Mexico

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

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

In Mexico, there is a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens. In June 2018, the federal Council of General Health Standards (CSG) issued regulations making Mexico's National Action Strategy against Antimicrobial Resistance obligatory for all actors in the national healthcare system (public and private). [1] The strategy outlines five objectives: improving knowledge around AMR, increasing surveillance and research, reducing infections, appropriately using antimicrobial agents, and performing an economic evaluation of the AMR challenge. [1] Additionally, the strategy sets a goal of reducing morbidity due to AMR by 30%. [1] In terms of surveillance, Action 2.2.1.a calls for establishing a catalogue of microbes of interest for AMR surveillance. Action 2.2.1.b states the government should identify the priority animal population to analyze for AMR. [1] In terms of detection, Action 2.4.2.a tasks authorities with establishing the criteria and mechanisms for issuing early warnings regarding pan-resistant bacteria. Strategy 2.4.4 tasks authorities with analyzing and integrating information regarding commonly used antimicrobials among humans and animals that represent a risk for development of AMR. [1] In terms of reporting, Action 2.1.2b calls for the establishment of mechanisms to share AMR information across institutions. Action 2.1.2.c states the government should provide resources to create and implement an information platform specifically dedicated to AMR to facilitate reporting and communication. [1] In terms of implementation, human and animal health authorities have engaged in public communication campaigns regarding AMR during 2019 and 2020. [2, 3, 4] Animal health authorities also report that they have participated in "more than 60 inter-sectorial and international meetings focused on coordination, awareness building, prevention, surveillance, research and other actions" to implement the AMR strategy. [5] Nonetheless, in 2019, the Sub-Secretary for Prevention and Health Promotion noted that the 2018 strategy was limited to regulation and lacked involvement from the academic community and healthcare institutions. [6] In early 2020, a federal legislator introduced a resolution calling on the Ministry of Health to create and distribute an "urgent implementation plan" for the AMR strategy. [7]

[1] Consejo de Salubridad General. 2018. "ACUERDO por el que se declara la obligatoriedad de la Estrategia Nacional de Acción contra la Resistencia a los Antimicrobianos". [http://www.dof.gob.mx/nota_detalle.php?codigo=5525043&fecha=05/06/2018]. Accessed 1 October 2020.
[2] National Commission for Social Protection in Healthcare. 2019. "Indiscriminate Use of Antibiotics: One of the Big Challenges Internationally". [https://www.gob.mx/salud%7Cseguropopular/articulos/uso-indiscriminado-de-antibioticos-uno-de-los-grandes-retos-a-nivel-internacional]. Accessed 1 October 2020.
[3] Ministry of Agriculture and Rural Development (SADER). 2020. "Antimicrobial resistance: anything in excess is harmful". [https://www.gob.mx/agricultura/articulos/resistencia-a-los-antimicrobianos-todo-en-exceso-hace-dano?idiom=es]. Accessed 1 October 2020.
[4] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. "Be careful when using antibiotics". [https://www.gob.mx/senasica/articulos/ponte-buzo-con-el-uso-de-antibioticos?idiom=es]. Accessed 1 October 2020.

[5] National Service for Agricultural Health, Food Safety and Quality (SENASICA). “Context of the National Action Strategy against Antimicrobial Resistance”. [https://www.gob.mx/cms/uploads/attachment/file/539214/Contexto_de_la_Estrategia_Nacional_contra_la_Resistencia_a_los_Antimicrobianos.pdf]. Accessed 1 October 2020.
[6] Ministry of Health (SALUD). 2019. “Antimicrobial resistance, a public health problem”. [https://www.gob.mx/salud/prensa/314-la-resistencia-antimicrobiana-un-problema-de-salud-publica]. Accessed 1 October 2020.
[7] Ministry of Governance. 2020. “Proposal for a Point of Agreement”. [http://sil.gobernacion.gob.mx/Archivos/Documentos/2020/01/asun_3988698_20200122_1579726143.pdf]. Accessed 1 October 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

In Mexico, there are laboratory systems that test for all 7 + 1 priority AMR pathogens. Mexico's national laboratory system, the National Network of Public Health Laboratories (RNLSP) carries out surveillance for seven priority AMR pathogens. The RNLSP consists of 31 state public health laboratories and the national reference laboratory at the Institute for Epidemiological Diagnosis and Reference (InDRE), which heads the system. [1] The RNLSP conducts AMR surveillance for S. aureus, S. pneumoniae, Salmonella spp., and Shigella spp. [1] In addition, according to its 2015 annual report, the national Hospital Network for Epidemiological Surveillance (RHOVE) carries out surveillance of drug-resistant strains of E. coli, K. pneumonia and S. aureus as part of its health care associated infections surveillance program. [2] The RNLSP carries out tests for Mycobacterium tuberculosis and AMR as part of the National Program for the Prevention and Control of Tuberculosis. [3, 4] In March 2018, the National Commission for Epidemiological Surveillance (CONAVE) instructed the RNLSP to carry out enhanced surveillance for AMR strains of N. gonorrhoeae due to the increased prevalence of such strains in the Americas region. [5] Separately, the Thematic Network for Research and Surveillance of Drug Resistance (INVIFAR) is led by the Autonomous University of Nuevo Leon in collaboration with 51 other laboratories located in 24 states across Mexico. [6, 7] INVIFAR tests for 7 priority AMR pathogens: E. coli, K. pneumonia, S. aureus, S. pneumoniae, Salmonella spp., Shigella spp., and N. gonorrhoeae. [7, 8, 9, 10] INVIFAR collaborates with the Inter-Institutional Group for Surveillance of Vaccine Preventable Bacterial Diseases for the surveillance of S. pneumoniae. [10]

[1] Pan American Health Organization. 2014. "Annual Report for the Surveillance Network for Antibiotic Resistance" ("Informe Anual de la Red de Monitoreo/Vigilancia de la Resistencia a los Antibióticos"). [https://www.paho.org/hq/dmdocuments/2017/2014-cha-informe-anual-relavra.pdf]. Accessed 1 October 2020.
[2] DIRECCIóN GENERAL DE EPIDEMIOLOGíA. 2016. "Informe Anual 2015 RHOVE". [https://www.gob.mx/cms/uploads/attachment/file/212974/infoanual_rhove_2015.pdf]. Accessed 1 October 2020.
[3] Ministry of Health (SALUD). 2015. "Mycobacterial program". [https://www.gob.mx/salud/acciones-y-programas/programa-de-micobacteriosis]. Accessed 1 October 2020.
[4] National Center for Preventive and Disease Control Programs (CENAPRECE). 2017. "Directorate of the Mycobacterial Program". [https://www.gob.mx/salud/cenaprece/acciones-y-programas/direccion-del-programa-de-micobacteriosis-140073]. Accessed 1 October 2020.
[5] National Commission for Epidemiological Surveillance (CONAVE). 2018. "Epidemiological Alert CONAVE/02/2018". [https://www.gob.mx/cms/uploads/attachment/file/306542/AE_Neisseriagonorrhoeae_20180306.pdf]. Accessed 1 October 2020.
[6] Thematic Network for Research and Surveillance of Drug Resistance (INVIFAR). 2020. "About".

[https://invifar.ucol.mx/invifar/acerca.htm]. Accessed 1 October 2020.
[7] Council of General Health Standards (CSG). 2019. "Regional networks for bacterial resistance". [https://anmm.org.mx/actas2019/SO19JUN2019/IGNACIO-SANTOS.pptx]. Accessed 1 October 2020.
[8] Thematic Network for Research and Surveillance of Drug Resistance (INVIFAR). 2019. "Consolidated identification report, species identification". [https://invifar.ucol.mx/content/micrositios/294/file/2019/docs/reporte-resistencia-julio-2019.pdf]. Accessed 1 October 2020.
[9] Thematic Network for Research and Surveillance of Drug Resistance (INVIFAR). 2018. "Consolidated identification report, species identification". [https://invifar.ucol.mx/content/micrositios/294/file/identificaci%C3%B3n2envio.pdf]. Accessed 1 October 2020.
[10] Thematic Network for Research and Surveillance of Drug Resistance (INVIFAR). "Cultures of wounds, abscesses, and soft tissues". [https://invifar.ucol.mx/content/micrositios/294/file/2019/docs/cultivo-heridas-abscesos-tejidos-blandos.pdf]. Accessed 1 October 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: 1

In Mexico, there is some evidence that government conducts environmental detection or surveillance activities (e.g., in soil, waterways) for antimicrobial residues or AMR organisms. The National Action Strategy against Antimicrobial Resistance, which was issued in 2018, describes actions and goals for environmental AMR surveillance. Strategy 2.2.2 calls on the government to "strengthen public health monitoring and surveillance of AMR in bacteria found in water used for human consumption, agriculture and recycled water". Specific actions include monitoring and measuring antimicrobial residues in water, sediments and soil "in strategic points". The strategy does not state where these "strategic points" are located or what criteria should be used to select them. The strategy does not describe ongoing environmental monitoring, but the wording indicates that it is calling for strengthening environmental monitoring that is already occurring. [1] Evidence indicates that Mexico's Federal Commission for Protection from Health Risks (COFEPRIS) carries out environmental detection or surveillance activities for antimicrobial residues or AMR organisms. COFEPRIS' Environmental Health Office lists "Antimicrobial Resistance" among the items that it monitors in the environment. [2] COFEPRIS documents from previous years document the agencies activities monitoring waterways, although they do not specifically mention AMR. [3] In addition, academic studies have carried out environmental detection of AMR organisms on an ad hoc basis. A 2018 study evaluated rivers in the state of Sinaloa, identifying strains of Salmonella and testing them for AMR. The study noted that "in Mexico there is a lack of knowledge regarding the phenotypes of antimicrobial resistance of different serotypes of Salmonella recovered from aquatic ecosystems". [4] A 2009 study in the same state carried out detection of E. coli and Salmonella y waterways and soil and tested the samples for AMR. [5] A 2019 study documented ad hoc surveillance of Salmonella in Mexico in the environment and other areas from 1968 to 2018. [6]

[1] Consejo de Salubridad General. 2018. "ACUERDO por el que se declara la obligatoriedad de la Estrategia Nacional de Acción contra la Resistencia a los Antimicrobianos". [http://www.dof.gob.mx/nota_detalle.php?codigo=5525043&fecha=05/06/2018]. Accessed 1 October 2020.
[2] Federal Commission for Protection from Health Risks (COFEPRIS). 2017. "Environmental Health". [https://www.gob.mx/cofepris/acciones-y-programas/salud-ambiental-72573]. Accessed 2 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2002. "Action Program: Environmental Health". [http://www.salud.gob.mx/unidades/cdi/documentos/DOCSAL7103.pdf]. Accessed 2 October 2020.
[4] Castañeda-Ruelas, Gloria Marisol, & Jiménez-Edeza, Maribel. 2018. "EVALUACIóN DE RíOS DEL VALLE DE CULIACáN,

MéXICO, COMO RESERVORIOS DE SEROTIPOS DE Salmonella RESISTENTES A ANTIBIóTICOS". [http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0188-49992018000200191&lng=es&nrm=iso&tlng=es]. Accessed 2 October 2020.
[5] López Cuevas, O., et al. 2009. "Detección y resistencia a antibióticos de Escherichia coli y Salmonella en agua y suelo agrícola". [https://www.cabdirect.org/cabdirect/abstract/20103150983]. Accessed 2 October 2020.
[6] Contreras-Soto, M. B., Medrano-Félix, J. A., Ibarra-Rodríguez, J. R., Martínez-Urtaza, J., Chaidez, Q. C., Castro-del Campo, N. 2019. "The last 50 years of Salmonella in Mexico: Sources of isolation and factors that influence its prevalence and diversity". [http://revistabiociencias.uan.edu.mx/index.php/BIOCIENCIAS/article/download/540/pdf]. Accessed 2 October 2020.

1.1.2 Antimicrobial control

1.1.2a

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

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

Current Year Score: 2

In Mexico, there is national regulation in place requiring prescriptions for antibiotic use for humans, and there is evidence of enforcement. In May 2010, the Ministry of Health issued regulations ("Agreement which determines the guidelines for sales and dispensing of antibiotics") requiring a medical prescription for antibiotic sales. The first paragraph states that antibiotics can only be sold and dispensed with the presentation of a corresponding medical prescription. Additionally, the second paragraph requires pharmacies to maintain records regarding antibiotic sales for at least one year. [1] Article 226 of the General Health Law states that the Ministry of Health has the discretion to regulate which medicines require prescriptions. [2] In 2018, the Health Operation Commission of the Federal Commission for Protection from Health Risks (COFEPRIS) reported that between 2012 and 2018 it visited 3000 pharmacies for supervision, applying 48 fines worth a total of approximately US$1m. [3] The World Health Organization's Global Database for Antimicrobial Resistance Country Self Assessment states that in 2018 Mexico reported that "Prescribing practices and appropriate antibiotic use are monitored in a national sample of healthcare settings"; "Practices to assure appropriate antimicrobial use being implemented in some healthcare facilities and guidelines for appropriate use of antimicrobials available"; and "National legislation covers all aspects of national manufacture, import, marketing authorization, control of safety, quality and efficacy and distribution of antimicrobial products". [4]

[1] Secretaria de Salud. 2010. "Agreement which determines the guidelines for sales and dispensing of antibiotics". [http://dof.gob.mx/nota_detalle.php?codigo=5144336&fecha=27/05/2010]. Accessed 2 October 2020.
[2] CÁMARA DE DIPUTADOS DEL H. CONGRESO DE LA UNIÓN. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[3] Pérez Vega, Álvaro Israel. 2018. "Normative compliance in control of the sale and dispensing of antibiotics in pharmacies and perspectives in Mexico on the fight against Antimicrobial Resistance". [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin22/Cumplimento.pdf]. Accessed 2 October 2020.
[4] World Health Organization. 2018. "Mexico - Global Database for Antimicrobial Resistance Country Self Assessment". [https://amrcountryprogress.org/]. Accessed 2 October 2020.

1.1.2b

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

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

Current Year Score: 0

In Mexico, there is insufficient evidence of a national regulation in place requiring prescriptions for antibiotic use for animals. Article 103 of the Federal Animal Health Law (last modified in 2018) states that the Ministry of Agriculture is tasked with deciding which veterinary medicines require prescriptions for use in animals. [1] In 2012, the Ministry of Agriculture issued the “Agreement to modify the sections that establish the classification and prescription of veterinary pharmaceutical products based on the level of risk and active ingredients”. The Agreement lists all approved antimicrobials under Group II, which require a prescription. [2] According to regulation NOM-064-ZOO-2000, Group II medicines require a prescription issued by a licensed veterinarian. [3] However, a 2014 presentation from the National Service for Agricultural Health, Food Safety and Quality (SENASICA), which is a subordinate office of the Ministry of Agriculture, stated that "the majority of antimicrobials" were “Group II” medicines. The presentation did not specify which were Group II medicines and which were not. [4] In 2018, SENASICA prohibited 16 antimicrobials from use in animals. [5, 6] In August 2020, SENASICA stated that it planned to update regulations for pharmaceutical products for animal use and consumption but did not establish a date for this to occur. [7] There was no specific evidence about antibiotics. The websites of the Ministry of Agriculture, the Ministry of Health, and SENASICA do not contain additional information regarding enforcement of regulations requiring prescriptions for antibiotic use for animals. [8, 9, 10]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. “Federal Animal Health Law”. [http://www.diputados.gob.mx/LeyesBiblio/pdf/LFSA_160218.pdf]. Accessed 4 October 2020.
[2] Ministry of Agriculture. 2012. “Agreement to modify the sections that establish the classification and prescription of veterinary pharmaceutical products based on the level of risk and active ingredients”. [https://www.gob.mx/cms/uploads/attachment/file/116804/Acuerdo_productos_farmac_uticos_veterinarios.pdf]. Accessed 4 October 2020.
[3] Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria. 2015. “NOM-064-ZOO-2000”. [https://www.gob.mx/cms/uploads/attachment/file/563491/NOM-064-ZOO-2000_270103.pdf]. Accessed 4 October 2020.
[4] Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria. 2014. “Regulation of Firms and Products for Animal Use or Consumption". [http://publico.senasica.gob.mx/includes/asp/download.asp?IdDocumento=27139&IdUrl=68992&objeto=Documento&IdObjetoBase=27139&down=true]. Accessed 4 October 2020.
[5] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2018. “SAGARPA issues list of prohibited substances for animal consumption”. [https://www.gob.mx/senasica/prensa/emite-sagarpa-listado-de-sustancias-prohibidas-para-consumo-animal-167119?state=published]. Accessed 4 October 2020.
[6] Ministry of Agriculture. 2018. “ACUERDO por el que se da a conocer el listado de sustancias o productos prohibidos para uso o consumo en animales destinados al abasto”. [https://dof.gob.mx/nota_detalle.php?codigo=5531469&fecha=13/07/2018]. Accessed 4 October 2020.
[7] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. “Agriculture pushes good practices for use of inputs for production and animal health”. [https://www.gob.mx/senasica/prensa/impulsa-agricultura-buenas-practicas-en-el-uso-de-insumos-para-la-produccion-y-salud-animal-249375]. Accessed 4 October 2020.
[8] Ministry of Health. 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. “Agricultura”. [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. “SENASICA”. [https://www.gob.mx/senasica]. Accessed 4 October 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

In Mexico, there are national regulations and plans on zoonotic disease. Article 57 of the 2018 Federal Animal Health Law provides general guidance regarding zoonoses, stating that the Ministry of Agriculture and the Ministry of Health will coordinate to eliminate and control zoonotic disease. The law does not describe how that coordination should occur or what it should entail. [1] Health regulation NOM-032-SSA2-2014 from 2015 provides more specific guidance for surveillance of all "vector-borne diseases", including several zoonoses. The regulation covers surveillance, diagnosis, treatment, prevention and control. Details include which diagnostic testing methods are appropriate for each disease. In terms of control, the regulation describes "comprehensive vector management", which includes physically removing vector habitats, preventing vector access to households and proper community waste management, among other actions. The regulation specifically mentions the following zoonoses: leishmaniasis, Chagas disease, West Nile Virus, plague and rickettsiosis. [2] In 2020, the Ministry of Health published its plan for National Health Promotion Days, which includes Appendix 6 "Guidelines for Disease Prevention and Control Programs: Zoonosis". The guidelines discuss the One Health concept and specifically mention efforts to prevent and control rabies, Rocky Mountain Spotted Fever, brucellosis and pork tapeworm. The guidelines' general objective is to "strengthen specific promotion and prevention actions to limit the transmission of zoonotic diseases to the population". The guidelines describe actions to carry out in this respect during 2020. The guidelines mention the 2019-2024 Specific Action Program (PAE) for Zoonosis Prevention and Control in Public Health, but this document is not publicly available. [3]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "Federal Animal Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LFSA_160218.pdf]. Accessed 4 October 2020.
[2] Ministry of Health. 2015. "NOM-032-SSA2-2014". [https://www.dof.gob.mx/nota_detalle.php?codigo=5389045&fecha=16/04/2015]. Accessed 4 October 2020.
[3] Ministry of Health. 2020. "General Guidelines for the 1st National Public Health Promotion Day". [https://www.gob.mx/cms/uploads/attachment/file/541275/Lineamientos_Generales_1a_Jornada_Nacional_Salud_Publica.pdf]. Accessed 4 October 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 insufficient evidence that theree are national regulations and plans that include measures for risk identification and reduction for zoonotic disease spillover events from animals to humans in Mexico. In 2016, the Ministry of Health and the Ministry of Agriculture hosted a meeting on prevention and control of taeniasis. The actions discussed included reducing risk from backyard pig raising activities, as well as “identifying risk areas” and intervening in them. [1] In addition, health regulation NOM-032-SSA2-2014 provides specific guidance for West Nile Virus (WNV) and Rickettsiosis. In terms of WNV, the regulations require ongoing studies to identify “natural reservoirs of the disease, with the goal of identifying domestic

(especially equine) or wild animals, that are reservoirs or accidental hosts". Section 7.6.2.4 of the regulations requires bird studies to identify reservoir populations and section 7.6.2.5 requires laboratory studies in cases of unusual bird deaths. [2] In terms of Rickettsiosis, section 7.7.5 requires searching for and taxonomically identifying vectors for the disease, "especially dogs, cats and rats". Infestation rates should be measured before and after interventions. [2] In addition, the Ministry of Health's 2020 plan for National Health Promotion Days includes Appendix 6 "Guidelines for Disease Prevention and Control Programs: Zoonosis", which includes similar actions to identify and reduce risks for Rickettsiosis, as well as implementing twice-yearly rabies vaccination campaigns among cats and dogs to prevent reservoirs of the disease and the risk of transmission to humans. [3]

[1] National Center for Preventive and Disease Control Programs (CENAPRECE). 2016. "Forum for Training, Prevention and Control of Taeniasis".
[http://www.cenaprece.salud.gob.mx/programas/interior/zoonosis/ForoCapacitacionPrevencionControlTeniasisCisticercosis.html]. Accessed 4 October 2020.
[2] Ministry of Health. 2015. "NOM-032-SSA2-2014".
[https://www.dof.gob.mx/nota_detalle.php?codigo=5389045&fecha=16/04/2015]. Accessed 4 October 2020.
[3] Ministry of Health. 2020. "General Guidelines for the 1st National Public Health Promotion Day".
[https://www.gob.mx/cms/uploads/attachment/file/541275/Lineamientos_Generales_1a_Jornada_Nacional_Salud_Publica.pdf]. Accessed 4 October 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

In Mexico, there are national regulations and plans that account for the surveillance and control of multiple zoonotic pathogens of public health concern. In terms of surveillance, health regulation NOM-017-SSA2-2012, which sets up Mexico's epidemiological surveillance system, includes zoonoses on its compulsory reporting list. The list requires healthcare providers to report cases of the listed illnesses to the Ministry of Health (SSA) immediately, daily or weekly. Listed zoonoses include brucellosis, rabies, leptospirosis, cysticercosis, taeniasis and trichinellosis. This regulation only covers surveillance; control of zoonoses is covered in the regulations below. [1] Health regulation NOM-032-SSA2-2010 provides specific guidance for surveillance and control of all "vector-borne diseases", including zoonoses. The regulation covers surveillance, diagnosis, treatment, prevention and control. Details include which diagnostic testing methods are appropriate for each disease. In terms of control, the regulation describes "comprehensive vector management", which includes physically removing vector habitats, preventing vector access to households and proper community waste management, among other actions. The regulation specifically mentions the following zoonoses: leishmaniasis, Chagas disease, West Nile Virus, plague and rickettsiosis. [2] A 2013 document outlines the "Specific Action Program for Prevention and Control of Human Rabies" from 2013-2018. Specific goals include ensuring anti-rabies vaccinations, with a 95% coverage level, and strengthening active surveillance of the rabies virus. [3] Health regulations and manuals also describe surveillance, prevention and control programs for rabies (NOM-011-SSA2-2011), brucellosis (NOM-041-ZOO-1995), and leptospirosis. [4, 5, 6, 7]

[1] Ministry of Health (Secretaria de Salud). 2013. "Official Mexican Regulation NOM-017-SSA2-2012, For epidemiological surveillance" ("NORMA Oficial Mexicana NOM-017-SSA2-2012, Para la vigilancia epidemiológica").
[http://dof.gob.mx/nota_detalle.php?codigo=5288225&fecha=19/02/2013]. Accessed 4 October 2020.
[2] Ministry of Health. 2015. "NOM-032-SSA2-2014".
[https://www.dof.gob.mx/nota_detalle.php?codigo=5389045&fecha=16/04/2015]. Accessed 4 October 2020.

[3] Ministry of Health (Secretaria de Salud). 2013. "Specific Action Program for Prevention and Control of Human Rabies" ("Programa de Accion Especifica Prevención y Control de la Rabia Humana"). [http://www.cenaprece.salud.gob.mx/descargas/pdf/PAE_PrevencionControlRabiaHumana2013_2018.pdf]. Accessed 4 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2011. "Official Mexican Regulation NOM-011-SSA2-2011, For the prevention and control of human rabies and in dogs and cats" ("Norma Oficial Mexicana NOM-011-SSA2-2011, Para la prevención y control de la rabia humana y en los perros y gatos"). [http://www.cenaprece.salud.gob.mx/programas/interior/zoonosis/descargas/pdf/NOM-011-SSA2-2011.pdf]. Accessed 4 October 2020.
[5] Ministry of Agriculture, Ranching, Rural Development, Fishing and Nutrition (Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimentacion). 1995. "Official Mexican Regulation NOM-041-ZOO-1995, National Campaign against Brucellosis in Animals" ("NORMA Oficial Mexicana NOM-041-ZOO-1995, Campaña Nacional contra la Brucelosis en los Animales"). [http://dof.gob.mx/nota_detalle.php?codigo=4896374&fecha=20/08/1996]. Accessed 4 October 2020.
[6] Ministry of Health (Secretaria de Salud). 2012. "Leptospirosis Manual". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/14_Manual_Leptospirosis.pdf]. Accessed 4 October 2020.
[7] Ministry of Health (Secretaria de Salud). 2012. "Human Rabies Manual". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/27_Manual_RabiaenHumano.pdf]. Accessed 4 October 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

In Mexico, there is no public evidence of a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. Under the direction of the Ministry of Health, the National Centre for Preventative Programs and Control of Diseases (CENAPRECE) houses the Subdirectorate of Rabies and Other Zoonoses, but there is no public evidence that this office functions outside the Ministry of Health. [1] On the animal health side, the National Technical Consultative Council for Animal Health (CONASA) houses a working group on zoonoses, but there is no public evidence that this group's duties extend beyond the Ministry of Agriculture (SADER). [2] The websites of the Ministry of Health, SADER, CENAPRECE, National Service for Agricultural Health, Food Safety and Quality (SENASICA), and CONASA do not contain additional information regarding a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. [3, 4, 5, 6, 7]

[1] National Center for Preventive and Disease Control Programs (Centro Nacional de Programas Preventivos y Control de Enfermedade). 2017. "SUBDIRECCIÓN DE RABIA Y OTRAS ZOONOSIS". [https://www.gob.mx/salud/cenaprece/acciones-y-programas/subdireccion-de-rabia-y-otras-zoonosis-140066]. Accessed 4 October 2020.
[2] National Consultative Technical Council for Animal Health (Consejo Técnico Consultivo Nacional de Sanidad Animal). 2020. "Committees". [https://www.conasamexico.org/comites]. Accessed 4 October 2020.
[3] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. "SENASICA". [https://www.gob.mx/senasica]. Accessed 4 October 2020.
[6] National Center for Preventive and Disease Control Programs (Centro Nacional de Programas Preventivos y Control de Enfermedade). 2020. "CENAPRECE". [https://www.gob.mx/salud/cenaprece]. Accessed 4 October 2020.
[7] National Consultative Technical Council for Animal Health (Consejo Técnico Consultivo Nacional de Sanidad Animal). 2020.

"CONASA". [https://www.conasamexico.org/]. Accessed 4 October 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

In Mexico, there is a national mechanism for owners of livestock to conduct and report on disease surveillance to central government agencies. The Federal Commission for Protection from Sanitary Risks' (COFEPRIS) website contains instructions for providing in-person or online reports of zoonoses in livestock. [1] The online reporting portal requires users to register and create an account. [2] In addition, the Ministry of Agriculture's (SADER) National Service for Agricultural Health, Food Safety and Quality (SENASICA) provides physical forms for extension agents, veterinarians or livestock owners to report diseases. These forms can be submitted at local extension offices. [3, 4] This data is entered into SADER's Epidemiological Surveillance System (SIVE) which collects and consolidates livestock disease information electronically. [5] In addition, SENASICA receives reports of all notifiable diseases, including zoonoses, via email, telephone and via a 24-hour toll-free emergency hotline. [4]

[1] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "Aviso de aislamiento de ganado o presencia de zoonosis". [https://www.gob.mx/tramites/ficha/aviso-de-aislamiento-de-ganado-o-presencia-de-zoonosis/COFEPRIS3411]. Accessed 4 October 2020.
[2] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "Trámites electrónicos de la COFEPRIS". [https://tramiteselectronicos02.cofepris.gob.mx/Frontendnuevoportal/login.aspx]. Accessed 4 October 2020.
[3] Ministry of Agriculture. 2020. "Forms for reporting diseases and pests". [https://www.gob.mx/senasica/documentos/formatos-para-el-reporte-de-enfermedades-y-plagas-del-sive?idiom=es]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2018. "ACUERDO mediante el cual se dan a conocer en los Estados Unidos Mexicanos las enfermedades y plagas exóticas y endémicas de notificación obligatoria de los animales terrestres y acuáticos". [http://dof.gob.mx/nota_detalle.php?codigo=5545304&fecha=29/11/2018]. Accessed 4 October 2020.
[5] Secretaria de Agricultura y Desarrollo Rural. 2014. "REGULACIÓN Y CONTROL DE ANTIMICROBIANOS EN PRODUCCION ANIMAL EN MEXICO". [https://www.paho.org/mex/index.php?option=com_docman&view=download&category_slug=technical-documentation&alias=925-691-12&Itemid=493]. Accessed 4 October 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, legal and regulatory guidelines safeguard the confidentiality of information generated through surveillance activities for animals (for owners). Title V, Chapter II of the 2012 Regulations of the Federal Animal Health Law states that the Ministry of Agriculture (SADER) will provide confidentiality to livestock owners in its traceability program and epidemiological

investigation and surveillance activities. [1] The Federal Commission for Protection from Sanitary Risks' (COFEPRIS) receives in-person and online reports of zoonoses in livestock. [2] COFEPRIS' online reporting portal contains a privacy notice stating that user data will be treated confidentially except as required by law or judicial order. [3]

[1] Presidency of the Republic. 2012. "Regulations of the Federal Animal Health Law (REGLAMENTO de la Ley Federal de Sanidad Animal)". [https://www.dof.gob.mx/nota_detalle.php?codigo=5248926&fecha=21/05/2012]. Accessed 4 October 2020.
[2] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "Aviso de aislamiento de ganado o presencia de zoonosis". [https://www.gob.mx/tramites/ficha/aviso-de-aislamiento-de-ganado-o-presencia-de-zoonosis/COFEPRIS3411]. Accessed 4 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "Trámites electrónicos de la COFEPRIS". [https://tramiteselectronicos02.cofepris.gob.mx/Frontendnuevoportal/login.aspx]. Accessed 4 October 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

In Mexico, the government conducts surveillance of zoonotic disease in wildlife. In 2016, the Ministry of Agriculture and Rural Development's (SADER) National Service for Agricultural Health, Food Safety and Quality (SENASICA) reported on the progress of its zoonotic disease surveillance and control program among wild bat populations that are potential vectors for rabies. After cows and horses, bats were the most common carrier identified in the surveillance program from 1997-2016, but only represented 1.3% of cases. [1] Additionally, animal health regulation NOM-031-ZOO-1995, which regulates Mexico's National Campaign Against Bovine Tuberculosis, provides for wildlife surveillance of that disease. Section 3.32 of the regulation defines "susceptible species" to include bovine, caprine, ovine, bird, canine and feline species, as well as "other wild mammals" and humans. Section 4.2 states that SADER has the authority to include any wild animal species that it deems necessary in the campaign. [2] Article 11 of the Federal Animal Health Law states that the Ministry of Environment and Natural Resources (SEMARNAT) will coordinate with SADER to control diseases in wildlife. The law does not state which animals or diseases are included in this coordination. [3] Article 344 of the Regulations of the Federal Animal Health Law states that SADER will publish a list of animal diseases annually for which notification is compulsory and the list will include zoonotic diseases. [4] The most recent list was published at the end of November 2018. Article 1 of the list specifically states notification is also compulsory if the listed diseases are found in wildlife. One disease is listed specifically for wildlife: chronic wasting disease in deer populations. The list does not categorize zoonoses separately, but some are included on the list, including anthrax, brucellosis, rabies and tuberculosis. [5] In addition, health regulation NOM-032-SSA2-2014 provides specific guidance for West Nile Virus (WNV) and Rickettsiosis. In terms of WNV, the regulations require ongoing studies to identify "natural reservoirs of the disease, with the goal of identifying domestic (especially equine) or wild animals, that are reservoirs or accidental hosts". Section 7.6.2.4 of the regulations requires bird studies to identify reservoir populations and section 7.6.2.5 requires laboratory studies in cases of unusual bird deaths. [6]

[1] Ministry of Agriculture. 2016. "Epidemiological Surveillance of Zoonoses of Public Health Interest". [http://www.cenaprece.salud.gob.mx/programas/interior/zoonosis/descargas/pdf/VigilanciaEpiZooSaludPubSistEsp.pdf]. Accessed 4 October 2020.
[2] Ministry of Agriculture. 1998. "NOM-031-ZOO-1995". [https://www.gob.mx/cms/uploads/attachment/file/203452/Modificaci_n_NOM-031-ZOO-1995_270898.pdf]. Accessed 4 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2018. "Federal Animal Health Law".

[http://www.diputados.gob.mx/LeyesBiblio/pdf/LFSA_160218.pdf]. Accessed 4 October 2020.
[4] Presidency of the Republic. 2012. "Regulations of the Federal Animal Health Law (REGLAMENTO de la Ley Federal de Sanidad Animal)". [https://www.dof.gob.mx/nota_detalle.php?codigo=5248926&fecha=21/05/2012]. Accessed 4 October 2020.
[5] Ministry of Agriculture. 2018. "ACUERDO mediante el cual se dan a conocer en los Estados Unidos Mexicanos las enfermedades y plagas exóticas y endémicas de notificación obligatoria de los animales terrestres y acuáticos". [http://dof.gob.mx/nota_detalle.php?codigo=5545304&fecha=29/11/2018]. Accessed 4 October 2020.
[6] Ministry of Health. 2015. "NOM-032-SSA2-2014". [https://www.dof.gob.mx/nota_detalle.php?codigo=5389045&fecha=16/04/2015]. Accessed 4 October 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: 56.1

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: -

No data available

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient public evidence of specific mechanisms for working with the private sector in controlling or responding to zoonoses. There is evidence of collaboration between the government and the private sector, but it is principally in terms of surveillance of zoonoses. Health regulation NOM-032-SSA2-2010, which sets up surveillance for all "vector-borne diseases", prioritizes the participation of the private sector in surveillance activities for zoonotic disease. Section 7.2.7.2.1 states that active surveillance can be carried out by any private party that expresses interest in becoming a "Voluntary Notifier" and receives training from local health authorities. [1] Health regulation NOM-017-SSA2-2012, which sets up the National Epidemiological Surveillance System (SINAVE), specifically includes private health facilities in its surveillance and monitoring programs. The regulation includes zoonoses on its compulsory reporting list. Listed zoonoses include brucellosis, rabies, leptospirosis, cysticercosis, taeniasis and trichinellosis. [2] In terms of response, the Federal Animal Health Law tasks the Ministry of Agriculture and Rural Development (SADER) with training veterinarians and animal health professionals in the private sector to respond to animal diseases and zoonoses. [3] In 2020, the Ministry of Health published its plan for National Health Promotion Events, which includes Appendix 6 "Guidelines for Disease Prevention and Control Programs: Zoonosis". The guidelines' general objective is to "strengthen specific promotion and prevention actions to limit the transmission of zoonotic diseases to the population". In terms of working with the private sector, the guidelines only contain a generic mention of "mobilizing the public and private sectors and the general population" for integrated vector control to respond to an increase in cases of dengue fever. [4] The websites of the Ministry of Health, SADER, National Center for Preventative Programs and Control of Diseases (CENAPRECE), the National Technical Consultative Council for Animal Health (CONASA), the National Institute of Public Health, National Service for Agricultural Health, Food Safety and Quality (SENASICA), and the National Network of Public Health Laboratories do not contain additional information regarding specific mechanisms for working with the private sector in controlling or responding to zoonoses. [5, 6, 7, 8, 9, 10, 11]

[1] Ministry of Health. 2015. "NOM-032-SSA2-2014".
[https://www.dof.gob.mx/nota_detalle.php?codigo=5389045&fecha=16/04/2015]. Accessed 4 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Official Mexican Regulation NOM-017-SSA2-2012, For epidemiological surveillance" ("NORMA Oficial Mexicana NOM-017-SSA2-2012, Para la vigilancia epidemiológica").
[http://dof.gob.mx/nota_detalle.php?codigo=5288225&fecha=19/02/2013]. Accessed 4 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2018. "Federal Animal Health Law".
[http://www.diputados.gob.mx/LeyesBiblio/pdf/LFSA_160218.pdf]. Accessed 4 October 2020.
[4] Ministry of Health. 2020. "General Guidelines for the 1st National Public Health Promotion Event".
[https://www.gob.mx/cms/uploads/attachment/file/541275/Lineamientos_Generales_1a_Jornada_Nacional_Salud_Publica.pdf]. Accessed 4 October 2020.
[5] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. "SENASICA".
[https://www.gob.mx/senasica]. Accessed 4 October 2020.
[6] National Center for Preventive and Disease Control Programs (Centro Nacional de Programas Preventivos y Control de Enfermedade). 2020. "CENAPRECE". [https://www.gob.mx/salud/cenaprece]. Accessed 4 October 2020.
[7] National Consultative Technical Council for Animal Health (Consejo Técnico Consultivo Nacional de Sanidad Animal). 2020. "CONASA". [https://www.conasamexico.org/]. Accessed 4 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.

[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. “Instituto Nacional de Salud Publica”. [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. “Platform for the National Network of Public Health Laboratories" (“Plataforma para la Red Nacional de Laboratorios de Salud Pública”). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 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

In Mexico, there is insufficient public evidence that the government has a record of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities. Mexico's 2020 Confidence Building Measures (CBM) report states that there are no BSL4 laboratories in the country, nine BSL3 laboratories and "multiple" BSL2 laboratories, as well as two vaccine production facilities. [1] The 2018/2019 CBM report listed 95 BSL2 laboratories. [2] Neither report contains information regarding inventories and inventory management systems of those facilities. [1, 2] The BSL3 laboratories listed in the 2020 CBM report include three laboratories that are part of the National Network of Public Health Laboratories (RNLSP) as well as other government and academic laboratories. [1] RNLSP laboratories are required to maintain an inventory of all biological materials and agents in their possession as well implement procedures to safeguard them, according to the network's "Criteria for the Operation" document. [3] The criteria do not mention a national inventory of such substances or a list of all laboratories that handle them, nor do they apply to laboratories outside the RNLSP. [3] Similarly, the "Guidelines for Biological Risk Management" jointly issued by the Ministry of Health's General Directorate of Epidemiology (DGE), the Institute for Epidemiological Diagnosis and Reference (InDRE) and the RNLSP do not mention a national inventory of facilities with especially dangerous pathogens and toxins. These guidelines provide very basic requirements for RNLSP laboratories' inventory management systems. [4] In terms of implementation, in 2012, the RNLSP reported that it had completed its inventory of pathogens. [5] In 2014, Mexico co-presented a "tool for evaluating facilities with biological agents" for Biological Weapons Convention party states. The tool is a questionnaire that "promotes the development of an inventory of relevant biological agents on a national level". There is no public evidence that Mexico has implemented the tool to create a national inventory. [6] The websites of the Ministry of Health, the RNLSP, the Ministry of National Defense, Ministry of Agriculture, National Public Health Institute, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding the existence of a record of the facilities in which especially dangerous pathogens and toxins are stored or processed. [7, 8, 9, 10, 11, 12, 13]

[1] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[2] Government of Mexico. 2019. "2018 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_mexico.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2015. "Criteria for the Operation RNLSP". [https://www.gob.mx/cms/uploads/attachment/file/487548/CORNLSP_VE_4T.pdf]. Accessed 5 October 2020.

[4] Ministry of Health. 2015. "Guidelines for Biological Risk Management". [https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[5] Secretaria de Salud. 2012. "Libro blanco 2007-2012 INFLUENZA AH1N1 Y FORTALECIMIENTO DE LA RED NACIONAL DE LABORATORIOS". [http://www.cenaprece.salud.gob.mx/descargas/pdf/libro_blanco_influenza-laboratorios.pdf]. Accessed 5 October 2020.
[6] Government of Mexico, et al. 2014. "Strengthening national implementation of the Convention: A tool for evaluating facilities with biological agents". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/4E958F07F81FB779C1257D4900480BCA/$file/BWC_MSP_2014_MX_WP.6.pdf]. Accessed 5 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 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

In Mexico, there is insufficient evidence that the government has legislation and/or regulations in place 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. Some biosecurity regulations exist, but they only apply to the National Network of Public Health Laboratories (RNLSP). In 2015, the Ministry of Health's General Directorate of Epidemiology (DGE), the Institute for Epidemiological Diagnosis and Reference (InDRE) and the RNLSP issued the "Guidelines for Biological Risk Management", which are compulsory for the 32 laboratories that comprise the RNLSP. The guidelines mention biosecurity and state that laboratories should provide containment measures and operational and safety procedures to promote biosecurity, but they do not provide specific details on requirements. The guidelines state that laboratories must establish a Committee for Biological Risk Management (CRB). The CRB must establish measures to protect and control "critical biological materials", but the guidelines do not describe what these measures must include. [1] Additionally, the guidelines state that an evaluation of biosecurity at RNLSP laboratories in 2011 noted the lack of risk management associated with biosecurity, including the lack of controlled access, nonexistent materials inventories and a lack of opportunities for training. [1] The "Regulations for the General Health Law on Matters of Health Research", Title IV, Chapter I regulate "Research with pathogenic microorganisms or biological material that could contain them" at all facilities in Mexico. The regulations focus on biosafety and only mention one aspect related to biosecurity—"restrictions for entry and

transit" (Article 77)—in areas where such materials are contained. [2] Similarly, health regulation NOM-007-SSA3-2011, which regulates the operation of all clinical laboratories, does not mention biosecurity. [3] In 2011, the Mexican Association for Biosafety (AMEXBIO), a civil society organization, noted the lack of a unified set of regulations for biosecurity and biosafety in the country. [4] In 2016, AMEXBIO published "Guidelines for Biological Risk Management", based on European Union guidelines. The guidelines include aspects of biosecurity, but they are not legally binding. [5] Mexico's 2020 Confidence Building Measures report states that the country has laws, regulations and other measures related to "biosafety and biosecurity", but the laws listed on Form E of the report do not include 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. [6] The websites of the Ministry of Health, the RNLSP, the Ministry of National Defense, Ministry of Agriculture, National Institute of Public Health, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding a publicly available record of the facilities in which especially dangerous pathogens and toxins are stored or processed. [7, 8, 9, 10, 11, 12, 13]

[1] Ministry of Health. 2015. "Guidelines for Biological Risk Management". [https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2011. "NORMA Oficial Mexicana NOM-007-SSA3-2011, Para la organización y funcionamiento de los laboratorios clínicos". [http://dof.gob.mx/nota_detalle.php?codigo=5240925&fecha=27/03/2012]. Accessed 5 October 2020.
[4] Mexican Association for Biosafety (Asociacion Mexicana de Bioseguridad A.C.). 2011. "Edicion Especial AMEXBIO - Revista AMEXBIO 2011". [https://amexbio.wildapricot.org/resources/Documents/RevistaAMEXBIO2011.pdf]. Accessed 5 October 2020.
[5] Mexican Association for Biosafety (Asociacion Mexicana de Bioseguridad A.C.). 2016. "Guidelines for Biological Risk Management". [https://amexbio.wildapricot.org/resources/Documents/RevistaAMEXBIO2016.pdf]. Accessed 5 October 2020.
[6] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 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

In Mexico, there is no public evidence that the government has an established agency responsible for the enforcement of biosecurity legislation and regulations. In terms of the public health system, the Ministry of Health (SSA) is responsible for the enforcement of biosecurity rules. [1] SSA sets standards and carries out enforcement for biosecurity and biosafety via the Institute for Epidemiological Diagnosis and Reference (InDRE) and the National Center for Epidemiological Surveillance and Control of Diseases (CENAVECE). [1] However, Mexico does not have universally applicable biosecurity legislation and regulations that the SSA could enforce throughout the entire healthcare sector (public and private). [1] Existing biosecurity rules only specifically apply to the National Network of Public Health Laboratories (RNLSP). The RNLSP's "Guidelines for Biological Risk Management" mention biosecurity and state that laboratories must establish a Committee for Biological Risk Management (CRB). The CRB must establish measures to protect and control "critical biological materials", but the guidelines do not describe what these measures must include. [2, 3] The "Regulations for the General Health Law on Matters of Health Research", Title IV, Chapter I regulate "Research with pathogenic microorganisms or biological material that could contain them" at all facilities in Mexico. The regulations focus on biosafety and only mention one aspect related to biosecurity—"restrictions for entry and transit" (Article 77)—in areas where such materials are contained. [4] According to Mexico's 2016 report to the Biological Weapons Convention, the country does not have a singular agency tasked with biosecurity regulation and enforcement. The report draws information from the SSA, InDRE, the Ministry of Agriculture (SADER), the Ministry of the Interior, the Ministry of Foreign Relations, and others. [5] Mexico's 2020 Confidence Building Measures report lists the Specialized High Level Committee for Matters regarding Disarmament, Terrorism and International Security (CANDESTI) as the national contact point for the Biological Weapons Convention. [6] CANDESTI is tasked with "coordinating compliance with international commitments on these matters in the national sphere". There is no mention of CANDESTI enforcing biosecurity legislation or regulations. [7] The websites of the SSA, the RNLSP, the Ministry of National Defense, SADER, National Institute of Public Health, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations. [8, 9, 10, 11, 12, 13, 14]

[1] Mexican Association for Biosafety (Asociacion Mexicana de Bioseguridad A.C.). 2011. "Edicion Especial AMEXBIO - Revista AMEXBIO 2011". [https://amexbio.wildapricot.org/resources/Documents/RevistaAMEXBIO2011.pdf]. Accessed 5 October 2020.
[2] Ministry of Health. 2015. "Criteria for the Operation RNLSP". [https://www.gob.mx/cms/uploads/attachment/file/487548/CORNLSP_VE_4T.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2015. "Guidelines for Biological Risk Management". [https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[4] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[5] Government of Mexico. 2016. "INFORME DEL GOBIERNO DE LOS ESTADOS UNIDOS MEXICANOS SOBRE LA APLICACIóN DEL ARTíCULO X DE LA CAB 2012-2016". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/E72C35412AA72AE7C125802D0027DE51/$file/INFORME+DE+M%C3%89XICO+-+ARTICULO+X+2016+CAB_Final.pdf]. Accessed 5 October 2020.
[6] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[7] National Center of Intelligence. 2018. "What is CANDESTI?". [https://www.gob.mx/cni/documentos/que-es-el-candesti]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.

[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[14] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 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

In Mexico, there is insufficient public evidence that the government has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. In its 2016 report to the Biological Weapons Convention, Mexico stated that it does not have a singular agency tasked with biosecurity regulation and enforcement for of especially dangerous pathogens and toxins. The report draws information from the Ministry of Health (SSA), the Institute for Epidemiological Diagnosis and Reference (InDRE), the Ministry of Agriculture (SADER), the Ministry of the Interior, the Ministry of Foreign Relations, and others. [1] Existing biosecurity rules only specifically apply to the National Network of Public Health Laboratories (RNLSP). They do not mention consolidating inventories of especially dangerous pathogens and toxins. [2, 3] The 2014 "Regulations for the General Health Law on Matters of Health Research", Title IV, Chapter I regulate "Research with pathogenic microorganisms or biological material that could contain them" at all facilities in Mexico. The regulations do not mention biosecurity specifically or consolidating inventories of dangerous pathogens and toxins. Article 82 states that the most dangerous microorganisms (Risk Group IV) can only be handled in "Maximum Safety Microbiology Laboratories", the safest of three categories of laboratories contemplated in the regulations. [4] Mexico's National Action Strategy against Antimicrobial Resistance mentions the creation of a "bio-bank" to store AMR organisms, but there is no evidence of progress toward this goal or the creation of a similar facility for especially dangerous pathogens and toxins. [5] The websites of the SSA, the RNLSP, the Ministry of National Defense, SADER, National Institute of Public Health, National Council of Science and Technology, Mexico's 2020 Confidence Building Measures, and Verification Research, Training and Information Centre (VERTIC) do not contain additional information regarding actions to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. [6, 7, 8, 9, 10, 11, 12, 13]

[1] Government of Mexico. 2016. "INFORME DEL GOBIERNO DE LOS ESTADOS UNIDOS MEXICANOS SOBRE LA APLICACIóN DEL ARTíCULO X DE LA CAB 2012-2016". [https://www.unog.ch/80256EDD006B8954/(httpAssets)/E72C35412AA72AE7C125802D0027DE51/$file/INFORME+DE+M%C3%89XICO+-+ARTICULO+X+2016+CAB_Final.pdf]. Accessed 5 October 2020.
[2] Ministry of Health. 2015. "Criteria for the Operation RNLSP". [https://www.gob.mx/cms/uploads/attachment/file/487548/CORNLSP_VE_4T.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2015. "Guidelines for Biological Risk Management". [https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[4] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.

[5] Council of General Health Standards (Consejo de Salubridad General). 2018. "ACUERDO por el que se declara la obligatoriedad de la Estrategia Nacional de Acción contra la Resistencia a los Antimicrobianos". [http://www.dof.gob.mx/nota_detalle.php?codigo=5525043&fecha=05/06/2018]. Accessed 1 October 2020.
[6] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[7] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 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

In Mexico, there is public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)–based diagnostic testing for anthrax and Ebola, which would preclude culturing a live pathogen. The Ministry of Health's (SSA) General Directorate of Epidemiology (DGE) published the "Manual for Preparation and Care for Cases of Disease from Ebola Virus" in 2014. The manual states that the Institute for Epidemiological Diagnosis and Reference (InDRE) is responsible for confirming cases of Ebola via diagnostic methods that include PCR. [1] In terms of anthrax, guidelines for public health personnel published by the National Institute of Public Health (INSP) in 2001 indicate that Mexico can perform diagnostic tests for anthrax via PCR. [2] In addition, a 2003 journal article details Mexico's experience using PCR techniques to test for anthrax in suspicious white powders at the InDRE. [3]

[1] Ministry of Health. 2014. "Manual for Preparation and Care for Cases of Disease from Ebola Virus". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/25E_Manual_Preparacion_y_Attn_de_casos_de_enfermedad_por_virus_Ebola.pdf]. Accessed 5 October 2020.
[2] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2001. "El A, B, C, sobre ántrax, para personal de salud". [http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0036-36342001000600013]. Accessed 5 October 2020.
[3] Sarti, E., Moreno-Galván, M., Rodríguez-Angeles, G., Viveros, G., Flores-León, R., & Tapia-Conyer, R. 2003. "Molecular characterization of anthrax in positive powders: a Mexican experience". [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC254376/]. Accessed 5 October 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

In Mexico, there is no public evidence that the government requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for all personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Biosecurity training is available for members of the National Network of Public Health Laboratories (RNLSP), but it is not required for personnel at all facilities in the country. The Ministry of Health (SSA) is responsible for the enforcement of biosecurity rules in the public health system. [1] SSA sets standards and carries out enforcement for biosecurity and biosafety via the Institute for Epidemiological Diagnosis and Reference (InDRE) and the National Centre for Epidemiological Surveillance and Control of Diseases (CENAVECE). [1] However, Mexico does not have universally applicable biosecurity legislation and regulations that the SSA could enforce throughout the entire healthcare sector (public and private). [1] Existing biosecurity rules only specifically apply to the RNLSP. [2, 3] The SSA's Criteria for the Operation of the RNLSP requires member laboratories to include biosecurity and biosafety training in their annual training program for personnel. The document does not further describe what the training should include. [2] In a 2011 interview, the head of the SSA stated that InDRE has led biosecurity training efforts in the RNLSP. [1] In 2019, InDRE offered a week-long, 40-hour course on Biosafety and Biosecurity to RNLSP personnel as well as staff from other laboratories. The course was limited to 30 participants and only took place once during the year. [4] The Mexican Association for Biosafety (AMEXBIO), a civil society organization, provides annual training opportunities for healthcare professionals, including opportunities to study and certify biosecurity competencies to international standards. Certifications include the International Federation of Biosafety Associations (IFBA) "Professional Certification in Biosecurity" and the IFBA "Professional Certification in Biocontainment Facilities". [5] The IFBA's study guide for the "Professional Certification in Biosecurity" covers protection, control and accountability for high-consequence biological agents and toxins. [6] The websites of the SSA, the RNLSP, the Ministry of National Defense, Ministry of Agriculture, National Institute of Public Health, National Council of Science and Technology, Mexico's 2020 Confidence Building Measures, and Verification Research, Training and Information Centre (VERTIC) do not contain additional information regarding required biosecurity training for all personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. [7, 8, 9, 10, 11, 12, 13, 14]

[1] Mexican Association for Biosafety (Asociacion Mexicana de Bioseguridad A.C.). 2011. "Edicion Especial AMEXBIO – Revista AMEXBIO 2011". [https://amexbio.wildapricot.org/resources/Documents/RevistaAMEXBIO2011.pdf]. Accessed 5 October 2020.
[2] Ministry of Health. 2015. "Criteria for the Operation RNLSP".
[https://www.gob.mx/cms/uploads/attachment/file/487548/CORNLSP_VE_4T.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2015. "Guidelines for Biological Risk Management".
[https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[4] Institute for Epidemiological Diagnosis and Reference (InDRE). 2019. "2019 Courses".
[https://www.gob.mx/cms/uploads/attachment/file/456102/Cursos_InDRE_2019.pdf]. Accessed 5 October 2020
[5] Mexican Association for Biosafety (AMEXBIO). 2020. "International Biosafety and Biosecurity Symposium".
[https://amexbio.org/sibb/]. Accessed 5 October 2020
[6] International Federation of Biosafety Associations. 2019. "Professional Certification in Biosecurity ? – Examination Content, Sample Questions, & References". [https://internationalbiosafety.org/wp-content/uploads/2019/02/3.2-

Professional-Certification-in-Biosecurity-Exam-Content-English.pdf]. Accessed 5 October 2020
[7] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[14] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 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

In Mexico, there is no public evidence that 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 vetting). Health regulation NOM-007-SSA3-2011, which regulates the organization and operation of clinical laboratories does not specify any vetting procedures for personnel. Section 5.1 describes qualifications and responsibilities for the "Health Responsible Individual" required for each laboratory, but there are no vetting requirements. Section 5.1.10 states that this individual must keep employee files updated but does not describe what information they should contain. Section 5.3 states that laboratory personnel should be "suitable" and must possess the appropriate academic titles and certifications but does not provide more detail. [1] In 2018, the Ministry of Health (SSA) published a draft of updated regulations for NOM-007-SSA3-2011, but the proposed changes do not include any personnel vetting measures. [2] In 2015, the SSA's General Directorate of Epidemiology (DGE), the Institute for Epidemiological Diagnosis and Reference (InDRE) and the National Network of Public Health Laboratories (RNLSP) issued the Guidelines for Biological Risk Management, which are compulsory for laboratories that form part of the RNLSP. The guidelines mention biosecurity and state that laboratories must establish a Committee for Biological Risk Management (CRB). The CRB must establish measures to protect and control "critical biological materials", but the guidelines do not describe what these measures must include or any personnel vetting procedures. The guidelines do mention the necessity to restrict access to biological materials and that only the "correct personnel" should have access to them. [3] The websites of the SSA, the RNLSP, the Ministry of National Defense, Ministry of Agriculture, National Institute of Public Health, National Council of Science and Technology, Mexico's 2020 Confidence Building Measures, and Verification

Research, Training and Information Centre (VERTIC) do not contain additional information regarding personnel vetting for security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential. [4, 5, 6, 7, 8, 9, 10, 11]

[1] Ministry of Health. 2011. "NORMA Oficial Mexicana NOM-007-SSA3-2011, Para la organización y funcionamiento de los laboratorios clínicos". [http://dof.gob.mx/nota_detalle.php?codigo=5240925&fecha=27/03/2012]. Accessed 6 October 2020.
[2] Ministry of Health. 2018. "PROY-NOM-007-SSA3-2017".
[https://www.dof.gob.mx/nota_detalle.php?codigo=5511878&fecha=31/01/2018]. Accessed 6 October 2020.
[3] Ministry of Health. 2015. "Guidelines for Biological Risk Management".
[https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[4] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT".
[https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[5] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[6] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[7] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico".
[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[8] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[10] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[11] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, there is publicly available information on national regulations on the safe and secure transport of infectious substances that specifically mentions Categories A and B. The Regulations for Ground Transport of Dangerous Materials and Waste (last updated in 2012) include "infectious agents" and describe packing, labelling and storage requirements for them. [1] Additionally, transport regulation NOM-002-SCT/2003, which lists the most commonly transported dangerous substances and materials, specifically includes Category A and B biological substances. The regulation states that such substances should be transported according to international rules established by the UN. [2] In 2020, the Ministry of Health's (SSA) General Directorate of Epidemiology (DGE) and the Institute for Epidemiological Diagnosis and Reference (InDRE) published the "Biosafety and biosecurity protocol for taking and handling specimens in the laboratory for viral respiratory illness". The protocol defines Categories A and B and states that COVID-19 specimens are considered Category B and should be packed by a trained individual. [3] Mexico's 2020 Confidence Building Measures does not contain additional information regarding

national regulations on the safe and secure transport of infectious substances (Categories A and B). [4]

[1] Ministry of Communications and Transport. 2012. "REGLAMENTO para el transporte terrestre de materiales y residuos peligrosos". [http://www.sct.gob.mx/JURE/doc/regl-transp-terrestre-materiales-peligrosos.pdf]. Accessed 6 October 2020.
[2] Ministry of Communications and Transport. 2012. "NORMA OFICIAL MEXICANA NOM-002-SCT/2011, LISTADO DE LAS SUBSTANCIAS Y MATERIALES PELIGROSOS MAS USUALMENTE TRANSPORTADOS". [http://www.sct.gob.mx/fileadmin/DireccionesGrales/DGAF/Normatividad/Materiales_y_residuos_peligrosos/NOM-002-SCT-2011.pdf]. Accessed 6 October 2020.
[3] Ministry of Health. 2020. "Biosafety and biosecurity protocol for taking and handling specimens in the laboratory for viral respiratory illness". [https://www.gob.mx/cms/uploads/attachment/file/577831/Protocolo_Bioseguridad_Biocustodia_Enfermedad_Viral_InDRE_V7__09sep2020.pdf]. Accessed 6 October 2020.
[4] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 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

In Mexico, there are regulations in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential. In 2011, the Ministry of the Economy (SE) issued regulations regarding the exportation of dual use materials. [1] In 2012, SE updated the regulations to include animal and vegetable pathogens. Section 4 states that prior authorization, including identification and screening of the end user, is required to export precursor chemical substances, dual use equipment, associated information technologies, as well as animal and vegetable pathogens. The regulations include a list of pathogens and also state that the lists developed by the Australia Group are included. [2] In 2016, the SE updated the regulations to include additional dual-use materials but did not add any biological materials in addition to those included in the 2012 update. [3] The SE's website contains guides for exporters to complete the prior authorization and identification end users for dual-use materials. [4, 5] Mexico's 2020 Confidence Building Measures 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]

[1] Ministry of the Economy (SE). 2011. "ACUERDO por el que se sujeta al requisito de permiso previo por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva (Continúa en la Quinta Sección)". [http://www.dof.gob.mx/nota_detalle.php?codigo=5196224&fecha=16/06/2011]. Accessed 6 October 2020.
[2] Ministry of the Economy (SE). 2012. "ACUERDO que modifica el diverso por el que se sujeta al requisito de permiso previo por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva, publicado el 16 de junio de 2011". [https://www.dof.gob.mx/nota_detalle.php?codigo=5273961&fecha=22/10/2012]. Accessed 6 October 2020.
[3] Ministry of the Economy (SE). 2016. "ACUERDO que modifica al diverso por el que se sujeta al requisito de permiso previo

por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva". [https://www.dof.gob.mx/nota_detalle.php?codigo=5424785&fecha=09/02/2016]. Accessed 6 October 2020.
[4] Ministry of the Economy (SE). 2019. "Manifestation of use and end user". [https://www.gob.mx/se/acciones-y-programas/se-03-080-manifestacion-de-uso-y-usuario-final-para-obtener-el-permiso-previo-de-exportacion-de-armas-convencionales-bienes-de-uso-dual]. Accessed 6 October 2020.
[5] Ministry of the Economy (SE). 2019. "Prior authorization for export". [https://www.gob.mx/se/acciones-y-programas/se-03-081-permiso-previo-de-exportacion-de-armas-convencionales-sus-partes-y-componentes-bienes-de-uso-dual-software-y-tecnologias-susceptibles-de-desvio]. Accessed 6 October 2020.
[6] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 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

In Mexico, there are publicly available legislation and regulations on biosafety. Article 98 of the General Health Law (last modified in 2020) states that all health facilities must have a Biosafety Committee responsible for creating internal rules regarding biosafety at the facility. [1] The 2014 "Regulations for the General Health Law on Matters of Health Research", Title IV, Chapter I regulate "Research with pathogenic microorganisms or biological material that could contain them" at all facilities in Mexico. The regulations focus on biosafety, stating in Article 75 that facilities and equipment must guarantee the physical containment of pathogens; facilities must have a procedures manual; personnel should be trained on manipulating, transporting, using, decontaminating and eliminating waste; and that facilities must have a safety supervision program in place. Article 77 states that the procedures manual must cover laboratory practices, personal safety for staff, maintenance of equipment, emergency situations, entry and transport restrictions, reception and transport of biological materials, waste management, decontamination, and any others necessary to achieve "microbiological safety". [2] In addition, health regulation NOM-007-SSA3-2011, which regulates the operation of all clinical laboratories, includes a short section on biosafety and hygiene. Paragraph 8.1 states that laboratories must have at least two square meters in floor space per worker. Paragraph 8.2 requires all laboratory personnel to take preventative measures to protect against infection during storage, transport and use of biological agents. Paragraph 8.3 requires the "Health Responsible Individual" to inform workers of the risks of working with dangerous substances in the laboratory, with the goal that personnel take proper precautions to protect themselves. [3] In 2015, the Ministry of Health's (SSA) General Directorate of Epidemiology (DGE), the Institute for Epidemiological Diagnosis and Reference (InDRE) and the National Network of Public Health Laboratories (RNLSP) issued the Guidelines for Biological Risk Management, which apply to laboratories that form part of the RNLSP. The guidelines mention biosafety and state that laboratories should commit themselves to preventing the transmission of diseases and occupational illnesses. The guidelines also establish a requirement for training that includes biosafety and good laboratory practices. [4] In 2020, InDRE issued the "Protocol for Biosafety and Biosecurity for Management of Patients during Testing of Probable Cases for the 2019-nCoV Disease". [5] Mexico's 2018 International Health Regulations (IHR) State Party self-assessment annual report scored the country at 60% for indicator "C.5.2 Implementation of a laboratory biosafety and biosecurity regime". [6] Mexico's 2020 Confidence Building Measures report states that the country has laws, regulations and other measures related

to "biosafety and biosecurity". The report states that there have not been any changes since 2019. [7]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2011. "NORMA Oficial Mexicana NOM-007-SSA3-2011, Para la organización y funcionamiento de los laboratorios clínicos". [http://dof.gob.mx/nota_detalle.php?codigo=5240925&fecha=27/03/2012]. Accessed 6 October 2020.
[4] Ministry of Health. 2015. "Guidelines for Biological Risk Management". [https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[5] Institute for Epidemiological Diagnosis and Reference (InDRE). 2020. "Protocol for Biosafety and Biosecurity for Management of Patients during Testing of Probable Cases for the 2019-nCoV Disease". [http://cvoed.imss.gob.mx/wp-content/uploads/2020/02/Protocolo-de-Bioseguridad-y-Biocustodia-2019-nCOV_InDRE_30_01_2020-1.pdf-1.pdf]. Accessed 8 October 2020.
[6] World Health Organization. 2018. "Mexico - Health Security Status". [https://extranet.who.int/sph/country/264]. Accessed 8 October 2020.
[7] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 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

In Mexico, there are established agencies responsible for the enforcement of biosafety legislation and regulations. The Ministry of Health (SSA) and the national Council of General Health Standards are responsible for the enforcement of biosafety regulations. [1] Article 4 of the 2018 General Health Law states that these two agencies, along with state governments, are responsible for enforcing all health laws and regulations. [1] In addition, Article 4 of the "Regulations for the General Health Law on Matters of Health Research" from 2014 states that the SSA and state governments are responsible for enforcement. These regulations include biosafety provisions. [2] Section 12 of Health regulation NOM-007-SSA3-2011, which regulates the operation of all clinical laboratories and includes biosafety requirements, names the SSA and state governments as regulatory authorities. [3] For the National Network of Public Health Laboratories (RNLSP), the Institute for Epidemiological Diagnosis and Reference (InDRE) provides oversight and supervision, including for biosafety matters. [4] The InDRE is supervised by the SSA as part of the National Epidemiological Surveillance System (SINAVE). [4] Mexico's 2020 Confidence Building Measures report does not contain additional information regarding an established agency responsible for the enforcement of biosafety legislation and regulations. [5]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2011. "NORMA Oficial Mexicana NOM-007-SSA3-2011, Para la organización y funcionamiento de los laboratorios clínicos". [http://dof.gob.mx/nota_detalle.php?codigo=5240925&fecha=27/03/2012]. Accessed 6 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2013. "Official Mexican Regulation NOM-017-SSA2-2012, For epidemiological surveillance" ("NORMA Oficial Mexicana NOM-017-SSA2-2012, Para la vigilancia epidemiológica"). [http://dof.gob.mx/nota_detalle.php?codigo=5288225&fecha=19/02/2013]. Accessed 4 October 2020.

[5] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.

1.4.2 Biosafety training and practices

1.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient public evidence that the country requires biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Article 98 of the General Health Law (last modified in 2020) states that all health facilities must have a Biosafety Committee responsible for creating internal rules regarding biosafety at the facility. [1] The 2014 "Regulations for the General Health Law on Matters of Health Research", Title IV, Chapter I regulate "Research with pathogenic microorganisms or biological material that could contain them" at all facilities in Mexico. The regulations focus on biosafety, stating in Article 75 that facilities must have a procedures manual; personnel should be trained on manipulating, transporting, using, decontaminating and eliminating waste; and that facilities must have a safety supervision program in place. Article 77 states that the procedures manual must cover laboratory practices, personal safety for staff, emergency situations, and any others necessary to achieve "microbiological safety". [2] Neither the General Health Law nor the Regulations for the General Health Law on Matters of Health Research set out a common curriculum for biosafety training. [1, 2] The Institute for Epidemiological Diagnosis and Reference (InDRE), which oversees the National Network of Public Health Laboratories (RNLSP), requires member laboratories to include "topics of biosafety and biosecurity according to the needs of each laboratory" in their training programs. [3] There is no public evidence that InDRE has established a required common curriculum for biosafety, although it does offer training for limited groups. [3, 4] In 2019, InDRE offered a week-long, 40-hour course on Biosafety and Biosecurity to RNLSP personnel as well as staff from other laboratories. The course was limited to 30 participants and only took place once during the year. [4] The SSA's Criteria for the Operation of the RNLSP requires member laboratories to include biosafety and biosecurity training in their annual training program for personnel. The document does not further describe what the training should include. [5] Examples of procedures manuals for facility-level Biosafety Committees do not include information on biosafety training programs for facility personnel. [6, 7] Additionally, the SSA's 2018 Results of the Detection of Training Needs for personnel does not mention biosafety. [8] The National Institute of Respiratory Diseases' (INER) 2018 Annual Training Program included a 15-hour course for laboratory personnel on biosafety. [9] At the subnational level, in 2020, staff from the 12 hospitals in the state of Tlaxcala received biosafety training in response to the COVID-19 pandemic. [10]. Mexico's 2020 Confidence Building Measures report does not contain additional information regarding biosafety training for all personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. [11] The websites of the SSA, the RNLSP, Ministry of Agriculture, National Institute of Public Health, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding required biosafety training or standardized curricula. [12, 13, 14, 15, 16, 17]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research".

[http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Ministry of Health. 2015. "Guidelines for Biological Risk Management".
[https://www.gob.mx/cms/uploads/attachment/file/487427/LGRB_4T.pdf]. Accessed 5 October 2020.
[4] Institute for Epidemiological Diagnosis and Reference (InDRE). 2019. "2019 Courses".
[https://www.gob.mx/cms/uploads/attachment/file/456102/Cursos_InDRE_2019.pdf]. Accessed 5 October 2020
[5] Ministry of Health. 2015. "Criteria for the Operation RNLSP".
[https://www.gob.mx/cms/uploads/attachment/file/487548/CORNLSP_VE_4T.pdf]. Accessed 5 October 2020.
[6] Hospital General de Mexico. 2015. "MANUAL DE PROCEDIMIENTOS DEL COMITé DE BIOSEGURIDAD".
[http://www.hgm.salud.gob.mx/descargas/pdf/dir_inv/ManProcComiteBioseguridad.pdf]. Accessed 8 October 2020.
[7] Instituto Nacional de Salud Publica. 2015. "REGLAMENTO INTERIOR DEL COMITé DE BIOSEGURIDAD".
[https://www.insp.mx/images/stories/2018/Docs/180202_Reglamento_Actualizado.pdf]. Accessed 8 October 2020.
[8] Secretaria de Salud. 2018. "Resultados de la Detección de Necesidades de Capacitación 2018".
[http://www.dgrh.salud.gob.mx/Formatos/Resultados_DNC-2018.pdf]. Accessed 8 October 2020.
[9] National Institute of Respiratory Diseases (INER). 2018. "Training Program".
[http://www.iner.salud.gob.mx/descargas/educacion/programa_capacitacion2018.pdf]. Accessed 8 October 2020.
[10] Government of Tlaxcala. 2020. "SESA begins course on biosafety for healthcare staff".
[https://comunicacion.tlaxcala.gob.mx/index.php/71-sala-de-prensa/12134-inaugura-sesa-curso-de-bioseguridad-para-personal-de-salud]. Accessed 8 October 2020.
[11] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT".
[https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico".
[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[14] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[15] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[16] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[17] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 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

In Mexico, there is no public 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. Mexico's 2020 Confidence Building Measures report states that the country does not have a national research and development program for biological defense. [1] The report does not describe an assessment of ongoing dual-use research. However, it states that the National Council of Science and Technology (CONACYT) is tasked with "coordinating and updating the Index of Mexican Journals of Scientific and Technological Research". The report lists 22 publications from the prior year, but there is insufficient evidence to determine if these represent dual-use research. [1] In 2019, InDRE offered a week-long, 40-hour course on Biosafety and Biosecurity that included a session on "Dual use" following a session on "Biosecurity measures". InDRE has not made more detailed information on the course publicly available. [2] Mexico's 2014 report to the UN regarding its action plan to implement Security Council resolution 1540 states that the country will increase training to control exports of dual use products, but it does not mention anything regarding oversight of dual use research. [3] In 2011, the Ministry of the Economy (SE) issued regulations regarding the exportation of dual use materials, but they do not contain requirements regarding an assessment of ongoing research with dual use materials. [4] The websites of the Ministry of Health, Ministry of Defense, Ministry of Agriculture, National Institute of Public Health, National Network of Public Health Laboratories, Verification Research, Training and Information Centre (VERTIC), and CONACYT 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]

[1] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[2] Institute for Epidemiological Diagnosis and Reference (InDRE). 2019. "2019 Courses". [https://www.gob.mx/cms/uploads/attachment/file/456102/Cursos_InDRE_2019.pdf]. Accessed 5 October 2020
[3] Government of Mexico. 2014. "Plan de Acción Nacional 2014 – 2017 para la Implementación de la resolución 1540 (2004) del Consejo de Seguridad de las Naciones Unidas MÉXICO". [http://www.un.org/es/sc/1540/national-implementation/pdf/mexico-action-plan2014.pdf].
[4] Ministry of the Economy (SE). 2011. "ACUERDO por el que se sujeta al requisito de permiso previo por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva (Continúa en la Quinta Sección)". [http://www.dof.gob.mx/nota_detalle.php?codigo=5196224&fecha=16/06/2011]. Accessed 6 October 2020.
[5] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[6] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[7] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[8] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[9] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[10] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[11] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 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

In Mexico, there is no public evidence that the country has legislation and/or regulation requiring oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research. The following laws and regulations do not mention dual-use research: General Health Law (last modified in 2020), Regulations for the General Health Law on Matters of Health Research (2014), and National Security Law (2019). [1, 2, 3] In addition, the following policies and programs do not mention oversight of dual-use research: Sectorial Program for Health 2020-2024 and National Strategy for Public Safety (2019). [4, 5] In 2011, the Ministry of the Economy (SE) issued regulations regarding the exportation of dual use materials, but they do not contain a national policy for ongoing research with dual use materials. [6] Mexico's 2020 Confidence Building Measures report states that the country does not have a national research and development program for biological defense. [7] The report does not describe national policy or regulations for dual-use research. [7] The websites of the Ministry of Health, Ministry of Defense, Ministry of Agriculture, National Institute of Public Health, National Network of Public Health Laboratories, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding national legislation or policy requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. [8, 9, 10, 11, 12, 13, 14]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. “General Health Law”. [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. “Regulations for the General Health Law on Matters of Health Research”. [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2019. “National Security Law”. [http://www.diputados.gob.mx/LeyesBiblio/pdf/LSegNac_081119.pdf]. Accessed 8 October 2020.
[4] Ministry of Health. 2020. “Sectorial Program for Health 2020-2024”. [https://www.dof.gob.mx/nota_detalle.php?codigo=5598474&fecha=17/08/2020]. Accessed 8 October 2020.
[5] Presidency of the Republic. 2019. “National Strategy for Public Safety”. [https://www.dof.gob.mx/nota_detalle.php?codigo=5560463&fecha=16/05/2019]. Accessed 8 October 2020.
[6] Ministry of the Economy (SE). 2011. “ACUERDO por el que se sujeta al requisito de permiso previo por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva (Continúa en la Quinta Sección)”. [http://www.dof.gob.mx/nota_detalle.php?codigo=5196224&fecha=16/06/2011]. Accessed 6 October 2020.
[7] Government of Mexico. 2020. “2020 Confidence Building Measures Report.” [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[8] Ministry of Agriculture. 2020. “Agricultura”. [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[9] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. “Instituto Nacional de Salud Publica”. [https://www.insp.mx/]. Accessed 4 October 2020.
[10] Ministry of Health (Secretaria de Salud). 2020. “Platform for the National Network of Public Health Laboratories" (“Plataforma para la Red Nacional de Laboratorios de Salud Pública”). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[11] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. “SEDENA”. [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. “CONACYT”. [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Verification Research, Training and Information Centre (VERTIC). 2020. “Mexico”. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October

2020.
[14] Ministry of Health. 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 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

In Mexico, there is no public evidence that the country has an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research. The following laws and regulations do not mention dual-use research: General Health Law (last modified in 2020), Regulations for the General Health Law on Matters of Health Research (2014), and National Security Law (2019). [1, 2, 3] In addition, the following policies and programs do not mention an agency responsible for oversight of dual-use research: Sectorial Program for Health 2020-2024 and National Strategy for Public Safety (2019). [4, 5] In 2011, the Ministry of the Economy (SE) issued regulations regarding the exportation of dual use materials, but they do not designate an agency responsible for oversight of research with dual use materials. [6] Mexico's 2020 Confidence Building Measures report was submitted by the Specialized High Level Committee on Matters of International Disarmament, Terrorism and Security. [7] The 2007 Agreement establishing the Committee did not task it with oversight of dual use research. [8] Mexico's 2020 Confidence Building Measures report does not contain additional information regarding an agency responsible for oversight of dual use research. [7] The websites of the Ministry of Health, Ministry of Defense, Ministry of Agriculture, National Institute of Public Health, National Network of Public Health Laboratories, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding an agency responsible for oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. [9, 10, 11, 12, 13, 14, 15]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2019. "National Security Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LSegNac_081119.pdf]. Accessed 8 October 2020.
[4] Ministry of Health. 2020. "Sectorial Program for Health 2020-2024". [https://www.dof.gob.mx/nota_detalle.php?codigo=5598474&fecha=17/08/2020]. Accessed 8 October 2020.
[5] Presidency of the Republic. 2019. "National Strategy for Public Safety". [https://www.dof.gob.mx/nota_detalle.php?codigo=5560463&fecha=16/05/2019]. Accessed 8 October 2020.
[6] Ministry of the Economy (SE). 2011. "ACUERDO por el que se sujeta al requisito de permiso previo por parte de la Secretaría de Economía la exportación de armas convencionales, sus partes y componentes, bienes de uso dual, software y tecnologías susceptibles de desvío para la fabricación y proliferación de armas convencionales y de destrucción masiva (Continúa en la Quinta Sección)". [http://www.dof.gob.mx/nota_detalle.php?codigo=5196224&fecha=16/06/2011]. Accessed 6 October 2020.
[7] Government of Mexico. 2020. "2020 Confidence Building Measures Report." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[8] Ministry of Governance. 2007. "Agreement of the National Security Council". [http://www.vertic.org/media/National%20Legislation/Mexico/MX_ACUERDO%20del%20Consejo%20de%20Seguridad%20Nacional%20por%20el%20que%20se%20establece%20un%20Comite%20Especializado%20de%20Alto%20Nivel.pdf]. Accessed 8 October 2020.

[9] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[10] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[11] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[12] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[13] Verification Research, Training and Information Centre (VERTIC). 2020. "Mexico". [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[14] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[15] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 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 Mexico, there is no public evidence that legislation and/or regulations require the screening of synthesized DNA (deoxyribonucleic acid) against lists of known pathogens and toxins before it is sold using a screener or code reader. Mexico's 2005 Law for Biosafety of Genetically Modified Organisms (GMOs) states that it regulates sales of GMOs (Article 1). Articles 3 and 6 state that the law covers the use of recombinant DNA and RNA. [1] The 2009 Regulations for the Law for Biosafety of Genetically Modified Organisms establish screening requirements for the sale of any GMOs or synthesized DNA. Article 31 requires sellers to request authorization to sell these products. The request must include a description or map of the DNA introduced and a detailed description of the method of transformation used. Additionally, the request must provide methods for detection and identification of the modified genetic material. In the case of importation of the modified genetic material, the importer must provide official documentation that the material is permitted under the laws of the country of origin. [2] The Regulations for the General Health Law on Matters of Health Research (2014), Title IV, Chapter II requires Ministry of Health approval before beginning some types of research using DNA from pathogens but does not describe any requirements prior to selling synthesized DNA. [3] Mexico's 2020 Confidence Building Measures report does not contain additional information regarding evidence that synthesized DNA is screened via a code reader before it is permitted to be sold. [4] The websites of the Ministry of Health, Ministry of Defense, Ministry of Agriculture, National Institute of Public Health, National Network of Public Health Laboratories, Verification Research, Training and Information Centre (VERTIC), and National Council of Science and Technology do not contain additional information regarding national legislation, regulation, policy, or other guidance, requiring the screening of synthesized DNA before it is sold. [5, 6, 7, 8, 9, 10, 11]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2005. "LEY DE BIOSEGURIDAD DE ORGANISMOS GENÉTICAMENTE MODIFICADOS". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LBOGM.pdf]. Accessed 8 October 2020.
[2] Chamber of Deputies of the Honorable Congress of the Union. 2009. "REGLAMENTO DE LA LEY DE BIOSEGURIDAD DE ORGANISMOS GENÉTICAMENTE MODIFICADOS". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LBOGM.pdf]. Accessed 8 October 2020.

[3] Presidency of the Republic. 2014. “Regulations for the General Health Law on Matters of Health Research”. [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[4] Government of Mexico. 2020. “2020 Confidence Building Measures Report.” [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_mexico.pdf]. Accessed 5 October 2020.
[5] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. “CONACYT”. [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[6] Verification Research, Training and Information Centre (VERTIC). 2020. “Mexico”. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/]. Accessed 5 October 2020.
[7] Ministry of Health. 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[8] Ministry of Agriculture. 2020. “Agricultura”. [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[9] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. “Instituto Nacional de Salud Publica”. [https://www.insp.mx/]. Accessed 4 October 2020.
[10] Ministry of Health (Secretaria de Salud). 2020. “Platform for the National Network of Public Health Laboratories" (“Plataforma para la Red Nacional de Laboratorios de Salud Pública”). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[11] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. “SEDENA”. [https://www.gob.mx/sedena]. Accessed 5 October 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 Mexico, the national laboratory system has the capacity to conduct diagnostic tests for 6 of the 10 WHO-defined core tests. The National Network of Public Health Laboratories (RNLSP) has the capacity to conduct diagnostic tests for the six tests common across all countries. The Institute for Epidemiological Diagnosis and Reference (InDRE), which supervises the RNLSP, can test for flu via PCR and polio via virus culture. [1, 2] The RNLSP's 32 state public health laboratories (LESP) can test for HIV via serology, tuberculosis via microscopy, malaria via rapid diagnostic tests, and typhoid via bacterial culture. [3, 4, 5, 6] The websites of the Ministry of Health and National Institute of Public Health do not contain additional information regarding the four country-defined core diagnostic tests in Mexico. [7, 8]

[1] Pan American Health Organization. 2018. “Mejorando la detección de los virus de la influenza en América Latina y el Caribe”. [https://www.paho.org/hq/index.php?option=com_content&view=article&id=14556:mejorando-la-deteccion-de-los-virus-de-la-influenza-en-america-latina-y-el-caribe&Itemid=135&lang=pt]. Accessed 8 October 2020.
[2] Ministry of Health. 2018. “LINEAMIENTOS PARA LA VIGILANCIA POR LABORATORIO DE POLIOMIELITIS Y LA PARÁLISIS FLÁCIDA AGUDA”. [https://www.gob.mx/cms/uploads/attachment/file/487586/LVL_PFAyPolio_4T.pdf]. Accessed 8 October 2020.
[4] Ministry of Health. 2016. “Lineamientos Para la vigilancia por Laboratorio de la Tuberculosis”. [https://www.gob.mx/cms/uploads/attachment/file/483706/Lineamientos_VIH_4T.pdf]. Accessed 8 October 2020.
[4] Ministry of Health. 2016. “Lineamientos Para la vigilancia por Laboratorio de la Tuberculosis”. [https://www.gob.mx/cms/uploads/attachment/file/66202/Lineamientos_para_vigilancia_por_laboratorio_de_tuberculosis.pdf]. Accessed 8 October 2020.
[5] Ministry of Health. 2016. “Paludismo”. [https://www.gob.mx/salud/acciones-y-programas/paludismo]. Accessed 8 October 2020.
[6] Mexican Institute of Social Security. 2016. “Diagnosis and Treatment for Typhoid Fever”. [http://www.imss.gob.mx/sites/all/statics/guiasclinicas/259GER.pdf]. Accessed 8 October 2020.
[7] Ministry of Health. 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[8] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. “Instituto Nacional de Salud Publica”. [https://www.insp.mx/]. Accessed 4 October 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

In Mexico, there is a national plan that deals with testing during an influenza outbreak, and includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. The National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza was published in 2013 and includes considerations for testing during seasonal and pandemic influenza outbreaks. [1] In terms of novel pathogens, the plan's Research and Development section states that in the early phases of an outbreak or pandemic involving a novel virus, scientific research in Mexico should focus on "characterization of the virus" and " development of new forms of diagnosis". [1] In terms of scaling capacity, the plan discusses coordination with the National Network of Public Health Laboratories (RNLSP), comprised of state public health laboratories and devolving testing to them in order to decentralize diagnostic resources. The plan also mentions coordinating with private and academic laboratories to increase testing capacity. [1] In terms of defining goals for testing, the plan states that not all cases can or will be detected and that it follows the surveillance objectives established by the World Health Organization and Pan American Health Organization: Timely detection of new subtypes of influenza virus; Detecting unusual and unforeseen outbreaks of respiratory diseases; Determining epidemiological characteristics of influenza and other viral respiratory illnesses; Surveillance of seasonal influenza to formulate recommendations for the composition of annual vaccines; and Contributing to the calculation of Influenza-Type Diseases and other respiratory infections to orient public policies. [1]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 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

In Mexico, the Institute for Epidemiological Diagnosis and Reference (InDRE) is the national reference laboratory and it is accredited to the ISO 15189:2012 standard. In 2015, InDRE received ISO 15189:2012, Medical laboratories -- Requirements for quality and competence, accreditation from the Mexican Accreditation Entity. At the same time, InDRE was recertified to ISO 9001:2008, Quality management system, standards by the Mexican Institute of Normalization and Certification. [1] In 2016, InDRE was also accredited to the Mexican equivalent standard of ISO 15189:2012, NMX-EC-15189-IMNC-2015 (Medical laboratories -- Requirements for quality and competence). [2] The accreditations cover multiple laboratories and diagnostic testing methods within the institute. [3]

[1] Ministry of Health. 2015. "El InDRE recibe la acreditación". [https://www.gob.mx/salud/articulos/el-indre-recibe-la-acreditacion]. Accessed 8 October 2020.
[2] Ministry of Health. 2019. "Guidelines for Laboratory Surveillance of Leishmaniasis".
[https://www.gob.mx/cms/uploads/attachment/file/487575/LVL_Leishmania_2019_4T.pdf]. Accessed 8 October 2020.

[3] Ministry of Health. 2016. "Departamento de Virología del Instituto de Diagnóstico y Referencia Epidemiológicos". [https://www.gob.mx/salud/acciones-y-programas/departamento-de-virologia-del-instituto-de-diagnostico-y-referencia-epidemiologicos-109792?state=published]. Accessed 8 October 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

In Mexico, the Institute for Epidemiological Diagnosis and Reference (InDRE) is the national reference laboratory and it participates in at least two external quality assurance review programs. In 2012, InDRE announced that it had joined the United States Department of Health and Human Services, Centers for Disease Control and Prevention's Laboratory Response Network (LRN). [1, 2] The LRN provides external quality assurance to member laboratories, including Mexico's InDRE. [1] Quality assurance support includes testing "to ensure that network labs provide precise, accurate, high-quality data", as well as train-the-trainer courses for participating laboratories. [3] InDRE also participates in the World Health Organization's (WHO) annual quality control program for pharmacological sensitivity for first and second-line medications for treating tuberculosis. InDRE sends a panel with 30 specimens and compares its results with those obtained by the WHO. [4]

[1] El Informador. 2012. "El InDRE, miembro de la Red de Laboratorios Nacionales de Respuesta". [https://www.informador.mx/Mexico/El-InDRE-miembro-de-la-Red-de-Laboratorios-Nacionales-de-Respuesta-20120606-0046.html]. Accessed 8 October 2020.
[2] Centers for Disease Control and Prevention. 2018. "The Laboratory Response Network Partners in Preparedness". [https://emergency.cdc.gov/lrn/]. Accessed 8 October 2020.
[3] Centers for Disease Control and Prevention. 2019. "Frequently Asked Questions About the Laboratory Response Network (LRN)". [https://emergency.cdc.gov/lrn/faq.asp]. Accessed 8 October 2020.
[4] Ministry of Health. 2016. "Guidelines for Laboratory Surveillance of Tuberculosis". [[https://www.gob.mx/cms/uploads/attachment/file/66202/Lineamientos_para_vigilancia_por_laboratorio_de_tuberculosis.pdf]. Accessed 8 October 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

In Mexico, the Institute for Epidemiological Diagnosis and Reference (InDRE) has established guidelines for the nationwide transport of specimens, but there is insufficient public evidence describing the design and operation of a nationwide specimen transport system. InDRE's 2018 Manual for the Shipment and Reception of Samples for Testing outlines how samples should be packed, labelled and sent to InDRE for testing. The manual does not describe requirements for transport companies or providers or a specimen transport system. [1] In 2020, InDRE issued a photo guide for packing and sending specimens for COVID-19 testing. The document does not reference a nationwide transport system, instead referring only to "sending" the sample to the appropriate laboratory. [2] Similarly, the Ministry of Health's "Standardized Guideline for

Epidemiological Surveillance of Viral Respiratory Illnesses", last updated in August 2020, describes proper packing techniques and notes that samples should be sent "immediately (less than 24 hours)" to the appropriate laboratory. [3] Mexico's 2018 International Health Regulations (IHR) State Party self-assessment annual report scored the country at 80% for indicator "C.5.1 Specimen referral and transport system". [4] The websites of the Ministry of Health, Ministry of Agriculture, National Institute of Public Health, and National Network of Public Health Laboratories do not contain additional information regarding a nationwide specimen transport system. [5, 6, 7, 8]

[1] Ministry of Health (Secretaria de Salud). 2018. "Manual for the Shipment and Reception of Samples for Testing" ("Manual para el Envio y Recepcion de Muestras para Diagnostico").
[https://www.gob.mx/cms/uploads/attachment/file/307593/REMU-MA-01_5_FINAL.pdf]. Accessed 8 October 2020.
[2] Institute for Epidemiological Diagnosis and Reference (InDRE). 2020. "Packing for safe transport of suspected specimens".
[https://www.gob.mx/cms/uploads/attachment/file/552407/Embalaje_Muestras_sospechosas_SARS-CoV-2__COVID-19_.pdf]. Accessed 8 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. " Standardized Guideline for Epidemiological Surveillance of Viral Respiratory Illnesses". [https://www.gob.mx/cms/uploads/attachment/file/576805/Lineamiento_VE_y_Lab_Enf_Viral_Ago-2020.pdf]. Accessed 8 October 2020.
[4] World Health Organization. 2018. "Mexico – Health Security Status". [https://extranet.who.int/sph/country/264]. Accessed 8 October 2020.
[5] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[6] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[7] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[8] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 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

In Mexico, there is insufficient public evidence of a plan, covering multiple diseases, 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. In terms of a single disease, Mexico's National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza was published in 2013 and includes considerations for rapidly training and authorizing laboratories to supplement testing capacity. [1] The plan notes the pressure that an outbreak would place on the National Network of Public Health Laboratories (RNLSP) and states that collaboration mechanisms will be implemented between the RNLSP and other healthcare institutions including the Mexican Institute of Social Security (IMSS), government employee healthcare services, and military healthcare services, as well as private laboratories and medical facilities. [1] The plan states that supplemental capacity will be used specifically to diagnose cases of pneumonia and bacterial meningitis that can complicate or be confused with a potential influenza infection. [1] In practice, during the COVID-19 pandemic, the Ministry of Health (SSA) stated in March 2020 that it was working to validate testing methods at private and other public laboratories outside the RNLSP in order to avoid "centralization" of testing capacity. [2] There is no publicly available

evidence of a planning document describing this process. As of October 2020, the SSA and Institute for Epidemiological Diagnosis and Reference (InDRE) had authorized an additional 67 private laboratories and 56 academic, mainly university medical school, laboratories to conduct COVID-19 testing and report trusted results to the national epidemiological surveillance system. [3] The websites of the Ministry of Health, the RNLSP, the Ministry of Agriculture, and the National Institute of Public Health do not contain additional public information regarding a plan, covering multiple diseases, 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. [4, 5, 6, 7]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Milenio. March 2020. "Mexico analyzes releasing COVID-19 tests to private laboratories".
[https://www.milenio.com/ciencia-y-salud/mexico-analiza-liberar-pruebas-covid-19-laboratorios-privados]. Accessed 9 October 2020.
[3] Ministry of Health (Secretaria de Salud). October 2020. "Laboratories recognized by the InDRE for carrying out COVID-19 testing, for epidemiological surveillance purposes".
[https://www.gob.mx/cms/uploads/attachment/file/583293/LISTADO_DE_LABORATORIOS_QUE_REALIZAN_EL_DIAGN_STICO_DE_COVID-19_07102020.pdf]. Accessed 9 October 2020.
[4] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[6] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[7] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 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

In Mexico, the Ministry of Health (SSA) conducts ongoing event-based surveillance and analysis for infectious disease. The Ministry of Health's Health Emergencies Intelligence Unit (UIES) monitors national and international news media as well as epidemiological surveillance data and weather and volcanic data "24 hours per day 365 days per year". The UIES reviews and analyses data on a daily basis in order to provide an early warning system for the health sector in the event of outbreaks or disasters. [1] The UIES also provides follow-up surveillance during a public health emergency in order to assist decision makers and communicate with national and international stakeholders. [1] The UIES issues a daily event-based surveillance report at 9:00 AM, which is distributed to public health and other decision makers. [2] In addition, the UIES issues several other daily reports: Epidemiological intelligence report, Media monitoring report, Epidemiological monitoring report,

Meteorological risk report, Volcanic monitoring report. [2]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] de la Garza Barroso, Ana Lucia. 2014. "Design and Implementation of Standardized Operating Procedures in the Health Emergencies Intelligence Unit". [https://catalogoinsp.mx/files/tes/053561.pdf]. Accessed 9 October 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, the government has reported two potential public health emergencies of international concern (PHEIC) to the WHO within the last two years. [1] In April 2020, the Ministry of Health (SSA) reported a measles outbreak to the WHO. Between January 1, 2020 and April 2, 2020, the SSA received reports of 1,364 probable measles cases, and 124 were laboratory confirmed. The cases corresponded to the D8 genotype similar to that seen in other countries in the region. [2] In March 2019, the WHO received a report of "surgical site infections caused by antibiotic-resistant Pseudomonas aeruginosa after invasive procedures performed in Tijuana, Mexico". 20 total cases were reported and linked to a hospital in Tijuana, where reusable surgical equipment was found that was not being properly processed between patients. [3]

[1] World Health Organization. 2020. "Disease Outbreak News Mexico". [https://www.who.int/csr/don/archive/country/mex/en/]. Accessed 9 October 2020.
[2] World Health Organization. 2020. "Measles – Mexico". [https://www.who.int/csr/don/24-April-2020-measles-mexico/en/]. Accessed 9 October 2020.
[3] World Health Organization. 2019. "Carbapenem-resistant Pseudomonas aeruginosa infection – Mexico". [https://www.who.int/csr/don/5-march-2019-carbapenem-resistant-p-aeruginosa-mex/en/]. Accessed 9 October 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 Mexico, the government operates an electronic reporting surveillance system at both the national and the sub-national level. The National Epidemiological Surveillance System (SINAVE) comprises the entire surveillance system at the national and sub-national levels of government. [1] It is overseen by the National Committee for Epidemiological Surveillance, which includes members from various entities within the sector. [1] SINAVE captures information from the local level via the Single System for Epidemiological Surveillance Information (SUIVE). SUIVE is a paper-based system that individual healthcare facilities use to conduct epidemiological surveillance. SUIVE forms are concentrated at the local health jurisdiction level where there are entered into the electronic Single System for Automated Epidemiological Surveillance (SUAVE). SUAVE uses online platforms to capture and centralize surveillance data. Jurisdiction-level and some healthcare facility users navigate to the online platform (webpage) and submit surveillance data via online forms. Once the information is in SUAVE at the

jurisdiction level, then it is sent electronically to the state level, where it is reviewed before being sent to the Ministry of Health's General Directorate of Epidemiology (DGE). [2] Currently, SUIVE/SUAVE covers 114 illnesses considered to be the most relevant to public health in Mexico. [1, 2] SINAVE includes additional sub-systems to capture data about specific illnesses or situations that may require special reporting, including immediate notifications, cholera, vectors, flu, diabetes and others. Users log in to these systems separately to enter surveillance data. [3]

[1] Ministry of Health (Secretaria de Salud). 2020. "National Epidemiological Surveillance System". [https://www.gob.mx/salud/acciones-y-programas/sistema-nacional-de-vigilancia-epidemiologica]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2019. "Standardized Procedures Manual for Conventional Epidemiological Surveillance". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/32_ManualSuive.pdf]. Accessed 9 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "National Epidemiological Surveillance System (SINAVE)". [http://sinave.gob.mx/]. Accessed 9 October 2020.

2.3.2b

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, the National Epidemiological Surveillance System (SINAVE) includes online platforms where laboratories belonging to the National Network of Public Health Laboratories (RNLSP) electronically input the results of laboratory diagnostic tests. SINAVE comprises the entire surveillance system at the national and sub-national levels of government. [1] SINAVE includes 13 online platforms where different types of epidemiological surveillance data are electronically captured and consolidated. [2] RNLSP laboratories must electronically input diagnostic test results in the corresponding system within 48 hours of determining test results. In specific circumstances which vary by disease some results must be uploaded immediately. [3] In addition, the Single System for Epidemiological Surveillance Information (SUIVE), which captures epidemiological surveillance information at the local health jurisdiction level, also captures results from screening tests and laboratory diagnostics performed at healthcare facilities. [1] These results are then entered into the Single System for Automated Epidemiological Surveillance (SUAVE), where they are electronically shared as part of weekly surveillance reporting. [4]

[1] Ministry of Health (Secretaria de Salud). 2020. "National Epidemiological Surveillance System". [https://www.gob.mx/salud/acciones-y-programas/sistema-nacional-de-vigilancia-epidemiologica]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. "National Epidemiological Surveillance System (SINAVE)". [http://sinave.gob.mx/]. Accessed 9 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Guidelines for Laboratory Surveillance of Dengue and other Arboviruses". [https://www.gob.mx/cms/uploads/attachment/file/506677/Lineamientos_Dengue_Arb_V2_2019.pdf]. Accessed 9 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2019. "Standardized Procedures Manual for Conventional Epidemiological Surveillance". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/32_ManualSuive.pdf]. Accessed 9 October 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 Mexico, there is no public evidence that electronic health records (EHR) are commonly in use, but there is evidence that they are used. EHR exist in Mexico and their use varies widely across the different healthcare systems in the country. According to a 2019 report on the 20-year history of EHR in Mexico, nationally just 33% of public healthcare facilities use an EHR system. [1] This overall coverage level ranges from 92% of facilities in the Mexican Institute of Social Security (IMSS) contributory public healthcare system to 24.3% of public healthcare facilities in state-run systems. [1] In 2018, the National Council for the Evaluation of Social Development Policy (CONEVAL) stated that advancing toward the goal of widespread EHR use would improve healthcare access and freedom to choose providers. [2] A 2018 review of the state of EHR in Mexico noted that "EHR in Mexico suffers from the same ills as the National Health System: it operates in a fragmented, disconnected manner, with low coverage". [3] Successes in EHR have been fragmented also: the high level of coverage in the IMSS system is limited to its own facilities; successes in some states, like Colima, are limited to specific geographies; and although technical regulations exist for EHR, they haven't been regulated in any of the broader sectorial frameworks, such as the General Health Law. [1, 3]

[1] Ochoa Moreno, Jorge Alfredo. 2018. "The universal electronic health record in Mexico". [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin26/Besp26_10.pdf]. Accessed 9 October 2020.
[2] Consejo Nacional de la Evaluacion de la Politica de Desarrollo Social. 2018. "PROMOVER LA COBERTURA UNIVERSAL EN EL SECTOR SALUD, FUNDAMENTAL PARA GARANTIZAR UNA ATENCIóN EQUITATIVA A LA POBLACIóN". [https://www.coneval.org.mx/SalaPrensa/Comunicadosprensa/Documents/Nota-Dia-Mundial-de-la-Salud-2018.pdf]. Accessed 9 October 2020.
[3] Neme Meunier, Sofia K. 2019. "20 years on from the implementation of Electronic Health Records in Mexico". [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin18/expediente.pdf]. Accessed 9 October 2020.

2.4.1b

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is no public evidence that the national public health system has access to the electronic health records (EHR) of individuals. Health regulation NOM-024-SSA3-2012 has the goal of promoting the exchangeability of information in EHR between the public and private health systems in Mexico. The regulation is compulsory for all health care providers in Mexico. Section 1 of the regulation states that the data standards it proposes should create a system where all providers can exchange patient health information. [1] However, of the 65 different EHR systems used in the public health systems across Mexico, only four systems (6%) are certified to the NOM-024-SSA3-2012 standards. [2] In addition, private sector healthcare facilities use their own EHR systems which are disconnected from those in use in the public sector. [3] A 2017 opinion from the National Human Rights Commission noted the lack of integration and accessibility of EHR in Mexico. The Commission

stated that the lack of automated and electronic information systems in the health sector prevented EHR from being accessible and easily updated by any healthcare facility. [4] Additionally, during a 2017 conference on digital healthcare transformation, experts stated that universal EHRs are not yet widespread in Mexico. Participants pointed to a lack of accessibility and integration of health records between the public and private systems. [5] The websites of the Ministry of Health, the National Network of Public Health Laboratories, and the National Institute of Public Health do not contain additional public information regarding evidence that the national public health system has access to the electronic health records (EHR) of individuals. [6, 7, 8]

[1] Ministry of Health (Secretaria de Salud). 2012. "NORMA Oficial Mexicana NOM-024-SSA3-2012, Sistemas de información de registro electrónico para la salud. Intercambio de información en salud". [https://dof.gob.mx/nota_detalle.php?codigo=5280847&fecha=30/11/2012]. Accessed 9 October 2020.
[2] Neme Meunier, Sofia K. 2019. "20 years on from the implementation of Electronic Health Records in Mexico". [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin18/expediente.pdf]. Accessed 9 October 2020.
[3] Ochoa Moreno, Jorge Alfredo. 2018. "The universal electronic health record in Mexico". [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin26/Besp26_10.pdf]. Accessed 9 October 2020.
[4] National Human Rights Commission (Comisión Nacional de los Derechos Humanos). 2017. "Summary of General Recommendation No. 29/2017 on health records as part of the right to information in health care" (" SíNTESIS de la Recomendación General No. 29/2017 sobre el expediente clínico como parte del derecho a la información en servicios de salud"). [http://dof.gob.mx/nota_detalle.php?codigo=5472991&fecha=24/02/2017]. Accessed 9 October 2020.
[5] Forbes Mexico. 2017. "The Universal Electronic Health Record is urgent for Mexico" ("A México le urge el Expediente Clínico Electrónico Universal"). [https://www.forbes.com.mx/a-mexico-le-urge-el-expediente-clinico-electronico-universal/]. Accessed 9 October 2020.
[6] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[7] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[8] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.

2.4.1c

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient evidence that regulations of electronic health records (EHR) specify data standards to ensure data is comparable. Mexico's health regulation NOM-024-SSA3-2012 specifies data standards for electronic health records (EHR). The regulation's goal is to standardize the information stored in EHRs. Section 6.1 mentions the following standards: HL7 CDA (Health Level 7 Clinical Document Architecture), HL7 V3 and XML. [1] The Ministry of Health's General Directorate of Health Information has published "Information Exchange Guides" for each of the sections to be included in EHRs. These guides describe EHR should be built to incorporate the standards and allow for information sharing and comparability. [2] In addition, section 6.5 of the regulation includes a list of the minimum pieces of data required for patient identification as well as how it should be coded. This data includes full name, birthdate, gender, municipality and other data. [1] Nonetheless, the fragmented nature of existing EHR systems means that in practice data is not standardized, comparable or interoperable. [3] Of the 65 different EHR systems used in the public health systems across Mexico, only four systems (6%) are certified to the NOM-024-SSA3-2012 standards. [3] In addition, private sector healthcare facilities use their own EHR systems which are disconnected from those in use in the public sector. [4] In some states, public health systems use multiple incompatible EHR

systems in different facilities. [3]

[1] Ministry of Health (Secretaria de Salud). 2012. “NORMA Oficial Mexicana NOM-024-SSA3-2012, Sistemas de información de registro electrónico para la salud. Intercambio de información en salud”. [https://dof.gob.mx/nota_detalle.php?codigo=5280847&fecha=30/11/2012]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. “Information Exchange Guides”. [http://www.dgis.salud.gob.mx/contenidos/intercambio/iis_guias_gobmx.html]. Accessed 9 October 2020.
[3] Neme Meunier, Sofia K. 2019. “20 years on from the implementation of Electronic Health Records in Mexico”. [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin18/expediente.pdf]. Accessed 9 October 2020.
[4] Ochoa Moreno, Jorge Alfredo. 2018. “The universal electronic health record in Mexico”. [http://www.conamed.gob.mx/gobmx/boletin/pdf/boletin26/Besp26_10.pdf]. Accessed 9 October 2020.

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is no publicly available evidence of established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data. The Ministry of Agriculture and Rural Development's (SADER) National Service for Agricultural Health, Food Safety and Quality (SENASICA), as part of its actions under Mexico's 2018 National Action Strategy against Antimicrobial Resistance (AMR), stated in 2019 its goal to carry out two strategies related to inter-ministerial coordination for AMR: Establish mechanisms for inter-sectorial coordination for surveillance of human, animal and environmental health; and Develop and strengthen the analytical capacity to carry out AMR surveillance and monitoring in human, animal and environmental health. [1] However, SENASICA has not provided any public details on how it is working to achieve those goals. [1, 2] The Federal Animal Health Law (last updated in 2018), Article 161, tasks SADER with "officially informing the health situation of the country to the national and international organizations and institutions with which the Ministry has conventions and agreements for collaboration and exchange of information". [3] SADER and SENASICA have not made public any such agreements for sharing surveillance data with health and environmental authorities in Mexico. [4, 5] The Ministry of Health's (SSA) 2013 National Influenza Response Plan states that the ministry should increase coordination with SADER in the event of an outbreak but does not say how that should happen. [6] There is no public evidence that the National Epidemiological Surveillance System (SINAVE) collects animal or wildlife surveillance data for sharing among agencies or ministries. [7] The websites of SSA, SADER, SENASICA, the National Institute of Public Health, the National Network of Public Health Laboratories and the Ministry of Environment and Natural Resources do not contain additional information regarding established mechanisms to share surveillance data. [4, 5, 8, 9, 10, 11]

[1] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2019. "Reinforce knowledge and evidence of AMR via surveillance and research". [https://www.gob.mx/senasica/documentos/reforzar-los-conocimientos-y-la-evidencia-de-la-ram-a-traves-de-la-vigilancia-y-la-investigacion-tanto-en-salud-humana-como-en-salud-animal?state=published]. Accessed 9 October 2020.
[2] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2019. "Program for Surveillance of AMR". [https://www.gob.mx/cms/uploads/attachment/file/511923/2._Programa_de_Vigilancia_de_la_RAM.pdf]. Accessed 9 October 2020.

[3] Chamber of Deputies of the Honorable Congress of the Union. 2018. "Federal Animal Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LFSA_160218.pdf]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] National Service for Agricultural Health, Food Safety and Quality (SENASICA). 2020. "SENASICA". [https://www.gob.mx/senasica]. Accessed 4 October 2020.
[6] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[7] Ministry of Health (Secretaria de Salud). 2020. "National Epidemiological Surveillance System". [https://www.gob.mx/salud/acciones-y-programas/sistema-nacional-de-vigilancia-epidemiologica]. Accessed 9 October 2020.
[8] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PúBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.
[9] Ministry of Health (Secretaria de Salud). 2020. "Platform for the National Network of Public Health Laboratories" ("Plataforma para la Red Nacional de Laboratorios de Salud Pública"). [https://www.gob.mx/salud/acciones-y-programas/plataforma-para-la-red-nacional-de-laboratorios-de-salud-publica?state=published]. Accessed 4 October 2020.
[10] Ministry of Health. 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[11] Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales). 2020. "SEMARNAT". [https://www.gob.mx/semarnat]. Accessed 9 October 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

In Mexico, the government makes de-identified health surveillance data on disease outbreaks publicly available via weekly bulletins posted online. The Ministry of Health (SSA) has published the weekly epidemiological bulletin since 1880 and recent versions are available on the SSA's website. [1] Section 10 of health regulation NOM-017-SSA2-2012, which sets up the National Epidemiological Surveillance System (SINAVE), states that epidemiological surveillance information should be made publicly available in a manner that promotes the accessibility of data. [2] In October 2020, the most recent bulletin (Week 39) reported on cases of dengue, HIV, COVID-19, hepatitis, tuberculosis, and many other illnesses. [3]

[1] Ministry of Health (Secretaria de Salud). 2020. "Boletín Epidemiológico Sistema Nacional de Vigilancia Epidemiológica Sistema Único de Información". [https://www.gob.mx/salud/acciones-y-programas/direccion-general-de-epidemiologia-boletin-epidemiologico]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Official Mexican Regulation NOM-017-SSA2-2012, For epidemiological surveillance" ("NORMA Oficial Mexicana NOM-017-SSA2-2012, Para la vigilancia epidemiológica"). [http://dof.gob.mx/nota_detalle.php?codigo=5288225&fecha=19/02/2013]. Accessed 4 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Epidemiological Surveillance Week 39, 2020". [https://www.gob.mx/cms/uploads/attachment/file/582469/sem39.pdf]. Accessed 9 October 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

In Mexico, the Ministry of Health (SSA) makes de-identified health surveillance data on COVID-19 publicly available via daily reports on its website. Article 4 of the declaration of a health emergency in Mexico instructed the SSA to make the changes it considered necessary to the epidemiological surveillance system in order to provide "special surveillance" of COVID-19. [1] The government's coronavirus information portal contains the daily technical reports issued by the SSA. [2] The October 8, 2020 report states that authorities have confirmed 804,488 COVID-19 cases and 83,096 deaths in Mexico. [3] The report provides the cumulative number of cases and number of active cases by state. [3]

[1] Ministry of Health (Secretaria de Salud). 2020. "ACUERDO por el que se modifica el similar por el que se establecen acciones extraordinarias para atender la emergencia sanitaria generada por el virus SARS-CoV2, publicado el 31 de marzo de 2020". [https://www.dof.gob.mx/nota_detalle.php?codigo=5592067&fecha=21/04/2020]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. "Coronavirus". [https://coronavirus.gob.mx/]. Accessed 9 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Daily Technical Report COVID-19 Mexico". [https://www.gob.mx/cms/uploads/attachment/file/583577/Comunicado_Tecnico_Diario_COVID-19_2020.10.08.pdf]. Accessed 9 October 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 Mexico, the Ministry of Health (SSA) has issued regulations that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities. Health regulation NOM-004-SSA3-2012, which regulates health records, affirms the confidentiality of personally identifiable information for patients. Section 0 states that confidentiality of patient information is a "fundamental aspect" of health regulations. At the same time, the regulation recognizes the validity of the use of de-identified information for research, statistical and other purposes. [1] In 2020, Mexico's National Institute of Transparency, Access to Information, and Protection of Personal Data (INAI) created a microsite called "Secure Personal Data COVID-19" in order to explain health data protections to individuals who might be tested or otherwise interact with the healthcare system during the pandemic. [2] INAI's microsite explains that personal health information is confidential under the law, whether gathered by government or private facilities. [3]

[1] Ministry of Health (Secretaria de Salud). 2012. "NORMA Oficial Mexicana NOM-004-SSA3-2012, Del expediente clínico". [http://dof.gob.mx/nota_detalle.php?codigo=5272787&fecha=15/10/2012]. Accessed 9 October 2020.
[2] National Institute of Transparency, Access to Information, and Protection of Personal Data (INAI). 2020. "Secure Personal Data COVID-19". [https://micrositios.inai.org.mx/covid-19/]. Accessed 9 October 2020.
[3] National Institute of Transparency, Access to Information, and Protection of Personal Data (INAI). 2020. "Types of violations of personal data". [https://micrositios.inai.org.mx/covid-19/?page_id=155]. Accessed 9 October 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 Mexico, there is legislation safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, and it includes mention of protections from cyber attacks. There are two laws that govern data protection in Mexico: one for the public sector and one for the private sector. In terms of the public sector, the 2017 Federal Law for Protection of Personal Data in Possession of Obligated Subjects establishes requirements to protect individuals' health information from cyber attacks. Article 31 states that government agencies should "establish and maintain administrative, physical and technical measures for the protection of personal data, such that it is protected from damage, loss, alteration, destruction or its unauthorized use or treatment, as well as guaranteeing its confidentiality, integrity and availability. [1] Article 3 defines "Technical security measures" as the "set of actions and mechanisms that utilize the technology related to hardware and software in order to protect the digital environment of personal data and the resources involved it its use". [1] In terms of the private sector, the 2010 Federal Law for Protection of Personal Data in Possession of Private Parties also establishes requirements to protect individuals' health information from cyber attacks. Article 19 of the law states that all individuals and organizations that handle personal data are responsible for establishing the "administrative, technical and physical measures that allow for protection of personal data from damage, loss, alteration, destruction or unauthorized use, access or handling". [2] The security measures in place must be at least equivalent to those that a data handler employs to protect its own information. Data handlers must also consider the probable risks and possible consequences of a breach when safeguarding data. [2]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2017. "Federal Law for Protection of Personal Data in Possession of Obligated Subjects". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPDPPSO.pdf]. Accessed 10 October 2020.
[2] Chamber of Deputies of the Honorable Congress of the Union. 2010. "Federal Law for Protection of Personal Data in Possession of Private Parties". [http://www.diputados.gob.mx/LeyesBiblio/pdf/LFPDPPP.pdf]. Accessed 10 October 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

In Mexico, the government has made commitments via cooperative agreements, plans, and regulations to share surveillance data during a public health emergency with other countries in the region, which apply to more than one disease. In 2015, Mexico and the United States issued the Operational Protocol for Binational Communication and Coordination on Disease Notifications and Outbreaks. The Protocol describes communications between the two countries for routine sharing of epidemiological information as well as during an outbreak. In both cases, communication occurs between authorities at the local, state and federal levels in both countries. [1] Communication includes detailed case information and test results. [1] In 2012, Mexico and the United States jointly adopted the Technical Guidelines for United States—Mexico Coordination on

Public Health Events of Mutual Interest. The guidelines commit both countries to "more systematic and comprehensive sharing of information at all levels of government". The guidelines set up coordination mechanisms for public health agencies responsible for epidemiological surveillance in both countries. [2] Also in 2012, Mexico, Canada and the United States issued the North American Plan for Animal and Pandemic Influenza. Chapter 4 of the plan includes commitments by the three countries to "strengthen our existing sharing of epidemiological and surveillance data", especially in the context of a public health emergency such as pandemic influenza. [3] Additionally, Mexico has reinforced its commitments to share surveillance data via the WHO during public health emergencies. Article 16 of the General Health Law Regulations on International Health Matters states that Mexico will share information about cases of epidemiological surveillance for notifiable diseases with the WHO. [4] Section 11.7 of health regulation NOM-017-SSA2-2012, which sets up the National Epidemiological Surveillance System (SINAVE), states that the national reference laboratory will collaborate with other centers internationally for epidemiological surveillance. [5] In 2018, the Ministry of Health published the Standardized Operating Procedure Manual for International Epidemiological Surveillance, which reinforces the commitments made in the regulations mentioned above. [6]

[1] Centers for Disease Control and Prevention. 2015. " Operational Protocol for Binational Communication and Coordination on Disease Notifications and Outbreaks". [https://www.cdc.gov/usmexicohealth/pdf/us-mexico-protocol.pdf]. Accessed 10 October 2020.
[2] Centers for Disease Control and Prevention. 2017. "United States — Mexico Guidelines and Protocol for Coordination". [https://www.cdc.gov/usmexicohealth/united-states-mexico-guidelines-cooperation.html]. Accessed 10 October 2020.
[3] Department of Health and Human Services. 2012. "North American Plan For Animal and Pandemic Influenza". [https://www.phe.gov/Preparedness/international/Documents/napapi.pdf]. Accessed 10 October 2020.
[4] Ministry of Health (Secretaria de Salud). 1985. "REGLAMENTO de la Ley General de Salud en Materia de Sanidad Internacional". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MSI.pdf]. Accessed 10 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2013. "Official Mexican Regulation NOM-017-SSA2-2012, For epidemiological surveillance" ("NORMA Oficial Mexicana NOM-017-SSA2-2012, Para la vigilancia epidemiológica"). [http://dof.gob.mx/nota_detalle.php?codigo=5288225&fecha=19/02/2013]. Accessed 4 October 2020.
[6] Ministry of Health (Secretaria de Salud). 2018. "Manual de Procedimientos Estandarizados de Operación en Materia de Vigilancia Epidemiológica Internacional". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/13_Manual_Vig_Epid_Internacional.pdf]. Accessed 10 October 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

In Mexico, there is insufficient public evidence that the government has 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.

The website of the Ministry of Health (SSA) does not contain any public information regarding contact tracing, other than contact tracing procedures related to the COVID-19 pandemic. [1] The SSA's "Guidelines for care for COVID-19 patients" includes a flow chart describing the process for following up with contacts of a confirmed COVID-19 case. The guidelines and chart directed at state and local healthcare professionals. [2] The chart has been reproduced in state-level COVID-19 guidance documents. [3] In terms of other contact tracing guidance, the national government's "Technical Guidelines for Health Safety in a Working Environment" advise employers to "identify workers that have been in contact with an infected person or suspected infection and send them home". The guidelines do not provide further instructions for contact tracing. [4]

In Mexico City, the local government implemented a contact tracing program via its government call center "Locatel". Locatel added 1,500 call center agents and 130 doctors dedicated to the program in order to provide medical advice to confirmed and suspected cases, as well as perform contact tracing. [5, 6] The websites of the SSA and the National Institute of Public Health do not contain additional information regarding 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. [1, 7]

[1] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. "Guidelines for care for COVID-19 patients". [https://coronavirus.gob.mx/wp-content/uploads/2020/04/Lineamiento_Clinico_COVID-19_CCINSHAE_14022020.pdf]. Accessed 10 October 2020.
[3] Tamaulipas State Government. 2020. "Standardized Guidelines for Epidemiological and Laboratory Surveillance of COVID-19". [http://coronavirus.tamaulipas.gob.mx/wp-content/uploads/sites/104/2020/03/lineamiento-estandarizado-para-la-vigilancia-epidemiologica-y-por-laboratorio-de-covid-19.pdf]. Accessed 10 October 2020.
[4] Government of Mexico. 2020. "Technical Guidelines for Health Safety in a Working Environment". [https://www.gob.mx/cms/uploads/attachment/file/552549/Lineamientos_de_Seguridad_Sanitaria._Versio_n_17_mayo_final.pdf]. Accessed 10 October 2020.
[5] CIO Mexico. 2020. "Mexico City government implements Avaya solutions for COVID-19 contact tracing". [https://cio.com.mx/gobierno-de-la-ciudad-de-mexico-implemento-soluciones-de-avaya-contact-center-para-el-seguimiento-de-contactos-por-covid-19/]. Accessed 10 October 2020.
[6] ABC Radio. 2020. "Mexico City government presents program for detection, protection and isolation of COVID-19 cases". [https://www.abcradio.com.mx/mexico/gobierno-de-la-ciudad-de-mexico-presenta-programa-de-deteccion-proteccion-y-resguardo-de-casos-covid-19]. Accessed 10 October 2020.
[7] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 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

In Mexico, there is insufficient public evidence that the government 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 terms of medical attention, Mexico's public health system has the obligation to provide care to all individuals in the country. [1] In terms of economic support, there is no public evidence that such support is provided

nationally. The national government's list of economic measures in response to COVID-19 does not mention support for individuals in self-isolation. [2] A 2020 review of social and economic response programs for COVID-19 by the National Council for the Evaluation of Social Development Policy (CONEVAL) does not include any programs that provide support for individuals in self-isolation. [3] The government of Mexico City provides a support kit to individuals with COVID-19 symptoms who self-isolate. [4, 5] The kit includes medical supplies, a food basket, and a prepaid card with funds. The government's site does not state how much money is included on the card. [4] As of June 2020, the local government had provided 12,500 kits to individuals. [5] Other local governments in Mexico have provided food support, but this has been targeted at low-income individuals that have lost their jobs and does not specifically mention or target individuals with symptoms who are self-isolating. [6, 7] The websites of the Ministry of Health and the National Institute of Public Health do not contain additional information regarding wraparound services to enable infected people and their contacts to self-isolate or quarantine as recommended. [8, 9]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Government of Mexico. 2020. "COVID-19 Economic Measures". [https://www.gob.mx/covid19medidaseconomicas]. Accessed 10 October 2020.
[3] National Council for the Evaluation of Social Development Policy (CONEVAL). 2020. "Social policy in the context of COVID-19". [https://www.coneval.org.mx/Evaluacion/IEPSM/Documents/Politica_Social_COVID-19.pdf]. Accessed 10 October 2020.
[4] Government of Mexico City. 2020. "COVID-19 Economic Measures". [https://www.gob.mx/covid19medidaseconomicas/articulos/ciudad-de-mexico-245178]. Accessed 10 October 2020.
[5] ABC Radio. 2020. "Mexico City government presents program for detection, protection and isolation of COVID-19 cases". [https://www.abcradio.com.mx/mexico/gobierno-de-la-ciudad-de-mexico-presenta-programa-de-deteccion-proteccion-y-resguardo-de-casos-covid-19]. Accessed 10 October 2020.
[6] Infobae. 2020. "Coronavirus in Jalisco". [https://www.infobae.com/america/mexico/2020/04/13/coronavirus-en-jalisco-estos-son-los-nuevos-apoyos-que-anuncio-el-gobierno/]. Accessed 10 October 2020.
[7] Update Mexico. 2020. "Municipality of Queretaro will provide 75,000 food and health supply donations to vulnerable populations". [https://updatemexico.com/destacadas/entregara-municipio-de-queretaro-75-mil-apoyos-alimentarios-y-sanitarios-a-poblacion-vulnerable/]. Accessed 10 October 2020.
[8] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] National Institute of Public Health (INSTITUTO NACIONAL DE SALUD PÚBLICA). 2020. "Instituto Nacional de Salud Publica". [https://www.insp.mx/]. Accessed 4 October 2020.

2.5.1c

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, the government makes de-identified data on contact tracing efforts for COVID-19 available via a daily dataset released on the government's open data website. The "Information regarding COVID-19 cases in Mexico" dataset is updated daily and posted in comma-separated values (CSV) format on the government's open data website. [1] The dataset includes a number of parameters for each confirmed case, including whether or not the case was a contact of a previously diagnosed case, as well as the case's state and municipality of residence and onset date for symptoms. [1]

[1] Ministry of Health (Secretaria de Salud). 2020. "Information regarding COVID-19 cases in Mexico". [https://datos.gob.mx/busca/dataset/informacion-referente-a-casos-covid-19-en-mexico]. Accessed 10 October 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

In Mexico, regulations and documents from the public health system and border control authorities outline joint efforts to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of both future and active public health emergencies. In 2012, the government updated the Regulations for the federal Migration Law. [1] Article 68 states that the International Health division of the Ministry of Health (SSA) "has priority to inspect maritime, air and land transportation that enter or leave the national territory". In addition, the article states that the National Institute for Migration (INM) "will comply with the extraordinary actions in matters of general health issued by the Council of General Health Standards and the Ministry of Health". [1] In 2020, the INM stated that its personnel were interviewing and pre-screening arriving travelers for COVID-19 symptoms and referring suspected cases to health authorities on-site at INM installations at points of entry. Further INM stated that it maintains 24/7 communication and coordination with staff from SSA's International Health division via on-site representatives. [2] In terms of SSA, the 2018 Standardized Operating Procedure Manual for International Epidemiological Surveillance outlines coordination steps between health and border control authorities at points of entry, as well as establishing the minimum response capabilities that each port of entry should maintain. [3] In 2020, various COVID-19 guidance documents outline detection of suspected cases at points of entry and provide for coordination between public health and border control authorities to control suspected cases and provide contact tracing. [4, 5] Mexico's 2018 International Health Regulations (IHR) State Party self-assessment annual report scored the country at 80% for indicator "C.11.1 Core capacity requirements at all times for designated airports, ports and ground crossings" and 80% for indicator "C.11.2 Effective public health response at points of entry". [6]

[1] Ministry of Governance. 2012. "Regulations for the Migration Law". [http://dof.gob.mx/nota_detalle.php?codigo=5270615&fecha=28/09/2012]. Accessed 10 October 2020.
[2] National Institute for Migration (INM). 2020. "INM maintains coordination with health authorities at entry points". [https://www.gob.mx/inm/prensa/mantiene-inm-coordinacion-con-autoridades-sanitarias-en-zonas-de-internacion-estaciones-y-estancias-migratorias-de-mexico-238576?idiom=es]. Accessed 10 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2018. "Manual de Procedimientos Estandarizados de Operación en Materia de Vigilancia Epidemiológica Internacional". [https://epidemiologia.salud.gob.mx/gobmx/salud/documentos/manuales/13_Manual_Vig_Epid_Internacional.pdf]. Accessed 10 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Guidelines for Epidemiological and Laboratory Surveillance of Viral Respiratory Diseases". [https://coronavirus.gob.mx/wp-content/uploads/2020/09/Lineamiento_VE_y_Lab_Enf_Viral_Ago-2020.pdf]. Accessed 10 October 2020.
[5] Tamaulipas State Government. 2020. "Standardized Guidelines for Epidemiological and Laboratory Surveillance of COVID-19". [http://coronavirus.tamaulipas.gob.mx/wp-content/uploads/sites/104/2020/03/lineamiento-estandarizado-para-la-vigilancia-epidemiologica-y-por-laboratorio-de-covid-19.pdf]. Accessed 10 October 2020.

[6] World Health Organization. 2018. “Mexico – Health Security Status”. [https://extranet.who.int/sph/country/264]. Accessed 8 October 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

In Mexico, an applied epidemiology training program is available. There is no publicly available evidence that the Mexican government provides resources to send citizens to another country to participate in applied epidemiology training programs (FETP). Mexico’s applied epidemiology program, the Residency in Epidemiology, has graduated 31 classes consisting of nearly 300 trained experts. The program is managed by the Ministry of Health’s (SSA) General Directorate of Epidemiology and is conducted at the National Autonomous University of Mexico. The program lasts three years and only admits medical doctors. [1, 2] Graduates of the residency are equipped to design and implement epidemiological surveillance systems, recommend evidence-based interventions and develop community partnerships to support epidemiological surveillance, among other qualifications. [2] The program has belonged to Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) since 1997. [1] The websites of the SSA and the South American Network of Field Epidemiology Programs (REDSUR) do not contain additional information regarding the Mexican government using its resources to send citizens to another country to participate in applied epidemiology training programs. [3, 4]

[1] South American Network of Field Epidemiology Programs (REDSUR). 2020. “FETP México”. [http://redsur.org/fetp-mexico/]. Accessed 10 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. “Residencia en Epidemiología”. [https://www.gob.mx/salud/acciones-y-programas/residencia-en-epidemiologia]. Accessed 10 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] South American Network of Field Epidemiology Programs (REDSUR). 2018. “Inicio”. [http://redsur.org/]. Accessed 10 October 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 Mexico, there is no public evidence that the available field epidemiology training program is explicitly inclusive of animal health professionals or that there is a specific animal health field epidemiology training program offered (such as FETPV). Mexico's field epidemiology training program explicitly excludes animal health professionals as it is open only to medical doctors. [1] There is no publicly available evidence of a separate animal health field epidemiology training program offered. Mexican animal health professionals have obtained veterinary epidemiology training in Colorado and Argentina, but neither of these trainings was a field epidemiology training program. [2, 3] In a 2020 interview, the only remaining academically trained animal health epidemiologist at Mexico's National Institute of Forest, Farming and Animal Agriculture Research (INIFAP) stated that the institution lacked funding and human resources to continue its research on animal health epidemiology. [4] The websites of the Ministry of Health, Centers for Disease Control and Prevention and Training Programs in Epidemiology and Public Health Interventions Network do not contain additional information regarding an animal health field epidemiology training program. [5, 6, 7]

[1] Ministry of Health (Secretaria de Salud). 2020. "Residencia en Epidemiología". [https://www.gob.mx/salud/acciones-y-programas/residencia-en-epidemiologia]. Accessed 10 October 2020.
[2] ANIMAL POPULATION HEALTH INSTITUTE. 2013. "2013 Biennial CIOSU Review". [https://www.cvmbs.colostate.edu/aphi/web/membership/APHI_CIOSU_2013.pdf]. Accessed 10 October 2020.
[3] Servicio Nacional de Sanidad y Calidad Agroalimentaria. Undated. "Primer curso de vigilancia epidemiológica". [http://www.senasa.gob.ar/senasa-comunica/noticias/primer-curso-de-vigilancia-epidemiologica]. Accessed 10 October 2020.
[4] Agronoticias. 2020. "Mexico should strengthen public research and training in animal health". [https://agronoticias.com.mx/2020/04/27/mexico-debe-fortalecer-investigacion-publica-y-capacitacion-en-salud-pecuaria/]. Accessed 10 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Centers for Disease Control and Prevention. 2020. "Centers for Disease Control and Prevention". [https://www.cdc.gov/]. Accessed 10 October 2020.
[7] Training Programs in Epidemiology and Public Health Interventions Network. 2020. "TEPHINET". [https://www.tephinet.org/]. Accessed 10 October 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 Mexico, the Ministry of Health (SSA) has a publicly available overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential. The Manual for Healthcare in the face of Disasters was published by the SSA's National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. The manual "establishes basic procedures for preparation and attention to emergencies, considering the organization and coordination necessary in the face of these events and a differentiated approach". The manual's principles for preparation include Organization, Coordination, Action plans, Training, Monitoring and Early Warning. The manual's principles for response include Coordination, Monitoring and following the event, Execution of action plans, Identification of potential risks, Identification of risk areas and Warning impacted areas. [1] The manual specifically includes "Health-Ecological Phenomena" as risks that the SSA should be prepared to respond to. These phenomena are defined to include pathogens, epidemics and plagues, specifically cholera, pandemic influenza, SARS, and others. [1] In terms of disease-specific plans, in 2014, the SSA published the National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic. The plan seeks to prepare for and mitigate the risks associated with potential flu outbreaks. [2] COVID-19 planning documents state that they follow the guidelines in the "National Plan for the Protection of Health and Preparation for the Risk of Bioterrorism or a Biological Emergency", but this plan is not publicly available on any government website. [3, 4, 5]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[3] Institute for Epidemiological Diagnosis and Reference (InDRE). 2020. "Protocol for biosafety and biosecurity for the management of patients during taking samples of probable cases of 2019-NCOV". [http://cvoed.imss.gob.mx/protocolo-de-bioseguridad-y-biocustodia-para-el-manejo-de-pacientes-durante-la-toma-de-muestras-de-casos-probables-por-enfermedad-por-2019-ncov/]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] Government of Mexico. 2020. "Gob.mx". [https://www.gob.mx/]. Accessed 11 October 2020.

3.1.1b

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

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

Current Year Score: 0

In Mexico, the Ministry of Health (SSA) has an overarching national public health emergency response plan in place, but it has not been updated in the last 3 years. The Manual for Healthcare in the face of Disasters was published in 2013 by the SSA's National Centre for Preventative Programs and Disease Control (CENAPRECE). It is based on the 2013-2018 Action Program for Epidemiological Emergencies and Disasters. [1] Additionally, the SSA published the National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic in 2014. [2] COVID-19 planning documents state that they follow the guidelines in the "National Plan for the Protection of Health and Preparation for the Risk of Bioterrorism or a Biological Emergency", but this plan is not publicly available on any government website, so it is not known when it was last updated. [3, 4, 5]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[3] Institute for Epidemiological Diagnosis and Reference (InDRE). 2020. "Protocol for biosafety and biosecurity for the management of patients during taking samples of probable cases of 2019-NCOV". [http://cvoed.imss.gob.mx/protocolo-de-bioseguridad-y-biocustodia-para-el-manejo-de-pacientes-durante-la-toma-de-muestras-de-casos-probables-por-enfermedad-por-2019-ncov/]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] Government of Mexico. 2020. "Gob.mx". [https://www.gob.mx/]. Accessed 11 October 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

In Mexico, the Ministry of Health's (SSA) overarching national public health emergency response plan in place includes considerations for pediatric and other vulnerable populations. The Manual for Healthcare in the face of Disasters was published by the SSA's National Centre for Preventative Programs and Disease Control (CENAPRECE) in 2013. The manual "establishes basic procedures for preparation and attention to emergencies, considering the organization and coordination necessary in the face of these events and a differentiated approach". The manual prioritizes providing care to vulnerable populations, including children, pregnant women, the elderly, individuals with chronic degenerative diseases and disabled individuals. The manual states that "preparation will enable [response] to ensure the recovery of healthcare services, availability of priority hospital services (trauma care, surgery and for specific groups: pediatric, pregnant women, older adults, chronic degenerative diseases, etc.)", and that "priority actions" will include "identification and care for specific groups: pregnant women, children under age 5, older adults, disabled individuals, and those with chronic degenerative illnesses". [1] Additionally, in 2014, the SSA published the National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic. This plan also considers vulnerable populations, including

children under five years old, individuals already suffering from an illness, mobile populations, pregnant women, newborns and others. [2]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient public evidence that the country has specific mechanisms for engaging with the private sector to assist with outbreak emergency preparedness and response. According to the Ministry of Health's (SSA) 2014 National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic, at the state level, the government has created Committees for Health Safety to coordinate the response to disasters and health emergencies. [1] For example, the State Committee for Health Safety in the state of Aguascalientes is tasked with, among other things, "facilitating collaboration and coordination, as well as promoting agreement among the public, social and private sectors for the instrumentation of actions for health safety". The committee does not include any permanent private sector representatives, but the "President of the Committee shall invite representatives of the public, social and private sectors to participate in sessions, regarding the topic to be discussed in the session that requires their collaboration". [2] The SSA's 2013 Manual for Healthcare in the face of Disasters only mentions one avenue for collaborating with the private sector during an emergency—requesting assistance from private sector medical facilities if necessary. The manual does not describe a procedure or mechanism for requesting such assistance. [3] The SSA's National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic also includes a specific goal to increase coordination between public and private diagnostic laboratories to speed up diagnostic testing in the event of a health emergency. [1] In practice, during the COVID-19 pandemic, the Ministry of Health (SSA) stated in March 2020 that it was working to validate testing methods at private and other public laboratories outside the RNLSP in order to avoid "centralization" of testing

capacity. [2] As of October 2020, the SSA and Institute for Epidemiological Diagnosis and Reference (InDRE) had authorized an additional 67 private laboratories and 56 academic, mainly university medical school, laboratories to conduct COVID-19 testing and report trusted results to the national epidemiological surveillance system. [4] In addition, in April 2020 in response to the pandemic, the government signed an agreement with private hospitals to open up bed for patients from the public health system on a fee reimbursement basis that would not cost patients from the public health system. [5] The websites of the Ministry of Health and the Ministry of Safety and Citizen Protection do not contain additional information regarding specific mechanisms for engaging with the private sector to assist with outbreak emergency preparedness and response. [6, 7]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Government of the State of Aguascalientes. 2020. "Decree to create the State Committee for Health Safety".
[https://eservicios2.aguascalientes.gob.mx/NormatecaAdministrador/archivos/EDO-12-59.pdf]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[4] Ministry of Health (Secretaria de Salud). October 2020. "Laboratories recognized by the InDRE for carrying out COVID-19 testing, for epidemiological surveillance purposes".
[https://www.gob.mx/cms/uploads/attachment/file/583293/LISTADO_DE_LABORATORIOS_QUE_REALIZAN_EL_DIAGN_STICO_DE_COVID-19_07102020.pdf]. Accessed 9 October 2020.
[5] Government of Mexico. 2020. "Health sector signs agreement with private hospitals to face the COVID-19 pandemic".
[https://coronavirus.gob.mx/2020/04/13/sector-salud-suscribe-convenio-con-hospitales-privados-para-hacer-frente-a-la-pandemia-de-covid-19/]. Accessed 11 October 2020.
[6] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[7] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 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

In Mexico, there is public evidence that the government has a plan and guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic, for more than one disease. Mexico has two disease-specific plans that include guidelines and criteria for implementing NPIs, but neither applies to all public health emergencies in general. NPIs are outlined in the Ministry of Health's (SSA) 2014 National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic. The plan divides preparation and response into four phases following World Health Organization (WHO) guidelines: Interpandemic, Alert, Pandemic, Transition. The plan provides differentiated NPIs for the interpandemic and pandemic phases of the plan. NPIs in the interpandemic phase include risk communication, use of PPE, disinfection and limiting travel. NPIs in the pandemic phase include self-isolation, voluntary quarantine, physical distancing, and others. [1] During the COVID-19 pandemic, implementation has been even more specific. In March 2020, the

SSA issued the "Agreement to establish preventive measures that should be implemented for the mitigation and control of health risks from the viral illness COVID-19". Article 2 of the agreement describes physical distancing measures, use of PPE and other NPIs. [2] During the COVID-19 pandemic, Mexico has implemented a 'traffic light' system with four phases for the implementation of differentiated NPIs. [3] The websites of the Ministry of Health and the Ministry of Safety and Citizen Protection do not contain additional information regarding a plan and guidelines in place to implement NPIs during an epidemic or pandemic. [4, 5]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. "Agreement to establish preventive measures that should be implemented for the mitigation and control of health risks from the viral illness COVID-19".
[https://www.dof.gob.mx/nota_detalle.php?codigo=5590339&fecha=24/03/2020]. Accessed 11 October 2020.
[3] Government of Mexico. 2020. "COVID-19 Traffic Light". [https://coronavirus.gob.mx/semaforo/]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?
- Is there evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year?
- Is there evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year?
Needs to meet at least one of the criteria to be scored a 1 on this measure. , Yes for both = 1 , Yes for one = 1 , No for both = 0

Current Year Score: 1

In Mexico, the government has activated its national emergency response plan for an infectious disease outbreak in the past year. There is no public evidence that Mexico has completed a national-level human biological threat-focused exercise (either with WHO or separately) in the past year. On January 30, 2020 the Ministry of Health (SSA) activated the National Committee for Health Safety (CSS) when the World Health Organization declared COVID-19 a pandemic. [1] The CSS is the primary response mechanism described in Mexico's overarching national public health emergency response plan, the 2013 Manual for Healthcare in the face of Disasters. [2] The CSS continued to meet in February and March 2020 to prepare the country's COVID-19 response, and Mexico's Council of General Health Standards (CSG) declared a public health emergency for the SARS-CoV2 virus (COVID-19) on March 30, 2020. [3] On March 31, the Ministry of Health (SSA) announced actions to combat the spread of the virus. [4] Throughout the pandemic, the CSS has coordinated with state-level Committees for Health Safety (CESS) as described in the 2013 Manual for Healthcare in the face of Disasters. [2, 5] In terms of an exercise related to animal health, in September 2019, Mexico carried out a "mega-simulation" of the introduction of African Swine Fever (ASF) to the country. The simulation involved eight states, public and private sector representatives, and international observers from the United States, Canada, Central America, the World Animal Health Organization (OIE), and others. ASF is not a threat to

humans. [6, 7] The websites of the Ministry of Health and the Ministry of Safety and Citizen Protection do not contain additional information regarding a national-level human biological threat-focused exercise carried out during the last year. [8, 9]

[1] Ministry of Health (Secretaria de Salud). 2020. “Press conference. Daily report on coronavirus COVID-19 in Mexico". [https://www.gob.mx/presidencia/articulos/version-estenografica-conferencia-de-prensa-informe-diario-sobre-coronavirus-covid-19-en-mexico-250194?idiom=es]. Accessed 20 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. “Manual de Atencion a la Salud ante Desastres”. [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[3] Council of General Health Standards (Consejo de Salubridad General). 2020. “Agreement to declare public health emergency”. [https://www.dof.gob.mx/nota_detalle.php?codigo=5590745&fecha=30/03/2020]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. “Agreement to establish extraordinary actions to attend the public health emergency”. [https://www.dof.gob.mx/nota_detalle.php?codigo=5590914&fecha=31/03/2020]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. “Mexico remains in phase one for COVID-19". [https://www.gob.mx/salud/prensa/086-mexico-permanece-en-fase-uno-por-covid-19]. Accessed 20 October 2020.
[6] Ministry of Agriculture. 2020. “SENASICA evaluates its rapid response systems for health emergencies”. [https://www.gob.mx/agricultura/prensa/evalua-senasica-sus-sistemas-de-respuesta-rapida-ante-emergencias-sanitarias-209736?idiom=es]. Accessed 11 October 2020.
[7] Ministry of Agriculture. 2020. “Agriculture announces Mega-simulation to protect pork production in Mexico”. [https://www.gob.mx/senasica/prensa/anuncia-agricultura-megasimulacro-para-proteger-produccion-porcicola-de-mexico?idiom=es]. Accessed 11 October 2020.
[8] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 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

In Mexico, there is no publicly available evidence that the country 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 Mexico (or anywhere else in the Americas). [1] The WHO’s Health Security Calendar does not show any engagement with Mexico during 2019, 2020 or 2021. [2] The websites of the Ministry of Health, the Ministry of Agriculture, Ministry of Safety and Citizen Protection, and the National Center for Disaster Prevention do not contain additional information regarding an exercise to identify a list of gaps and best practices in response (either through an infectious disease response of a biological-threat focused exercise) and development of a plan to improve response capabilities. [3, 4, 5, 6]

[1] World Health Organization. 2020. “After Action Review”. [https://extranet.who.int/sph/after-action-review]. Accessed 11 October 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 11 October

2020.
[3] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. “Agricultura”. [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[6] National Center for Disaster Prevention. 2020. “CENAPRED”. [https://www.gob.mx/cenapred]. Accessed 11 October 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

In Mexico, there is no publicly available evidence that the country has undergone a national-level human biological threat-focused exercise that has included private sector representatives. In terms of animal health, in September 2019, Mexico carried out a "mega-simulation" of the introduction of African Swine Fever (ASF) to the country. The simulation involved eight states, public and private sector representatives, and international observers from the United States, Canada, Central America, the World Animal Health Organization (OIE), and others. ASF is not a threat to humans. [1, 2] The websites of the Ministry of Health, the Ministry of Agriculture, Ministry of Safety and Citizen Protection, World Health Organization (WHO) Mexico country page, WHO Simulation Exercise page, Pan American Health Organization Mexico country page, and the National Center for Disaster Prevention do not contain additional information regarding a national-level human biological threat-focused exercise that has included private sector representatives. [3, 4, 5, 6, 7, 8, 9]

[1] Ministry of Agriculture. 2020. "SENASICA evaluates its rapid response systems for health emergencies". [https://www.gob.mx/agricultura/prensa/evalua-senasica-sus-sistemas-de-respuesta-rapida-ante-emergencias-sanitarias-209736?idiom=es]. Accessed 11 October 2020.
[2] Ministry of Agriculture. 2020. "Agriculture announces Mega-simulation to protect pork production in Mexico". [https://www.gob.mx/senasica/prensa/anuncia-agricultura-megasimulacro-para-proteger-produccion-porcicola-de-mexico?idiom=es]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[6] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[7] World Health Organization. 2020. "Mexico". [https://www.who.int/countries/mex/]. Accessed 11 October 2020.
[8] Pan American Health Organization. 2020. "Mexico". [https://www.paho.org/es/mexico]. Accessed 11 October 2020.
[9] World Health Organization. 2020. "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise]. Accessed 20 October 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 Mexico, there is a specific emergency operations center (EOC) for health-related emergencies including pandemics. The Ministry of Health's (SSA) 2013 Manual for Healthcare in the face of Disasters describes the structure of the public health sector's response to emergencies. At the national level, the National Committee for Health Safety (CSS) coordinates actions between the SSA, other federal ministries and the National System of Civil Protection (SINAPROC), which coordinates the overall disaster or emergency response. The CSS is supported by state-level Committees for Health Safety, which replicate the structure of the national CSS at the state level. In the event of a public health emergency, the CSS and the state-level committee where the emergency has occurred set up an Operational Command Centre for Health Safety (COSS), which functions as the health-sector EOC and interfaces with all other relevant authorities and organizations on an operational level. Specifically, the CSS (via the COSS) is "charged with analysis, definition, coordination, follow-up and evaluation of the policies, strategies and actions for health safety, especially national security threats that imply harm to public health". [1] Beyond the health sector, the General Civil Protection Law defines the SINAPROC as the entire set of agencies, methods, regulations, principles, tools, policies, procedures, services and actions existing among the public, private and volunteer sectors to coordinate civil protection actions. [2] The National Centre for Disaster Prevention (CENAPRED) is the national agency, subordinated to the Ministry of the Interior, tasked with providing technical support to SINAPROC and implementing public policies regarding disaster prevention and risk reduction. CENAPRED functions as the general EOC for disasters and emergencies in Mexico. [2, 3]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of the Interior (Secretaria de Gobernación). 2018. "ACUERDO por el que se emite el Manual de Organización y Operación del Sistema Nacional de Protección Civil". [http://www.dof.gob.mx/nota_detalle.php?codigo=5531489&fecha=13/07/2018]. Accessed 11 October 2020.
[3] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 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

In Mexico, there is no publicly available evidence that emergency operations centers (EOC) are required to conduct a drill at least once per year, nor is there public evidence that EOCs conduct drills at least once per year. The Ministry of Health's (SSA) Manual for Healthcare in the face of Disasters does not require an annual drill for the National Committee for Health Safety (CSS). [1] The SSA regulations that created the CSS do not require an annual drill either. [2] Regulations for state-level CSS's do not require an annual drill. [3] The General Law for Civil Protection does not require annual drills for the civil protection agency and EOC, the National Centre for Disaster Prevention (CENAPRED), nor do the law's accompanying regulations. [4, 5] The National Civil Protection System's (SINAPROC) Organization and Operations Manual does not require annual drills for any of the agencies it comprises, although it does state that sub-national governments and the General Directorate of Civil Protection should "promote the realization of exercises and drills". [6] A SINAPROC presentation of the "2020 Risk Agenda" did not mention drills or simulations. The document referred to in the presentation is not publicly available. [7] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, and the National Center for Disaster Prevention do not contain additional information regarding annual drills for EOCs. [8, 9, 10]

[1] Ministry of Health (Secretaria de Salud). 2013. “Manual de Atencion a la Salud ante Desastres”. [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2003. “ACUERDO por el que se crea el Comité Nacional para la Seguridad en Salud”. [http://www.salud.gob.mx/unidades/cdi/nom/compi/a220903.html]. Accessed 11 October 2020.
[3] Government of the State of Aguascalientes. 2020. “Decree to create the State Committee for Health Safety”. [https://eservicios2.aguascalientes.gob.mx/NormatecaAdministrador/archivos/EDO-12-59.pdf]. Accessed 11 October 2020.
[4] Chamber of Deputies of the Honorable Congress of the Union. 2018. “LEY GENERAL DE PROTECCIÓN CIVIL”. [http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPC_190118.pdf]. Accessed 11 October 2020.
[5] Chamber of Deputies of the Honorable Congress of the Union. 2015. “REGLAMENTO DE LA LEY GENERAL DE PROTECCIÓN CIVIL”. [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGPC_091215.pdf]. Accessed 11 October 2020.
[6] Ministry of the Interior (Secretaria de Gobernación). 2018. “ACUERDO por el que se emite el Manual de Organización y Operación del Sistema Nacional de Protección Civil”. [http://www.dof.gob.mx/nota_detalle.php?codigo=5531489&fecha=13/07/2018]. Accessed 11 October 2020.
[7] Ministry of Safety and Citizen Protection. 2020. “SINAPROC presents 2020 Risk Agenda”. [https://www.gob.mx/sspc/prensa/sistema-nacional-de-proteccion-civil-presenta-agenda-de-riesgos-2020]. Accessed 11 October 2020.
[8] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[9] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[10] National Center for Disaster Prevention. 2020. “CENAPRED”. [https://www.gob.mx/cenapred]. Accessed 11 October 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

In Mexico, there is no publicly available evidence that the National Committee for Health Safety (CSS) or other 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. The Ministry of Health’s (SSA) Manual for Healthcare in the face of Disasters does not describe the results of previous drills. [1] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, and the National Center for Disaster Prevention do not contain additional information regarding the results of emergency response exercises conducted within the last year. [2, 3, 4]

[1] Ministry of Health (Secretaria de Salud). 2013. “Manual de Atencion a la Salud ante Desastres”. [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[3] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. “CENAPRED”. [https://www.gob.mx/cenapred]. Accessed 11 October 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

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

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

Current Year Score: 1

In Mexico, public health and national security authorities have carried out exercises to respond to a potential deliberate biological event, and they have also developed publicly available procedures for joint response to a potential deliberate biological event. In 2004, Mexico published the National Plan for Protection of Health in the face of the Risk of Bioterrorism. [1] The plan calls for coordination of health and security actions in the event of a bioterrorism attack. The proposed coordination mechanism is the state-level Committee for Health Safety in the entity where the attack occurs. The Committee includes permanent representatives of public health, security, and other relevant authorities, as well as ad hoc participation from civil society and the private sector. [1, 2] A 2017 article noted that the plan had not been updated. [2] There is no public evidence that the plan has been updated as of October 2020. [3] In 2013, national and sub-national authorities carried out a table-top simulation of a bioterrorism event, involving representatives of hospitals, immigration, transport authorities and public safety and security personnel. [4] In 2018, authorities in the state of Tamaulipas carried out a bioterrorism simulation that involved public health and security authorities at the state's international port. [5] Following the 2019 "mega-simulation" of the introduction of African Swine Fever to the country, the Ministry of Agriculture's National Service for Agricultural Health, Food Safety and Quality (SENASICA) stated the country was prepared for the risk of an act of bioterrorism that could affect animal agriculture in Mexico. National security authorities participated in the simulation. [6]

[1] Ministry of Health (Secretaria de Salud). 2004. "PLAN NACIONAL DE PROTECCION DE LA SALUD ANTE EL RIESGO DE BIOTERRORISMO". [http://www.salud.gob.mx/unidades/cdi/documentos/Gen-planBioterrorismo.pdf]. Accessed 11 October 2020.
[2] Government of the State of Aguascalientes. 2020. "Decree to create the State Committee for Health Safety". [https://eservicios2.aguascalientes.gob.mx/NormatecaAdministrador/archivos/EDO-12-59.pdf]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2015. "Ejercicio ejecutivo de simulación en Fahrenheit 161-II". [https://www.gob.mx/salud/acciones-y-programas/ejercicio-ejecutivo-de-simulacion-en-fahrenheit-161-ii]. Accessed 11 October 2020. [5 Ministry of Health (Secretaria de Salud). 2018. "Tamaulipas, pionero en México con simulacro de ataque bioterrorista". [https://www.tamaulipas.gob.mx/salud/2018/07/tamaulipas-pionero-en-mexico-con-simulacro-de-ataque-bioterrorista/]. Accessed 11 October 2020.
[6] La Jornada. 2019. "Mexico prepared for health or bioterrorism risks, says SENASICA". [https://www.jornada.com.mx/ultimas/sociedad/2019/09/24/mexico-listo-contra-riesgos-sanitarios-o-bioterrorismo-dice-senasica-5007.html]. Accessed 11 October 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: 1

In Mexico, the government's risk communication plan for use during a public health emergency describes methods to identify target populations, create messages for them, and choose communications channels to reach them. The Manual for Healthcare in the face of Disasters was published by the Ministry of Health's (SSA) National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. [1] The manual specifically includes "Health-Ecological Phenomena" as risks that the SSA should be prepared to respond to. These phenomena are defined to include pathogens, epidemics and plagues, specifically cholera, pandemic influenza, SARS, and others. [1] The Manual's chapter on "Community" includes sections on "social communication", "risk communication" and "social marketing for health" for the preparation and response phases of an emergency. [2] In terms of reaching different populations, the plan states that public health authorities should "establish to which target groups key messages will be directed", "define communication channels that have greater permanence and presence in the target population", and "establish distribution points for communication materials or placement in the community". Further the plan states that "messages must be created according to the needs of each target group" and that communication channels can include "brochures, posters, talks, stories, calendars, manuals, radio messages" and other methods. The plan does not define specific target groups. [2] However, the SSA's National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic lists multiple target groups for risk communication, including children, indigenous groups, migrants, groups with risk factors, healthcare professionals, opinion leaders and others. The plan also describes various media platforms that the SSA should use to communicate with the public during a public health emergency, including press releases, press conferences, newspaper, radio, telephone and television interviews, and televised debates. The plan describes how and when these tools should be used to reach the groups identified. For example, radio interviews are to be used to reach more diverse populations over a wider geographic area. [3]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual for Healthcare in the face of Disasters – Community". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.
[3] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 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

In Mexico, the government has an overarching public health emergency response plan with a section detailing a risk communication plan that is specifically intended for use during a public health emergency. The Manual for Healthcare in the face of Disasters was published by the SSA's National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. [1] The manual specifically includes "Health-Ecological Phenomena" as risks that the SSA should be prepared to respond to. These phenomena are defined to include pathogens, epidemics and plagues, specifically cholera, pandemic influenza, SARS, and others. [1] The Manual's chapter on "Community" includes sections on "social communication", "risk communication" and "social marketing for health" for the preparation and response phases of an emergency. [2] During the preparation phase, public health authorities should "define a media plan", "establish to which target groups key messages will be directed", and "define communication channels that have greater permanence and presence in the target population", among other actions. [2] During the response phase, public health authorities should "implement the communication strategy to the disaster-affected population", "share information with the population about measures for prevention and control of illnesses", and "inform public opinion of the situation and outcomes of health interventions", among other actions. [2] In terms of disease-specific plans, the SSA's National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic contains detailed information on risk communication actions in the face of a specific emergency. The SSA states that its risk communication actions are designed as non-medical interventions "aimed at mitigating the rebound of the flu, as well as avoiding as much as possible the circulation and contagion of the virus". The strategy describes the usefulness and purpose of different types of media communication, including press releases, conferences, interviews and debates. The strategy also identifies target groups. [3]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual for Healthcare in the face of Disasters – Community". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.
[3] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 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 Mexico, there is no evidence that the government's risk communication plan for use during a public health emergency designates a specific position within the government to serve as the primary spokesperson to the public during a public health emergency. The Manual for Healthcare in the face of Disasters was published by the Ministry of Health's (SSA) National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. [1] The Manual's chapter on "Community" includes sections on "social communication", "risk communication" and "social marketing for health" for the preparation and response phases of an emergency. [2] The Manual states that an official spokesperson will be designated by the public health response team. The Manual also states that in preparation for a public health emergency, authorities should create a directory of national, state and local spokespersons as well as train spokespersons on information management skills. [2] The SSA's National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic provides more specific information but does not designate a specific spokesperson. According to the plan, the single spokesperson will be named during the first 72 hours of an outbreak and will begin providing regular updates to the public. The plan states that "the single spokesperson should be selected prior to the emergency from among the authorities at the Ministry of Health" and that the spokesperson "should have education and training in epidemiology and public health and should have received professional training in media as well as having communications skills". [3]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual for Healthcare in the face of Disasters – Community". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.
[3] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 2

In Mexico, there is public evidence that the public health system has actively shared messages via online media platforms to inform the public about ongoing public health concerns and/or dispel rumors, misinformation or disinformation. In response to the COVID-19 pandemic, the government of Mexico and Ministry of Health (SSA) have created a coronavirus portal that is updated daily with information regarding cases, locations, prevention, response, and other actions. [1] Specifically, the site contains daily technical reports on case counts and the spread of the virus, as well as guidelines for the public and health professionals and information dispelling rumors about potential 'cures' for the virus. [2, 3] The SSA also maintains social media platforms that it uses to share information about public health risks and emergencies. Examples of public health communications include: flu prevention tips and information about ongoing vaccination campaigns. [4, 5, 6] The SSA's

website also contains a blog that is updated continuously with public health information like reducing cancer risk, preventing dengue and vaccinating against pneumonia. [7]

[1] Government of Mexico. 2020. "Coronavirus". [https://coronavirus.gob.mx/]. Accessed 11 October 2020.
[2] Government of Mexico. 2020. "Documents for consultation". [https://coronavirus.gob.mx/documentos-de-consulta/]. Accessed 11 October 2020.
[3] Government of Mexico. 2020. "Myths and realities". [https://coronavirus.gob.mx/mitos-y-realidades/]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "SSA Facebook". [https://www.facebook.com/SecretariadeSaludMX/]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "SSA Twitter". [https://twitter.com/SSalud_mx]. Accessed 11 October 2020.
[6] General Directorate of Epidemiology. 2020. "Epidemiologia México". [https://twitter.com/DGEMexico]. Accessed 11 October 2020.
[7] Ministry of Health (Secretaria de Salud). 2020. "Blog". [https://www.gob.mx/salud/archivo/articulos?idiom=es&filter_id=387&filter_origin=archive]. Accessed 11 October 2020.

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 0

In Mexico, there is public evidence that the president has shared misinformation or disinformation on infectious diseases in the past two years. In a March 2020 press conference, the president of Mexico stated that embracing people did not present a risk for COVID-19. The president stated: “Look, this thing about the coronavirus, that you can’t hug. You have to hug, nothing is going to happen.” [1]

[1] New York Times. 2020. “‘We Call for Calm’: Mexico’s Restrained Response to the Coronavirus”. [https://www.nytimes.com/2020/03/15/sports/soccer/soccer-mexico-coronavirus.html]. Accessed 11 October 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: 70.07

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: 95.13

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

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

Input number

Current Year Score: 3.0

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: 6.0

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: 1

In Mexico, there is no public evidence that the country has issued a restriction, without international/bilateral support, on the export/import of medical goods due to an infectious disease outbreak in the past year. The World Trade Organization's

(WTO) list of COVID-related trade measures does not include any measures taken by Mexico. [1] The Latin American and Caribbean Economic System's (SELA) summary of COVID-related measures does not include any trade-related measures taken by Mexico. [2] The websites of the Ministry of Health, Ministry of Agriculture, Ministry of Economy, and Ministry of Foreign Affairs do not contain additional information regarding a restriction, without international/bilateral support, on the export/import of medical goods due to an infectious disease outbreak in the past year. [3, 4, 5, 6]

[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] Latin American and Caribbean Economic System. 2020. "Summary of COVID-related measures".
[http://www.sela.org/media/3219723/covid-19-resumen-de-las-principales-medidas-estados-miembros-sela.pdf]. Accessed 27 August 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] Ministry of Economy. 2020. "Economia". [https://www.gob.mx/se]. Accessed 11 October 2020.
[6] Ministry of Foreign Affairs. 2020. "Relaciones Exteriores". [https://www.gob.mx/sre]. Accessed 11 October 2020.

3.7.1b

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

Yes = 0 , No = 1

Current Year Score: 1

In Mexico, there is no public evidence that the country has issued a restriction, without international/bilateral support, on the export/import of non-medical goods due to an infectious disease outbreak in the past year. The World Trade Organization's (WTO) list of COVID-related trade measures does not include any measures taken by Mexico. [1] The Latin American and Caribbean Economic System's (SELA) summary of COVID-related measures does not include any trade-related measures taken by Mexico. [2] The websites of the Ministry of Health, Ministry of Agriculture, Ministry of Economy, and Ministry of Foreign Affairs 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 in the past year. [3, 4, 5, 6]

[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] Latin American and Caribbean Economic System. 2020. "Summary of COVID-related measures".
[http://www.sela.org/media/3219723/covid-19-resumen-de-las-principales-medidas-estados-miembros-sela.pdf]. Accessed 27 August 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Agriculture. 2020. "Agricultura". [https://www.gob.mx/agricultura/]. Accessed 4 October 2020.
[5] Ministry of Economy. 2020. "Economia". [https://www.gob.mx/se]. Accessed 11 October 2020.
[6] Ministry of Foreign Affairs. 2020. "Relaciones Exteriores". [https://www.gob.mx/sre]. Accessed 11 October 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: 1

In Mexico, there is no public evidence that the country has implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak in the past year. According to Mexico's Ministry of Foreign Relations, "Mexico has not adopted restrictions for the entry of visitors or return of Mexicans coming from other countries". [1] Mexico and the United States did, however, mutually agree to restrict non-essential travel in March/April 2020 at the start of the COVID-19 outbreak reaching the Americas. [2] The websites of the Ministry of Health, Ministry of Foreign Affairs, National Institute of Migration, WHO Disease Outbreak News, and Ministry of Communications and Transport do not contain additional information regarding a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak in the past year. [3, 4, 5, 6, 7]

[1] Ministry of Foreign Affairs. 2020. "Traveler's Guide". [https://guiadelviajero.sre.gob.mx/]. Accessed 11 October 2020.
[2] United States Department of Homeland Security. 2020. "Joint Statement on US-Mexico Joint Initiative to Combat the COVID-19 Pandemic". [https://www.dhs.gov/news/2020/03/20/joint-statement-us-mexico-joint-initiative-combat-covid-19-pandemic]. Accessed 30 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Foreign Affairs. 2020. "Relaciones Exteriores". [https://www.gob.mx/sre]. Accessed 11 October 2020.
[5] National Institute of Migration. 2020. "INM". [https://www.gob.mx/inm]. Accessed 11 October 2020.
[6] World Health Organization. 2020. "Disease Outbreak News Mexico". [https://www.who.int/csr/don/archive/country/mex/en/]. Accessed 9 October 2020.
[7] Ministry of Communications and Transport. 2020. "Comunicaciones". [https://www.gob.mx/sct]. Accessed 11 October 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: 238.27

2017

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 239.61

2018

WHO; national sources

4.1.1c

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, there is a health workforce strategy in place, updated in the past five years, to identify fields where there is an insufficient workforce and strategies to address these shortcomings. Mexico's Interinstitutional Commission for the Formation of Human Resources in the Health Sector (CIFRHS) is tasked with identifying workforce gaps in the health sector and coordinating with the ministry of Health (SSA) and the Ministry of Public Education (SEP) to address these shortcomings. [1] In 2015, the National Institute of Public Health (INSP) published a report for CIFRHS that detailed human resource gaps on a state-by-state basis throughout Mexico. The gaps identified include too few doctors and nurses in primary care facilities, a lack of accredited dentistry education programs and too many graduates in medicine from universities in some areas, such as Mexico City, Oaxaca and Queretaro. The report provides authorities with general and specific recommendations to address the shortcomings, such as reorienting attention and resources to primary care and assigning budgetary resources to generate studies for evidence-based decision making in health sector human resources planning. [2] The federal government's 2020-2024 Sectoral Program for Health includes "increasing human capacity" in the national healthcare system, "especially in regions with high and very high marginalization" as one of its priority objectives. [3] Further, the program priority strategy 3.2 contains 10 specific actions related to hiring and training the healthcare workforce in the public healthcare system. [3] Action 3.1.3 tasks the Ministry of Health with identifying human resource requirements for each region. [3]

[1] Ministry of Health (Secretaria de Salud). 2018. "Comisiones CIFRHS/CPE".
[http://www.calidad.salud.gob.mx/site/comisiones/]. Accessed 11 October 2020.
[2] National Institute of Public Health (Instituto Nacional de Salud Publica). 2015. "Brechas en la Disponibilidad de Recursos Humanos Para la Salud en el Primer Nivel de Atención".
[http://www.cifrhs.salud.gob.mx/site1/residencias/brechas_informe.pdf]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "2020-2024 Sectoral Program for Health".
[http://dof.gob.mx/nota_detalle.php?codigo=5598474&fecha=17/08/2020]. Accessed 11 October 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 98

2018

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

In Mexico, the country has the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation room. The National Institute for Rehabilitation (INR) houses a severe burn unit which meets the requirements for a biocontainment patient care unit. [1] The INR unit consists of 12 completely isolated patient rooms with air filtering and containment systems. The rooms utilize a negative pressure air handling system and are accessible from the heliport and ambulances without having to pass through the rest of the hospital. [2, 4] In 2014, the government planned to send any individuals suspected of Ebola infection to the INR unit. [2] The unit has the possibility to treat 12 patients simultaneously and could increase capacity by 50% if necessary. [3]

[1] Excelsior. 2014. “Salud crea protocolos contra virus del ébola”.
[https://www.excelsior.com.mx/nacional/2014/10/25/988746]. Accessed 11 October 2020.
[2] Expansion. 2014. “Si hubiera un caso de ébola en México, ¿cuál sería el protocolo a seguir?”.
[https://expansion.mx/nacional/2014/10/15/si-hubiera-un-caso-de-ebola-en-mexico-cual-seria-el-protocolo-a-seguir].
Accessed 11 October 2020.
[3] La Jornada. 2014. “Muere el paciente que llegó al INR con graves quemaduras y fue rechazado”.
[https://www.jornada.com.mx/2014/12/02/sociedad/037n2soc]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2018. "Pandemias, Enfermedades Transmitidas por Vector y Zoonosis en México". [http://www.cenapred.gob.mx/es/documentosWeb/Tertulias/Presentacion_Jesus_Gonzalez.pdf]. Accessed 11 October 2020.

4.1.2c

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

Yes = 1, No = 0

Current Year Score: 1

There is some public evidence that Mexico has, in the past two years, demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak and developed, updated or tested a disease-specific plan (COVID-19) to expand isolation capacity in response to an infectious disease outbreak. In April 2020, the Ministry of Health (SSA) issued the "Guidelines for Hospital Reorganization". [1] The Guidelines instruct hospitals on reorganizing areas and processes in order to treat COVID-19 patients. They include considerations for patient isolation areas which should include "physical barriers" and "proper ventilation". [1] In practice, public health services applied these guidelines to increase patient care capacity during

the COVID-19 pandemic, with the WHO calling the process "exemplary" in the Americas. [2]

[1] Ministry of Health (Secretaria de Salud). 2020. “Guidelines for Hospital Reorganization". [https://coronavirus.gob.mx/wp-content/uploads/2020/04/Documentos-Lineamientos-Reconversion-Hospitalaria.pdf]. Accessed 6 April 2021.
[2] La Jornada. 2020. "WHO: Exemplary reorganization of hospitals applied by Mexico". [https://www.jornada.com.mx/ultimas/politica/2020/11/05/oms-ejemplar-reconversion-hospitalaria-aplico-mexico-6501.html]. Accessed 6 April 2021.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

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

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

Current Year Score: 2

In Mexico, the government has a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory needs (such as equipment, reagents and media) and medical supplies. Article 1 of the Law for Procurement, Rentals and Services in the Public Sector states that the public procurement system is to be used by all government ministries, including the Ministry of Health and the Ministry of Agriculture. [1] Publicly available information on procurement processes documents that the Ministry of Health and the Ministry of Agriculture have used the system to purchase laboratory supplies such as reagents and medical supplies like PPE. [2, 3, 4, 5].

[1] Chamber of Deputies of the Honorable Congress of the Union. 2020. “Law for Procurement, Rentals and Services in the Public Sector”. [http://www.diputados.gob.mx/LeyesBiblio/pdf/14_110820.pdf]. Accessed 11 October 2020.
[2] Ministry of the Treasury and Public Credit. 2020. “File Code 2171327”. [https://compranet.hacienda.gob.mx/esop/guest/go/public/opportunity/past?locale=es_MX]. Accessed 11 October 2020.
[3] Ministry of the Treasury and Public Credit. 2020. “File Code 2171567”. [https://compranet.hacienda.gob.mx/esop/guest/go/public/opportunity/past?locale=es_MX]. Accessed 11 October 2020.
[4] Ministry of the Treasury and Public Credit. 2020. “File Code 2154620”. [https://compranet.hacienda.gob.mx/esop/guest/go/public/opportunity/past?locale=es_MX]. Accessed 11 October 2020.
[5] Ministry of the Treasury and Public Credit. 2020. “File Code 2099386”. [https://compranet.hacienda.gob.mx/esop/guest/go/public/opportunity/past?locale=es_MX]. Accessed 11 October 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 2

In Mexico, there is some public evidence that the government maintains a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency. Official documents refer to a "strategic reserve" of PPE but there is no public information on the existence or functioning of the reserve. [1] The Manual for Healthcare in the face of Disasters was published by the Ministry of Health's (SSA) National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. [10] The Manual's chapter on "Community" tasks states and local governments with creating reserves of "necessary medicines and supplies". There is no public evidence of implementation. [10] Guidelines for the National Network of Public Health Laboratories (RNLSP) state that each institution is responsible for managing its PPE and maintaining a minimum reserve. [2] According to a 2020 article, Mexico had to repurchase N95 face masks from China at a higher price after selling China the masks when the COVID-19 pandemic was starting in that country. [3] In a March 2020 press conference, the head of the National Center for Disaster Prevention (CENAPRED) stated that the country had a strategic reserve with PPE and "some medicines" including antivirals for pandemic influenza, but that the reserve was "limited" and had "very few" supplies at the time of the statement. [9] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding a stockpile of medical supplies for national use during a public health emergency. [4, 5, 6, 7, 8]

[1] Ministry of Health (Secretaria de Salud). 2018. "Pandemias, Enfermedades Transmitidas por Vector y Zoonosis en México". [http://www.cenapred.gob.mx/es/documentosWeb/Tertulias/Presentacion_Jesus_Gonzalez.pdf]. Accessed 11 October 2020.
[2] Ministry of Health. 2020. "Biosafety and biosecurity protocol for taking and handling specimens in the laboratory for viral respiratory illness".
[https://www.gob.mx/cms/uploads/attachment/file/577831/Protocolo_Bioseguridad_Biocustodia_Enfermedad_Viral_InDRE_V7__09sep2020.pdf]. Accessed 6 October 2020.
[3] El Economista. 2020. "Mexico repurchased supplies from China at a higher price".
[https://www.eleconomista.com.mx/politica/A-un-costo-mayor-Mexico-recompra-insumos-a-China-20200408-0003.html]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[8] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "COFEPRIS". [https://www.gob.mx/cofepris]. Accessed 11 October 2020.
[9] Presidency of the Republic (Presidencia de la República). March 5, 2020. "Stenographic version – Daily report on coronavirus COVID-19 in Mexico". [https://www.gob.mx/presidencia/articulos/version-estenografica-informe-diario-sobre-coronavirus-covid-19-en-mexico-secretaria-de-salud?idiom=es]. Accessed 6 April 2021.
[10] Ministry of Health (Secretaria de Salud). 2013. "Manual for Healthcare in the face of Disasters – Community". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 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

In Mexico, there is insufficient public evidence that the government maintains a stockpile of laboratory supplies including reagents and media for national use during a public health emergency. Guidelines for the National Network of Public Health Laboratories (RNLSP) state that each institution is responsible for managing its chemical materials and substances and maintaining a minimum reserve. [1] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding a stockpile of laboratory supplies including reagents and media for national use during a public health emergency. [2, 3, 4, 5, 6]

[1] Ministry of Health. 2020. “Biosafety and biosecurity protocol for taking and handling specimens in the laboratory for viral respiratory illness”. [https://www.gob.mx/cms/uploads/attachment/file/577831/Protocolo_Bioseguridad_Biocustodia_Enfermedad_Viral_InDRE_V7__09sep2020.pdf]. Accessed 6 October 2020.
[2] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. “SEDENA”. [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. “COFEPRIS”. [https://www.gob.mx/cofepris]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. “CENAPRED”. [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 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 Mexico conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. Several documents discuss a national stockpile, but none mention an annual review. Official documents refer to a “strategic reserve” of PPE but there is no public information on the existence or functioning of the reserve. [1] The Manual for Healthcare in the face of Disasters was published by the Ministry of Health’s (SSA) National Center for Preventative Programs and Disease Control (CENAPRECE) in 2013. [2] The Manual’s chapter on “Community” tasks states and local governments with creating reserves of “necessary medicines and supplies”. There is no public evidence of implementation. [2] Guidelines for the National Network of Public Health Laboratories (RNLSP) state that each institution is responsible for managing its PPE and maintaining a minimum reserve. [3] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. [4, 5, 6, 7, 8]

[1] Ministry of Health (Secretaria de Salud). 2018. "Pandemias, Enfermedades Transmitidas por Vector y Zoonosis en México". [http://www.cenapred.gob.mx/es/documentosWeb/Tertulias/Presentacion_Jesus_Gonzalez.pdf]. Accessed 11 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. “Manual for Healthcare in the face of Disasters – Community”. [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.

[3] Ministry of Health. 2020. "Biosafety and biosecurity protocol for taking and handling specimens in the laboratory for viral respiratory illness".
[https://www.gob.mx/cms/uploads/attachment/file/577831/Protocolo_Bioseguridad_Biocustodia_Enfermedad_Viral_InDRE_V7__09sep2020.pdf]. Accessed 6 October 2020.
[4] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[8] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "COFEPRIS". [https://www.gob.mx/cofepris]. Accessed 11 October 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

In Mexico, there is no public 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, nor is there public evidence of a plan/mechanism to procure medical supplies for national use during a public health emergency. Mexico's public health emergency response plan does not describe leveraging domestic manufacturing capacity to produce medical supplies or a plan/mechanism to procure medical supplies during an emergency. [1] Mexico's 2018 International Health Regulations (IHR) State Party self-assessment annual report scored the country at 60% for indicator "C.8.3 Emergency resource mobilization". [2] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding leveraging domestic manufacturing capacity to produce medical supplies or a plan/mechanism to procure medical supplies during an emergency. [3, 4, 5, 6, 7] In April 2020, the Ministry of Health (SSA) issued regulations regarding emergency procurement of supplies to deal with the COVID-19 pandemic. The document does not comprise a plan for procurement of medical supplies, nor does it mention preexisting agreements with manufacturers. [8]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] World Health Organization. 2018. "Mexico – Health Security Status". [https://extranet.who.int/sph/country/264]. Accessed 8 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "COFEPRIS". [https://www.gob.mx/cofepris]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.

[6] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. “SEDENA”. [https://www.gob.mx/sedena]. Accessed 5 October 2020.
[8] Ministry of Health (Secretaria de Salud). 2020. “Agreement to establish extraordinary actions that should be undertaken for the procurement and importation of goods and services”. [https://www.dof.gob.mx/nota_detalle.php?codigo=5591156&fecha=03/04/2020]. Accessed 11 October 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

In Mexico, there is no public evidence of a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies including reagents and media for national use during a public health emergency, nor is there public evidence of a plan/mechanism to procure laboratory supplies for national use during a public health emergency. Mexico’s public health emergency response plan tasks state and local governments with “establishing the coordination and guaranteeing the necessary resources for the diagnostic and reference actions by laboratory in support of epidemiological surveillance during a disaster”. [1] Mexico’s 2018 International Health Regulations (IHR) State Party self-assessment annual report scored the country at 60% for indicator “C.8.3 Emergency resource mobilization”. [2] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding leveraging domestic manufacturing capacity to produce laboratory supplies or a plan/mechanism to procure laboratory supplies during an emergency. [3, 4, 5, 6, 7]

[1] Ministry of Health (Secretaria de Salud). 2013. “Manual for Healthcare in the face of Disasters – Community”. [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.
[2] World Health Organization. 2018. “Mexico – Health Security Status”. [https://extranet.who.int/sph/country/264]. Accessed 8 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. “COFEPRIS”. [https://www.gob.mx/cofepris]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. “CENAPRED”. [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. “Salud”. [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Ministry of Safety and Citizen Protection. 2020. “Seguridad”. [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. “SEDENA”. [https://www.gob.mx/sedena]. Accessed 5 October 2020.

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

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

4.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient public evidence that the government has guidelines in place for dispensing medical countermeasures for national use during a public health emergency. The Ministry of Health's (SSA) 2013 Manual for Healthcare in the Face of Disasters provides guidance for distribution, but not for dispensing. According to the Manual, in the event of a public health emergency, an "administrative support team" is activated to immediately process all emergency-related requests for medical supplies. In addition, the SSA's General Directorate of Material Resources and General Services is tasked with supporting National Centre for Preventative Programs and Disease Control (CENAPRECE) operationally to provide logistical support and ensure that all supplies reach their destination. [1] In terms of dispensing the Manual's chapter on Community tasks state and local health authorities with setting up plans and programs to dispense vaccines in the event of a public health emergency. The Manual provides proposed steps and guidelines to local authorities. [2] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, Ministry of National Defense, and Federal Commission for Protection from Health Risks do not contain additional information regarding guidelines in place for dispensing medical countermeasures for national use during a public health emergency. [3, 4, 5, 6, 7]

[1] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual for Healthcare in the face of Disasters - Community". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualComunidad.pdf]. Accessed 11 October 2020.
[3] Federal Commission for Protection from Health Risks (COFEPRIS). 2020. "COFEPRIS". [https://www.gob.mx/cofepris]. Accessed 11 October 2020.
[4] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[5] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[6] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[7] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 2020.

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

4.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, there is insufficient public evidence that the government has a public plan in place to receive health personnel from other countries to respond to a public health emergency. The Ministry of Health's (SSA) 2013 National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic does not include a plan to receive foreign health personnel. [1] The SSA's 2013 Manual for Healthcare in the face of Disasters does not include a plan to receive foreign health personnel. [2] The General Law for Civil Protection (last updated in 2018) states that Mexico can receive and send international support in the event of an emergency. [3] The National Civil Protection System's (SINAPROC) 2018 Organization and Operations Manual states that the entity should "propose the establishment of modalities for international cooperation and aid in cases of disasters" in coordination with the Ministry of Foreign Relations, but no further details are included in the manual. [4] In 2012, Mexico, Canada and the United States issued the North American Plan for Animal and Pandemic Influenza. Chapter 4 of the plan includes commitments by the three countries to work "together to facilitate the rapid exchange of public health liaisons, epidemiological, laboratory and medical personnel". However, the plan notes that regulatory and licensing hurdles must be cleared to facilitate such exchanges. The plan does not provide any evidence of action taken to clear these hurdles. [5] Also in 2012, Mexico and the United States jointly adopted the Technical Guidelines for United States—Mexico Coordination on Public Health Events of Mutual Interest. The guidelines commit both countries to undertake a "determined effort" to jointly conduct epidemiological investigations. Both countries reserve the right to forego joint investigations or finalize them in their respective jurisdictions. This agreement does not cover doctors and nurses acting in a healthcare capacity, but rather focuses on personnel involved in outbreak investigations. [6] In practice, during the 2020 COVID-19 pandemic, the SSA issued special regulations valid during the state of emergency to allow foreign healthcare professionals to work in healthcare facilities as part of the emergency response. [7] The websites of the Ministry of Health, Ministry of Safety and Citizen Protection, National Center for Disaster Prevention, and Ministry of National Defense do not contain additional information regarding a public plan in place to receive health personnel from other countries to respond to a public health emergency. [8, 9, 10, 11]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2018. "LEY GENERAL DE PROTECCIóN CIVIL".
[http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPC_190118.pdf]. Accessed 11 October 2020.
[4] Ministry of the Interior (Secretaria de Gobernación). 2018. "ACUERDO por el que se emite el Manual de Organización y Operación del Sistema Nacional de Protección Civil".
[http://www.dof.gob.mx/nota_detalle.php?codigo=5531489&fecha=13/07/2018]. Accessed 11 October 2020.
[5] Department of Health and Human Services. 2012. "North American Plan For Animal and Pandemic Influenza".
[https://www.phe.gov/Preparedness/international/Documents/napapi.pdf]. Accessed 10 October 2020.
[6] Centers for Disease Control and Prevention. 2017. "United States — Mexico Guidelines and Protocol for Coordination".
[https://www.cdc.gov/usmexicohealth/united-states-mexico-guidelines-cooperation.html]. Accessed 10 October 2020.
[7] Forbes Mexico. 2020. "Mexico will allow foreign health personnel to work in the country to attend to the emergency".
[https://www.forbes.com.mx/noticias-mexico-permitira-personal-de-salud-extranjero-trabajar-pais-para-contingencia/].
[8] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.
[9] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[10] Ministry of Safety and Citizen Protection. 2020. "Seguridad". [https://www.gob.mx/sspc]. Accessed 11 October 2020.
[11] Ministry of National Defense (Secretaria de la Defensa Nacional). 2020. "SEDENA". [https://www.gob.mx/sedena]. Accessed 5 October 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: 1

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 97.7

2015

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

4.4.1c

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

Input number

Current Year Score: 427.52

2017

WHO Global Health Expenditure database

4.4.2 Paid medical leave

4.4.2a

Are workers guaranteed paid sick leave?

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

Current Year Score: 2

2020

World Policy Analysis Center

4.4.3 Healthcare worker access to healthcare

4.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Mexico government has issued a policy committing to provide prioritized healthcare services to healthcare workers who become sick as a result of responding to a public health emergency. In 2020, the Council of General Health Standards issued the "Bioethical Guide for the Assignment of Limited Critical Medical Resources during an Emergency Situation". Section 2.6 defines "Priority cases", stating that healthcare personnel engaged in the fight against COVID-19 should receive priority access to scarce critical medical resources if they fall ill during the response. The guide makes an exception for personnel that present comorbidities or an outlook that makes their treatment futile. [1] The guide's objective is to provide "criteria to orient decision making during triage when a public health emergency creates demand for critical medical resources that it is not possible to meet". [1] However, the policy is specific to COVID-19 and is not applicable to other public health emergencies or outbreaks.

[1] Council of General Health Standards (Consejo de Salubridad General). 2020. "Bioethical Guide for the Assignment of Limited Critical Medical Resources during an Emergency Situation". [http://www.csg.gob.mx/descargas/pdf/index/informacion_relevante/GuiaBioeticaTriaje_30_Abril_2020_7pm.pdf]. Accessed 11 October 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: 1

In Mexico, the Ministry of Health (SSA) has outlined a system for public health officials and healthcare workers to communicate during a public health emergency in its National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic (2014). The plan describes the implementation of on-site Health Command Centers (COSS), which are situational EOCs set up for all public health emergencies. Specifically, "the plan describes the functions and actions of the various actors in the coordination of public health preparation and response to an epidemic or pandemic, among the three levels of government and other key partners". The COSS ensure communication between authorities and field healthcare workers according to a predetermined schedule. The plan considers the use of phone, fax and email to communicate, but does not describe alternative methods. [1] The implementation described above provides details for the system outlined in the SSA's Manual for Healthcare in the face of Disasters, which is the overarching public health emergency response plan. [1, 2] The manual states that the COSS and state and federal committees should present continuous reports to the National Committee for Health Safety, which oversees the overall health sector response to emergencies. [2] The National Civil Protection System (SINAPROC) depends on the National Communications and Operations

Center for Civil Protection (CENACOM) to coordinate communication among all participating ministries and agencies during an emergency. [3] CENACOM is supposed to have the necessary systems, equipment, documents, instruments and infrastructure to be able to achieve communication in an emergency situation. [4]

[1] Ministry of Health. 2013. “National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza”.
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. “Manual de Atencion a la Salud ante Desastres”.
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[3] Official Daily of the Federation (Diario Oficial de la Federacion). 2014. "National Civil Protection Program 2014-2018" (“PROGRAMA Nacional de Protección Civil 2014-2018”).
[https://dof.gob.mx/nota_detalle.php?codigo=5343076&fecha=30/04/2014].
[4] Chamber of Deputies of the Honorable Congress of the Union. 2018. “LEY GENERAL DE PROTECCIÓN CIVIL”.
[http://www.diputados.gob.mx/LeyesBiblio/pdf/LGPC_190118.pdf]. Accessed 11 October 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

In Mexico, there is no public evidence that the Ministry of Health's (SSA) system for public health officials and healthcare workers to communicate during a public health emergency describes communication with the private sector. SSA's 2013 National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic describes the implementation of on-site Health Command Centers which will communicate between authorities and field healthcare workers according to a predetermined schedule. The plan describes communication and coordination among public healthcare workers and authorities but does not mention the private sector. [1] The Ministry of Health's (SSA) Manual for Healthcare in the face of Disasters does not describe a public health emergency communications system that includes private sector health workers. [2] The National Civil Protection System (SINAPROC) does consider coordinating communications with the private sector in the case of a disaster or emergency, but this is not specific to public health emergencies. SINAPROC's Organization and Operations Manual states that the entity can "establish communication bridges and if appropriate through the same radiocommunication frequencies used by authorities" with civil society and volunteer groups. [3] In terms of communication between private laboratories and the National System for Epidemiological Surveillance (SINAVE) during the COVID-19 pandemic, private laboratories authorized to carry out COVID-19 testing report their results to public health authorities. [4, 5]

[1] Ministry of Health. 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] Ministry of Health (Secretaria de Salud). 2013. "Manual de Atencion a la Salud ante Desastres".
[http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/ManualPresentacion.pdf]. Accessed 9 October 2020.
[3] Ministry of the Interior (Secretaria de Gobernación). 2018. "ACUERDO por el que se emite el Manual de Organización y

Operación del Sistema Nacional de Protección Civil".
[http://www.dof.gob.mx/nota_detalle.php?codigo=5531489&fecha=13/07/2018]. Accessed 11 October 2020.
[4] Milenio. March 2020. "Mexico analyzes releasing COVID-19 tests to private laboratories".
[https://www.milenio.com/ciencia-y-salud/mexico-analiza-liberar-pruebas-covid-19-laboratorios-privados]. Accessed 9 October 2020.
[5] Ministry of Health (Secretaria de Salud). October 2020. "Laboratories recognized by the InDRE for carrying out COVID-19 testing, for epidemiological surveillance purposes".
[https://www.gob.mx/cms/uploads/attachment/file/583293/LISTADO_DE_LABORATORIOS_QUE_REALIZAN_EL_DIAGN_STICO_DE_COVID-19_07102020.pdf]. Accessed 9 October 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

In Mexico, the national public health system monitors and tracks the number of health care associated infections (HCAI) that take place in healthcare facilities. Health regulation NOM-045-SSA2-2005 sets up the epidemiological surveillance system for HCAI in Mexico. [1] The regulation applies to all facilities in the national healthcare system: public, private and social. Information on HCAI is collected and entered into the Hospital Epidemiological Surveillance Network (RHOVE), which covers 80 hospitals in Mexico and connects information to the National System for Epidemiological Surveillance (SINAVE). [1, 2] The RHOVE establishes indicators for simplified monitoring of HCAI in order to measure the impact of interventions designed to reduce HCAI. These indicators include immediate notification of HCAI outbreaks, HCAI-related deaths in neonatal care and a monthly summary of al HCAI cases and deaths. [1]

[1] Ministry of Health (Secretaria de Salud). 2005. “NORMA Oficial Mexicana NOM-045-SSA2-2005, Para la vigilancia epidemiológica, prevención y control de las infecciones nosocomiales”.
[http://dof.gob.mx/nota_detalle.php?codigo=5120943&fecha=20/11/2009].
[2] Ministry of Health (Secretaria de Salud). 2020. “National Epidemiological Surveillance System”.
[https://www.gob.mx/salud/acciones-y-programas/sistema-nacional-de-vigilancia-epidemiologica]. Accessed 9 October 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 Mexico, there is a national requirement for ethical review before beginning a clinical trial. Article 41 Bis ("Bis" indicates the article was added to the law in between preexisting articles as part of an amendment to the law) of the 2018 General Health Law requires medical facilities that perform research on human subjects to set up a Research Ethics Committee that is responsible for reviewing and approving research protocols for clinical trials involving humans. [1] Article 14 of the Regulations for the General Health Law on Matters of Health Research lists requirements for research involving human subjects, including approval of the research protocol by the Research Ethics Committee and the informed consent of the participants. [2] The National Bioethics Commission approves institutional committees and regulates their operations. [3] As of October 2020, there were 355 committees approved for operation in Mexico. [4]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] National Bioethics Commission (Comision Nacional de Bioética). 2018. "COMITéS DE éTICA EN INVESTIGACIóN". [https://www.gob.mx/salud/conbioetica/articulos/comites-de-etica-en-investigacion-140023]. Accessed 11 October 2020.
[4] National Bioethics Commission (Comision Nacional de Bioética). 2020. "Lista de Registro CEI (Registros emitidos para CEI)". [https://www.gob.mx/cms/uploads/attachment/file/405348/Registros_CEI_24102018.pdf]. Accessed 11 October 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

In Mexico, there is no publicly available evidence of an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing pandemics. The 2018 General Health Law and its Regulations on Matters of Health Research do not describe an expedited process for clinical trials. [1, 2] Guidance documents from the National Bioethics Commission do not describe an expedited process for clinical trials. [3, 4, 5, 6, 7] Expedited sessions for Research Ethics Committees are only permitted for situations where the research protocol is judged to present no risk to subjects or when a protocol has been conditionally approved pending minor adjustments. [7] The websites of the Ministry of Health and the National Council of Science and Technology do not contain additional information regarding an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics. [8, 9]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Presidency of the Republic. 2014. "Regulations for the General Health Law on Matters of Health Research". [http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LGS_MIS.pdf]. Accessed 5 October 2020.
[3] National Bioethics Commission (Comision Nacional de Bioética). 2020. "COMITéS DE éTICA EN INVESTIGACIóN". [https://www.gob.mx/salud/conbioetica/articulos/comites-de-etica-en-investigacion-140023]. Accessed 11 October 2020.
[4] National Bioethics Commission (Comision Nacional de Bioética). 2015. "Criterios de Revisión y Seguimiento a los Protocolos de Investigación". [https://www.gob.mx/cms/uploads/attachment/file/281055/7_Revision_y_seguimiento_de_protocolos__1_.pdf]. Accessed 11 October 2020.
[5] National Bioethics Commission (Comision Nacional de Bioética). 2015. "Modulo II. Integracion y Funcionamiento". [https://www.gob.mx/cms/uploads/attachment/file/281065/2_Integracion_y_funcionamiento_CEI.pdf]. Accessed 11 October 2020.
[6] National Bioethics Commission (Comision Nacional de Bioética). 2015. "Criterios de revisión y seguimiento a los protocolos de investigación". [https://www.gob.mx/cms/uploads/attachment/file/281056/6_Criterios_revision_protocolos_investigacion.pdf]. Accessed 11 October 2020.
[7] National Bioethics Commission (Comision Nacional de Bioética). 2018. "National guide for integration and operations of Research Ethics Committees". [https://www.gob.mx/cms/uploads/attachment/file/460756/7_Guia_CEI_2018_6a.pdf]. Accessed 11 October 2020.
[8] National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología). 2020. "CONACYT". [https://www.conacyt.gob.mx/]. Accessed 5 October 2020.
[9] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 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 Mexico, the Federal Commission for Protection from Sanitary Risks (COFEPRIS) is responsible for approving new medical countermeasures for humans. Article 17 bis ("Bis" indicates the article was added to the law in between pre-existing articles as part of an amendment to the law) of the 2018 General Health Law tasks COFEPRIS with approving medicines, supplements, medical devices and other countermeasures for use in Mexico. [1] COFEPRIS' mission is to protect the population from health risks associated with goods, services, health products, environmental factors, and medical services. [2]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Federal Commission for Protection from Sanitary Risks (Comisión Federal para la Protección contra Riesgos Sanitarios). 2020. "¿Qué hacemos?". [https://www.gob.mx/cofepris/que-hacemos]. Accessed 11 October 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

In Mexico, the government has an expedited process for approving medical countermeasures (MCM) for human use during public health emergencies. The Federal Commission for Protection from Sanitary Risks (COFEPRIS) is responsible for approving new medical countermeasures for humans. Article 17 bis ("Bis" indicates the article was added to the law in between pre-existing articles as part of an amendment to the law) of the 2018 General Health Law tasks COFEPRIS with approving medicines, supplements, medical devices and other countermeasures for use in Mexico. [1] Article 157 Bis 11 of the law states that all vaccines and medical inputs for use in humans must meet health regulations. Further, "the procedures for the authorization of the registration, import and distribution of vaccines will be considered as a priority based on their importance to public health and national security. In cases of emergency, the aforementioned procedures will be attended to immediately". [1] In practice, during the COVID-19 pandemic, by April 2020 COFEPRIS had decreased its response time for approval processes related to medical devices, authorizing 134 devices including ventilators and PPE, as well as processes for medicines and diagnostic tests, authorizing 15 generic medicines and 8 new diagnostic tests. [2]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2018. "General Health Law". [http://www.diputados.gob.mx/LeyesBiblio/pdf/142_240120.pdf]. Accessed 2 October 2020.
[2] Federal Commission for Protection from Sanitary Risks (Comisión Federal para la Protección contra Riesgos Sanitarios). 2020. "Strategic Actions by COFEPRIS during the COVID-19 Emergency". [https://www.redeami.net/docs/docs/eami/informe-acciones-emergencia-sanitaria-SARS-COV2.pdf]. Accessed 11 October 2020.

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

In Mexico, the government has a national risk reduction action plan, but it is not publicly available so there is insufficient public evidence that it integrates epidemics and pandemics. In December 2019, the Pan American Health Organization (PAHO) reported that Mexico had carried out an annual exercise to review its 2016-2021 Action Plan for Disaster Risk Reduction. [1] The exercise included various health sector authorities from different departments of the Ministry of Health (SSA) as well as the National Center for Disaster Prevention (CENAPRED). [1, 2] The PAHO article states that the action plan is "multi-threat", but it is not clear if it specifically includes epidemics and pandemics. [1] Mexico's 2016-2021 Action Plan for Disaster Risk Reduction is not publicly available on any government website. [3] The websites of the SSA and CENAPRED do not contain additional information regarding the integration of epidemics and pandemics in the national risk reduction action plan. [4, 5]

[1] Pan American Health Organization (PAHO). 2019. "Mexico carries out annual monitoring exercise of its Action Plan for Disaster Risk Reduction with an intersectoral focus". [https://www.paho.org/mex/index.php?option=com_content&view=article&id=1483:mexico-lleva-a-cabo-el-ejercicio-anual-de-monitoreo-de-su-plan-de-accion-para-la-reduccion-de-riesgo-de-desastres-con-un-enfoque-intersectorial&Itemid=499]. Accessed 8 October 2020.
[2] Mexican Institute of Social Security. 2017. "Global Platform for Disaster Risk Reduction 2017". [http://cvoed.imss.gob.mx/plataforma-global-para-la-reduccion-del-riesgo-de-desastres-2017-cancun-quintana-roo-mexico/]. Accessed 8 October 2020.
[3] Government of Mexico. 2020. "Gob.mx". [https://www.gob.mx/]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 2020.

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

5.2.1 Cross-border agreements

5.2.1a

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

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

Current Year Score: 1

In Mexico, the government has at least two cross-border agreements with regards to public health emergencies, but there is no recent public evidence of implementation. In 2014, the heads of the respective health ministries and departments in Mexico, Canada and the United States signed a Declaration of the Intention to Coordinate Communication in Public Health Emergencies. [1] The three countries committed to clear, transparent and timely information sharing regarding public health emergencies. In addition, each year the three countries should carry out a communications exercise to improve coordination.

[1] In addition, in 2017 Mexico and the United States agreed upon an Operational Protocol for Binational Communication and Coordination for the Notification of Diseases and Outbreaks. The protocol includes provisions for joint epidemiological investigations. [2] The protocol is supported by Technical Guides that outline the framework for information exchange and coordinated response. The guides were published in 2012. [3] The websites of the Ministry of Health and National Center for Disaster Prevention do not contain additional information regarding cross-border agreements with regards to public health emergencies. [4, 5]

[1] Ministry of Foreign Relations (Secretaria de Relaciones Exteriores). 2015. "México, Estados Unidos y Canadá fortalecen el intercambio de información en emergencias sanitarias". [https://www.gob.mx/salud/prensa/mexico-estados-unidos-y-canada-fortalecen-el-intercambio-de-informacion-en-emergencias-sanitarias]. Accessed 11 October 2020.
[2] Centers for Disease Control and Prevention. 2017. "Protocolo Operativo Estados Unidos de América-México para la Comunicación y Coordinación Binacional de la Notificación de Enfermedades y Brotes". [https://www.cdc.gov/usmexicohealth/pdf/us-mexico-protocol-spanish.pdf]. Accessed 11 October 2020.
[3] Centers for Disease Control and Prevention. 2017. "Guías y Protocolo para la Coordinación de los Estados Unidos y México". [https://www.cdc.gov/usmexicohealth/esp/guias-para-la-coordinacion.html]. Accessed 11 October 2020.
[4] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[5] National Center for Disaster Prevention. 2020. "CENAPRED". [https://www.gob.mx/cenapred]. Accessed 11 October 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

In Mexico, the government has agreements with regards to response to animal health emergencies and there is evidence of implementation.

The North American plan for animal and pandemic influenza (NAPAPI), issued by the presidents of Canada, Mexico and the US in 2012, outlines how the three countries will work together to prepare for and manage animal influenza. Its aims include reducing the barriers to sharing medical countermeasures across borders, and it commits the three countries to immediately sharing outbreak notifications directly with each other. The plan includes agreements to share avian influenza vaccines and to provide veterinary assistance as needed. [1, 2] In 2012, the health secretaries of the US and Mexico signed a declaration adopting a shared set of technical guidelines for responding to public health events affecting both countries, the “Technical guidelines for United States - Mexico coordination on public health events of mutual interest”. [1] The guidelines include “cases of disease identified in one country for which there is evidence or reason to suspect an epidemiologic link to the other country, including diseases detected in animals”. [3]
In addition, the Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and other Exotic Animal Diseases operates a laboratory network with 20 laboratories aimed at diagnosing and preventing the spread of animal diseases in both countries. [4] Similarly, a 2017 government presentation documents collaboration between Mexico and the United States on epidemiological surveillance of zoonotic disease along the border. The two countries carry out joint monitoring and research, student and professional exchanges and laboratory training. [5]

[1] Department of Health and Human Services. 20 Sep 2016. “International health regulations - Joint external evaluation of the United States of America: Self-assessment report.” [https://www.phe.gov/about/OPP/dihs/Documents/jee-self-assessment.pdf]. Accessed 31 December 2020.
[2] Governments of Canada, Mexico and the US. 2012. “North American plan for animal and pandemic influenza.”

[http://www.phe.gov/Preparedness/international/Documents/napapi.pdf]. AAccessed 31 December 2020.
[3] Core Group on Epidemiologic Surveillance of the Health Working Group, US-Mexico Binational Commission; Centers for Disease Control and Prevention (CDC), US Department of Health and Human Services (HSS); and General Directorate of Epidemiology (DGE), Secretaria de Salud (SSA), Mexico. 2012. "Technical guidelines for United States-Mexico coordination on public health events of mutual interest." [https://www.cdc.gov/usmexicohealth/pdf/us-mexico-guidelines.pdf]. Accessed 31 December 2020.
[4] National Service for Agricultural Health, Food Safety and Quality (Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria). 2020. "Comisión México-Estados Unidos para la Prevención de la Fiebre Aftosa y otras Enfermedades Exóticas de los Animales (CPA)". [https://www.gob.mx/senasica/acciones-y-programas/la-comision-mexico-estados-unidos-para-la-prevencion-de-la-fiebre-aftosa-y-otras-enfermedades-exoticas-de-los-animales-cpa]. Accessed 11 October 2020.
[5] United States Department of Agriculture. 2017. "Taller de Inducción al Puesto para los Responsables Estatales de Nuevo Ingreso al Programa de Zoonosis".
[http://www.cenaprece.salud.gob.mx/programas/interior/vectores/descargas/pdf/Binacional_Mex_Eua_2017.pdf]. Accessed 11 October 2020.

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

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

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

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

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

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

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

- Membership in Global Health Security Agenda (GHSA)

- Membership in the Alliance for Country Assessments for Global Health Security and IHR Implementation (JEE Alliance)

- Membership in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)

- Membership in the Australia Group (AG)

- Membership in the Proliferation Security Initiative (PSI)

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

Current Year Score: 1

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

In Mexico, the government has allocated national funds to improve capacity to address epidemic threats within the past three years. Mexico's 2020 federal budget included US$16.1m for "epidemiological surveillance". [1] The amount budgeted in prior years for "epidemiological surveillance" was US$17.2m in 2019 and US$19.9m in 2018. [2, 3]

[1] Chamber of Deputies of the Honorable Congress of the Union. 2019. "2020 Federal Budget". [http://www.diputados.gob.mx/LeyesBiblio/pdf/PEF_2020_111219.pdf]. Accessed 11 October 2020.
[2] Chamber of Deputies of the Honorable Congress of the Union. 2018. "2019 Federal Budget". [http://dof.gob.mx/nota_detalle.php?codigo=5547479&fecha=28/12/2018]. Accessed 11 October 2020.
[3] Chamber of Deputies of the Honorable Congress of the Union. 2017. "2018 Federal Budget". [https://www.transparenciapresupuestaria.gob.mx/work/models/PTP/Presupuesto/DecretosPEF/Decreto_PEF_2018.pdf]. Accessed 11 October 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

In Mexico, there is an emergency public financing mechanism, and it can be used during a public health emergency. The Fund for Attention to Emergencies FONDEN provides emergency funds for response and recovery from natural disasters, specifically geological phenomena and weather events. Article 5 of the Fund's rules states that eligible disasters include: geological phenomena, meteorological phenomena and forest fires. Public health emergencies are not included in this list, but the rules allow the funds to also be used for any "other disruptive natural phenomenon, with characteristics similar to the aforementioned natural phenomena, in terms of its origin, frequency, atypical nature, severity, as determined by the competent technical authority". [1] The Fund for Attention to Emergencies FONDEN is also known as the Revolving Fund FONDEN. [2] Mexico's National Plan for the Preparation and Response to an Intensification of the Seasonal Influenza or an Influenza Pandemic mentions the Natural Disaster Revolving Fund: "In the face of the occurrence of an imminent natural disaster that puts human life at risk and when acting quickly on the part of the System is essential, the Ministry of the Interior, via the General Coordination of Civil Protection, can emit an Emergency Declaration and disburse funds charged to the Revolving Fund, assigning amounts to mitigate the effects of the possible disaster". [3] A 2020 report from Fitch Ratings corroborates that the FONDEN can be used for epidemics. [4] In 2020, the Ministry of Safety and Citizen Protection stated that updating the rules of operation for the Fund for Attention to Emergencies FONDEN to include a chapter on health emergencies would remove obstacles and make the funds available more quickly. [5] In October 2020, a press report noted that it was likely that Congress would eliminate the Fund for Attention to Emergencies FONDEN by 2021 along with other trusts and special funds in order to reduce bureaucracy, but officials stated that the funds would continue to be available from the national budget even if the special funding structure no longer existed. [6] Mexico is not an IDA eligible borrowing country and thus cannot access the World Bank Pandemic Financing Facility. [7, 8]

[1] Ministry of the Interior (Secretaria de Gobernacion). 2012. "Agreement that establishes the Rules for the Fund for Attention to Emergencies FONDEN" ("ACUERDO que establece los Lineamientos del Fondo para la Atención de Emergencias FONDEN"). [http://dof.gob.mx/nota_detalle.php?codigo=5257322&fecha=03/07/2012].
[2] Forbes Mexico. 2020. "Deputies go for emergency fund to attend probable impact from coronavirus". [https://www.forbes.com.mx/diputados-van-por-fondo-emergente-para-atender-probable-impacto-por-el-coronavirus/]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[4] Fitch Ratings. 2020. "COVID-19 effects over subnational sector in Mexico". [https://www.fitchratings.com/research/es/international-public-finance/covid-19-effects-over-subtnational-sector-in-mexico-03-04-2020]. Accessed 11 October 2020.
[5] Ministry of Safety and Citizen Protection. 2020. "Necessary to review the rules of operation of the FONDEN". [https://www.gob.mx/sspc/prensa/necesario-revisar-las-reglas-de-operacion-del-fonden-alfonso-durazo?idiom=es]. Accessed 11 October 2020.
[6] El Economista. 2020. "Despite disappearance of FONDEN, resources for natural disasters will be guaranteed". [https://www.eleconomista.com.mx/politica/Pese-a-desaparicion-del-Fonden-estan-garantizados-los-recursos-para-desastres-naturales-Sanchez-Cordero-20201006-0122.html]. Accessed 11 October 2020.
[7] World Bank Group. 2020. "What is IDA? Borrowing Countries". [http://ida.worldbank.org/about/borrowing-countries]. Accessed 11 October 2020.
[8] Pandemic Emergency Financing Facility (PEF). 2017. "Operational Brief for Eligible Countries".

[http://pubdocs.worldbank.org/en/119961516647620597/PEF-Operational-Brief-Dec-2017.pdf]. Accessed 11 October 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

In Mexico, there is insufficient public evidence that the Minister of Foreign Relations has committed to supporting other countries to improve capacity to address epidemic threats by providing financing, and that the country has requested financing to improve its domestic capacity to address epidemic threats in the past three years. There is, however, evidence of support for response efforts through increased funding. According to the Global Health Security Funding Tracking Dashboard, Mexico has committed US$299,900 to the Coalition for Epidemic Preparedness Innovations for COVID-19 vaccine development. [1] Press reports state that Mexico's Minister of Foreign Relations participated in the summit organized by the coalition and stated that Mexico would support the development of the vaccine with a contribution. [2] In terms of Mexico's domestic capacity, in 2020 the Minister of Health committed to hiring 47,000 doctors and healthcare specialists to deal with the COVID-19 pandemic and improve the country's public healthcare system. [3]

[1] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. 2020. "Mexico Funder Profile". [https://tracking.ghscosting.org/table/147/funder]. Accessed 11 October 2020.
[2] El Universal. 2020. "Mexico supports with funding for vaccine". [https://www.eluniversal.com.mx/mundo/recaudan-fondos-para-una-vacuna-mexico-da-apoyo]. Accessed 11 October 2020.
[3] El Imparcial. 2020. "Medicines and highly specialized services will be free for all in Mexico from December 1st". [https://www.elimparcial.com/mexico/Medicamentos-y-servicios-de-alta-especialidad-seran-gratuitos-para-todos-en-Mexico-desde-el-1-de-diciembre-Jorge-Alcocer-20201001-0096.html]. Accessed 11 October 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

In Mexico, there is public evidence that the country has requested financing to improve its domestic capacity to address epidemic threats in the past three years. There is insufficient public evidence that Mexico has provided other countries with financing or technical support to improve capacity to address epidemic threats in the past three years. In terms of domestic capacity, the Global Health Security Funding Tracking Dashboard shows that Mexico received US$7.68m in 2019, and US$6.28m in 2020 to improve its own domestic capacity to address epidemic threats, including US$1.95m for D.2 – Real Time

Surveillance, US$1.51m for D.1 – National Laboratory System, US$1.03m for P.7 – Immunization, and US$295,790 for R.1 – Preparedness. [1] Specific projects included US$0.7m from the government of Canada for "Preventing Zika disease with novel vector control approaches". [1] In terms of support for other countries, the Mexican Agency for International Cooperation and Development (AMEXCID) reports having spent funds and carried out projects in the health sector in other countries, but the agency's website does not provide details on the projects and links to its Transparency section were not functioning as of October 2020. [2] The websites of the Ministry of Health, Ministry of Foreign Relations, AMEXCID, United Nations and WHO do not contain additional information regarding Mexico providing other countries with financing or technical support to improve capacity to address epidemic threats in the past three years. [3, 4, 5, 6, 7]

[1] Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. 2020. "Mexico Recipient Profile". [https://tracking.ghscosting.org/table/1000/recipient]. Accessed 11 October 2020.
[2] Mexican Agency for International Cooperation and Development (AMEXCID). 2018. "International Cooperation". [https://infoamexcid.sre.gob.mx/amexcid/ccid2017/index.html]. Accessed 11 October 2020.
[3] Ministry of Health (Secretaria de Salud). 2020. "Salud". [https://www.gob.mx/salud]. Accessed 4 October 2020.
[4] Ministry of Foreign Relations. 2020. "Relaciones Exteriores". [https://www.gob.mx/sre]. Accessed 11 October 2020.
[5] Mexican Agency for International Cooperation and Development (AMEXCID). 2020. "AMEXCID". [https://www.gob.mx/amexcid]. Accessed 11 October 2020.
[6] World Health Organization. 2020. "Search results". [https://www.who.int/home/search?query=mexico%20funding%20epidemic&page=1&pagesize=10&sort=relevance&sortdir=desc&cname=highlight-en&cname=emronew&cname=who&cname=euro&cname=afro&cname=amro&cname=pmnch&cname=searo&cname=workforcealliance&cname=wpro&default=AND&f.Countries.size=100&f.Lang.filter=en&f.RegionalSites.filter=Global&f.RegionalSites.size=100&f.Topics.size=100&f.contenttype.filter=html&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]. Accessed 11 October 2020.
[7] United Nations News. 2020. "Search Results >> mexico". [https://news.un.org/en/search/mexico/field_news_topics/health-82]. Accessed 11 October 2020.

5.5.4c

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

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

5.6.1a

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

Yes = 1 , No = 0

Current Year Score: 1

In Mexico, there are publicly available agreements for sharing epidemiological data and collaborating on epidemiological investigations with other countries during a public health emergency. Mexico is a member of the Global Health Security Initiative, which has developed a "voluntary agreement to facilitate the rapid sharing of non-influenza biological materials among GHSI members during a potential or actual public health emergency." [1,2] Mexico and the United States have agreed upon an Operational Protocol for Binational Communication and Coordination for the Notification of Diseases and Outbreaks. The protocol includes provisions for joint epidemiological investigations. The investigations can consist of simple sharing of epidemiological and laboratory information or more complex collaborations such as creating a binational epidemiological investigation team. Appendix 5 of the protocol describes procedures for sharing specimens during public health events of mutual interest. The procedures include an option for Mexico to send specimens to the CDC for analysis. [3] The Technical Guides that support the protocol describe ongoing information exchange to follow up on binational outbreaks. In addition, they discuss resource sharing and which agency is responsible for which costs related to the investigation. The guides also call for the establishment of an expedited customs procedure for cross-border transport of specimens during outbreak investigations. [4]

[1] Global Health Security Initiative. "GHSI Members." [http://ghsi.ca/ghsi-members/]. Accessed 23 December 2020.
[2] Global Health Security Initiative. 17 May 2019. "Nineteenth Ministerial Meeting of the Global Health Security Initiative (GHSI)". [http://ghsi.ca/ministerial-statements/paris-may-2019/]. Accessed 23 December 2020.
[3] Centers for Disease Control and Prevention. 2017. "Protocolo Operativo Estados Unidos de América-México para la Comunicación y Coordinación Binacional de la Notificación de Enfermedades y Brotes". [https://www.cdc.gov/usmexicohealth/pdf/us-mexico-protocol-spanish.pdf]. Accessed 11 October 2020.
[4] Centers for Disease Control and Prevention. 2017. "Guías y Protocolo para la Coordinación de los Estados Unidos y México". [https://www.cdc.gov/usmexicohealth/esp/guias-para-la-coordinacion.html]. Accessed 11 October 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

In Mexico, there is no public evidence that the country has not shared samples in accordance with the PIP framework in the past two years. According to Mexico's 2013 National Plan for Preparation and Response to an Intensification of the Seasonal

Influenza or Pandemic Influenza, the country participates in sharing flu data and samples. Mexico adopted the WHO's influenza sentinel surveillance strategy in 2006. [1] The WHO's website does not contain any information regarding Mexico not sharing samples. [2] Local and international media do not contain reports of non-sharing.

[1] Ministry of Health (Secretaria de Salud). 2013. "National Plan for Preparation and Response to an Intensification of the Seasonal Influenza or Pandemic Influenza". [http://www.cenaprece.salud.gob.mx/programas/interior/emergencias/descargas/pdf/Plan_Nacional_Influenza.pdf]. Accessed 8 October 2020.
[2] World Health Organization. 2020. "Mexico". [https://www.who.int/countries/mex/]. Accessed 11 October 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

In Mexico, there is no publicly available evidence that the country has not shared pandemic pathogen samples during an outbreak in the past two years. The World Health Organization (WHO) has not reported any non-sharing by Mexico in the past two years. The WHO has not reported non-sharing of COVID-19 samples by Mexico. [1] Local and international media do not contain reports of non- of pathogen samples, including COVID-19 samples, in Mexico.

[1] World Health Organization. 2020. "Mexico". [https://www.who.int/countries/mex/]. Accessed 11 October 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: 2

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 31

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: 1

2020

Economist Intelligence

6.1.2 Orderly transfers of power

6.1.2a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.1.3 Risk of social unrest

6.1.3a

What is the risk of disruptive social unrest?

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

Current Year Score: 2

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

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

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

Current Year Score: 2

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: 0

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 3

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

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

Yes = 1, No = 0

Current Year Score: 0

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

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

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

Current Year Score: 1

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

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

Input number

Current Year Score: 95.38

2018

United Nations Development Programme (UNDP); United Nations Educational, Scientific and Cultural Organization (UNESCO); The Economist Intelligence Unit

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.67

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: 0.5

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 data website, using data from the International Labour Organization's ILOSTAT database, in 2004 Mexico's informal employment as a percentage of total non-agricultural employment was 60.66%. [1] The ILOSTAT database does not have a more recent figure. [1] In 2020, the National Institute of Statistics and Geography reported that the share of informal employment among the economically active population was 51.8%. [2]

[1] World Bank. 2020. "Informal employment (% of total non-agricultural employment) - Mexico". [https://data.worldbank.org/indicator/SL.ISV.IFRM.ZS?locations=MX]. Accessed 8 October 2020.
[2] Forbes Mexico. 2020. "Informal employment in Mexico reaches more than 51% of working-age population". [https://www.forbes.com.mx/economia-empleo-informal-en-mexico-crece-4-1-durante-la-pandemia/]. Accessed 8 October 2020.

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 2

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

Is media coverage robust? Is there open and free discussion of public issues, with a reasonable diversity of opinions?

Input number

Current Year Score: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.45

Latest available.

World Bank; Economist Impact calculations

6.3 INFRASTRUCTURE ADEQUACY

6.3.1 Adequacy of road network

6.3.1a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

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

Current Year Score: 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: 80.44

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: -0.66

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

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

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

Current Year Score: 4

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)

Input number

Current Year Score: 74.99

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: 464.8

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 7.42

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 13.9

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 28.9

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: 99

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 91.18

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: 533.74

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: 2

2018

Wellcome Trust Global Monitor 2018