
[4] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[7] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[12] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 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: 0

There is no public evidence that there is an agency in Ecuador responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research. According to the Ministry of National Defense's (MIDENA) organizational management framework (Agreement No. 350 of 2014), the Directorate of Military Innovation and Technology Development is tasked with supervising research inside MIDENA. Other responsibilities include coordinating research with other organizations and establishing research policies, but there is no mention of pathogens or research involving biological materials. [1] Ecuador's Sectoral Security Council assumed the role of National Authority for Chemical and Biological Weapons in 2013, via Executive Decree 1406. Article 1 of the Decree tasks the Council with tasks

related to Ecuador's commitments in international biological and chemical weapons treaties. The Decree does not specifically mention dual use research. [2] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding an agency to oversee dual use research. [3] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) and the VERTIC database do not contain additional information regarding an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research. [4, 5, 6, 7, 8, 9, 10, 11] The national laboratory system does not have its own website. [5]

[1] Ministry of National Defense (Ministerio de Defensa Nacional). 2014. "Agreement No. 350 of 2014". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2014/02/ESTATUTO-ORG%C3%81NICO-DE-GESTION-ORGANIZACIONAL-POR-PROCESOS-DEL-MIDENA-2014.pdf]. Accessed 4 August 2020.
[2] Constitutional President of the Republic. 2013. "Executive Decree No. 1406". [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Decreto_Autoridad__Armas_Bio.pdf]. Accessed 29 July 2020.
[3] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[4] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[7] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 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

In Ecuador, there is insufficient public evidence that there is national legislation, regulation, policy, or other guidance, requiring the screening of synthesized DNA before it is sold. A draft Framework Health Code has been in discussion for eight

years, but has not yet become law. [1, 2] If approved, Article 301 of the Code would task the Ministry of Public Health (MSP) with establishing regulations and controls regarding the entry and exit from the country of biological samples for care, experimentation or research. The proposed Code does not specifically mention synthesized DNA. [3] In terms of GMOs, the Ministry of Environment (MAE) is in the process of developing the National Biosafety Framework, which would regulate modified organisms and promote the creation of laboratories for detection of GMOs in Ecuador. The Framework is not yet complete and MAE's website does not contain a timeline for its completion. [4, 5] Also related to GMOs, a draft biodiversity law was marked up in the national legislature in 2012, but there is no public evidence that it was finalized and passed into law. The draft contains two articles that could deal with synthesized DNA: Article 82 states that MAE will regulate activities that deal with synthesized DNA, and Article 85 enshrines the precautionary principle as it relates to genetic modification and synthesizing DNA. [16] Although Ecuador has submitted Confidence Building Measures for the Convention on Biological Weapons since 1990, with the most recent reports in 2019 and 2020, access to the reports is restricted (not available to the public), so it is not known what information they contain regarding the screening of synthesized DNA before it is sold. [6] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Ministry of National Defense, Secretariat of Higher Education, Science, Technology and Innovation, the National Agency of Health Regulation, Control and Surveillance (ARCSA), the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), the Ministry of Transport and Public Works, and the VERTIC database do not contain additional information regarding national legislation, regulation, policy, or other guidance, requiring the screening of synthesized DNA before it is sold. [7, 8, 9, 10, 11, 12, 13, 14, 15] The national laboratory system does not have its own website. [13]

[1] El Universo. 2019. "Framework Health Code goes to full chamber in National Assembly". [https://www.eluniverso.com/noticias/2019/12/17/nota/7648265/codigo-organico-salud-asamblea-nacional-uso-cannabis-codigo]. Accessed 4 August 2020.
[2] El Universo. 2020. "Approval of Framework Health Code uncertain again". [https://www.eluniverso.com/noticias/2020/02/04/nota/7723059/codigo-salud-aprobacion-proyecto-ley-asamblea-nacional]. Accessed 4 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Bill – Framework Health Code" ("Proyecto de Ley – Codigo Organico de Salud"). [https://www.salud.gob.ec/wp-content/uploads/2016/11/RD_248332rivas_248332_355600.pdf]. Accessed 4 August 2020.
[4] Ministry of the Environment (Ministerio del Ambiente). "Implementation of the National Biosafety Framework". [https://www.ambiente.gob.ec/implementacion-del-marco-nacional-de-bioseguridad/]. Accessed 4 August 2020.
[5] Ministry of the Environment (Ministerio del Ambiente). 2019. "Centre for Information Exchange on the Safety of Biotechnology" ("Centro de Intercambio de Información sobre Seguridad de la Biotecnología"). [http://www.bioseguridadecuador.gob.ec/0009.shtml]. Accessed 4 August 2020.
[6] United Nations Office at Geneva. 2019. "BWC Electronic Confidence Building Measures Portal". [https://bwc-ecbm.unog.ch/state/ecuador]. Accessed 29 July 2020.
[7] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[8] Verification Research, Training and Information Centre (VERTIC). 2020. "BWC Legislation Database – Ecuador". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/e/]. Accessed 29 July 2020.
[9] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[10] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[11] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[12] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020.

"AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[13] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[14] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[15] Ministry of Transport and Public Works (Ministerio de Transporte y Obras Publicas). 2020. "MTOP". [https://www.obraspublicas.gob.ec/]. Accessed 4 August 2020.
[16] National Assembly. 2012. "Oficio No. 010- CBRN-AN-2012 ". [http://ppless.asambleanacional.gob.ec/alfresco/d/d/workspace/SpacesStore/a89aa6e4-ee57-4dc0-94c4-8f8337f942d2/Informe%20Primer%20Debate%20Tr.%2092178.pdf]. Accessed 28 August 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

In Ecuador, the national laboratory system has the capacity to conduct diagnostic tests for six of the WHO-defined core tests. The national laboratory system is supported by the National Institute of Public Health Research's (INSPI) Directorate of Epidemiological Surveillance and National Reference Laboratory. [1] The Ministry of Public Health's (MSP) 2014 Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE) describes the diagnostic capacities of the national laboratory system for notifiable diseases in Ecuador. According to the Manual, laboratories in the national network can perform diagnostic tests for flu via PCR, polio via virus culture, tuberculosis via microscopy, malaria via rapid diagnostic testing, and typhoid via bacterial culture. [2] In addition, the MSP's 2019 Malaria Diagnosis and Treatment Protocol confirms the ability to test with rapid diagnostic tests. [3] The MSP's 2017 Guide for Comprehensive Care for Adults and Adolescents with HIV/AIDS Infections states that the national laboratory network can test for HIV via serology. [4] The websites of the MSP and the INSPI do not contain additional information regarding Ecuador's country-defined core diagnostic tests. [5, 6] The national laboratory system does not have its own website. [5]

[1] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "Directorate of Epidemiological Surveillance and National Reference Laboratory" ("Dirección de Laboratorio de Vigilancia Epidemiológica y Referencia Nacional"). [http://www.investigacionsalud.gob.ec/direccion-de-laboratorio-de-vigilancia-epidemiologica-y-referencia-nacional-2/]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System" ("Manual de procedimientos del subsistema alerta acción SIVE–ALERTA"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 27 July 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Malaria Diagnosis and Treatment Protocol". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_0346_2019%2029%20ABRIL.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Guide for Comprehensive Care for Adults and Adolescents with HIV/AIDS Infections" ("Guía de atención integral para ADULTOS Y ADOLESCENTES CON INFECCIÓN POR VIH/SIDA"). [https://www.salud.gob.ec/wp-content/uploads/2016/09/GUIA-AT.ADULTOS-VIH.pdf]. Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 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: 1

There is public evidence that Ecuador has plans that outline testing for specific pathogens during a public health emergency, but there is insufficient evidence that they include considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. In April 2020, the Ministry of Public Health (MSP) issued the Protocol for Use of Rapid Tests for Detection of Antibodies Against SARS-COV-2/COVID-19. The Protocol does not discuss novel pathogens (it is solely focused on SARS-COV-2), and notes the need for "the formulation of a clear national strategy" in order to set goals and scale capacity. In terms of setting goals, the Protocol mentions using the rapid tests to screen medical personnel first. [1] In February 2020, the MSP issued the Operational Guidelines for Response to Coronavirus COVID-19. The Guidelines do not discuss novel pathogens, nor do they provide specifics on scaling up testing. The Guidelines assign some responsibilities regarding testing, mentioning the implementation of "rapid response teams" in local areas. The teams are responsible for "activating resource management for support of epidemiological surveillance actions and the application of control measures". In terms of goals, the Guidelines state that the purpose of field investigations is to perform contact tracing and "ensure the timely detection of suspected cases". [2] In 2016, the MSP issued the Response to the Zika Virus Disease in Ecuador. The document outlines the testing process, but does not discuss scaling up testing or novel pathogens. In terms of goals, the document states that the objective is timely detection of Zika and building national diagnostic capacity. [3] In the agricultural sector, the 2016 Contingency Plan for Foot and Mouth Disease in Ecuador and the 2016 National Sanitary Program for Surveillance and Prevention of Bovine Spongiform Encephalopathy (BSE) discuss testing, but do not mention scaling up testing or detecting novel pathogens. In terms of goal-setting, the former lists identifying endemic ecosystems and focusing primarily on cattle, while the latter states that the goal is to "determine the absence of BSE at the national level". [4, 5] The websites of the MSP, the National Institute of Public Health Research (INSPI), the Ministry of Agriculture and the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) do not contain additional information regarding a national plan, strategy or similar document for conducting testing during a public health emergency. [6, 7, 8, 9] The national laboratory system does not have its own website. [6]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Protocol for Use of Rapid Tests for Detection of Antibodies Against SARS-COV-2/COVID-19”. [https://www.salud.gob.ec/wp-content/uploads/2020/04/Protocolo-de-uso-de-pruebas-r%C3%A1pidas-para-detecci%C3%B3n-de-anticuerpos-contra-Sars-Cov-2Covid-19_v2_20_04_2020.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Operational Guidelines for Response to Coronavirus COVID-19”. [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2016. “Response to the Zika Virus Disease in Ecuador”. [https://www.salud.gob.ec/wp-content/uploads/2015/12/RESPUESTA-FRENTE-AL-ZIKA.pdf]. Accessed 5 August 2020.
[4] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. “Contingency Plan for Foot and Mouth Disease in Ecuador”. [http://web.agrocalidad.gob.ec/documentos/dvz/plan-contingencia-fiebre-aftosa.pdf]. Accessed 5 August 2020.
[5] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. “National Sanitary Program for Surveillance and Prevention of Bovine Spongiform Encephalopathy”. [http://web.agrocalidad.gob.ec/documentos/dcz/daj-2016144-0201.0036.pdf]. Accessed 5 August 2020.

[6] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[8] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[9] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "AGROCALIDAD". [http://www.agrocalidad.gob.ec/]. Accessed 27 July 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

Two of Ecuador's national reference laboratories at the National Institute of Public Health Research (INSPI) were accredited to the International Organization for Standardization (ISO) 15189:2012 standard in 2018: the Influenza and other Respiratory Viruses Reference Center and the Bacteriology Reference Center. [1] At the time of the accreditation, follow-up inspections were scheduled for July 2018, 2019, and 2020, with a full reevaluation for accreditation scheduled for October 2021. [1] In September 2019, INSPI provided a training to all personnel involved in the accreditation process that covered the requirements of ISO 15189:2012 as well as the procedure for clinical laboratories. [2]

[1] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "INSPI obtained accreditation ISO 15189:2012 standard". [http://www.investigacionsalud.gob.ec/inspi-obtuv-acreditacion-norma-iso-151892012/]. Accessed 5 August 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "INSPI carries out course on ISO 15189:2012 standard". [http://www.investigacionsalud.gob.ec/inspi-desarrolla-curso-sobre-la-norma-iso-151892012-requisitos-particulares-para-la-calidad-y-competencia-de-los-laboratorios-clinicos-y-criterios-de-acreditacion-del-servicio-de-acreditacio/]. Accessed 5 August 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

Ecuador's national reference laboratories at the National Institute of Public Health Research (INSPI) are subject to external quality assurance review. INSPI's 2019 Accountability Report stated that Ecuador's national reference laboratories participated in 18 quality control processes with supranational laboratories during the year and included continued participation in these processes in its goals for 2020. The report did not provide further details on the external quality control processes. [1] INSPI's 2018 Accountability Report stated that Ecuador's national reference laboratories participated in 19 external quality control processes with supranational laboratories during the year, and that the results were 100% in agreement with the reference laboratories' results. As part of these processes, INSPI sent samples for quality control to supranational laboratories in the United Kingdom, United States, Germany, Colombia, Peru and Argentina. [2]

[1] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2019. "Accountability Report". [http://www.investigacionsalud.gob.ec/wp-content/uploads/2020/07/Presentacion12rendicion-comprimido.pdf]. Accessed 5 August 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "Accountability Report". [http://www.investigacionsalud.gob.ec/wp-content/uploads/2019/02/PRESENTACION_RENDICION_DE_CUENTAS_2018.pdf]. Accessed 5 August 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Ecuador has a unified nationwide specimen transport system. The Ministry of Public Health's (MSP) Technical Guidelines for the Handling of Biological and Chemical Specimens (Ministerial Agreement No. 0084-2017) do not mention a nationwide specimen transport system, nor do MSP's Regulations for the Operation of Clinical Laboratories (Ministerial Agreement No. 2393-2012). [1, 2] MSP's 2017 "Procedures for the prevention and control of tuberculosis" state that transport of specimens for testing is the responsibility of the nurses and health promoters. Further, the document states that it is the responsibility of each health district to arrange for specimen transport to the National Network of Clinical Analysis Laboratories (REDNALAC). [3] In a 2014 project to carry out neonatal testing throughout the country, the MSP contracted with the public enterprise Ecuador Postal Service to transport specimens from healthcare facilities to laboratories. [4, 5] The MSP's 2015 "Model for Management, Organization and Operations of the National Network of Clinical Analysis Laboratories for Diagnosis and Surveillance of Public Health of the MSP – REDNALAC" (Ministerial Agreement No. 5279-2015) describes requirements for specimen transport but states that health districts are responsible to establishing their own systems and routes. [6] In 2018, the National Institute of Public Health Research (INSPI) stated that it had conducted trainings with health workers on properly taking, transporting and conserving specimens. Further INSPI stated that it had contracted with a specialized firm to improve the quality of specimen transport for epidemiological surveillance between regional MSP offices, INSPI and/or supranational laboratories. [7] Documents from 2020 on the COVID-19 pandemic describe proper handling and transport requirements for specimens but do not mention a national specimen transport system. [8, 9] A 2017 academic paper studying response times at the Armed Forces Hospital #1 documents that specimens are transported by on-call messengers employed by the hospital. [10] The websites of the MSP, INSPI and Ministry of Agriculture and Ranching to not contain additional information regarding a nationwide specimen transport system. [11, 12, 13] The national laboratory system does not have its own website. [11]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Ministerial Agreement No. 0084-2017". [https://www.controlsanitario.gob.ec/wp-content/uploads/downloads/2017/11/Acuerdo-ministerial-84.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2012. "Ministerial Agreement No. 2393-2012". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/REGLAMENTO%20PARA%20EL%20FUNCIONAMIENTO%20DE%20LOS%20LABORATORIOS%20CL%C3%8DNICOS.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Procedures for the prevention and control of tuberculosis". [https://www.salud.gob.ec/wp-content/uploads/2017/07/MANUAL-DE-PROCEDIMIENTOS-DE-TB-FINAL.pdf]. Accessed 5 August 2020.

[4] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Ministerial Agreement No. 5104". [https://www.salud.gob.ec/wp-content/uploads/2016/09/AM-5104-REGLAMENTO-TAMIZAJE.pdf]. Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Project Information File – Screening". [https://www.salud.gob.ec/wp-content/uploads/2017/06/Tamizaje.pdf]. Accessed 5 August 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Agreement No. 5279". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/ac_00005279_2015%2029%20jul.pdf]. Accessed 5 August 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "Accountability Report". [http://www.investigacionsalud.gob.ec/wp-content/uploads/2019/02/PRESENTACION_RENDICION_DE_CUENTAS_2018.pdf]. Accessed 5 August 2020.
[8] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Protocol for Use of Rapid Tests for Detection of Antibodies Against SARS-COV-2/COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/04/Protocolo-de-uso-de-pruebas-r%C3%A1pidas-para-detecci%C3%B3n-de-anticuerpos-contra-Sars-Cov-2Covid-19_v2_20_04_2020.pdf]. Accessed 5 August 2020.
[9] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Operational Guidelines for Response to Coronavirus COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.
[10] Narváez Rodríguez, Cristian Gonzalo. 2017. "Study of the critical points that affect the total response time between the emergency area and the clinical laboratory of the Armed Forces Hospital #1" ("Estudio de los puntos críticos que afectan al tiempo de respuesta total entre el área de emergencia y laboratorio clínico del hospital de las fuerzas armadas # 1"). [http://www.dspace.uce.edu.ec/bitstream/25000/12814/1/T-UCE-0008-BC007-2017.pdf]. Accessed 5 August 2020.
[11] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[12] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[13] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 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 public evidence of a plan in place in Ecuador to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak, although during the COVID-19 pandemic university and private laboratories have been authorized by the Ministry of Public Health (MSP) to conduct diagnostic testing for COVID-19. [1] In terms of a plan, the MSP's Operational Guidelines for Response to Coronavirus COVID-19 describe laboratory testing for the illness but do not mention a plan to scale up capacity or authorize additional laboratories. [2] Similarly, the MSP's Regulations for the Operation of Clinical Laboratories (Ministerial Agreement No. 2393-2012) do not describe a plan to license laboratories to supplement national testing capacity during an outbreak. Article 31 states that during an emergency, healthcare professionals are authorized to carry out testing outside a laboratory or testing post environment. Article 48 states that clinical laboratories shall collaborate with the work of healthcare authorities during an emergency. [3] The MSP's 2015 "Model for Management, Organisation and Operations of the National

Network of Clinical Analysis Laboratories for Diagnosis and Surveillance of Public Health of the MSP – REDNALAC" (Ministerial Agreement No. 5279-2015) states in Section 2.5 that that national laboratory network (REDNALAC) shall follow the indications of health authorities during an emergency and that only laboratories that satisfy quality requirements will be integrated into the network during an emergency or crisis. [4] During the COVID-19 pandemic, the MSP has authorized university and private laboratories to conduct diagnostic testing. [1, 5, 6] The websites of the MSP, National Institute of Public Health Research (INSPI), and Ministry of Agriculture and Ranching to not contain additional information regarding 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. [7, 8, 9] The national laboratory system does not have its own website. [7]

[1] General Secretariat of Communication of the Presidency (Secretaría General de Comunicación de la Presidencia). 2020. "Universities in the country Will conduct COVID-19 testing". [https://www.comunicacion.gob.ec/universidades-del-pais-realizaran-diagnosticos-del-covid-19/]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Operational Guidelines for Response to Coronavirus COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2012. "Ministerial Agreement No. 2393-2012". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/REGLAMENTO%20PARA%20EL%20FUNCIONAMIENTO%20DE%20LOS%20LABORATORIOS%20CL%C3%8DNICOS.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Agreement No. 5279". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/ac_00005279_2015%2029%20jul.pdf]. Accessed 5 August 2020.
[5] Prefecture of Imbabura. 2020. "German Cooperation delivers 50,000 PCR tests for COVID-19 to provinces on the northern border". [https://www.imbabura.gob.ec/index.php/noticias/blog-noticias/40-emergencia-sanitaria/401-cooperacion-alemana-entrega-50-000-pruebas-pcr-de-covid-19-a-provincias-de-la-frontera-norte]. Accessed 5 August 2020.
[6] National Emergency Operations Committee. 2020. "COVID-19 Situation Report Ecuador No. 008". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/2020/03/Informe-de-Situaci%C3%B3n-No008-Casos-Coronavirus-Ecuador-16032020-20h00.pdf]. Accessed 5 August 2020.
[7] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[8] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[9] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 July 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: 2

The epidemiological surveillance system in Ecuador employs event-based surveillance (EBS) and analysis for infectious disease. The Ministry of Public Health's (MSP) 2014 Procedures Manual for the Alert Subsystem of the Integrated

Epidemiological Surveillance System (SIVE) describes EBS in Section 9.3 (Appendix 3) of the Manual. [1] The SIVE relies on formal and informal information sources and analyses the data on a daily basis. Informal sources include the news media and community-based surveillance. The MSP's National Directorate of Epidemiological Surveillance (DNVE) is tasked with EBS for health emergencies. The DNVE's 2018 annual report reiterated the agency's use of EBS. [2] The MSP also houses a National Directorate of Risk Management, which contains a "Situation Room" tasked with "monitoring adverse events that may impact public health via the articulation of information". The Directorate's webpage does not appear to have been updated since 2013. [3] The government's National Service for Risk Management and Emergencies contains a Directorate for Monitoring of Adverse Events (DMEVA). However, the DMEVA's documentation does not provide public evidence that it utilizes EBS, instead relying on scientific data from other agencies. The DMEVA "receives and analyses information from scientific-technical institutes about the evolution of threats". [4] The Service's Process Manual for Registering Adverse Events (MN-REA-01) does not mention EBS and names information sources as other government agencies. [5]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System" ("Manual de procedimientos del subsistema alerta acción SIVE–ALERTA"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2018. "National Directorate of Epidemiological Surveillance 2018 Annual Report". [https://www.salud.gob.ec/wp-content/uploads/2019/12/INFORME-CIERRE-DE-EVENTOS-2018.pdf]. Accessed 28 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2014. "National Directorate of Risk Management" ("Dirección Nacional de Gestión de Riesgos"). [https://www.salud.gob.ec/direccion-nacional-de-gestion-de-riesgos/]. Accessed 5 August 2020.
[4] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2019. "Directorate for Monitoring of Adverse Events" ("La Dirección de Monitoreo de Eventos Adversos"). [https://www.gestionderiesgos.gob.ec/dmeva/]. Accessed 5 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2015. "Process Manual for Registering Adverse Events (MN-REA-01)". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2015/01/Manual-del-Proceso-de-Registro-de-Eventos-Adversos.pdf]. Accessed 5 August 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

In Ecuador, there is no publicly available evidence that the country has reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. The WHO's Ecuador country page lists the last reported outbreak in Ecuador as Zika virus infection in Ecuador (and Guyana and Barbados) in January 2016. [1, 2] the WHO's Disease Outbreak News page lists the last reported outbreak in Ecuador as an outbreak of dengue hemorrhagic fever that occurred in August 2002. [3] The websites of the Ministry of Public Health and the National Institute of Public Health Research do not contain additional information regarding reporting a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. [4, 5]

[1] World Health Organization. 2020. "Ecuador". [https://www.who.int/countries/ecu/en/]. Accessed 5 August 2020.
[2] World Health Organization. 2016. "Zika virus infection – Guyana, Barbados and Ecuador". [https://www.who.int/csr/don/20-january-2016-zika-guyana-barbados-ecuador/en/]. Accessed 5 August 2020.

[3] World Health Organization. 2020. "Disease Outbreak News Ecuador".
[https://www.who.int/csr/don/archive/country/ecu/en/]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI".
[http://www.investigacionsalud.gob.ec/]. Accessed 27 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

In Ecuador, the government operates an electronic reporting surveillance system at both the national and sub-national levels. The Ministry of Public Health's (MSP) 2014 Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE) describes the electronic system and assigns national and sub-national responsibilities for electronic reporting and reviewing information. [1] SIVE-Alert has operated an electronic reporting system since 2002. Local health workers are responsible for inputting epidemiological data in the electronic system. Local health facilities with internet access must input epidemiological data directly into the electronic reporting system. Hospital epidemiologists are also responsible for inputting and validating epidemiological surveillance data into the electronic system. Inputting the data is part of the requirement for timely notification of notifiable diseases. District-level Epidemiological Teams are responsible for inputting data for those health facilities that do not have internet access. [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Procedures Manual for the Alert Subsystem of the Integrated Epidemiological Surveillance System" ("Manual de procedimientos del subsistema alerta acción SIVE–ALERTA"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/MANUAL%20DE%20PROCEDIMIENTOS%2016%20de%20Octubre%20de%202014.pdf]. Accessed 5 August 2020.

2.3.2b

Does the electronic reporting surveillance system collect ongoing or real-time laboratory data?
Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Ecuador's electronic reporting surveillance system (SIVE-Alerta) receives real-time laboratory data from the National Network of Clinical Analysis Laboratories (REDNALAC). The Ministry of Public Health's (MSP) 2013 Procedures Manual for the Action Alert Subsystem SIVE-ALERTA includes a diagram of the information flow in the Integrated Epidemiological Surveillance System (SIVE). [1] Graphic No. 1 shows that laboratories receive specimens, carry out diagnostic tests and input the results directly into the SIVE-Alerta electronic surveillance system. That data is immediately available to other healthcare workers. [1] In addition, in 2015 the MSP issued the "Model for Management, Organization and Operations of the National Network of Clinical Analysis Laboratories for Diagnosis and Surveillance of Public Health of the MSP – REDNALAC" (Ministerial Agreement No. 5279-2015). The Model states that the REDNALAC must implement a "laboratory information system" that allows technicians to request tests electronically, maintain information traceability, connect directly with test equipment, share information with other health facilities, be always online and guarantee patient confidentiality. [2] Further, the system must interconnect with the MSP's Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE-Alerta). Section 1.3.2 states that REDNALAC's information system must be efficient and provide

timely results for public health surveillance. [2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2013. "Procedures Manual for the Action Alert Subsystem SIVE-Alerta".
[https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/manual_de_procedimientos_sive-alerta.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Agreement No. 5279".
[https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/ac_00005279_2015%2029%20jul.pdf]. Accessed 5 August 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

In Ecuador, electronic health records (EHR) are in use, but they are not yet widespread and public evidence on their use is limited. The Ministry of Public Health (MSP) has been implementing an EHR system called SiSalud since 2013. [1] A press report from January 2019 indicated that 24.5% of healthcare facilities in Ecuador were using EHR, amounting to some 2,000 facilities. [2] In 2018, the Pan-American Health Organization (PAHO) reported that 1,500 facilities were using EHR, covering some 3.5m individuals and 15m visits. [3] This compares to a report of 103,448 registered users in 2015. [4] Ecuador's population was approximately 16.2m people in 2015 and 16.9m in 2020. [5, 6]

[1] Silva R, Medina JA, Dáher JE, Alvarado RM, Recalde T, et al. 2017. "Interoperable Electronic Health Records (EHRs) for Ecuador". [https://www.omicsonline.org/open-access/interoperable-electronic-health-records-ehrs-for-ecuador-2157-7420-1000271.php?aid=91906]. Accessed 5 August 2020.
[2] Edicion Medica. 2019. "24.5% of facilities in Ecuador have EHR".
[https://www.edicionmedica.ec/secciones/profesionales/24-5-de-establecimientos-en-ecuador-tienen-historia-clinica-electronica--93440]. Accessed 5 August 2020.
[3] Pan American Health Organization. 2018. "Ecuador is going to strengthen health information systems".
[https://www.paho.org/ish/index.php/es/todas-las-historias?id=115]. Accessed 5 August 2020.
[4] El Telegrafo. 2015. "Clinical récords are now electronic in MSP's public facilities" ("La historia clínica ahora es electrónica en los establecimientos públicos del MSP"). [https://www.eltelegrafo.com.ec/noticias/salud/1/la-historia-clinica-ahora-es-electronica-en-los-establecimientos-publicos-del-msp]. Accessed 5 August 2020.
[3] Pan American Health Organization. 2016. "Ecuador". [https://www.paho.org/salud-en-las-americas-2017/?p=4272]. Accessed 5 August 2020.
[6] Central Intelligence Agency. 2020. "World Factbook – Ecuador". [https://www.cia.gov/library/publications/resources/the-world-factbook/geos/ec.html]. Accessed 5 August 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

The national public health system in Ecuador has access to electronic health records (EHR) of individuals in the country. EHR are in use in Ecuador, but are not yet widespread. The Ministry of Public Health (MSP) has been implementing an EHR system called SiSalud since 2013. [1] As the entity organizing the system, MSP has access to EHR for patients in Ecuador. A 2017 academic report noted that private health facilities were not yet included in the interoperability of EHR in Ecuador—they have yet to be included in the SiSalud system. [1] In 2018, the Pan American Health Organization reported that Ecuador was implementing a project to "empower civil society, academia, and public and private [healthcare] institutions via the creation of a National Health Information Systems network" that would link all of these actors. [2]

[1] Silva R, Medina JA, Dáher JE, Alvarado RM, Recalde T, et al. 2017. "Interoperable Electronic Health Records (EHRs) for Ecuador". [https://www.omicsonline.org/open-access/interoperable-electronic-health-records-ehrs-for-ecuador-2157-7420-1000271.php?aid=91906]. Accessed 5 August 2020.
[2] Pan American Health Organization. 2018. "Ecuador is going to strengthen health information systems". [https://www.paho.org/ish/index.php/es/todas-las-historias?id=115]. Accessed 5 August 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

The Ministry of Public Health (MSP) in Ecuador has established data standards for electronic health records (EHR) in conjunction with the Ecuadorian National Institute for Standardization (INEN). MSP established Health Level Seven (HL7) and ISO TC 215 as the standards for EHR in the country via Ministerial Agreement 1190-2011. [1] The Order also stated that EHR would also comply with existing INEN regulations, including ISO 13606 (Health informatics -- Electronic health record communication). [1, 2, 3] A 2018 article from the Pan American Health Organization stated that Ecuador was developing the knowledge and technical capacity to implement EHR using HL7 and other standards to allow for the technical integration of all information subsystems. [4]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2011. "Ministerial Order No. 1190-2011". [https://aplicaciones.msp.gob.ec/upload/upload/00001190_2011_00001190.PDF]. Accessed 5 August 2020.
[2] Silva R, Medina JA, Dáher JE, Alvarado RM, Recalde T, et al. 2017. "Interoperable Electronic Health Records (EHRs) for Ecuador". [https://www.omicsonline.org/open-access/interoperable-electronic-health-records-ehrs-for-ecuador-2157-7420-1000271.php?aid=91906]. Accessed 5 August 2020.
[3] Ecuadorian National Institute for Standardization (INEN). 2014. "NTE INEN-ISO 13606-1". [https://www.normalizacion.gob.ec/buzon/normas/nte_inen_iso_13606-1.pdf]. Accessed 5 August 2020.
[4] Pan American Health Organization. 2018. "Ecuador is going to strengthen health information systems". [https://www.paho.org/ish/index.php/es/todas-las-historias?id=115]. Accessed 5 August 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: 1

In Ecuador, there are established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data. The country's 2008 Operational Guide for Epidemiological Surveillance of Flu-Like Diseases and Severe Acute Respiratory Infections established mechanisms for data sharing at the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching (MAG) and Ministry of the Environment (MAE). The Plan states that the three ministries must establish direct links between the provincial coordinators of the services to carry out epidemiological surveillance of birds. Each province with a sentinel surveillance site must create an Interinstitutional Committee to periodically analyze surveillance data and coordinate joint notification and intervention actions. [1] MAG's Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) manages the Epidemiological Surveillance System (SVE) for animal health. In support of the Operational Guide mentioned above, Resolution No. 031 of 2011 instructs AGROCALIDAD to coordinate activities with the MAE and MSP to conduct surveillance of birds to detect potential outbreaks of avian flu. The Resolution describes the use of the SVE to register surveillance data from MAG and MAE and share data among MAG, MAE and MSP. Actions 3.3, 4.1 and 4.3 provide for coordinated surveillance, inter-institutional coordination and updated information systems for data sharing. [2] SVE's guidelines describe four types of reports generated by the system: internal, external, sanitary-commercial and international notification. Section 4.2 states that in the event of detection of a zoonotic disease an internal report is generated and shared with the Ministry of Public Health (MSP). [3] In 2019, Ecuador issued the "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023") and in 2020 the country formalized the creation of the National Committee for Prevention and Control of Antimicrobial Resistance, which includes the MSP, MAG and MAE. [4, 5] In terms of surveillance, the plan's Objective 2 is to "strengthen the surveillance of antimicrobial resistance" and Strategic Guideline 2.1 is to strengthen the national AMR surveillance system "with an intersectoral focus". However, the plan does not mention any specific data sharing mechanisms. Strategic Guideline 2.2 focuses on building capacity for AMR surveillance in the animal health sector but does not discuss data sharing either. [4] The Committee will include Technical Subcommittees that could facilitate data sharing, but not specific plans have been issued yet. [5, 6]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2008. "Operational Guide for Epidemiological Surveillance of Flu-Like Diseases and Severe Acute Respiratory Infections" ("Guía Operativa para la Vigilancia Epidemiológica de las Enfermedades Tipo Influenza (ETI) e Infecciones Respiratorias Agudas Graves (IRAG)"). [https://www.paho.org/ecu/index.php?option=com_docman&view=download&category_slug=vigilancia-sanitaria-y-atencion-de-las-enfermedades&alias=61-guia-operativa-para-la-vigilancia-epidemiologica-de-las-enfermedades-tipo-influenza&Itemid=599]. Accessed 5 August 2020.
[2] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2011. "Resolution No. 031 of 2011". [http://web.agrocalidad.gob.ec/documentos/dcz/Resolucion-031.-Programa-de-Prevencion-de-Influenza-Aviar.pdf]. Accessed 5 August 2020.
[3] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2016. "Epidemiological Surveillance System" ("SISTEMA DE VIGILANCIA EPIDEMIOLOGICA"). [http://web.agrocalidad.gob.ec/wp-content/uploads/2016/08/Sistema-de-Vigilancia-Epidimemiolgica-de-Agrocalidad.pptx-1.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-

2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Inter-Institutional Agreement No. 000010-2020". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_INTER-00001-2020%20ENE%2029.pdf]. Accessed 5 August 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2018. "AMR committee meets in Quito". [https://www.salud.gob.ec/comite-de-resistencia-antimicrobiana-ram-se-reunio-en-quito/]. Accessed 5 August 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: 1

Ecuador makes de-identified health surveillance data on disease outbreaks publicly available via weekly reports on the Ministry of Public Health's (MSP) website. The MSP publishes a weekly Epidemiological Gazette. MSP's website contains the issues of the weekly bulletin from 2012 to the present. [1] The bulletin documents how many health facilities are reporting to the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE-Alerta); as of July 2020, 92.8% of facilities were reporting on-time, which was below the goal of 95%. The bulletin includes data for reportable diseases. [2] For more specific information, MSP also publishes 12 other periodic gazettes for issues from zoonotic diseases to antimicrobial resistance and respiratory illnesses, among others. [3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. "National Directorate of Epidemiological Surveillance, Epidemiological Gazette". [https://www.salud.gob.ec/direccion-nacional-de-vigilancia-epidemiologica-gaceta-epidemiologica/]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Weekly Epidemiological Gazette No. 30". [https://www.salud.gob.ec/wp-content/uploads/2020/08/Indicadores-SE-30.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "National Directorate of Epidemiological Surveillance". [https://www.salud.gob.ec/direccion-nacional-de-vigilancia-epidemiologica/]. Accessed 5 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

Ecuador's Ministry of Public Health (MSP) makes de-identified health surveillance data on COVID-19 publicly available via daily reports on its website. [1] The MSP publishes a daily infographic with information on the number of cases and regions where they are located. [2] The MSP also publishes a text summary of cases updated daily. [3] Finally, the MSP publishes a COVID-19 Epidemiological Bulletin updated weekly and semi-weekly. [4, 5]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Coronavirus COVID-19". [https://www.salud.gob.ec/coronavirus-covid-19/]. Accessed 5 August 2020.

[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP informs on Coronavirus situation”. [https://www.salud.gob.ec/el-ministerio-de-salud-publica-del-ecuador-msp-informa-situacion-coronavirus/]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Update of Coronavirus cases in Ecuador”. [https://www.salud.gob.ec/actualizacion-de-casos-de-coronavirus-en-ecuador/]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Coronavirus COVID-19 Epidemiological Bulletins”. [https://www.salud.gob.ec/gacetas-epidemiologicas-coronavirus-covid-19/]. Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Bulletin 065”. [https://www.salud.gob.ec/wp-content/uploads/2020/05/Boletin-065-AM_Nacional.pdf]. Accessed 5 August 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

In Ecuador, regulations and guidelines safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities. In 2014, the Ministry of Public Health (MSP) issued Ministerial Agreement No. 5216A-2014, which contained the "Regulations for the Handling of Confidential Information in the National Health System". Article 1 of the Agreement states that it is compulsory for all health facilities. Article 6 states that individual medical information is confidential. Article 7 specifies that the confidentiality extends to all patient health records. [1] In addition, the guidelines for the Alert Subsystem of the Integrated Epidemiological Surveillance System (SIVE-Alerta) state that individual data obtained for statistical purposes must be protected. The guidelines state that statistical information is to be freely available to the public, while maintaining the confidentiality of informants. [2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Ministerial Agreement No. 5216A-2014". [https://www.salud.gob.ec/wp-content/uploads/2016/09/AM-5216-A-Confidencialidad.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Metadata SIVE-Alerta". [https://www.salud.gob.ec/wp-content/uploads/2016/12/METADATO_SIVE_ALERTA-2016.pdf]. Accessed 5 August 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: 1

In Ecuador, there are regulations to safeguard the confidentiality of identifiable health information for individuals and mention information security measures. In 2014, the Ministry of Public Health (MSP) issued Ministerial Agreement No. 5216A-2014, which contained the “Regulations for the Handling of Confidential Information in the National Health System”. Article 1 of the Agreement states that it is compulsory for all health facilities. Article 6 states that individual medical information is confidential. Article 15 states that information stored electronically should only be accessible to authorized individuals through the use of personal access codes. Article 18 states that personal health data stored digitally must employ

measures to restrict access by unauthorized parties. Article 36 states that any document containing personal health data must use information security tools that ensure confidentiality is maintained. [1] A guide on the confidentiality of patient information, published by the MSP in 2016 and based on Ministerial Agreement No. 5216A-2014, states that whether stored digitally or physically, patient records must be secure. In addition, the guide urges medical professionals to exercise caution on network terminals, personal computers and laptops, online and in email to ensure the safety and confidentiality of patient information. The document does not specifically mention cyber attacks. [2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. “Ministerial Agreement No. 5216A-2014”. [https://www.salud.gob.ec/wp-content/uploads/2016/09/AM-5216-A-Confidencialidad.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2016. “Confidentiality: A Right in Health Care" ("LA CONFIDENCIALIDAD UN DERECHO EN LA ATENCIÓN DE SALUD"). [http://instituciones.msp.gob.ec/images/Documentos/varios/Confidencialidad_Un_derecho_en_la_atencion_de_salud.pdf?fbclid=IwAR0j6QwJX9bswYOsxNVR674UYLzkWhIFwy4BRqQAjdtZkVsmHvtvW4UE3Z0]. Accessed 5 August 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

There is public evidence that Ecuador's government has made commitments via public statements, legislation and/or a cooperative agreement to share surveillance data during a public health emergency with other countries in the region. Ecuador participates in regional health organizations, demonstrating its commitment to share surveillance data during a public health emergency with other countries in the region. In July 2013, Ecuador hosted a meeting of the Andean Health Organization (ORASCONHU), which issued the Guayaquil Declaration and set a priority to establish a regional information, monitoring and evaluation system. [1] Also in 2013, ORASCONHU issued the Andean Plan for Risk Management in the Health Sector 2013-2017. Action 3.1.4 commits Ecuador to participate in the creation of systems to share information among Andean countries in the event of a public health emergency. [2] In 2015, Ecuador and Colombia jointly issued the Five-Year Health Plan for the Ecuador-Colombia Border Zone 2015-2019. Section 2.1.4 of the plan states that the two countries will “integrate epidemiological surveillance systems in the border area with the goal of developing coordinated actions, that allow for the generation of timely information for joint decision making”. [3] In 2015, the Ministers of Health of Ecuador and Peru met to coordinate efforts to combat dengue and chikungunya. Prior to the meeting of the ministers, representatives of both countries’ epidemiological surveillance systems held technical meetings to advance cooperation between the two countries. [4] The 2019 Tumbes Action Plan named health surveillance in its Commitment 7 between Ecuador and Peru to promote cooperation between the Ministries of Health in both countries. [5]

[1] Red Andina de Institutos de Salud. 2013. “ACTUALIZACIÓN DEL PLAN OPERATIVO DE LA RED ANDINA DE INSTITUTOS DE SALUD (RAIS) Y DEFINICIÓN DE NUEVAS ACTIVIDADES”. [https://www.orasconhu.org/sites/default/files/files/ActaGuayaquil%20RAIS%2016%20jul2013.pdf]. Accessed 5 August 2020.
[2] Organismo Andino de Salud – Convenio Hipólito Unánue. 2013. “PLAN ANDINO PARA LA GESTION DE RIESGOS DE DESASTRES EN EL SECTOR SALUD 2013 – 2017”. [http://www.orasconhu.org/sites/default/files/files/Plan%20de%20accion%20-%20plan%20andino%20de%20desastres%202013.pdf]. Accessed 5 August 2020.

[3] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Five-Year Health Plan for the Ecuador-Colombia Border Zone 2015-2019" ("PLAN QUINQUENAL DE SALUD PARA LA ZONA DE FRONTERA ECUADOR---COLOMBIA"). [http://www.sbi-ecuador-colombia.info/documentos/Plan_Quinquenal_Salud_Ecuador_Colombia.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Ministers of Health of Ecuador and Peru meet to coordinate fight against dengue and chikungunya". [https://www.salud.gob.ec/ministros-de-salud-de-ecuador-y-peru-se-reunen-para-coordinar-lucha-contra-el-dengue-y-la-chikungunya-2/]. Accessed 5 August 2020.
[5] Binational Plan for the Border Region. 2020. "2019 Tumbes Action Plan". [http://planbinacional.org.ec/wp-content/uploads/2020/04/plan-de-accion-de-tumbes-2019.pdf]. Accessed 5 August 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 publicly available evidence that Ecuador has in place a national system 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. In May 2020, news media in Ecuador reported that "the country lacks an active epidemiological surveillance system". One expert was quoted stating that the previous government weakened this type of active surveillance to the point that it was not functional for the COVID-19 pandemic. [1] In February 2020, the Ministry of Public Health (MSP) issued the Operational Guidelines for Response to Coronavirus COVID-19, which mention contact tracing and that epidemiologists should carry out the process as part of their field investigations, but the Guidelines do not describe any plan to increase capacity or work with sub-national authorities to expand contact tracing. [2] On May 22, 2020, the National Emergency Operations Committee (COE-N) decided to create a Technical Roundtable to "develop the pilot and implementation of a mobile application to strengthen contact tracing of confirmed COVID-19 cases". The resolution calls for the new roundtable to issue a roadmap to implement a mobile app throughout the country but does not specifically mention coordination with sub-national authorities. [3] In August 2020, the MSP and COE-N began the pilot of a contact tracing app in the city of Cuenca. The media reports on implementation do not mention increased training or financial resources for contact tracing. [4] Ecuador's 2014 National Response Plan for Ebola stated that during an outbreak "surveillance systems should be expanded and adapted, in order to provide a better response to the outbreak; ensuring the identification and tracing of contacts". The Plan does not describe support at the sub-national level to expand contact tracing. [5] The websites of the MSP and the National Institute of Public Health Research (INSPI) do not contain additional information regarding a national system to provide support at the sub-national level to conduct contact tracing in the event of a public health emergency. [6, 7]

[1] Primicias. 2020. "Contact tracing coronavirus epidemic". [https://www.primicias.ec/noticias/sociedad/rastreo-contactos-coronavirus-epidemia/]. Accessed 9 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Operational Guidelines for Response to Coronavirus COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.

[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "National EOC Resolutions May 22, 2020". [https://www.gestionderiesgos.gob.ec/resoluciones-coe-nacional-22-de-mayo-2020/]. Accessed 9 August 2020.
[4] Primicias. 2020. "How Ecuador will track COVID with an application". [https://www.primicias.ec/noticias/tecnologia/asi-ecuador-aplicacion-rastrear-covid/]. Accessed 9 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2014. "National Response Plan for Ebola". [http://instituciones.msp.gob.ec/somossalud/images/documentos/PLAN%20NACIONAL%20RESPUESTA%20FRENTE%20EBOLA.pdf]. Accessed 9 August 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 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: 0

There is insufficient public evidence that Ecuador provides wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended, particularly economic support (paycheck, job security) and medical attention. In June 2020, the government approved the Humanitarian Support Law (published in the Official Register No. 229 June 2020) which included support for individuals during the COVID-19 pandemic. Actions to support individuals include: reducing school fees and increasing scholarships; suspension of evictions during the state of emergency; freeze on utility price hikes; easing of social security requirements to increase coverage and provide flexibility for individuals who fall behind on payments; compulsory temporary relief for debtors and renegotiation with creditors; and a special regime for employers and employees to negotiate flexible and reduced work arrangements with the goal of preserving employment and businesses. [1] The law does not describe specific wraparound services for individuals that must self-isolate. [1] A Ministry of Public Health (MSP) program from 2010 for tuberculosis patients provided a US$240 monthly stipend and food to individuals undergoing treatment as an incentive for them to complete treatment. [2] There is insufficient public evidence from the MSP that this project has continued or that similar projects have been implemented for other conditions. [3] The websites of the MSP and the National Institute of Public Health Research (INSPI) do not contain additional information regarding wraparound services to enable cases and suspected cases to self-isolate. [3, 4]

[1] Derecho Ecuador. 2020. "Analysis of the Framework Law for Humanitarian Support". [https://www.derechoecuador.com/analisis-ley-organica-de-apoyo-humanitario-]. Accessed 9 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2010. "Ministry of Health guarantees free diagnosis and treatment of tuberculosis". [https://www.salud.gob.ec/ministerio-de-salud-garantiza-diagnostico-y-tratamiento-gratuito-de-la-tuberculosis/]. Accessed 9 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. "INSPI". [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 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 public evidence that Ecuador makes de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites. The Ministry of Public Health (MSP) publishes a daily infographic with information on the number of cases and regions where they are located. [2] The MSP also publishes a text summary of cases updated daily. [3] Finally, the MSP publishes a COVID-19 Epidemiological Bulletin updated weekly and semi-weekly. [4, 5] None of these reports contain information on the relationship between new cases and existing cases or contact tracing efforts. [1, 2, 3, 4, 5] The websites of the MSP and the National Institute of Public Health Research (INSPI) do not contain additional information regarding de-identified data on contact tracing efforts for COVID-19. [6, 7]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Coronavirus COVID-19”. [https://www.salud.gob.ec/coronavirus-covid-19/]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP informs on Coronavirus situation”. [https://www.salud.gob.ec/el-ministerio-de-salud-publica-del-ecuador-msp-informa-situacion-coronavirus/]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Update of Coronavirus cases in Ecuador”. [https://www.salud.gob.ec/actualizacion-de-casos-de-coronavirus-en-ecuador/]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Coronavirus COVID-19 Epidemiological Bulletins”. [https://www.salud.gob.ec/gacetas-epidemiologicas-coronavirus-covid-19/]. Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Bulletin 065”. [https://www.salud.gob.ec/wp-content/uploads/2020/05/Boletin-065-AM_Nacional.pdf]. Accessed 5 August 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. “INSPI”. [http://www.investigacionsalud.gob.ec/]. Accessed 27 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: 2

Ecuador has regulations for collaboration 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. In September 2019, the Ministry of Public Health (MSP) issued Agreement No. 00039-2019, which approved the “Operational Guidelines for the Functioning of MSP Offices at Points of Entry, under the Framework of the International Health Regulations (2005)”. [1] In Section 2, the General Objective of the Guidelines states that the goal is to

organize the operations and functioning of MSP offices to "reduce the impact of an event of obligatory international notification or a public health emergency of international importance". The Guidelines' specific objectives include a task to "coordinate with national, regional and local institutions for a timely and effective response". [1] Specific functions include "coordinating the activities" related to review of migration documents and medical services with the appropriate authorities for cases of public health events. The Guidelines' organizational chart shows collaboration between the MSP offices and migration and customs authorities in Ecuador. Further, Section 11 on External Coordination describes coordination of activities between the MSP offices, the Subsecretariat of Migration, National Customs Service of Ecuador, and the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD), among others to identify suspected and potential cases in international travelers. [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Agreement No. 00039-2019". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00039-2019%20SEPT%2010.PDF]. Accessed 9 August 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

According to the Network of Field Epidemiology Programs in South America (RedSur) Ecuador's applied epidemiology training program (Ecuador Field Epidemiology Training Program, FETP) was started in 2017 and is managed by the Ministry of Public Health (MSP), but there is limited public information on the program. There is no public evidence that Ecuador sends professionals to another country to participate in applied epidemiology training. The program has graduated 29 individuals since starting. The level of training offered is "Frontline". According to RedSur, the program strengthens individuals' statistical competencies and capabilities in order to more effectively identify diseases. [1] Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) does not list Ecuador's program among its 73 member programs. [2] The websites of the MSP, the National Institute of Public Health Research and RedSur do not contain additional information regarding an FETP program in Ecuador or the country sending professionals to another country to participate in applied epidemiology training. [3, 4, 5]

[1] REDSUR. 2019. "Ecuador Field Epidemiology Training Program" ("Programa de Entrenamiento en Epidemiología de Campo – Ecuador"). [http://redsur.org/fetp-ecuador/]. Accessed 5 August 2020.
[2] Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET). 2020. "Training Programs". [https://www.tephinet.org/training-programs]. Accessed 5 August 2020.
[3] Network of Field Epidemiology Programs in South America (RedSur). 2018. "Inicio". [http://redsur.org/]. Accessed 5 August 2020.

[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. “INSPI”. [http://www.investigacionsalud.gob.ec/]. Accessed 27 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: 0

In Ecuador, there is no public evidence that the applied epidemiology training program (Ecuador Field Epidemiology Training Program, FETP) is explicitly inclusive of animal health professionals, nor is there public evidence of a specific animal health field epidemiology training program offered in the country. The Ecuador FETP description on the website of the Network of Field Epidemiology Programs in South America (RedSur) does not mention animal health professionals. [1] In 2013, the Ministry of Agriculture and Ranching (MAG) provided a basic workshop to identify and report animal diseases to extension agents, but there is no public evidence that this limited training constituted a field epidemiology training program. [2] The websites of the Ministry of Public Health, MAG, the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) and RedSur do not contain additional information regarding field epidemiology training for animal health professionals in Ecuador. [3, 4, 5, 6]

[1] REDSUR. 2019. “Ecuador Field Epidemiology Training Program” (“Programa de Entrenamiento en Epidemiología de Campo – Ecuador”). [http://redsur.org/fetp-ecuador/]. Accessed 5 August 2020.
[2] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2013. “AGROCALIDAD dictó taller sobre “Sensores Epidemiológicos” a técnicos del MAGAP y GPC”. [https://www.agricultura.gob.ec/agrocalidad-dicto-taller-sobre-sensores-epidemiologicos-a-tecnicos-del-magap-y-gpc/]. Accessed 5 August 2020.
[3] Network of Field Epidemiology Programs in South America (RedSur). 2018. “Inicio”. [http://redsur.org/]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. “INSPI”. [http://www.investigacionsalud.gob.ec/]. Accessed 27 July 2020.
[6] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. “AGROCALIDAD”. [http://www.agrocalidad.gob.ec/]. Accessed 27 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

In Ecuador, there is a national emergency response plan in place which addresses planning for multiple communicable diseases with pandemic potential and the plan is publicly available. In 2018, the Secretariat for Risk Management issued the National Plan for Disaster Response: RESPONDE Ec. The Plan includes "epidemics" in its threat and vulnerability analysis, specifically dengue, zika, malaria, measles, AH1N1 influenza, leptospirosis, meningitis and cholera. The Plan also covers natural disasters and its general response strategies include: interinstitutional and multidisciplinary action, taking advantage of existing infrastructure, utilizing an Emergency Operations Committee for decision making, and strengthening risk management capabilities and knowledge. [1] Ecuador also has several disease-specific plans. In 2020, the Ministry of Public Health (MSP) issued the Operational Guidelines for Response to Coronavirus COVID-19. The document does not specify an overall objective, but is divided into three components: Epidemiological Surveillance, Quality of Healthcare Services, and Provision of Healthcare Services. [2] In 2016, the MSP issued the Response to Disease from the Zika Virus in Ecuador. The Response's general objective is to reduce the impact of Zika in Ecuador and specific response strategies include: improving the clinical handling of cases and their complications and promoting behavior change to prevent zika transmission. [3] In 2015, MSP issued the Operational Procedures for the Handling of Suspected and Confirmed Cases of Ebola. The manual's objective was to establish early detection and diagnosis measures and implement immediate control measures and care for affected patients. [4] In 2005, MSP issued the National Contingency Plan to Face a Possible Influenza Pandemic in Ecuador. The Plan sought to coordinate response actions among Civil Defense, risk management and national security, as well as involve support organizations such as the Red Cross, firefighters, police and the armed forces. [5]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Operational Guidelines for Response to Coronavirus COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Response to Disease from the Zika Virus in Ecuador ("RESPUESTA FRENTE A LA ENFERMEDAD DEL VIRUS DE ZIKA EN EL ECUADOR"). [https://www.salud.gob.ec/wp-content/uploads/2015/12/RESPUESTA-FRENTE-AL-ZIKA.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2015. "Operational Procedures for the Handling of Suspected and Confirmed Cases of Ebola" ("PROCEDIMIENTOS OPERATIVOS PARA EL MANEJO DE CASOS SOSPECHOS Y CONFIRMADOS DE ENFERMEDAD POR VIRUS DEL ÉBOLA (EVE)"). [https://www.salud.gob.ec/wp-content/uploads/2014/08/EVE_2015.pdf].

Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2005. "National Contingency Plan to Face a Possible Influenza Pandemic in Ecuador" ("PLAN NACIONAL DE CONTINGENCIA PARA ENFRENTAR POSIBLE PANDEMIA DE INFLUENZA EN EL ECUADOR"). [http://www.paho.org/hq/images/stories/AD/HSD/CD/INFLUENZA/ecuador2005.pdf?ua=1]. Accessed 5 August 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

Ecuador's national emergency response plan which addresses planning for multiple communicable diseases with pandemic potential has been updated in the last three years. In 2018, the Secretariat for Risk Management issued the National Plan for Disaster Response: RESPONDE Ec. The Plan includes "epidemics" in its threat and vulnerability analysis, specifically dengue, zika, malaria, measles, A H1N1 influenza, leptospirosis, meningitis and cholera. [1]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 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

Ecuador's national emergency response plan includes considerations for pediatric and other vulnerable populations. In 2018, the Secretariat for Risk Management issued the National Plan for Disaster Response: RESPONDE Ec. The Plan includes "epidemics" in its threat and vulnerability analysis, specifically dengue, zika, malaria, measles, AH1N1 influenza, leptospirosis, meningitis and cholera. [1] The Plan includes vulnerable populations as a "transversal axis" to be considered "in all the components of handling a disaster and managing the response". The Plan specifically names the following vulnerable populations: children, adolescents, elderly, disabled, chronically ill and prisoners, among others. [1] The Plan also refers to the Constitution of Ecuador, which prioritizes vulnerable populations. Title II, Chapter 3 of the Constitution provides for priority attention for children and the elderly in disaster response. [2]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Government of Ecuador. 2008. "Constitution of the Republic". [https://www.vertic.org/media/National%20Legislation/Ecuador/EC_Constitution_2008.pdf]. Accessed 29 July 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

Ecuador has a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. In April 2020, the Ministry of Public Health (MSP) issued Agreement No. 00005-A-2020 to update regulations on collaboration between the public and private healthcare systems. Article 15 of the updated text states that "in the event of a natural disaster, national shock, declaration of a state of emergency, declaration of a state of health emergency or other similar situation", the public healthcare system can remit patients to private facilities and that they must receive care regardless of their triage status. The Agreement further outlines paperwork and logistical details for reimbursing private healthcare providers for care provided in these situations. [1] In addition, the National Plan for Disaster Response: RESPONDE Ec., issued in 2018 by the Secretariat for Risk Management, calls for cooperation with the private sector in emergency response and risk management. The Plan includes "epidemics" in its threat and vulnerability analysis, specifically dengue, zika, malaria, measles, A H1N1 influenza, leptospirosis, meningitis and cholera. [2] Section (7.1.7) states the importance of private sector participation in emergency response as well as logistical and infrastructure support from the private sector and public-private partnerships for risk management. However, the Plan does not contain public evidence of a specific mechanism for engaging with the private sector, and instead reiterates the importance of having a coordinated plan. [2] The MSP's 2016 Response to Disease from the Zika Virus in Ecuador document also includes a limited description of collaboration with the private sector. Section 4.3 states that the plan covers public as well as private health care facilities. The document includes private facilities in plans to educate health care professionals as well as the general public on prevention. The document states that district epidemiological surveillance directors should visit all public and private health care facilities to ensure that zika cases are being properly reported to the National Directorate of Epidemiological Surveillance. [3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Agreement No. 00005-A-2020". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00005_A_2020%20ABR%2018.pdf]. Accessed 6 August 2020.
[2] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2016. "Response to Disease from the Zika Virus in Ecuador ("RESPUESTA FRENTE A LA ENFERMEDAD DEL VIRUS DE ZIKA EN EL ECUADOR"). [https://www.salud.gob.ec/wp-

content/uploads/2015/12/RESPUESTA-FRENTE-AL-ZIKA.pdf]. Accessed 5 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: 2

Ecuador has a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic which cover more than one disease. Guidelines issued in 2020 for the COVID-19 pandemic describe NPIs and criteria for implementation specific to COVID-19. In terms of a general plan to implement NPIs, the 2018 National Plan for Disaster Response: RESPONDE Ec., issued by the Secretariat for Risk Management, provides for NPIs in Action No. 7 under the Health in Emergencies component. Specifically, the Plan states, "Define strategies and processes to establish epidemiological fences, actions to promote hygiene and vector control". The Plan states, "these strategies are applied as a function of the evaluation of the health conditions or as a result of the analysis of potential scenarios". [1] In August 2020 the Ministry of Public Health (MSP) reported implementing an "epidemiological fence" as described in the Plan for an elder care facility. [2] In terms of disease-specific plans, Presidential Decree No. 1017 of 2020 declared a state of emergency in Ecuador and implemented NPIs in response to COVID-19, including suspending freedom of movement and freedom to assemble, among others. [3] Sector-specific COVID-19 plans also include NPIs, such as the "Guidelines for Entry of Tourists to the Galapagos" and the "Protocol for the Reactivation of Intra-Provincial Transport", among many others. The former instructs individuals to avoid physical contact and respect physical distancing of 2 meters. The latter requires ground transport terminals to ventilate waiting areas and assign specific areas for cleaning and disinfecting vehicles. [4, 5] The websites of the MSP and the National Service for Risk Management and Emergencies do not contain additional information regarding a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic. [6, 7]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Government of Ecuador. 2020. "Health brigade raises epidemiological fence to contain COVID-19". [https://www.coronavirusecuador.com/2020/08/brigada-de-salud-levanto-cerco-epidemiologico-para-contener-el-covid-19-en-el-centro-de-estancia-mas-vida/]. Accessed 6 August 2020.
[3] Constitutional President of the Republic. 2020. "Presidential Decree No. 1017 of 2020". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2020/03/Decreto_presidencial_No_1017_17-Marzo-2020.pdf]. Accessed 6 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Guidelines for Entry of Tourists to the Galapagos". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/2020/07/LINEAMIENTOS-PARA-EL-INGRESO-DE-TURISTAS-A-GALA%CC%81PAGOS.pdf]. Accessed 6 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Protocol for the Reactivation of Intra-Provincial Transport". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/2020/07/3.1.-PROTOCOLO-REACTIVACIO%CC%81N-TRANSPORTE-INTRAPROVINCIAL-Firmado.pdf]. Accessed 6 August 2020.
[6] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[7] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020.

"Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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: 0

There is insufficient evidence that Ecuador has activated its national emergency response plan for an infectious disease outbreak in the past year, and there is no public evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year. On March 12, 2020, the Ministry of Public Health (MSP) issued Agreement No. 00126-2020, declaring a health emergency in response to the risk of the COVID-19 pandemic. The declaration referred to the MSP's authority to declare a health emergency (Framework Health Law, Article 6) as well as the activation of the National Service for Risk Management's National Emergency Operations Center (COE-N) (Resolution No. SGR-142-2017). [1] In addition, on March 16, 2020, the Constitutional President of the Republic declared a state of emergency throughout the country based on the MSP's declaration as well as the authority delegated to the National Service for Risk Management (SGR). However, there is no further information on a response plan being activated for Covid-19. [2] The websites of the WHO, MSP and SGR do not contain additional information regarding Ecuador's completion of a national-level biological threat-focused exercise during the last year. [3, 4, 5]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Agreement No. 00126-2020". [https://www.salud.gob.ec/wp-content/uploads/2020/03/SRO160_2020_03_12.pdf]. Accessed 6 August 2020.
[2] Constitutional President of the Republic. 2020. "Presidential Decree No. 1017 of 2020". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2020/03/Decreto_presidencial_No_1017_17-Marzo-2020.pdf]. Accessed 6 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[5] World Health Organization. 2020. "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise]. Accessed 6 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 public evidence that Ecuador, in the last year, has identified a list of gaps and best practices in response (either through an infectious disease response of a biological-threat focused exercise) and developed a plan to improve response capabilities. The WHO's After Action Review site does not contain any reports for Ecuador (or anywhere else in the Americas). [1] The WHO's Health Security Calendar does not show any engagement with Ecuador during 2019, 2020 or 2021. [2] The websites of the Ministry of Public Health, the Ministry of Agriculture and Ranching and the National Service for Risk Management and Emergencies do not contain additional information regarding Ecuador identifying a list of gaps and best practices in response (either through an infectious disease response of a biological-threat focused exercise) and developing a plan to improve response capabilities. [3, 4, 5]

[1] World Health Organization. 2020. "After Action Review". [https://extranet.who.int/sph/after-action-review]. Accessed 6 August 2020.
[2] World Health Organization. 2020. "Health Security Calendar". [https://extranet.who.int/sph/calendar/2020?1&type=All&field_region_tid=203&country_tid=All]. Accessed 6 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[5] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 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 no public evidence that Ecuador, in the past year, has undergone a national-level biological threat-focused exercise that has included private sector representatives. The World Health Organization's (WHO) Simulation Exercise site does not contain any reports for Ecuador (or anywhere else in the Americas). [1] The WHO's Health Security Calendar does not show any engagement with Ecuador during 2019, 2020 or 2021. [2] In terms of plant health, in September 2019 the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) hosted a national simulation and response exercise for the introduction of Fusarium oxysporum f.sp. cubense Race 4 Tropical (Foc R4T), a threat to banana plants. The exercise included farmers and exporters as well as plant health government officials and researchers. [3] The websites of the Ministry of Public Health, the Ministry of Agriculture and Ranching and the National Service for Risk Management and Emergencies do not contain additional information regarding a national-level biological threat-focused exercise that has included private sector representatives. [4, 5, 6]

[1] World Health Organization. 2020. "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise]. Accessed 6 August 2020.
[2] World Health Organization. 2020. "Health Security Calendar". [https://extranet.who.int/sph/calendar/2020?1&type=All&field_region_tid=203&country_tid=All]. Accessed 6 August 2020.
[3] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. "National simulation of action to minimize the risk of introduction of Foc R4T in Ecuador". [http://web.agrocalidad.gob.ec/ii-

simulacro-nacional/]. Accessed 6 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG". [https://www.agricultura.gob.ec/]. Accessed 27 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

In Ecuador, there are Emergency Operations Center (EOC) structures for disaster response and risk management as well as public health. The Ministry of Public Health's (MSP) National Directorate of Risk Management (DNGR) is tasked with "preventing, mitigating and responding" to events and disasters that can affect public health. The DNGR is comprised of three offices: Risk Reduction, Emergency and Disaster Response and Situation Room. [1] Beyond public health, the National Service for Risk Management (SGR) and Emergencies manages the National Decentralized Risk Management System (SNDGR) and also leads the system of Emergency Operations Committees (COEs) formed at the national, provincial and local levels. [2] The COEs participate in prevention and risk management activities prior to an emergency and function as operational command units during an emergency. Provincial COEs are primarily responsible for coordinating emergency response, but the national COE (COE-N) can also assume control. During an emergency, the Technical Roundtable for Health is activated, which includes officials from the MSP and SGR and coordinates the public health response. [3, 4]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. "National Directorate of Risk Management" ("Dirección Nacional de Gestión de Riesgos"). [https://www.salud.gob.ec/direccion-nacional-de-gestion-de-riesgos/]. Accessed 5 August 2020.
[2] Constitutional President of the Republic. 2017. "Executive Decree No. 486 of 2010". [https://www.telecomunicaciones.gob.ec/wp-content/uploads/2018/06/Reglamento-a-la-Ley-de-Seguridad-Publica-y-del-Estado.pdf]. Accessed 6 August 2020.
[3] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2014. "Risk Management Committee Manual" ("Manual del Comite de Gestion de Riesgos"). [http://www.competencias.gob.ec/wp-content/uploads/2017/06/MANUAL01.pdf]. Accessed 6 August 2020.
[4] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 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

Ecuador's disaster response and risk management Emergency Operations Centre (COE) structures prioritize regular drills, but there is no public evidence of a legal requirement that a drill be conducted at least once per year, nor were the drills conducted during the past year for public health emergency scenarios. In terms of the lack of a legal requirement, the Law for Public and State Security does not mention a requirement for drills in the provisions establishing the National Secretariat of Risk Management. [1] The Regulations for the Law for Public and State Security (Executive Decree No. 486 of 2010) do not mention a requirement for drills in the provisions establishing the National Decentralized Risk Management System (SNDGR). [2] In 2018, the Secretariat for Risk Management issued the National Plan for Disaster Response: RESPONDE Ec. The Plan includes Component PPR-01 which describes "Exercises and simulations". The Plan states that it should be reviewed annually, and the review should include "post-emergency reports, lessons learned, audits, administrative reviews, simulations or drills". Component PPR-01 states that an annual calendar of exercises and simulations should be created. [3] In the public health sector, the Ministry of Public Health's (MSP) National Directorate of Risk Management (DNGR) is tasked with "preventing, mitigating and responding" to events and disasters that can affect public health. The DNGR is comprised of three offices: Risk Reduction, Emergency and Disaster Response and Situation Room. The Emergency and Disaster Response office is tasked with creating a preparedness action plan for the population via drills, simulations and community activities. [4] The MSP's 2018 Accountability Report (most recent available) does not describe any drills or simulations. [5] The National Risk Management Service's (SGR) 2018 Accountability Report (most recent available) documents that the agency carried out 43 "national and international drills" versus a goal of 28 to be carried out in 2018. [6] The report does not specify any details of the drills, although the SGR's website contains articles about several earthquake and tsunami drills but no public health emergency drills. [6, 7] An article on the SGR's website states that the national COE (COE-N) evaluated a drill and practice exercise where the national professional soccer league tested its plan to restart competitive play during the COVID-19 pandemic. The SGR's article states that staff from the COE-N were only present as observers and did not run the drill/exercise. [8] The websites of the MSP and the National Service for Risk Management and Emergencies do not contain additional information regarding a requirement that a drill be conducted at least once per year or public health emergency drills that were conducted during the past year. [9, 10]

[1] National Assembly. 2009. "Law for Public and State Security" ("LEY DE SEGURIDAD PUBLICA Y DEL ESTADO"). [http://www.oas.org/juridico/pdfs/mesicic5_ecu_panel5_sercop_1.3._ley_seg_p%C3%BAblica.pdf]. Accessed 6 August 2020.
[2] Constitutional President of the Republic. 2017. "Executive Decree No. 486 of 2010". [https://www.telecomunicaciones.gob.ec/wp-content/uploads/2018/06/Reglamento-a-la-Ley-de-Seguridad-Publica-y-del-Estado.pdf]. Accessed 6 August 2020.
[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2014. "National Directorate of Risk Management" ("Dirección Nacional de Gestión de Riesgos"). [https://www.salud.gob.ec/direccion-nacional-de-gestion-de-riesgos/]. Accessed 5 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2018. "2018 Accountability Report". [https://www.salud.gob.ec/wp-content/uploads/2019/03/Informe_rendicion_de_cuentas_175_periodo_2018_MSP.pdf]. Accessed 6 August 2020.
[6] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "2018 Accountability Report". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2019/03/Informe-Final-3.pdf]. Accessed 6 August 2020.
[7] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Search – Simulacro". [https://www.gestionderiesgos.gob.ec/?s=simulacro]. Accessed 6 August 2020.

[8] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Delegates from the national COE evaluated the LigaPro drill". [https://www.gestionderiesgos.gob.ec/delegados-del-coe-nacional-evaluaron-simulacro-de-ligapro/]. Accessed 6 August 2020.
[9] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[10] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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 public evidence that Ecuador has conducted emergency drills, but there is no public evidence that these drills simulate public health emergencies, nor is there evidence of the National Emergency Operations Committee's (COE-N) response time. For example, in January 2020 more than 100,000 people participated in a tsunami drill that activated the COE-N, provincial and local COEs, as well as eight Technical Roundtables for response collaboration. The National Service for Risk Management and Emergencies' (SNGRE) article on the drill does not state any response times. [1] SNGRE articles on two earthquake drills in 2019 do not mention the participation of the COE-N, although local authorities participated with subnational coordination bodies in those exercises. [2, 3] The websites of the Ministry of Public Health, and the SNGRE do not contain additional information regarding public health emergency drills involving the EOC. [4, 5]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "More than 100,000 people participated in the national tsunami drill". [https://www.gestionderiesgos.gob.ec/mas-de-100-mil-personas-participaron-en-el-ejercicio-de-simulacro-nacional-de-tsunami-en-el-perfil-costero-e-insular/]. Accessed 6 August 2020.
[2] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "We evaluated the earthquake drill in the province of Orellana". [https://www.gestionderiesgos.gob.ec/evaluamos-simulacro-con-hipotesis-de-sismo-en-el-gobierno-provincial-de-orellana/]. Accessed 6 August 2020.
[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "SNGRE and Navy of Ecuador prepare a multinational drill for humanitarian assistance". [https://www.gestionderiesgos.gob.ec/sngre-y-armada-del-ecuador-preparan-simulacro-multinacional-para-asistencia-humanitaria/]. Accessed 6 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

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

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

Current Year Score: 0

There is no public evidence that Ecuador's public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event. Nor is there public evidence of standard operating procedures, guidelines, Memorandum of Understanding (MOUs) or other agreements between the public health and security authorities to respond to a potential deliberate biological event. Ecuador's Sectoral Security Council assumed the role of National Authority for Chemical and Biological Weapons in 2013, via Executive Decree 1406. Article 1 of the Decree tasks the Council with creating contingency plans in case of an attack with chemical or biological weapons, among other tasks. There is no public evidence of these plans. [1] The Ministry of the Interior's (MIN) 2019-2030 Specific Plan for Public and Citizen Security does not mention collaboration with the Ministry of Public Health (MSP) or bioterrorism. [2] The websites of the MSP, Ministry of National Defense, and National Service for Risk Management and Emergencies (SNGRE) do not contain additional information regarding an exercise to respond to a potential deliberate biological event or standard operating procedures, guidelines, MOUs or other agreements between the public health and security authorities to respond to a potential deliberate biological event. [3, 4, 5]

[1] Constitutional President of the Republic. 2013. "Executive Decree No. 1406". [http://www.vertic.org/media/National%20Legislation/Ecuador/EC_Decreto_Autoridad__Armas_Bio.pdf]. Accessed 6 August 2020.
[2] Ministry of the Interior (MIN). 2019. "2019-2030 Specific Plan for Public and Citizen Security". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2019/07/plan-nacional-min-interior-web.pdf]. Accessed 6 August 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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

In Ecuador, the Ministry of Public Health's (MSP) Risk Communication Plan does not outline how messages will reach populations and sectors with different communications needs. The Plan was created in 2017 for use during a natural disaster or public health emergency. The Plan specifically names illnesses that could lead to an outbreak in the country, including a novel virus. The Plan divides the target audience into "internal" and "external" audiences. The external audience includes the population affected by the emergency, government institutions involved in emergency response, news media and the population in general. The Plan does not discuss how messages will reach populations with different communications needs. [1] In 2018, the Secretariat for Risk Management issued the National Plan for Disaster Response: RESPONDE Ec. The Plan includes Component C-23, "Public Information", which discusses how to communicate about the emergency and response with the public, but the Plan does not discuss how messages will reach populations with different communications needs. [2] In 2020 the MSP created a presentation on risk communication specific to the COVID-19 pandemic. The presentation does not identify populations with different communications needs or how messages will reach them. [3] In 2019, the MSP issued the "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). Activity R1A4 includes a task to "analyze the risk information and outbreaks in order to create communication materials adapted for different publics: authorities, health teams; leaders". The strategy does not specify how messages will reach these different groups. [4] The websites of the MSP and the National Service for Risk Management and Emergencies (SNGRE) do not contain additional information regarding how messages will reach populations and sectors with different communications needs. [5, 6]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Risk Communication Plan" ("PLAN DE COMUNICACIÓN DE RIESGOS"). [https://www.salud.gob.ec/wp-content/uploads/2013/09/plan_de_comunicacion_de_riesgo_final_-ABRIL-2017.pdf]. Accessed 6 August 2020.
[2] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Risk communication and COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/07/Comunicaci%C3%B3n-en-riesgo-y-COVID-19_2020.pdf]. Accessed 6 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 27 November 2019. "Integrated management strategy for the surveillance, prevention and control of arboviral illnesses in Ecuador" ("Estrategia de gestion integrada para la vigilancia, prevencion y control de las enfermedades arbovirales en Ecuador"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00080_2019%20NOV%2027.pdf]. Accessed 27 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.

[6] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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

The Ministry of Public Health (MSP) in Ecuador has a basic Risk Communication Plan for use during a natural disaster or public health emergency. The Plan names specific illnesses that could lead to an outbreak in the country, including a novel virus. The Plan's specific objectives are: reducing adverse health effects in the population via communication of important information, guaranteeing periodic information updates and strengthening external communication practices, among others. The Plan's implementation guide includes six components, from internal communication to social media to creation of visual materials. [1] In 2020 the MSP created a presentation on risk communication specific to the COVID-19 pandemic. The presentation is directed at journalists and the public in general, reinforcing the need for accurate information and providing advice to critically analyze messages. [2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Risk Communication Plan" ("PLAN DE COMUNICACIÓN DE RIESGOS"). [https://www.salud.gob.ec/wp-content/uploads/2013/09/plan_de_comunicacion_de_riesgo_final_-ABRIL-2017.pdf]. Accessed 6 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Risk communication and COVID-19". [https://www.salud.gob.ec/wp-content/uploads/2020/07/Comunicaci%C3%B3n-en-riesgo-y-COVID-19_2020.pdf]. Accessed 6 August 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

In Ecuador, the Ministry of Public Health's (MSP) Risk Communication Plan designates several specific positions within the government to serve as spokespersons to the public during a public health emergency. [1] The MSP's Risk Communication Plan Section 3 describes an activity for the "definition of spokespersons". According to the Plan, at the sub-national level the designated spokesperson is the MSP Area Coordinator, while at the national level several spokespersons are specifically designated. These are: the Minister of Health, the Vice-Minister of Health Governance and Surveillance, the Vice-Minister of Comprehensive Healthcare, the National Sub-Secretary of Public Health Surveillance, and the National Directorate of Risks (no specific position is designated here). [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Risk Communication Plan" ("PLAN DE COMUNICACIÓN DE RIESGOS"). [https://www.salud.gob.ec/wp-content/uploads/2013/09/plan_de_comunicacion_de_riesgo_final_-ABRIL-

2017.pdf]. Accessed 6 August 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: 1

Ecuador's Ministry of Public Health (MSP) utilizes social media platforms and websites to inform the public about ongoing public health concerns, but only during active emergencies. During the COVID-19 pandemic the MSP has posted updates on the evolution of the pandemic to social media channels, including Facebook and Twitter. The updates include the number of confirmed cases, recovered patients, negative cases and deaths. [1, 2] The MSP has also posted regarding health teams that have carried out rapid diagnostic testing in urban and rural areas of the national capital, Quito. [2] In addition, the government created and updates the CoronavirusEcuador.com website with case updates, regulations, support programs, education, medical appointments and other services. [3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Facebook SaludEcuador". [https://www.facebook.com/pg/SaludEcuador/posts/?ref=page_internal]. Accessed 6 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Twitter Salud_Ec". [https://twitter.com/Salud_Ec]. Accessed 6 August 2020.
[3] Government of the Republic of Ecuador. 2020. "COVID-19 EC". [https://www.coronavirusecuador.com/]. Accessed 6 August 2020.

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 1

There is no public evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years. Local media such as the newspapers El Comercio and El Universo have reported on disinformation spread by individuals linked to the previous president in order to discredit the current administration. These media have not reported on misinformation or disinformation spread by the current government. [1, 2, 3] International outlets, such as Agencia EFE and BBC Mundo have reported similar stories. [4, 5] In June and July 2020 El Comercio reported that the mayor of the national capital Quito and the Minister of Health had contradicted one another on the availability of hospital beds in Quito, but the newspaper did not report on this contradiction as misinformation or disinformation. [1]

[1] El Universo. 2020. "Fake news is also considered a pandemic". [https://www.eluniverso.com/noticias/2020/04/22/nota/7819626/noticias-falsas-tambien-se-consideran-pandemia]. Accessed 6 August 2020.

[2] El Comercio. 2020. "Intelligence contracted firm about fake news". [https://www.elcomercio.com/actualidad/inteligencia-contratacion-fake-news-covid19.html]. Accessed 6 August 2020.
[3] El Comercio. 2020. "Minister Zevallos on care for patients in Quito". [https://www.elcomercio.com/actualidad/ministro-zevallos-atencion-pacientes-quito.html]. Accessed 6 August 2020.
[4] Agencia EFE. 2020. "Fake news is the virus faced in Ecuador". [https://www.efe.com/efe/america/sociedad/las-noticias-falsas-el-virus-particular-de-ecuador-que-achacan-a-correistas/20000013-4206109]. Accessed 6 August 2020.
[5] BBC Mundo. 2020. "Coronavirus in Ecuador". [https://www.bbc.com/mundo/noticias-america-latina-52781113]. Accessed 6 August 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: 57.27

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: 91.25

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: 2.0

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

In the past year, Ecuador has issued a restriction, without international/bilateral support, on the export of medical goods due to an infectious disease outbreak. According to the World Trade Organization (WTO), beginning March 5, 2020 Ecuador imposed a temporary prohibition on export of some personal protection equipment (PPE) and pharmaceutical ingredients for the period of one year. [1] According to the United Nations Economic Commission for Latin America and the Caribbean and news media, Ecuador prohibited the export of surgical masks from March 2, 2020 for one year. Neither source mentions international/bilateral support for the restriction. [2, 3]

[1] World Trade Organization. 2020. "COVID Measures". [https://www.wto.org/english/tratop_e/covid19_e/covid_measures_s.pdf]. Accessed 6 August 2020.
[2] United Nations Economic Commission for Latin America and the Caribbean. 2020. "Restrictions on export of medical products makes efforts to contain coronavirus disease (COVID-19) more difficult". [https://repositorio.cepal.org/bitstream/handle/11362/45510/1/S2000309_es.pdf]. Accessed 6 August 2020.
[3] Edicion Medica. 2020. "WHO warns of scarcity of PPE for healthcare workers". [https://www.edicionmedica.ec/secciones/profesionales/la-oms-alerta-de-escasez-de-equipos-de-proteccion-para-personal-sanitario-95400]. Accessed 6 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 no public evidence that Ecuador has, in the past year, issued a restriction, without international/bilateral support, on the export/import of non-medical goods due to an infectious disease outbreak. In May 2020, Ecuador joined a statement to

the World Trade Organization (WTO) by some 30 countries and trading blocs representing 60% of agricultural trade that included a commitment "not to impose agriculture export restrictions and refrain from implementing unjustified trade barriers on agriculture and agri-food products and key agricultural production inputs" as well as "to exercise restraint in establishing domestic food stocks of agricultural products that are traditionally exported so as to avoid disruptions or distortions in international trade". [1] The WTO does not list any non-medical export/import restrictions for Ecuador on its list of COVID-19-related trade measures. [2] In fact, in March 2020 the National Customs Service of Ecuador (SENAE) reduced import tariffs to 0% for medical supplies needed to combat the public health emergency. [3] The websites of the Ministry of Health, Ministry of Agriculture and Ranching, Ministry of Foreign Relations and Human Mobility, Ministry of Production, Foreign Trade, Investments and Fishing, and National Customs Service of Ecuador do not contain additional information regarding a restriction, without international/bilateral support, on the export/import of non-medical goods due to an infectious disease outbreak. [4, 5, 6, 7, 8]

[1] World Trade Organization. 2020. "RESPONDING TO THE COVID-19 PANDEMIC WITHOPEN AND PREDICTABLE TRADEIN AGRICULTURAL AND FOOD PRODUCTS".
[https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/GC/208R2.pdf&Open=True]. Accessed 6 August 2020.
[2] World Trade Organization. 2020. "COVID-19: Trade and trade-related measures".
[https://www.wto.org/english/tratop_e/covid19_e/trade_related_goods_measure_e.htm]. Accessed 6 August 2020.
[3] National Customs Service of Ecuador (SENAE). 2020. "SENAE implements zero tariff".
[https://www.aduana.gob.ec/boletines/senae-implementa-tarifa-cero/]. Accessed 6 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. "MAG".
[https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[6] Ministry of Foreign Relations and Human Mobility. 2020. "Cancilleria". [https://www.cancilleria.gob.ec/]. Accessed 6 August 2020.
[7] Ministry of Production, Foreign Trade, Investments and Fishing (Ministerio de Producción Comercio Exterior Inversiones y Pesca). 2020. "Actual". [https://www.produccion.gob.ec/#]. Accessed 31 July 2020.
[8] National Customs Service of Ecuador (SENAE). 2020. "Aduana". [https://www.aduana.gob.ec/]. Accessed 6 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

In the past year, Ecuador has implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak. During the initial phase of the COVID-19 pandemic, Ecuador closed its international airports and most land border crossings. [1] As domestic and international flights were allowed to return beginning June 1, 2020, flights from countries such as Brazil were prohibited for an additional 15 days, while flights from Europe were prohibited for an additional month. The sources do not mention that these bans had international/bilateral support. [1, 2]

[1] El Comercio. 2020. "Ecuador flight restrictions countries COVID-19". [https://www.elcomercio.com/actualidad/ecuador-retricciones-vuelos-paises-covid19.html]. Accessed 6 August 2020.

[2] El Comercio. 2020. "Guayaquil air connections USA coronavirus". [https://www.elcomercio.com/actualidad/guayaquil-conexiones-aereas-eeuu-coronavirus.html]. Accessed 6 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: 203.68

2016

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 250.59

2018

WHO; national sources

4.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Ecuador has a public 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. According to the Ministry of Public Health's (MSP) Framework Statutes for Organizational Management by Processes, the National Directorate for Regulation of Human Talent in Health is tasked with "planning, management, formation and development of

human talent in Health". The Directorate's products are supposed to include: "strategies to reduce the gap between supply and demand of healthcare professionals in the short, medium and long-terms in the National Health System", "proposals for the equitable distribution of human talent in health throughout the country", and "regulations and policies for the planning, management, formation, development, evaluation and retention of human talent in health", among others. [1] However, the Directorate's webpage does not contain any of these products, and instead only describes the process by which students can have their year of rural social service in medicine validated by the MSP for the year 2014. [2] In May 2020, the MSP reported that it was allowing contracts to lapse for some administrative staff in the public health system in order to reorient resources to healthcare professionals and "optimize resources" to deal with the COVID-19 pandemic and other public health challenges. [3] The websites of the MSP, Ministry of Labor, and Secretariat of Higher Education, Science, Technology and Innovation do not contain additional information regarding a public health workforce strategy in Ecuador. [4, 5, 6]

[1] Ministry of Public Health (Ministerio de Salud Publica). "Framework Statutes for Organizational Management by Processes". [http://instituciones.msp.gob.ec/somossalud/images/guia/documentos/ESTATUTO_SUSTITUTIVO_MSP_FINAL-word.doc]. Accessed 7 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "National Directorate for Regulation of Human Talent in Health". [https://www.salud.gob.ec/direccion-nacional-de-normatizacion-del-talento-humano-en-salud/]. Accessed 7 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP optimizes human talent in face of health emergency". [https://www.salud.gob.ec/ante-emergencia-sanitaria-msp-optimiza-talento-humano/]. Accessed 7 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] Ministry of Labor (Ministerio del Trabajo). 2020. "Ministerio del Trabajo". [http://www.trabajo.gob.ec/]. Accessed 7 August 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. "Senescyt". [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 139

2016

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

Ecuador has several facilities with the capacity to isolate patients with highly communicable diseases in patient isolation units. The Pablo Arturo Suarez Hospital was designated in 2015 as a reference hospital for potential cases of Ebola. According to the Ministry of Public Health (MSP), the hospital has an isolation unit with seven rooms and secure access. MSP invested

more than US$590,000 in infrastructure and equipment to ensure the unit meets "strict biosafety, cleanliness and disinfection standards" to safeguard patients' and medical workers' health. The space has a low risk and high risk area, with supervised use and placement of personal protection equipment (PPE). MSP acquired 400 biosafety level 3 PPE suits for use in the unit, following WHO recommendations. [1, 2] In addition, the Eugenio Espejo Hospital also has a patient isolation unit, utilized primarily for patients following cardiac surgeries. [3, 4]. The Andrade Marin Hospital also has a biocontainment unit for patients which follows biosafety protocols. [5]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2015. “Se verifica sala de aislamiento del Hospital Pablo Arturo Suárez para la atención de posibles casos de ébola”. [https://www.salud.gob.ec/se-verifica-sala-de-aislamiento-del-hospital-pablo-arturo-suarez-para-la-atencion-de-posibles-casos-de-ebola/]. Accessed 7 August 2020.
[2] Pablo Arturo Suarez Provincial General Hospital. 2019. “News”. [http://www.hpas.gob.ec/index.php/sala-de-prensa?start=32]. Accessed 7 August 2020.
[3] El Telegrafo. 2016. “El Hospital Eugenio Espejo tiene 4 áreas renovadas”. [https://www.eltelegrafo.com.ec/noticias/sociedad/6/el-hospital-eugenio-espejo-tiene-4-areas-renovadas]. Accessed 7 August 2020.
[4] Speciality Hospital Eugenio Espejo. 2020. “Cardiac Surgery”. [http://hee.gob.ec/?page_id=4380]. Accessed 7 August 2020.
[5] El Comercio. 2020. “Ecuador hospitals isolation units coronavirus”. [https://www.elcomercio.com/actualidad/hospitales-ecuador-salas-aislamiento-coronavirus.html]. Accessed 7 August 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: 0

There is no public evidence that Ecuador has, in the past two years, demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak or developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak. In September 2020, the Ministry of Public Health (MSP) and others issued the Consensus of Recommendations for Ambulatory Management and Home Treatment of COVID-19 Patients. [1] The document discusses health facilities converting areas to expand their capacity for care and attention to patients but does not mention expanding isolation capacity. [1] The websites of the MSP and the National Service for Risk Management and Emergencies (SNGRE) do not contain additional information regarding if Ecuador has, in the past two years, demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak or developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak. [2, 3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Consensus of Recommendations for Ambulatory Management and Home Treatment of COVID-19 Patients". [https://www.salud.gob.ec/wp-content/uploads/2020/09/Recomendaciones-para-el-manejo-ambulatorio-domiciliario-Covid-19.pdf]. Accessed 31 March 2021.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. “Servicio Nacional de Gestion de Riesgos y Emergencias”. [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

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

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

Current Year Score: 2

In Ecuador, there is a national procurement protocol that can be utilized by the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching (MAG), National Institute of Public Health Research (INSPI), and Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) for the acquisition of laboratory and medical supplies. The Framework Law for the National System of Public Procurement was passed in 2008 and last modified in August 2018. Article 1 establishes that the system applies to all government ministries. Article 16 of the law establishes a supplier registry and registration is compulsory for all government suppliers. Title III of the law describes the available procurement processes, including electronic catalogue purchases, reverse auctions, tenders and quotes and minor purchases, among others. [1] The MSP's Annual Procurement Plan for 2020 includes procurement of laboratory (Hepatitis C rapid test diagnostic kits) and medical (HIV medicines) supplies. [2] The national public procurement website (ComprasPublicas.gob.ec) contains evidence that INSPI also used the system to procure laboratory services such as maintenance and calibration of laboratory equipment at the national reference centers. [3] AGROCALIDAD has used the national procurement system to purchase supplies such as hematology inputs for the Pathology Laboratory and personal protection equipment for field technicians. [4]

[1] Constituent Assembly. 2008. "Framework Law for the National System of Public Procurement" ("LEY ORGANICA DEL SISTEMA NACIONAL DE CONTRATACION PUBLICA"). [https://portal.compraspublicas.gob.ec/sercop/cat_normativas/losncp]. Accessed 7 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "National Directorate of Public Procurement". [https://www.salud.gob.ec/direccion-nacional-de-contratacion-publica/]. Accessed 7 August 2020.
[3] Official System of Public Procurement. 2017. "Procurement of services". [https://www.compraspublicas.gob.ec/ProcesoContratacion/compras/PC/informacionProcesoContratacion2.cpe?idSoliCompra=Qz4wKcnQxLsXmHx9u60DVtgtvihsyaJ9cgUgUGvBq34,]. Accessed 7 August 2020.
[4] Official System of Public Procurement. 2019. "AGROCALIDAD". [https://www.compraspublicas.gob.ec/ProcesoContratacion/compras/PC/buscarPACe.cpe?entidadPac=R7bufu5bmg7Tdl3aaOHTqKHTpzfjLKNvgJsoZjmqR2g,&anio=A0AVWs2RAeueAi0QSTCgnXFhqALtLNDgW02yyOhAosU,&nombre=gUQ24vt_832PmOKAw2sj6G7S3ez_16WYZcpkx2JP1zm5XaQSmNJ15A7ZfZW2d#]. Accessed 7 August 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 0

There is no public evidence that Ecuador has a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency. The 2018 National Disaster Response Plan states that the Ministry of Health (MSP) shall "design logistical chains for support and supply of inputs and medicines for healthcare services". There is no public evidence that this process has occurred. The document does not mention a stockpile of medical supplies. [1] The websites of the Ministry of Public Health (MSP), Ministry of Governance, Ministry of Defense, National Service for Risk Management and Emergencies and National Agency of Health Regulation, Control and Surveillance do not contain additional information regarding a stockpile of medical supplies. [2, 3, 4, 5, 6]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Governance (Ministerio de Gobierno). 2020. "Ministerio de Gobierno". [https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 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 public evidence that Ecuador has a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency. The 2018 National Disaster Response Plan states that the Ministry of Health (MSP) shall "design logistical chains for support and supply of inputs and medicines for healthcare services". There is no public evidence that this process has occurred. The document does not mention a stockpile of laboratory supplies. [1] The websites of the Ministry of Public Health (MSP), Ministry of Governance, Ministry of Defense, National Service for Risk Management and Emergencies and National Agency of Health Regulation, Control and Surveillance do not contain additional information regarding a stockpile of laboratory supplies. [2, 3, 4, 5, 6]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Governance (Ministerio de Gobierno). 2020. "Ministerio de Gobierno".

[https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is no public evidence that the government of Ecuador conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. There is no public evidence that Ecuador has a stockpile of medical and laboratory supplies. The 2018 National Disaster Response Plan states that the Ministry of Health (MSP) shall "design logistical chains for support and supply of inputs and medicines for healthcare services". There is no public evidence that this process has occurred. The document does not mention a stockpile of medical and laboratory supplies or an annual review. [1] The websites of the Ministry of Public Health (MSP), Ministry of Governance, Ministry of Defense, National Service for Risk Management and Emergencies and National Agency of Health Regulation, Control and Surveillance do not contain additional information regarding an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. [2, 3, 4, 5, 6]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Governance (Ministerio de Gobierno). 2020. "Ministerio de Gobierno". [https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.

4.2.3 Manufacturing and procurement for emergencies

4.2.3a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 0

There is no public evidence that Ecuador has a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) or a plan/mechanism to procure medical supplies for national use during a public health emergency. The 2018 National Disaster Response Plan states that the Ministry of Health (MSP) shall "design logistical chains for support and supply of inputs and medicines for healthcare services". There is no public evidence that this process has occurred. This section of the Plan does not mention types of medical supplies specifically. [1] The National Public Procurement Service maintains a webpage documenting all of the emergency procurement procedures that are ongoing or concluded during the COVID-19 pandemic, but there is no evidence of existing procurement agreements that predated the declaration of the public health emergency. There is evidence of emergency procurement processes that have taken place to procure medical supplies including PPE. [2] The National Agency of Health Regulation, Control and Surveillance's (ARCSA) Resolution No. ARCSA-DE-033-2018-JCGO sets conditions to authorize the import of non-approved MCMs during a health emergency, but does not contain evidence of production agreements. [3] The websites of the Ministry of Public Health (MSP), Ministry of Governance, Ministry of Defense, National Service for Risk Management and Emergencies and National Agency of Health Regulation, Control and Surveillance do not contain additional information regarding a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies or a plan/mechanism to procure medical supplies for national use during a public health emergency. [4, 5, 6, 7, 8]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] National Public Procurement Service. 2020. "Emergency Resolutions". [https://portal.compraspublicas.gob.ec/sercop/resoluciones-de-emergencia/]. Accessed 7 August 2020.
[3] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "Resolution No. ARCSA-DE-033-2018-JCGO". [https://www.derechoecuador.com/registro-oficial/2019/02/registro-oficial-no427-miercoles-13-de-febrero-de-2019]. Accessed 7 August 2020.
[4] Ministry of Governance (Ministerio de Gobierno). 2020. "Ministerio de Gobierno". [https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[8] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.

4.2.3b

Does the country meet one of the following criteria?
- Is there evidence of a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) for national use during a public health emergency?
- Is there evidence of a plan/mechanism to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency?

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

Current Year Score: 0

There is no public evidence that Ecuador has a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g. reagents, media) or a plan/mechanism to procure laboratory supplies for national use during a public health emergency. The 2018 National Disaster Response Plan states that the Ministry of Health (MSP) shall "design logistical chains for support and supply of inputs and medicines for healthcare services". There is no public evidence that this process has occurred. This section of the Plan does not mention laboratory supplies specifically. [1] The National Public Procurement Service maintains a webpage documenting all of the emergency procurement procedures that are ongoing or concluded during the COVID-19 pandemic, but there is no evidence of existing procurement agreements that predated the declaration of the public health emergency. [2] The websites of the Ministry of Public Health (MSP), Ministry of Governance, Ministry of Defense, National Service for Risk Management and Emergencies and National Agency of Health Regulation, Control and Surveillance do not contain additional information regarding a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies or a plan/mechanism to procure laboratory supplies for national use during a public health emergency. [3, 4, 5, 6, 7]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[2] National Public Procurement Service. 2020. "Emergency Resolutions". [https://portal.compraspublicas.gob.ec/sercop/resoluciones-de-emergencia/]. Accessed 7 August 2020.
[3] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. "Defensa". [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[4] Ministry of Governance (Ministerio de Gobierno). 2020. "Ministerio de Gobierno". [https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.
[6] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2020. "ARCSA". [https://www.controlsanitario.gob.ec/]. Accessed 27 July 2020.
[7] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 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: 1

Ecuador has guidelines and a system in place for dispensing medical countermeasures (MCMs) that can be used during a public health emergency. In 2009, the Ministry of Public Health issued the Process Manual for Supply Management of Medicines. The program's specific objectives include identifying responsible parties for each component of supply management, defining processes, and implementing monitoring and evaluation of the system. The Manual states that the system can be used for routine as well as emergency supply, distribution and dispensing of medicines. The system covers purchasing, storage, distribution, local delivery, and "informed dispensing". Informed dispensing comprises five steps in the

process manual: presentation of prescription, verification of availability, preparation of medicines, dispensing, and follow-up and evaluation. [1] The system does not define the medical countermeasures it distributes, but relies on an annual process to define local needs and the national list of basic medicines, which includes medicines, antibiotics, vaccines and therapeutics. The list was last updated in November 2019. [1, 2]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2009. "Process Manual for Supply Management of Medicines" ("MANUAL DE PROCESOS PARA LA GESTIÓN DE SUMINISTRO DE MEDICAMENTOS"). [http://instituciones.msp.gob.ec/images/Documentos/administrativo/reglamento_bodega/Manual_medicamentos.pdf]. Accessed 7 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2013. "Basic List of Medicines" ("Cuadro Nacional de Medicamentos Básicos"). [http://instituciones.msp.gob.ec/images/Documentos/medicamentos/Edicion_especial_R.O.A.M_138_EE138_2019.11.25_CNMB_10ma.rev.pdf]. Accessed 7 August 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: 1

There is public evidence that Ecuador has a plan in place to receive health personnel from other countries to respond to a public health emergency. In 2014, the Secretariat of Risk Management issued the Manual for Handling International Humanitarian Assistance in Emergency and Disaster Situations. The Manual includes processes and flow charts for receiving foreign assistance, but only covers material assistance, not human resources. [1] However, in April 2019, the Ministry of Public Health (MSP) issued Agreement No. 0343-2019 containing the Regulations for the Authorization, Execution, Control and Follow-Up of Healthcare Brigades in Ecuadorian Territory. The Regulations contain provisions for licensed foreign health workers to provide healthcare services in Ecuador for up to one month without a national license. The brigades must be authorized by the MSP 45 days in advance, but exceptions to these requirements can be provided "for cases of emergency, disasters and catastrophes". In-country coordination and supervision of the brigades is the responsibility of the Area Health Coordination offices of the MSP located throughout the country. [2] The Andean Community, to which Ecuador belongs, published the "Operations Guide for Mutual Assistance during Disasters for the member countries of the Andean Community" in 2013. The guide includes a section on medical personnel, but leaves the details of receiving them to the requesting country. [3] Ecuador is a member of the Andean Health Organization and in 2013 signed on to the organization's Andean Plan for Risk Management in the Health Sector 2013-2017. The plan does not mention a plan in place to receive health personnel from other countries to respond to a public health emergency. [4] The websites of the MSP, Ministry of Governance, Ministry of Defense and National Service for Risk Management and Emergencies do not contain additional information regarding a plan in place to receive health personnel from other countries to respond to a public health emergency. [5, 6, 7, 8]

[1] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2014. "Manual for Handling International Humanitarian Assistance in Emergency and Disaster Situations" ("MANUAL PARA LA GESTIÓN DE LA ASISTENCIA HUMANITARIA INTERNACIONAL EN SITUACIONES DE EMERGENCIA Y DESASTRE"). [https://www.salud.gob.ec/wp-content/uploads/downloads/2014/10/Manual-para-la-Gestion-de-la-Asistencia-Humanitaria-Internacional.pdf]. Accessed 7 August 2020.

[2] Ministry of Public Health (Ministerio de Salud Publica). 2019. “Agreement No. 0343-2019”. [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_0343_2019%2015%20ABRIL.PDF]. Accessed 7 August 2020.
[3] Andean Community (Comunidad Andina). 2013. "Operations Guide for Mutual Assistance during Disasters for the member countries of the Andean Community" ("Guía de operación para asistencia mutua frente a desastres de los países miembros de la Comunidad Andina"). [http://www.comunidadandina.org/StaticFiles/Temas/AtencionPrevencionDesastres/GuiaOperacionAsistenciaMutua.pdf]. Accessed 7 August 2020.
[4] Organismo Andino de Salud – Convenio Hipólito Unánue. 2013. “Andean Plan for Risk Management in the Health Sector 2013-2017” (“PLAN ANDINO PARA LA GESTION DE RIESGOS DE DESASTRES EN EL SECTOR SALUD 2013 – 2017”). [http://www.orasconhu.org/sites/default/files/files/Plan%20de%20accion%20-%20plan%20andino%20de%20desastres%202013.pdf]. Accessed 7 August 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Ministry of National Defense (Ministerio de Defensa Nacional). 2020. “Defensa”. [https://www.defensa.gob.ec/]. Accessed 29 July 2020.
[7] Ministry of Governance (Ministerio de Gobierno). 2020. “Ministerio de Gobierno”. [https://www.ministeriodegobierno.gob.ec/]. Accessed 7 August 2020.
[8] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. “Servicio Nacional de Gestion de Riesgos y Emergencias”. [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 2020.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 4

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 96.7

2016

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

4.4.1c

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

Input number

Current Year Score: 377.78

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

The government of Ecuador has not issued legislation, a policy or a public statement committing to provide prioritized health care services to healthcare workers who become sick as a result of responding to a public health emergency. The Constitution of Ecuador designates groups that should receive priority attention in healthcare, including the elderly, pregnant mothers, children and adolescents and victims of abuse and disasters, among others. Healthcare workers are not included as a priority group. [1] In 2020, the Ministry of Public Health (MSP) issued the Operational Guidelines for Response to Coronavirus COVID-19. The document does not mention prioritized care for healthcare workers. [2] The National Plan for Disaster Response: RESPONDE Ec. does not mention prioritized care for healthcare workers. [3] The websites of the Ministry of Health and National Service for Risk Management and Emergencies do not contain additional information regarding prioritized care for healthcare workers. [4, 5]

[1] Government of Ecuador. 2008. “Constitution of the Republic”. [https://www.vertic.org/media/National%20Legislation/Ecuador/EC_Constitution_2008.pdf]. Accessed 29 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2020. “Operational Guidelines for Response to Coronavirus COVID-19”. [https://www.salud.gob.ec/wp-content/uploads/2020/03/lineamiento-operativo-coronavirus-FINAL_02-2020.pdf]. Accessed 5 August 2020.
[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. “National Plan for Disaster Response: RESPONDE Ec.” (“Plan Nacional de Respuesta ante Desastres, RESPONDE Ec.”).

[https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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

In Ecuador, there is insufficient evidence that the government has a system in place for public health officials and healthcare workers to communicate during a public health emergency.

The National Service for Risk Management and Emergencies (SNGRE) manages the National Decentralized Risk Management System (SNDGR) and also leads the system of Emergency Operations Committees (COE) formed at the national, provincial and local levels. [1] The COEs participate in prevention and risk management activities prior to an emergency and function as operational command units during an emergency. In the functioning of the three levels of COEs, the Ministry of Public Health (MSP) heads the Health Technical Working Roundtable and is a member of the COE management committee. [2] The national COE (COE-N) is supported by a technology and communications infrastructure support department, which ensures communications are available between decision makers and those in the field during the emergency. [1] In addition, the COE-N's Situation Room is tasked with "maintaining direct and permanent information and coordination with the Information Gathering components at other territorial levels". [2] The National Plan for Disaster Response: RESPONDE Ec. tasks the MSP, the Ecuador 911 service, the Ministry of Telecommunications and the SNGRE with "creating/strengthening the telecommunications network to support health actions in emergency areas". The objective states that there should be a "telecommunications system for healthcare". [3] However, there is no explicit evidence that there is a two-way system for healthcare workers and public health officials to communicate during public health emergencies.

[1] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2017. "Emergency Operations Committee Manual (Manual del Comité de Operaciones de Emergencia)". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2017/09/Manual-del-COE.pdf]. Accessed 7 August 2020.
[2] Constitutional President of the Republic. 2017. "Executive Decree No. 486 of 2010". [https://www.telecomunicaciones.gob.ec/wp-content/uploads/2018/06/Reglamento-a-la-Ley-de-Seguridad-Publica-y-del-Estado.pdf]. Accessed 6 August 2020.
[3] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2018. "National Plan for Disaster Response: RESPONDE Ec." ("Plan Nacional de Respuesta ante Desastres, RESPONDE Ec."). [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2018/08/Plan-Nacional-de-Respuesta-SGR-RespondeEC.pdf]. Accessed 5 August 2020.

4.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Ecuador's system for public health officials to communicate with public healthcare workers during a public health emergency also encompasses private healthcare workers. The National Service for Risk Management and Emergencies (SNGRE) manages the National Decentralized Risk Management System (SNDGR) and also leads the system of Emergency Operations Committees (COE) formed at the national, provincial and local levels. [1] The COEs participate in prevention and risk management activities prior to an emergency and function as operational command units during an emergency. [2] The national COE is supported by a technology and communications infrastructure support department, which ensures communications are available between decision makers and those in the field during the emergency. The Technical Roundtable for Health and Priority Assistance includes "coordination for the participation of the private sector". However, there is not a specific mention of the technology and communications infrastructure support department directly connecting with the private sector. [1] The websites of the Ministry of Public Health and SNGRE do not contain additional information regarding a system in place for public health officials and public and private healthcare workers to communicate during a public health emergency. [3, 4]

[1] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2017. "Emergency Operations Committee Manual (Manual del Comité de Operaciones de Emergencia)". [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2017/09/Manual-del-COE.pdf]. Accessed 7 August 2020.
[2] Constitutional President of the Republic. 2017. "Executive Decree No. 486 of 2010". [https://www.telecomunicaciones.gob.ec/wp-content/uploads/2018/06/Reglamento-a-la-Ley-de-Seguridad-Publica-y-del-Estado.pdf]. Accessed 6 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[4] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2020. "Servicio Nacional de Gestion de Riesgos y Emergencias". [https://www.gestionderiesgos.gob.ec/]. Accessed 6 August 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

Ecuador's Ministry of Public Health (MSP) houses the National Technical Commission for the Surveillance, Prevention and Control of Health Care Associated Infections, which monitors and tracks the number of healthcare associated infections (HCAI) that take place in healthcare facilities. In August 2019, the MSP issued the "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). Objective 3 of the Plan is to "prevent and control" HCAI, and includes an action to create a technical

commission to that effect. [1] In November 2019, via Agreement No. 00079-2019, the MSP created the National Technical Commission for HCAI and issued its operating regulations. The Commission is tasked with coordinating and connecting actions related to surveillance, prevention and control of HCAI. [2] In January 2020, the MSP issued Agreement No. 00110-2020, which codified the Procedures Manual for the surveillance subsystem for HCAI. The Manual provides standardized reporting guidelines, instructions to use the electronic reporting system, and lists 28 HCAI that must be reported, including different types of pneumonia, meningitis, E. coli, and others. [3]

[1] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. "National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023" ("Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023"). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Agreement No. 00079-2019". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00079-2019%20NOV%2027.pdf]. Accessed 7 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Agreement No. 00110-2020". [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC_00110_2020%20ENE%2015.pdf]. Accessed 7 August 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

In Ecuador, the Ministry of Public Health (MSP) has a requirement for ethical review before beginning a clinical trial. Ministerial Agreement No. 4889-2014 issued the Regulations for Ethics Committees for Human Research (CEISH). Article 4 of the Agreement states: "All clinical trials performed in the country must be evaluated by a CEISH approved by the National Health Authority before implementation begins". [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2014. "Ministerial Agreement No. 4889-2014". [https://www.controlsanitario.gob.ec/wp-content/uploads/downloads/2016/12/A-4889-Reglamento-para-la-aprobaci%C3%B3n-y-seguimiento-de-CEISH-y-CEAS-L.pdf]. Accessed 7 August 2020.

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is evidence of an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat COVID-19 in Ecuador, but not epidemics more broadly. In 2020, Ecuador's Ministry of Public Health's (MSP) issued new regulations that provide an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing epidemics. In April 2020, the MSP issued Ministerial Agreement No. 00003-2020, Regulations for Health Research during a Health Emergency. [1] Article 1 states that the regulations are specific to the COVID-19 pandemic. Article 39 tasks the National Agency of Health Regulation, Control and Surveillance (ARCSA) with "creating accelerated processes for timely approval of clinical trials due to the health emergency" for patients infected with SARS-CoV-2 and/or a diagnosis of COVID-19. Article 40 states that such trials will skip the Technical Advisory Committee step and that ARCSA should decide on clinical trial applications within five days. Article 41 tasks a clinical trial's Ethics Committees for Human Research (CEISH) with "approving, monitoring and following up on the trials" to ensure compliance with bioethical and legal standards. [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Ministerial Agreement No. 00003-2020". [https://www.salud.gob.ec/wp-content/uploads/2020/04/Reglamento-Investigaci%C3%B3n-en-salud-RO-504.pdf]. Accessed 7 August 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

In Ecuador, the National Agency of Health Regulation, Control and Surveillance (ARCSA) is tasked with approving new medical countermeasures for humans. Executive Decree No. 1290 of 2012 created ARCSA. Article 9 tasked the Agency with regulating and controlling medicines, biological products, medical devices, biochemical reaction agents, and others. [1] ARCSA's Technical Directorate of Medicines, Natural Products, Medical Devices and Biochemical Reaction Agents is tasked with approving new medical countermeasures. [2]

[1] Constitutional President of the Republic. 2016. "Executive Decree No. 1290 of 2012". [https://www.controlsanitario.gob.ec/wp-content/uploads/downloads/2016/11/Decreto-Ejecutivo-1290-1.pdf]. Accessed 7 August 2020.
[2] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "Organisational Chart". [https://www.controlsanitario.gob.ec/organigrama/]. Accessed 7 August 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

Ecuador's National Agency of Health Regulation, Control and Surveillance's (ARCSA) has an expedited process for approving the importation and sale of medical countermeasures (MCM) for human use during public health emergencies. In February 2019, ARCSA issued Resolution No. ARCSA-DE-033-2018-JCGO, which sets conditions to authorize the import and sale of non-approved MCMs during a health emergency. [1] Article 1 states that the goal of the resolution is to allow products that have not obtained regulatory approval in Ecuador to be allowed to be imported and sold during a public health emergency and

some other cases. Chapter IV deals with the health emergency case specifically. The temporary approval can be granted by presenting the following documentation: commercial name, International Nonproprietary Name or Universal Medical Devices Nomenclature, formula and concentration, commercial presentation, current medical registration in the country of origin, total product to import, and the declaration of a public health emergency. [1] ARCSA must be notified five days in advance of the arrival of the products and can be present to inspect the products to ensure they match the documentation provided. [1]

[1] National Agency of Health Regulation, Control and Surveillance (Agencia Nacional de Regulación, Control y Vigilancia Sanitaria). 2019. "Resolution No. ARCSA-DE-033-2018-JCGO". [https://www.derechoecuador.com/registro-oficial/2019/02/registro-oficial-no427-miercoles-13-de-febrero-de-2019]. Accessed 7 August 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: 1

Epidemics are integrated into Ecuador's national risk management strategy, which was issued in 2019. There is no public evidence that Ecuador has a public health sector or pandemic risk management strategy. In 2019, the National Service for Risk Management and Emergencies (SNGRE) issued the Specific Plan for Risk Management 2019-2030, which forms part of Ecuador's National Plan for Comprehensive Security. [1] The Plan mentions "biological threats" and "epidemics" in Section 4 on the risks the country faces. The Ministry of Public Health (MSP) is included in the Plan as both a "technical competency

agent" and as "responding actor". The Plan's objectives, strategies and actions do not specifically deal with an epidemic or pandemic, but instead focus on risk management generally across all the risks faced by Ecuador. For example, Objective 4 is to "increase the preparation for early response and recovery in emergency situations and disasters", which includes a strategy to "strengthen the preparation and response mechanisms, under the principles of quality and continuous improvement". [1]

[1] National Service for Risk Management and Emergencies (Servicio Nacional de Gestion de Riesgos y Emergencias). 2019. "Specific Plan for Risk Management 2019-2030". [https://www.defensa.gob.ec/wp-content/uploads/downloads/2019/07/plan-nacional-riesgos-web.pdf]. Accessed 8 August 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: 0

There is insufficient evidence that Ecuador has cross-border agreements as part of a regional group with regards to public health emergencies.

Ecuador is a member of the Andean Health Organization and in 2013 signed on to the organization's Andean Plan for Risk Management in the Health Sector 2013-2017. The plan includes a strategic action to "strengthen connection tools among the systems for preparation, attention and mutual assistance in the health sector in the Andean subregion in case of disasters". [1] As a product of the plan, in 2017, the Andean Community issued Decision 819, which approved the Andean Strategy for Disaster Risk Management 2017-2030. Paragraph 56 of the strategy specifically lists epidemics as one of the disasters the strategy has planned for. Line of Action 4 under Thematic Axis 2 calls for cross-border cooperation to increase resilience and reduce the risk of disasters such as epidemics. [2] Following the issuance of the Strategy in 2017, in 2019, the Andean Community issued the 2019-2030 Implementation Plan for the Andean Strategy for Disaster Risk Management. The Plan outlines indicators, activities and deliverables for the implementation of the Strategy. Line of Action 4, under Objective 2.1 states the cooperating governments shall "increase resilience and reduce the risk of disasters, including the risk of epidemics and displacements". [3]

[1] Organismo Andino de Salud – Convenio Hipólito Unánue. 2013. "Andean Plan for Risk Management in the Health Sector 2013-2017" ("PLAN ANDINO PARA LA GESTION DE RIESGOS DE DESASTRES EN EL SECTOR SALUD 2013 – 2017"). [http://www.orasconhu.org/sites/default/files/files/Plan%20de%20accion%20-%20plan%20andino%20de%20desastres%202013.pdf]. Accessed 8 August 2020.
[2] Andean Community (Comunidad Andina). 2017. "Andean Strategy for Disaster Risk Management -- Decision 819" ("ESTRATEGIA ANDINA PARA LA GESTIÓN DEL RIESGO DE DESASTRES –EAGRD–Decisión 819"). [http://www.comunidadandina.org/StaticFiles/20175221519 56ESTRATEGIA%20ANDINA.pdf]. Accessed 8 August 2020.
[3] Andean Community (Comunidad Andina). 2019. "2019-2030 Implementation Plan for the Andean Strategy for Disaster Risk Management". [http://www.comunidadandina.org/StaticFiles/Temas/AtencionPrevencionDesastres/Plan.pdf]. Accessed

8 August 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: 2

Ecuador has cross-border agreements as part of a regional group with regards to animal public health emergencies. Ecuador is a member of the Andean Community, as well as the Community's Andean System for Agricultural Safety. The System was created in 2002 by Andean Community Decision 515. [1] The System seeks to prevent and control diseases that could affect animals in the region, as well as serve as a mechanism for harmonizing national legislation in the Community. [1] The System has focused its work on preventing and eradicating foot-and-mouth disease and classical swine fever in the sub-region. [2] In 2017, the Andean Community, in collaboration with the United Nations Food and Agriculture Organization and the Pan American Health Organization, issued the "Sub-regional Strategy to Prevent the Introduction of Foot-and-Mouth Disease, and Action Plan to Improve the Management and Attention to Health Emergencies". The Plan includes the creation of and Emergency Group for coordination and support among the member countries' animal health agencies. The Group has three specific objectives: ensure the coordination of the strategy, evaluate the strategy to reorient objectives and the work plan, and provide technical support during an emergency. [3]

[1] Andean Community. 2002. "Decision 515". [http://www.comunidadandina.org/StaticFiles/DocOf/DEC515.pdf]. Accessed 8 August 2020.
[2] Andean Community. 2020. "Animal Health – Land Animals". [http://www.comunidadandina.org/Seccion.aspx?id=321&tipo=TE&title=sanidad-animal]. Accessed 8 August 2020.
[3] Andean Community. 2017. "Sub-regional Strategy to Prevent the Introduction of Foot-and-Mouth Disease, and Action Plan to Improve the Management and Attention to Health Emergencies". [http://www.comunidadandina.org/StaticFiles/Temas/SanidadAnimal/FiebreAftosa01.pdf]. Accessed 8 August 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: 2

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

Ecuador has allocated national funds to improve capacity to address epidemic threats within the past three years. Since at least 2017, the Ministry of Public Health (MSP) has funded an investment project for "Prevention and Control of HIV/AIDS", providing US$0.75m in 2017, US$0.99m in 2018, US$3.1m in 2019, and US$2.4m in 2020. [1, 2, 3, 4] In addition, in 2017 and 2018, the MSP funded an investment project for "Surveillance and control of vectors to prevent the transmission of vector-borne diseases", providing US$9.1m in 2017 and US$0.8m in 2018. [1, 2] In 2017, the MSP also funded an investment project to maintain vaccine coverage at 95% or higher throughout the country, providing US$0.48m. [1] In 2017, the MSP funded an investment project for "Toward the Control of TB in Ecuador", providing US$0.22m. [1]

[1] Ministry of Public Health (Ministerio de Salud Publica). 2017. "Plans and programs in execution". [http://instituciones.msp.gob.ec/images/Documentos/Ley_de_Transparencia/2017/Agosto/k-Planes-y-programas-en-ejecucion.pdf]. Accessed 8 August 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2018. "Plans and programs in execution". [http://instituciones.msp.gob.ec/images/Documentos/Ley_de_Transparencia/2018/Junio/k-planes-y-programas-en-ejecucion.pdf]. Accessed 8 August 2020.
[3] Ministry of Public Health (Ministerio de Salud Publica). 2019. "Plans and programs in execution". [http://instituciones.msp.gob.ec/images/Documentos/Ley_de_Transparencia/2019/Mayo2019/Literal_k.-Planes_y_programas_en_ejecucion.pdf]. Accessed 8 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "Plans and programs in execution". [http://instituciones.msp.gob.ec/images/Documentos/Ley_de_Transparencia/2020_1/Junio/Literal%20k.-%20Planes%20y%20programas%20en%20ejecuci%C3%B3n.pdf]. Accessed 8 August 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: 1

Ecuador has a publicly identified special emergency public financing mechanism which the country can access in the face of a public health emergency. During the 2020 COVID-19 pandemic, Ecuador initially accessed lines of credit with the World Bank (US$26.3m), Inter-American Development Bank (US$25m), and Development Bank of Latin America (CAF) (US$51m). [1] Similarly, following the 2016 earthquake in Ecuador, the country activated US$600m in credit lines with the Inter-American Development Bank, Andean Development Corporation and World Bank. The president stated at the time that instead of having a dedicated emergency fund, Ecuador relied on these special credit lines. [2] The Secretariat of Risk Management's Resolution No. SGR-049-2016 created specific funds to channel these borrowed funds and other national funds to deal with the emergency situation. [3] In September 2016, Ecuador ended up receiving a US$364m loan from the IMF to fund reconstruction following the 2016 earthquake. The loan was provided via the IMF's Rapid Financing Instrument (RFI). [4] The RFI "provides rapid and low-access financial assistance to member countries facing an urgent balance of payments need". RFI funds can be used for natural disasters and other emergencies; it is "a single, flexible, mechanism with a broad coverage". [5] The IMF defines natural disasters to include epidemics. [6]

[1] El Comercio. 2016. "Ministry of Health budget for coronavirus". [https://www.elcomercio.com/actualidad/ecuador-ministerio-salud-presupuesto-coronavirus.html]. Accessed 8 August 2020.
[2] El Comercio. 2016. "President Correa says that the country has credit lines for USD 600 million to deal with the emergency following the earthquake" ("Presidente Correa dice que cuenta con líneas de crédito por USD 600 millones para atender emergencia tras terremoto"). [https://www.elcomercio.com/actualidad/ecuador-ministerio-finanzas-fondo-

terremoto.html]. Accessed 8 August 2020.
[3] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2016. “Resolution No. SGR-049-2016”. [https://www.gestionderiesgos.gob.ec/wp-content/uploads/downloads/2014/08/Resolucion-SGR-044-2014.pdf]. Accessed 8 August 2020.
[4] International Monetary Fund. 2016. "ECUADOR PURCHASE UNDER THE RAPID FINANCING INSTRUMENT—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR ECUADOR". [https://www.imf.org/external/pubs/ft/scr/2016/cr16288.pdf]. Accessed 8 August 2020.
[5] International Monetary Fund. 2020. "The IMF's Rapid Financing Instrument (RFI)". [https://www.imf.org/en/About/Factsheets/Sheets/2016/08/02/19/55/Rapid-Financing-Instrument]. Accessed 8 August 2020.
[6] International Monetary Fund. 2017. "Large Natural Disasters--Enhancing the Financial Safety Net for Developing Countries". [https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/05/15/pp051517-large-natural-disasters-enhancing-the-financial-safety-net-for-developing-countries]. Accessed 8 August 2020.

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

5.5.4a

Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:
- Support other countries to improve capacity to address epidemic threats by providing financing or support?
- Improve the country’s domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity?
Needs to meet at least one of the criteria to be scored a 1 on this measure., Yes for both = 1, Yes for one = 1, No for both = 0

Current Year Score: 0

There is no publicly available evidence that Ecuador has made a public commitment to support other countries to improve capacity to address epidemic threats by providing financing or support or improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity in the past three years. Ecuador’s 2019 “National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023” (“Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023”) does not mention a plan to increase the budget address epidemic threats. [1] The 2016 Response to Disease from the Zika Virus in Ecuador does not mention a plan to increase the budget for such response. [2] In 2014, the Secretariat of Risk Management issued the Manual for Handling International Humanitarian Assistance in Emergency and Disaster Situations. The Manual includes the possibility of Ecuador providing assistance to another country, but does not state any specific plans. [3] The websites of the Ministry of Public Health, Ministry of Foreign Relations and Human Mobility, the United Nations and the WHO do not contain additional information regarding public commitments to improve capacity to address epidemic threats in Ecuador. [4, 5, 6, 7]

[1] Ministry of Public Health (Ministerio de Salud Publica). 7 August 2019. “National Plan for the Prevention and Control of Antimicrobial Resistance 2019-2023” (“Plan Nacional para la Prevencion y Control de la Resistencia Antimicrobiana 2019-2023”). [https://aplicaciones.msp.gob.ec/salud/archivosdigitales/documentosDirecciones/dnn/archivos/AC-00011-2019%20AGOSTO%2007.PDF]. Accessed 23 July 2020.
[2] Ministry of Public Health (Ministerio de Salud Publica). 2016. “Response to Disease from the Zika Virus in Ecuador (“RESPUESTA FRENTE A LA ENFERMEDAD DEL VIRUS DE ZIKA EN EL ECUADOR”). [https://www.salud.gob.ec/wp-content/uploads/2015/12/RESPUESTA-FRENTE-AL-ZIKA.pdf]. Accessed 5 August 2020.
[3] Secretariat of Risk Management (Secretaria de Gestion de Riesgos). 2014. “Manual for Handling International

Humanitarian Assistance in Emergency and Disaster Situations" ("MANUAL PARA LA GESTIÓN DE LA ASISTENCIA HUMANITARIA INTERNACIONAL EN SITUACIONES DE EMERGENCIA Y DESASTRE"). [https://www.salud.gob.ec/wp-content/uploads/downloads/2014/10/Manual-para-la-Gestion-de-la-Asistencia-Humanitaria-Internacional.pdf]. Accessed 7 August 2020.
[4] Ministry of Public Health (Ministerio de Salud Publica). 2020. "MSP". [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[5] Ministry of Foreign Relations and Human Mobility. 2020. "Cancilleria". [https://www.cancilleria.gob.ec/]. Accessed 6 August 2020.
[6] United Nations. 2019. "Search Results >> Ecuador". [https://news.un.org/en/search/ecuador/field_news_topics/health-82]. Accessed 8 August 2020.
[7] World Health Organization. 2019. "Search results". [https://www.who.int/home/search?query=ecuador+funding+epidemic&page=1&pagesize=10&sortdir=desc&sort=relevance&default=AND&f.Countries.size=100&f.Lang.filter=en&f.RegionalSites.size=100&f.Topics.size=100&f.contenttype.size=100&f.doctype.size=101&facet.field=RegionalSites&facet.field=Topics&facet.field=doctype&facet.field=Countries&facet.field=contenttype&facet.field=Lang&tune=true&tune.0=3&tune.1=2&tune.2=2&tune.3=3&tune.4=180&tune.5=75&cname=highlight-en&cname=emronew&cname=who&cname=euro&cname=afro&cname=amro&cname=pmnch&cname=searo&cname=workforcealliance&cname=wpro&f.RegionalSites.filter=Global&f.contenttype.filter=html]. Accessed 8 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

First, there is limited evidence that Ecuador, in the last three years, has invested finances (from donors or national budget) or provided technical support to support other countries to improve capacity to address epidemic threats. Second, there is public evidence that Ecuador, in the last three years, has requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats. In terms of support to other countries, the National Institute of Public Health Research's (INSPI) 2018 Accountability report states that the INSPI's national reference center for influenza provided "international support" to the Dominican Republic in the "implementation of a molecular biology laboratory for the detection of the influenza virus". [1] The Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker does not list Ecuador as a funder for any projects in other countries. [2] In terms of funding requested from donors, the Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker lists US$6.94m disbursed and US$4.59m committed during 2019 and US$173.38m disbursed and US$280.93m committed during 2020. [3] This funding includes capacity-building projects, such as US$4.21m provided by the The Global Fund to Fight AIDS, Tuberculosis and Malaria for "Achieving national targets towards HIV elimination as a public health issue by decentralizing testing services to primary health care level and improving data collection systems". [4]

[1] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. "Accountability Report". [http://www.investigacionsalud.gob.ec/wp-content/uploads/2019/02/PRESENTACION_RENDICION_DE_CUENTAS_2018.pdf]. Accessed 5 August 2020.
[2] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. 2020. "Ecuador Funder Profile". [https://tracking.ghscosting.org/details/68/funder]. Accessed 8 August 2020.
[3] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. 2020. "Ecuador Recipient Profile". [https://tracking.ghscosting.org/details/932/recipient]. Accessed 9 August 2020.

[4] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. 2021. “Ecuador Table of Funds, page 4". [https://tracking.ghscosting.org/table/932/recipient]. Accessed 31 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 that Ecuador has 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. In 2012, Ecuador made a public commitment to share technical data and research with its Andean neighbors via the Guayaquil Declaration. Article 1 of the declaration states that each country will transfer knowledge, technology, scientific evidence and social communication and information to its partners in order to combat the dengue virus. [1] The Guayaquil Declaration does not provide specifics on what type of scientific evidence each country has committed to share. [1] The Andean Health Organization’s 2012-2014 Dengue Prevention and Control Roadmap commits Ecuador and other Andean countries to share national epidemiological data across borders to prevent and control the spread of dengue. [2] The websites of the Ministry of Public Health (MSP), Ministry of Agriculture and Ranching, the National Institute of Public Health Research (INSPI), Secretariat of Higher Education, Science, Technology and Innovation, and the Agency for Phyto and Zoosanitary Regulation and Control (AGROCALIDAD) do not contain additional information regarding 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. [3, 4, 5, 6, 7]

[1] Organismo Andino de Salud – Convenio Hipólito Unánue. 2012. “DECLARACION DE MINISTROS DE SALUD ANDINOS ANTE EL ACTUAL PROBLEMA DEL DENGUE”. [https://www.orasconhu.org/sites/default/files/files/Declaratoria%20Guayaquil%20Dengue%2018%2005%2012b.pdf]. Accessed 8 August 2020.

[2] Organismo Andino de Salud – Convenio Hipólito Unánue. 2012. “HOJA DE RUTA PARA LA PREVENCION Y EL CONTROL DEL DENGUE EN LOS PAISES ANDINOS 2012 - 2014".
[https://www.orasconhu.org/sites/default/files/files/Hoja%20de%20Ruta%20Dengue%20sep%202012[1].pdf]. Accessed 8 August 2020.
[3] Ministry of Agriculture and Ranching (Ministerio de Agricultura y Ganaderia). 2020. “MAG”.
[https://www.agricultura.gob.ec/]. Accessed 27 July 2020.
[4] Agency for Phyto and Zoosanitary Regulation and Control (Agencia de Regulacion y Control Fito y Zoosanitario). 2020. “AGROCALIDAD”. [http://www.agrocalidad.gob.ec/]. Accessed 27 July 2020.
[5] Ministry of Public Health (Ministerio de Salud Publica). 2020. “MSP”. [https://www.salud.gob.ec/]. Accessed 27 July 2020.
[6] Secretariat of Higher Education, Science, Technology and Innovation (Secretaria de Educacion Superior, Ciencia, Tecnologia e Innovacion). 2020. “Senescyt”. [https://www.educacionsuperior.gob.ec/]. Accessed 29 July 2020.
[7] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2020. “INSPI”.
[http://www.investigacionsalud.gob.ec/]. Accessed 27 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 Ecuador has not shared samples in accordance with the PIP framework in the past two years. Evidence indicates Ecuador participates in sharing flu data and samples. Ecuador's National Influenza Reference Centre is the focal point for contact with the WHO regarding influenza. [1] The National Institute of Public Health Research’s (INSPI) 2018 Accountability report states that the institute sent samples of the influenza virus circulating in the country to the Centers for Disease Control and Prevention in Atlanta as well as the WHO. [2] The WHO's website does not contain any information regarding Ecuador not sharing samples. [3] Local and international media do not contain reports of non-sharing.

[1] Ministry of Public Health (Ministerio de Salud Publica). 2019. “El Centro de Referencia Nacional de Influenza y otros Virus Respiratorios del INSPI LIP aporta a la Salud Pública del país." [http://www.investigacionsalud.gob.ec/el-centro-de-referencia-nacional-de-influenza-y-otros-virus-respiratorios-del-inspi-lip-aporta-a-la-salud-publica-del-pais/]. Accessed 8 August 2020.
[2] National Institute of Public Health Research (Instituto Nacional de Investigacion en Salud Publica). 2018. “Accountability Report”. [http://www.investigacionsalud.gob.ec/wp-content/uploads/2019/02/PRESENTACION_RENDICION_DE_CUENTAS_2018.pdf]. Accessed 5 August 2020.
[3] World Health Organization. 2020. "Countries Ecuador". [https://www.who.int/countries/ecu/en/]. Accessed 8 August 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 publicly available evidence that Ecuador has not shared pandemic pathogen samples during an outbreak in the past two years. The World Health Organization does not show any outbreaks in Ecuador in the past two years. [1] Local and international media do not contain reports of non-sharing of pandemic pathogen sample, including coronavirus/COVID-19 in

Ecuador.

[1] World Health Organization. 2020. "Countries Ecuador". [https://www.who.int/countries/ecu/en/]. Accessed 8 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: 2

2020

Economist Intelligence

6.1.1b

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 0

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 39

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: 0

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: 3

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: 2

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 3

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

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

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

Adult literacy rate, population 15+ years, both sexes (%)

Input number

Current Year Score: 94.3

2016

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

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: 2

According to the World Bank date website, using data from the International Labour Organization's ILOSTAT database, in 2019 Ecuador's informal employment as a percentage of total non-agricultural employment was 65.77%. [1]

[1] World Bank. 2020. "Informal employment (% of total non-agricultural employment) - Ecuador". [https://data.worldbank.org/indicator/SL.ISV.IFRM.ZS?locations=EC]. Accessed 8 August 2020.

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 1

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 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: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.46

Latest available.

World Bank; Economist Impact calculations

6.3 INFRASTRUCTURE ADEQUACY

6.3.1 Adequacy of road network

6.3.1a

What is the risk that the road network will prove inadequate to meet needs?

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

Current Year Score: 2

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

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

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

Current Year Score: 3

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: 3

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 63.99

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: -2.18

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

What is the risk that the economy will suffer a major disruption owing to a natural disaster?

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

Current Year Score: 0

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)

Input number

Current Year Score: 76.8

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: 364.7

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 7.37

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 14.78

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 19.9

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: 93.99

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 87.99

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: 496.42

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