

Myanmar

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

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

1.1 ANTIMICROBIAL RESISTANCE (AMR)

1.1.1 AMR surveillance, detection, and reporting

1.1.1a

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

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

Current Year Score: 2

There is a national antimicrobial resistance (AMR) plan for the surveillance, detection and reporting of priority AMR pathogens. Myanmar's National Action Plan for Containment of Antimicrobial Resistance 2017-2022 is in its early stages of implementation for surveillance, detection, and reporting of AMR by the Government of Myanmar pending final submission to the World Health Assembly. The objectives and activities outlined include having a nationwide AMR surveillance system in place along with a national early warning system to identify early the emergence of resistance in priority pathogens and to critical antimicrobials, developing guidelines for detecting infections/procedures/exposures and exposed populations, and reporting on prevalence of and trends in AMR to the Global AMR Surveillance System (GLASS) [1]. The National Multi-Sectorial Steering Committee (NMSC) for combating AMR, formed in January 2018 with the Union Minister of Health and Sports as Chairman, is in the process of creating a supporting structure to carry out strategic objectives outlined the National Action Plan [2]. The National Health Laboratory has been identified as a reference laboratory for AMR surveillance and is building on its currently established laboratory network of public and hospital laboratories [1, 3]. There is also a budget specifically allocated to AMR (increase laboratory capacity and data sharing across sectors) according to the National Action Plan for Health Security 2018-2022 [4]. According to the Joint External Evaluation (JEE) for Myanmar, completed in May 2017, there is also an information gap between private laboratories and State and Region public health surveillances as there is no regular interaction/reporting practices established between such entities [5].

[1] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 28 July 2020.

[2] Ministry of Health and Sports. 18 April 2018. "National Steering Committee Meeting on AMR". [http://mohs.gov.mm/Main/content/publication/antimicrobial-resistance-first-national-multi-sectorial-steering-committee-meeting-for-combating-antimicrobial-resistance]. Accessed 28 July 2020.

[3] Ministry of Health and Sports. "Laboratory Perspective of combating AMR". [http://mohs.gov.mm/Main/content/publication/antimicrobial-resistant-laboratory-perspective-of-combating-amr]. Accessed 28 July 2020..

[4] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 28 July 2020.

[5] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1]. Accessed 28 July 2020.

1.1.1b

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

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

Current Year Score: 1

There is publicly available evidence to conclude that Myanmar has a national laboratory/laboratory system to test for some priority Antimicrobial resistance (AMR) pathogens. According to the Joint External Evaluation for Myanmar, completed in May 2017, the National Health Laboratory (NHL) is recognized for its surveillance system to detect for priority AMR pathogens and can tap into a network of twenty-five laboratories and three veterinary laboratories. However, TB (*Mycobacterium tuberculosis*) was the only one listed specifically [1]. Although there is testing for pathogens which can become resistant to antimicrobials, it is not clear which pathogens are included in AMR testing beyond tuberculosis. The National Health Laboratory has a National Influenza Centre, certified by the World Health Organization. It also has a National Measles/Rubella Laboratory Accreditation [7]. There are national strategic plans for surveillance, prevention, and control for Avian Influenza with plans for Human Pandemic alert and TB including MDR-TB [2, 3]. Myanmar participates in several Disease Surveillance networks, none specific to 7+1 priority AMR pathogens [4]. The National Health Laboratory, Department of Medical Research (Lower Myanmar), and the Livestock Breeding and Veterinary Department along with the Food and Drug Administration in Myanmar provides AMR containment efforts on an ad hoc basis [5, 6]. There is also no mention of a sentinel site to test for priority AMR pathogens specifically on the press releases of Ministry of Information and the National Health Plan (2017-2021) either [8, 9]. The National Health Plan (2017-2021) specifically states that testing and data on AMR is so limited it "doesn't allow a meaningful comparison with regional trends." [9] There is evidence of multidrug-resistant tuberculosis (MDR-TB) cases occurring in Myanmar. The Ministry of Health and Sports has established structures for managing drug-resistant TB (DR-TB), ensuring coordination from the national level down to the hospital and township levels for programme and patient management [10]. There is currently a Standard Operating Procedure for Pneumonia Surveillance in Ground Crossing published 26 Feb, 2020 where patients with suspected pneumonia will be transferred to designated hospital where they will be swabbed and the specimen sent to the National Health Laboratory. [11]. From studies published in 2015, Myanmar does have the laboratory capabilities to test for *E. coli* at the Yangon Branches of Food Microbiology Laboratory, Food and Drug Administration and University of Medical Technology and the Department of Medical Research (Yangon) through culture testing (AMR testing was not specifically mentioned). [12, 13].

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 28 July 2020.

[2] Ministry of Health and Sports. 31 January 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 30 July 2020.

[3] Ministry of Health and Sports. 20 January 2018. "TB Situation & Overview of NTP". [<http://mohs.gov.mm/Main/content/publication/tuberculosis-tb-situation-overview-of-ntp>]. Accessed 30 July 2020.

[4] Ashley EA, Recht J, Chua A et al. 2017. "Antimicrobial Resistance in Low and Middle Income Countries. An Analysis of Surveillance Networks." Infectious Diseases Data Observatory. [www.iddo.org/amr-networks]. Accessed 30 July 2020.

[5] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 30 July 2020.

[6] The Irrawaddy. 2011. "Burmese Health Officials Issue *E. Coli* Warning". [http://www2.irrawaddy.com/article.php?art_id=21688]. Accessed 30 July 2020.

[7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/node?page=1>]. Accessed 30 July 2020.

- [8] Ministry of Information. [https://www.facebook.com/MOIWebportalMyanmar/?ref=search&__tn__=%2Cd%2CP-R&eid=ARDi9YrmoU_9_y3OjPLYaiVKVr2V7hpi9KfCJSXuD7GB5bHXD5bmnX68YZx3Zb49CEZHVtgaCV_yeyd] Facebook. Accessed 30 July 2020.
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- [11] Ministry of Health and Sports, 26 Feb 2020. "Standard Operating Procedures for Pneumonia Surveillance". [<http://mohs.gov.mm/su/qsab6805QS>]. Accessed July 26, 2020.
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- [13] Su Latt Tun Myunt et, al., Jan-June 2015. "Prevalence of household drinkingwater contamination and of acute diarrhoeal illness in a periurban community in Myanmar." WHO South-East Asia Journal of Public Health 4[1] : 62-68. [<http://origin.searo.who.int/publications/journals/seajph/issues/prevalenceofhouseholddrinkingwatercontaminationandofacuteidiarrhoealillness.pdf>]. Accessed July 26, 2020

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient public evidence to claim that Myanmar has an agency to conduct detection or surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues (AMR) or AMR organisms. The Ministry of Health publishes several guidelines to collect samples to test pathogens in the water and reporting to the respective National Health Laboratories or affiliated departments [1,2]. There are plans to incorporate environmental surveillance in human/animal health surveillance labs for AMR but no mention of current environmental agencies [3]. Myanmar's Occupational Environmental Health Unit (OEHU) is developing a health impact assessment that covers community health including communicable diseases. There is no mention of which department will take on the assessment itself as OEHU explicitly states it only handles issues relating to occupational health and safety [4]. The Environmental Management Plan from the Myanmar Essential Health Services Access Project does not include AMR organisms [5]. There are joint efforts with the United Nations Food and Agricultural Organization with Ministry of Health and Sports in developing an AMR surveillance system such as the FAO Country Programming Framework for Myanmar (2017-2022). However, it is limited to only the livestock sector and has no mention of surveillance activities in soil/waterways. [6,7,8] Even in National Action Plan for AMR implementation workshops, such as the one held in 28 Nov 2019, the focus was on livestock and aquaculture surveillance and monitoring. The Department of Fishery and the Environmental Sector has yet to be included in the National AMR Coordinating Center. [9] There is a budget set aside for procurement of laboratory supplies and plans to develop a standard operating procedures for water and soil testing for chemical events. It is unclear how far the steps have been taken. [10]

[1] Ministry of Health and Sports. "Water Quality Assessment". [<http://mohs.gov.mm/Main/content/publication/water-quality-assessment>]. Accessed 22 Aug 2020.

[2] Ministry of Health and Sports. "Water Collection: Getting Samples to Test for Bacteria in the Water" [<https://mohs.gov.mm/page/4443>]. Accessed 22 Aug 2020.

[3] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)".

[http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 28 July 2020.

[4] Ministry of Health and Sports. February 2018. "Environmental Health: Report on Environmental Health In Myanmar". [<http://mohs.gov.mm/Main/content/publication/environmental-health-report-on-environmental-health-in-myanmar>]. Accessed 28 July 2020.

[5] Ministry of Health and Sports. August 2014. "Environmental Management Plan". [<http://mohs.gov.mm/Main/content/publication/environmental-management-plan-english-world-bank>]. Accessed 28 July 2020.

[6] Food and Agriculture Organization. December 2019. "FAO Myanmar Newsletter." Issue 4. [<http://www.fao.org/3/ca7580en/ca7580en.pdf>] Accessed July 26, 2020

[7] Myanmar Medical Conference Symposium. 20 Jan 2018. "Antimicrobial Resistance in the Livestock sector." [[http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/64th+MMA+Power+Point_2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=3.AMR+M+MC+\(FAO\).pdf](http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/64th+MMA+Power+Point_2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=3.AMR+M+MC+(FAO).pdf)] Accessed July 26, 2020

[8] Food and Agriculture Organization. "FAO Country Programming Framework Myanmar (2017-2022)." <http://www.fao.org/3/ca3663en/CA3663EN.pdf>. Accessed July 26, 2020

[9] World Organization for Animal Health. 28 November 2019. "Workshop to review the implementation of National Action Plan for the containment of Antimicrobial Resistance in Myanmar." [https://rr-asia.oie.int/wp-content/uploads/2019/12/summary-of-nap-review-workshop_myanmar.pdf]. Accessed July 26, 2020.

[10] Ministry of Health and Sports. "National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf>]. Accessed 5 Aug 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: 0

There is insufficient publicly available evidence to claim that prescriptions are required for antibiotic use for humans in Myanmar. The National Action Plan on Antimicrobial Resistance 2017-2022 mentions that national initiatives taken towards developing standards and guidelines for antibiotic prescription [1]. However, Myanmar has yet to develop a national policy on containment on AMR. [11] There is no mention of requiring prescriptions for antibiotic use in both the Private Health Care Services and National Drug Law (1992) [2, 3.] However, Myanmar Food and Drug Administration have classification for Over the Counter Medicine and Prescription Only Medicine as well as Controlled Medicine, indicating that there are provisions for prescriptions in Myanmar. [4, 5]. The National Health Plan recognized that work needs to be regarding monitoring and understanding prescription behaviour with no mention of guidelines for antibiotic prescribing for humans [5]. The Joint External Evaluation for Myanmar, completed in May 2017, also called for a new Drug Law to regulate the sale of antibiotics only after prescription [6]. Several studies and articles published over the previous decade have highlighted the availability of antibiotics available over-the-counter, sold without prescription. [6,7] Myanmar does not have a national medicines information center nor Drug and Therapeutics Committees (DTCs) established. [8] According to Ministry of Health's notification 2/2002, drugs that brain function/nervous system are the only ones stated as "Controlled Drugs." [9] In February, House of Representatives, the lower house of the Pyidaungsu Hluttaw recognized the need to clamp down the sales of antibiotics without a doctor's prescription to combat antibiotics resistance in Myanmar. [10] There is no further evidence on the Ministry of Health, World Health Organization, Department of Agriculture and Food and Drug Administration

website. [12, 13, 14, 15]

- [1] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed July 26, 2020
- [2] World Health Organization (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed July 26, 2020
- [3] Ministry of Health and Sports. 13 October 1992. "National Drug Law". [<http://www.fdamyanmar.gov.mm/wp-content/uploads/2018/01/Drug-Regulation.pdf>]. Accessed July 26, 2020
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- [9] Food and Drug Administration. 1 March 2003. "Regulation on Highly Controlled Drug (Notification 1/2003)". [<http://www.fdamyanmar.gov.mm/wp-content/uploads/2018/01/Regulation-on-Highly-Controlled-Drug1.2003.pdf>]. Accessed July 26, 2020.
- [10] Pyithu Hluttaw. 7 Feb 2020. "15th Meeting". [<https://pyithuhluttaw.gov.mm/question-4216>]. Accessed July 26, 2020
- [11] World Organization for Animal Health. 28 Nov 2019. "Workshop to review the implementation of National Action Plan for the containment of Antimicrobial Resistance in Myanmar". [https://rr-asia.oie.int/wp-content/uploads/2019/12/summary-of-nap-review-workshop_myanmar.pdf]. Accessed 23 Aug 2020.
- [12] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=prescription>]. Accessed 23 Aug 2020.
- [13] World Health Organization. [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed 23 Aug 2020.
- [14] Department of Agriculture. [<http://www.doa.gov.mm/doa/>]. Accessed 23 Aug 2020.
- [15] Food and Drug Administration. [<http://www.fdamyanmar.gov.mm/>]. Accessed 23 Aug 2020.

1.1.2b

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

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

Current Year Score: 0

There is no publicly available evidence that there is a national legislation or regulation in place that requires a prescription for sale of antibiotic use for animals by medical or veterinary practitioners. There is no such mention of prescriptions required for antibiotic use for animals in plans and Laws on Myanmar such as the National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022), the Joint External Evaluation (JEE) for Myanmar completed in May 2017, National Drug Law (7/92), or the Animal Health and Development Law (17/93) [1, 2, 3, 4]. The Myanmar National Action Plan for Containment explicitly states that "National policy on the sale or use of antimicrobials in animals and animal feed is not

well established in Myanmar." [1] The JEE called for a new Drug Law to regulate the sale of antibiotics only after prescription [2]. The websites of the Ministry of Health and Sports, Ministry of Agriculture, Livestock and Irrigation(MAOLI), the Myanmar Pharmaceutical Industrial Enterprise (MPIE), and Ministry of Industry do not have any relevant published regulations [5, 6, 7]. A study published in 2014 highlights the lack of policy and regulation on the sale and use of antimicrobials in animals and animal feed. [8] There are several reports of antibiotics used in livestock for growth enhancement as they are not well regulated. [9,10]. There are plans to set up a national drug regulatory authority for animal feed and veterinary medicinal products but no updates have been announced on the MAOLI website. [11,12]

- [1] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed July 26, 2020.
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- [5] The Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=prescription>]. Accessed July 26, 2020.
- [6] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm>]. Accessed July 26, 2020.
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- [8] Archawakulathep, Amornthep et. al.,. 2014. "Perspectives on Antimicrobial Resistance in Livestock and Livestock Products in ASEAN Countries." Thai Journal of Veterinary Medicine 44:5-13. [https://www.researchgate.net/profile/Min_Aung5/publication/285964319_Perspectives_on_Antimicrobial_Resistance_in_Livestock_and_Livestock_Products_in_ASEAN_Countries/links/575d663b08aed88462163b28/Perspectives-on-Antimicrobial-Resistance-in-Livestock-and-Livestock-Products-in-ASEAN-Countries.pdf]. Accessed July 26, 2020.
- [9] Kyaw Ko Ko. 20 Nov 2018. "Nationwide efforts aims to reduce use of antibiotics in livestock." Myanmar Times. [<https://www.mmtimes.com/news/nationwide-effort-aims-reduce-use-antibiotics-livestock.html>]. Accessed July 26, 2020.
- [10] Global New Light of Myanmar. 16 Nov 2018. "As Antibiotic Resistance is related to all, it is addressed as most global threat" [<https://www.globalnewlightofmyanmar.com/as-antibiotic-resistance-is-related-to-all-it-is-addressed-as-most-global-threat/>]. Accessed July 26, 2020.
- [11] Food and Agriculture Organization. "FAO Country Programming Framework Myanmar (2017-2022)." [<http://www.fao.org/3/ca3663en/CA3663EN.pdf>]. Accessed July 26, 2020
- [12] World Organization for Animal Health. 28 November 2019. "Workshop to review the implementation of National Action Plan for the containment of Antimicrobial Resistance in Myanmar." [https://rr-asia.oie.int/wp-content/uploads/2019/12/summary-of-nap-review-workshop_myanmar.pdf]. Accessed July 26, 2020.

1.2 ZOO NOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence of national strategy documents on zoonotic disease in Myanmar. According to the Joint External Evaluation for Myanmar, completed in May 2017, Myanmar has five priority zoonotic diseases (Rabies, Zoonotic Influenza, TB, Anthrax, and Japanese Encephalitis) [1]. There are standard operating procedures for several zoonotic diseases, including rabies, avian influenza, and zika on the website of the Ministry of Health and Sports [2, 3, 4]. Zoonotic Diseases Control is also listed in the communicable diseases programs to be carried out by the Ministry of Health and Sports, although no specifics were mentioned on how the program is to be implemented [5]. The Animal Health and Development Law (17/93) also establishes contagious diseases and reporting procedures to appropriate public authorities [6]. According to a 2018 presentation given in the state capital, a One Health approach to zoonotic diseases has been drafted and is now pending approval for implementation [7]. There has been a training workshop held in April 2019 regarding One Health Approach. [8]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1]. Accessed July 26, 2020.

[2] Ministry of Health and Sports. "SOP for Human Rabies Prophylaxis". [http://mohs.gov.mm/Main/content/publication/rabies-standard-operating-procedures-for-human-rabies-prophylaxis-2015]. Accessed July 26, 2020.

[3] Ministry of Health and Sports. "Zika Virus Infection: National Strategic Plan". [http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection]. Accessed July 26, 2020.

[4] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response]. Accessed July 26, 2020.

[5] Ministry of Health and Sports. "National Health Plan (2017-2021)". [http://www.mohs.gov.mm/cat/NHP%20(2017-2021)]. Accessed July 26, 2020.

[6] Ministry of Agriculture, Livestock and Irrigation. 25 Nov 1993. "Animal Health and Development Law No. 17/93". [http://www.myanmartradeportal.gov.mm/attachment/987/download]. Accessed July 26, 2020.

[7] Ministry of Health and Sports. "Zoonosis: One Health and Important Zoonoses in Myanmar". [http://mohs.gov.mm/Main/content/publication/zoonosis-one-health-and-important-zoonoses-in-myanmar]. Accessed July 26, 2020.

[8] Crawford Foundation. 26 April 2019. "One Health Approach to Sustainable Biosecurity, Myanmar". [https://www.crawfordfund.org/news/one-health-approach-to-sustainable-biosecurity-myanmar-april-2019/]. Accessed July 26, 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 publicly available evidence to claim that there national plans in place that includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. Plans for risk reduction for specific diseases (such as influenza, rabies and Japanese encephalitis) and animals (such as pigs) do exist, but there is no evidence of a comprehensive assessment looking at spillover risks in general. [1, 2, 3] Additionally, there are research efforts underway to

identify new and emerging spillover risks. Researchers from the Smithsonian Institution are working with the Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation (MoALI) in Myanmar in areas where there is close contact interaction with the locals and wildlife. They recently discovered six new coronaviruses and will continue surveillance to identify diseases and manage threats to prevent pandemics. [4] Myanmar's Livestock Breeding and Veterinary Department is also working in control of zoonoses in livestock through the Myanmar Pig Partnership 2016-2020 led by University of Oxford. The partnership aims to explore the pig production systems and the risk environment and come up with responses to be implemented in local communities and at the pig supply-chain. [5,6] In a presentation given by MoALI in 2018 on the One Health Collaboration in Myanmar, routes of transmission as well as zoonotic diseases commonly associated with livestock and poultry were mentioned. Among them, Myanmar's One Health Strategy will be focusing on six priority zoonotic diseases (rabies, zoonotic influenza, tuberculosis, food-borne diseases, anthrax and Japanese encephalitis). According to the Deputy Health Minister in a Parliamentary hearing, National One Health Strategic Framework and Action Plan of Myanmar 2019-2023 was finalized September 2019 with "the goal of implementing a single health plan is to reduce the burden of animal-to-human transmission of the disease, to prevent the new Zoonotic Diseases and Re-emerging Diseases and to response effectively if they occur and to prevent antibiotic problems and foodborne illness". [7, 8] The National One Health Strategic Framework and Action Plan of Myanmar 2019-2023 is not available on the Ministry of Health and Sports or the Ministry of Agriculture, Livestock and Irrigation(MAOLI) public websites. Similarly, there is no evidence of another plan or effort to measure spillover risks [9, 10]

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed July 26, 2020.

[2] Ministry of Health and Sports. 2017. "Rabies: Standard Operating Procedures for Human Rabies Prophylaxis". [<http://mohs.gov.mm/Main/content/publication/rabies-standard-operating-procedures-for-human-rabies-prophylaxis-2015>]. Accessed July 26, 2020.

[3] Ministry of Health and Sports. "Japanese Encephalitis Clinical Perspectives". [<http://mohs.gov.mm/Main/content/publication/japanese-encephalitis-clinical-perspectives>]. Accessed July 26, 2020.

[4] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed July 26, 2020.

[5] ESRC STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre. 29 Nov 2015. "Myanmar Pig Partnership 2016-2021" <https://steps-centre.org/project/myanmar-pig-partnership/>. Accessed 23 Aug 2020.

[6] ESRC STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre. 19 Aug 2015. "More about the Research." <https://steps-centre.org/blog/more-about-the-research/>. Accessed 23 Aug 2020

[7] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose+s+in+Myanmar.pdf]. Accessed July 26, 2020.

[8] Global New Light of Myanmar. 28 Aug 2020. "Question on implementing National Strategic Plan for One Health, concerning relations of human and animal health and environmental protection". <https://www.gnlm.com.mm/question-on-implementing-national-strategic-plan-for-one-health-concerning-relations-of-human-and-animal-health-and-environmental-protection/>. Accessed 10 Sept 2020.

[9] Ministry of Health and Sports. <https://mohs.gov.mm/content/publication/list>. Accessed 10 Sept 2020.

[10] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm>]. Accessed 17 Sept 2020.

1.2.1c

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

Yes = 1, No = 0

Current Year Score: 1

There are national plans in place that includes account for the surveillance and control of multiple zoonotic pathogens of public health concern. National Guidelines are available on the website of the Ministry of Health's website for avian influenza, rabies, dengue and zika. [1, 2, 3, 5]. Avian Influenza surveillance is covered under the National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response published in 2006 that covers surveillance, prevention and control of communicable diseases. It gives Ministries responsibilities of surveillance for each sector such as Ministry of Health and Sports for humans, Ministry of Livestock and Fisheries among animals and birds, Ministry of Progress of Border Areas and National Races and Development Affairs for animal markets all over the country, City Development Committees of animal markets in Yangon and Mandalay and Ministry of Forestry of wild birds and migratory birds. The Central Epidemiology acts as a focal point for avian influenza. [1] The Myanmar Rabies Project is an example of such kind of national plan with mass dog vaccinations and public awareness campaigns. Routine and risk-based surveillance systems has been placed across the nation by Livestock Breeding and Veterinary Department, Ministry of Agriculture, Livestock and Irrigation in collaboration with United Nations Food and Agriculture Organization for Avian Influenza. [2, 4] Myanmar also have a National Guideline for Clinical Management of Dengue as well as an updated Prevention and Control of Dengue Fever at Township level guidelines published in 2019. [7,8] Under the Vector Borne Disease Control Programme, there is a Dengue Hemorrhagic Fever (DHF) Surveillance Activity System have the ability to detect at the township levels and even at schools through the fever surveillance and school absenteeism surveillance during the monsoon season. [3] Myanmar also has a National Strategic Plan for Preparedness and Response to Zika Virus Infection for Zika as well. The is a working committee on prevention, management and control activities such as creating guidelines on surveillance and management chaired by the Deputy Ministry of Health. The subcommittee carries out on the ground surveillance activities on borders and case reports from both public and private hospitals and clinics. [5]. Smithsonian's researchers are currently working with the Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation in Myanmar in areas where there is close contact interaction with the locals and wildlife. They recently discovered six new coronaviruses and will continue surveillance to identify diseases and manage threats to prevent pandemics. [6]

[1] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed July 26, 2020.

[2] Ministry of Health and Sports. 2017. "Rabies: Standard Operating Procedures for Human Rabies Prophylaxis". [<http://mohs.gov.mm/Main/content/publication/rabies-standard-operating-procedures-for-human-rabies-prophylaxis-2015>]. Accessed 22 Aug 2020.

[3] Ministry of Health of Sports. 2019. "Prevention and Control of Dengue Fever/Dengue Hemorrhagic Fever at Township Level." [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FDengue%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=Dengue%20BHS%20Guideline_2019_Version%202.pdf]. Accessed July 26, 2020.

[4] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose

s+in+Myanmar.pdf]. Accessed July 26, 2020

[5] Ministry of Health and Sports. 2 May 2016. "National Strategic Plan for Preparedness and Response to Zika Virus Infection" [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 22 Aug 2020.

[6] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed July 26, 2020.

[7] Ministry of Health and Sports. 2019. "National Guideline for Clinical Management of Dengue."

[<http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FSOP%20%26%20Guideline%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=NEW%20FINAL%20EDIT%20%20National-%20Guideline%20for%20Clinical%20Management%20of%20Dengue.PDF>] Accessed July 26, 2020

1.2.1d

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient publicly available evidence of a governmental unit dedicated to zoonotic disease that functions across ministries. The National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response published in 2006 assigns the Central Epidemiology Unit under the Department of health responsibility for "surveillance, prevention and control of communicable and non-communicable diseases". The Central Epidemiology Unit acts as a focal point for avian influenza. It explicitly mentions that "immediate sharing of information through telecommunication system and joint outbreak investigation is being carried out as necessary." It also gives Ministries respective "focal" obligations of surveillance for each sector such as Ministry of Health and Sports for humans, Ministry of Livestock and Fisheries among animals and birds, Ministry of Progress of Border Areas and National Races and Development Affairs for animal markets all over the country, City Development Committees of animal markets in Yangon and Mandalay and Ministry of Forestry of wild birds and migratory birds. There are also Special Disease Control Units across state and division levels to provide support on the district and township level. [5] For several zoonotic diseases, ministries often collaborate with different stakeholders (public private partnerships, ministerial collaboration) to form ad-hoc committees to tackle the surveillance/control of the respective disease. For instance, Smithsonian's researchers are currently working with the Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation in Myanmar in areas where there is close contact interaction with the locals and wildlife with emphasis on coronavirus in bats. [1] Surveillance for Avian Influenza is done in collaboration between Food and Agriculture Organization of the United Nations and the Livestock Breeding and Veterinary Department from the Ministry of Agriculture, Livestock and Irrigation. [2] The Myanmar Rabies Project with mass dog vaccinations and public awareness campaigns was also done by Ministry of Agriculture, Livestock and Irrigation in Myanmar in collaboration with World Organization for Animal Health. [3] The Joint External Evaluation (JEE) for Myanmar completed in 2017 also does not mention an existing or plans for an overarching department/agency dedicated to zoonotic diseases although it did mention collaboration across different sectors/ministries/levels of governments. [4] There is no further evidence on the Ministry of Health's public website, Ministry of Agriculture, Livestock and Irrigation official Facebook page, and Myanmar National Portal. [5,6,7]

[1] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed July 26, 2020

[2] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose]

s+in+Myanmar.pdf]. Accessed July 26, 2020

[3] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose+s+in+Myanmar.pdf]. Accessed July 26, 2020

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed July 26, 2020

[5] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed July 26, 2020

[5] Ministry of Health. <https://www.mohs.gov.mm/>. Accessed Aug 24, 2020.

[6] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalint>. Facebook. Accessed Aug 24, 2020. and Myanmar National Portal.

[7] Myanmar National Portal. <https://myanmar.gov.mm/en/ministry-of-agriculture-livestock-irrigation/>. Accessed Aug 24, 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

Myanmar has a national mechanism for owners of livestock to conduct and report on disease surveillance to the respective public health agency. The Animal Health and Development Law (17/93) provides steps for livestock owners to report animals with a contagious disease to the designated public health worker from the Livestock Breeding and Veterinary Department. The owner of the animal and/or vet shall report promptly to the nearest employee of the Livestock Breeding and Veterinary Department. It is not specifically mentioned whether it is social communication to such an employee or in-person reporting [1]. The National Action Plan for Containment of AMR (2017-2022) notes that awareness programs for livestock owners regarding AMR has not been formalized or conducted [2].

[1] Ministry of Agriculture, Livestock and Irrigation. "Animal Health and Development Law".

[<https://www.moali.gov.mm/sites/default/files/attached-files/2016/11/AH%20&%20D%20Law.pdf>]. Accessed 30 July 2020.

[2] World Health Organization. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar (2017-2022)". [http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 30 July 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 0

Myanmar has insufficient publicly available information regarding guidelines safeguarding the confidentiality of information generated through surveillance activities for animals (owners). The Animal Health and Development Law (17/93) provides steps for livestock owners to report animals with a contagious disease to the designated public health worker from the Livestock Breeding and Veterinary Department. However, there is no mention of confidentiality safeguards for the data generated. [1] There is a general privacy law that states that "No person shall have their communication with another person or communications equipment intercepted or disturbed with in any way," where sentences for an offence carries up to 6 months-3 years of imprisonment and a fine. How the law is applied to surveillance activities for animal owners, is not specified. [8] Myanmar's Telecommunications Law (13) prohibits disclosure of confidential and personal information through telecommunications to irrelevant persons with information kept in secured or encrypted systems requiring a court order [2]. Media reports and outbreaks, such as the outbreak of foot and mouth disease in Rakhine State in 2018 and the Irrawaddy delta region in 2008, do not report information on the owners of the livestock that has been infected [2, 3]. The Ministry of Health and Sports, Ministry of Agriculture, Livestock and Irrigation, The Myanmar Pharmaceutical Industrial Enterprise (MPIE), and the Ministry of Industry does not have any regulations published on their websites regarding guidelines safeguarding the confidentiality of information [5, 6, 7]

- [1] Ministry of Agriculture, Livestock and Irrigation. "Animal Health and Development Law". [https://www.moali.gov.mm/sites/default/files/attached-files/2016/11/AH%20&%20D%20Law.pdf]. Accessed 30 July 2020.
- [2] Ministry of Transport and Communication. 8 October 2013. "The Telecommunications Law". [https://www.motc.gov.mm/sites/default/files/Telecom%20Law%28Eng%29.pdf]. Accessed 30 July 2020.
- [3] The Cattle Site. 25 May 2018. "OIE Reports FMD Outbreaks in Myanmar". [http://www.thecattlesite.com/news/53003/oie-reports-fmd-outbreaks-in-myanmar/]. Accessed 30 July 2020.
- [4] Saw Yan Naing. 30 June 2008. "Myanmar: Animal disease outbreak in Irrawaddy delta". [https://reliefweb.int/report/myanmar/myanmar-animal-disease-outbreak-irrawaddy-delta]. The Irrawaddy. Accessed 30 July 2020.
- [5] The Ministry of Health and Sports. [http://www.mohs.gov.mm/search?question=confidentiality]. Accessed 30 July 2020.
- [6] Ministry of Agriculture, Livestock and Irrigation. [https://www.moali.gov.mm]. Accessed 30 July 2020.
- [7] The Myanma Pharmaceutical Industrial Enterprise. [http://www.industry.gov.mm/en/search/results/confidentiality]. Accessed 30 July 2020.
- [8] Pyidaungsu Hluttaw Law. 8 March 2017. "Protection of the citizen for the personal freedom and personal security (Burmese)." [http://www.myanmar-law-library.org/law-library/laws-and-regulations/laws/myanmar-laws-1988-until-now/national-league-for-democracy-2016/myanmar-laws-2017/pyidaungsu-hluttaw-law-noo5-2017-protection-of-the-citizen-for-the-personal.html]. Accessed 30 July 2020.

1.2.2c

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

Yes = 1, No = 0

Current Year Score: 1

Myanmar does conduct surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc.). The lack of a corresponding plan for surveillance of wildlife is explicitly stated in the Joint External Evaluation of Myanmar completed in 2017 [1]. On the other hand, the United States Agency for International Development (USAID)'s Emerging Pandemic Threats (EPT) program, Smithsonian Global Health Program, and three Myanmar Ministries (Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation) has an ongoing surveillance collecting samples from wildlife to detect and for zoonotic diseases in and around

Myanmar. The program aims to achieve surveillance and virus discovery and is dedicated to conservation medicine, disease prevention, and the overlap between animal, human, and ecological health [2, 3]. Smithsonian's researchers are currently working with the Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation in Myanmar in areas where there is close contact interaction with the locals and wildlife. They recently discovered six new coronaviruses and will continue surveillance to identify diseases and manage threats to prevent pandemics. [4] There is also routine and risk-based surveillance by the Ministry of Agriculture, Livestock and Irrigation with Food and Agriculture Organization for Avian Influenza since 2006. [5] The Myanmar Pig Partnership led by UNiversity of Cambridge in collaboration with the Ministry of Agriculture, Livestock and Irrigation in Myanmar also does surveillance on livestock, specifically pigs along with their capacity-building workshops to provide ongoing support for AMR surveillance in Myanmar. [6]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 28 July 2020.

[2] Smithsonian's National Zoo & Conservation Biology Institute. "PREDICT Myanmar". [<https://nationalzoo.si.edu/global-health-program/predict-myanmar>]. Accessed 28 July 2020.

[3] Katherine J. Wu. July 11 2018. "A Never-Before-Seen Virus Has Been Detected in Myanmar's Bats". [<https://www.smithsonianmag.com/science-nature/global-surveillance-program-identifies-never-seen-virus-myanmars-bats-180969598/>]. The Smithsonian. Accessed 28 July 2020.

[4] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed July 26, 2020.

[5] Ministry of Agriculture, Livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.moah.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonoses+in+Myanmar.pdf]. Accessed 28 July 2020.

[6] Insitute of Development Studies. "Myanmar Pig Partnership". [<https://www.ids.ac.uk/projects/myanmar-pig-partnership/>]. Accessed 28 July 2020.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

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

Yes = 1 , No = 0

Current Year Score: 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: 13.92

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 22.78

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient public evidence that Myanmar's zoonotic disease-related regulations include mechanisms for working with the private sector in controlling or responding to zoonoses. The involvement of the private sector in controlling or responding to zoonoses aren't explicitly stated on the websites of the Ministry of Health and Sports or Ministry of Agriculture, Livestock and Irrigation [1, 2]. From the Amended Prevention and Control of Communicable Diseases Law (16/2011), the public is required to report to the nearest health department or hospital—without specifying private or public—upon suspicion of an Epidemic Disease or Notifiable Disease [3]. In the Myanmar Action Plan for Disaster Risk Reduction published in 2017, there is a Myanmar Private Sector Disaster Management Network (MPD-Network) platform of the private sector participation in disaster management for financial, technical and human resource assistance. It is not clear whether this covers zoonoses. The plan also mentions the involvement of the private media and communication networks for a communication plan for Myanmar Action Plan for Disaster Risk Reduction 2017 (MAPDRR)implementation. Although the plan doesn't explicitly cover "zoonoses", epidemics and disease control and response are mentioned as part of the overall approach and objective of the disaster risk management plan[4]. There are also several partnerships with government ministries (Ministry of Agriculture, Livestock and Irrigation) with research organizations such as University of Cambridge, United Nations Food and Agriculture Organization and the Smithsonian for detection and surveillance in zoonotic diseases. [5, 6, 7] Collaboration for surveillance, controlling and responding are almost done -if collaboration exists- with academic institutions or NGOs such as World Health Organization (such as in the cases of responding to Zika and Dengue). [8, 9] No further evidence can be found on the Ministry of Health and Sports, Ministry of Agriculture, Livestock and Irrigation or National Health Laboratory public websites. [10, 11,12]

[1] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=zoonoses>]. Accessed 28 July 2020.

[2] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/en/search/node/zoonoses>]. Accessed 28 July 2020.

- [3] Ministry of Health and Sports. 27 January 2011. "Law Amending the Prevention and Control of Communicable Diseases Law". [http://www.burmalibrary.org/docs18/2011-01-27-SPDC_Law2011-16-Law_Amending_Prevention_and_Control_of_Communicable_Diseases_Law-en.pdf]. Accessed 28 July 2020.
- [3] Ministry of Health and Sports. 27 January 2011. "Law Amending the Prevention and Control of Communicable Diseases Law". [http://www.burmalibrary.org/docs18/2011-01-27-SPDC_Law2011-16-Law_Amending_Prevention_and_Control_of_Communicable_Diseases_Law-en.pdf]. Accessed 10 Sept 2020.
- [4] Ministry of Social Welfare, Relief and Resettlement. 2017. "Myanmar Action Plan for Disaster Risk Reduction (MAPDRR)". [http://www.rrdmyanmar.gov.mm/?page_id=102]. Accessed July 31, 2020.
- [5] Ministry of Agriculture, Livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonoses+in+Myanmar.pdf]. Accessed 28 July 2020.
- [6] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed 10 Sept 2020.
- [7] Institute of Development Studies. "Myanmar Pig Partnership". [<https://www.ids.ac.uk/projects/myanmar-pig-partnership/>]. Accessed 28 July 2020.
- [8] World Health Organization. 9 September 2019. "Prevent Dengue & Chikungunya." [https://www.who.int/docs/default-source/searo/myanmar/prevent-dengue-and-chikungunya.pdf?sfvrsn=9b1b3069_0]. Accessed 31 July 2020.
- [9] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.
- [10] Ministry of Health and Sports. <https://mohs.gov.mm/> Accessed 10 Sept 2020.
- [11] Ministry of Agriculture, Livestock and Irrigation. <https://www.moali.gov.mm/> Accessed 10 Sept 2020.
- [12] National Health Laboratory. <https://nhlmyanmar.gov.mm/> Accessed 10 Sept 2020.

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Myanmar has a record of facilities in which especially dangerous pathogens and toxins are stored or processed. There are however, plans for Myanmar to update national inventories and laboratory capacity in the near future through the European Union's Enhanced Biosecurity in Southeast Asia Project as well as the One Health Approach. [8,9,10]. The 2017 Joint External Evaluation (JEE) on Myanmar states "There is no inventory of dangerous pathogens in Myanmar" [1]. Although Myanmar has submitted and made public Confidence Building Measure (CBM) reports, there is no mention of inventory management or record keeping [3, 4]. There is no evidence on the websites of the Ministry of Health and Sports and Ministry of Agriculture, Livestock and Agriculture and the National Health Laboratory regarding a report with data covering facilities, level, location, floor area, types of pathogens stored and processed, etc. [5, 6, 7].] The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity. [11]

- [1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.
- [2] Three Millennium Development Goal Fund. 24 March 2018. "Celebrating World Tuberculosis (TB) Day With Two New Major TB Facilities in Yangon; A New Laboratory and a New Outpatient Facility". [<https://www.3mdg.org/en/newsroom/item/951-celebrating-world-tuberculosis-tb-day-with-two-new-major-tb-facilities-in-yangon-a>]. Accessed 31 July 2020.
- [3] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.
- [4] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [5] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=pathogen>]. Accessed 31 July 2020.
- [6] Ministry of Agriculture, Livestock and Agriculture. [<https://www.moali.gov.mm>]. Accessed 31 July 2020.
- [7] National Health Laboratory. [https://www.facebook.com/search/str/national+health+laboratory+record/keywords_search?epa=SEARCH_BOX]. Facebook. Accessed 31 July 2020.
- [8] Crawford Fund. 26 April 2019. "One Health Approach to Sustainable Biosecurity, Myanmar". [<https://www.crawfordfund.org/news/one-health-approach-to-sustainable-biosecurity-myanmar-april-2019/>]. Accessed 31 July 2020.
- [9] The Myanmar Times. "EU pours million into raising biosecurity in Southeast Asia." [<https://www.mmtimes.com/news/eu-pours-million-raising-biosecurity-southeast-asia.html>]. Accessed 31 July 2020.
- [10] Mizzima. 15 March 2020. "EU invests €3.5 m in biosecurity to keep Myanmar and other ASEAN countries safe". [<http://mizzima.com/article/eu-invests-eu35-m-biosecurity-keep-myanmar-and-other-asean-countries-safe>]. Accessed 31 July 2020.
- [11] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.3.1b

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Myanmar has in place legislation or regulations related to biosecurity. There has been news of a Biosafety and Biosecurity guideline but the document itself isn't available online publicly. According to a press release by the World Health Organization Myanmar, the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [1]. However, the document is unavailable on the Ministry of Public Health and Sports, the Ministry of Agriculture, Livestock and Irrigation, or the Ministry of Defense public websites [2, 3, 4]. The document is not available on the National Health Laboratory's public website nor NHL's Facebook site. There are reports of several trainings held on biosafety and biosecurity but with no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017. [10, 11]. A National Biosafety Framework is currently on its third draft with the help of United National Environment Programme (UNEP) and Global Environment Facility (GEF) in Myanmar as per response from a military representative in the Pyithu Hluttaw session held on 2 October 2014 [5]. A draft can be accessed on the old site of UNEP [6]. Whether the Biosafety and Biosecurity guideline launched on 20 November 2017 is the final document of this draft is unclear. There are guidelines referenced on biosafety but none on biosecurity in the Joint External Evaluation of Myanmar

that was completed in May 2017 [7]. It is uncertain whether the newly launched guideline builds on the National Biosafety Framework, as the document itself isn't publicly available. As stated in the Confidence Building Measure (CBM) report 2018 for Myanmar, Myanmar still doesn't have any legislation and/or regulation related to biosecurity by the health-related ministries except for the Biosafety and Biosecurity guideline on 20 November 2017, which isn't available online [8]. Myanmar did not submit a CBM for 2017, 2019, nor 2020 [9]. The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/nor biosafety. [12]

- [1] World Health Organization. "National Biosafety and Biosecurity Guideline". [http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/]. Accessed 31 July 2020.
- [2] Ministry of Health and Sports. [http://mohs.gov.mm/search?question=biosecurity Accessed 31 July 2020.
- [3] Ministry of Agriculture, Livestock and Irrigation. [https://www.moali.gov.mm/en/search/node/biosecurity]. Accessed 31 July 2020.
- [4] Ministry of Defense. [http://www.mod.gov.mm]. Accessed 31 July 2020.
- [5] Myanmar News Blog Facebook. 3 October 2014. [https://www.facebook.com/pyithu.hluttaw.mm/photos/a.342798145795008/708540845887401/?type=3&theater]. Accessed 31 July 2020.
- [6] Ministry of Agriculture and Irrigation. November 2006. "National Biosafety Framework". [https://unep.ch/biosafety/old_site/development/Countryreports/MMNBFrep.pdf Accessed 31 July 2020.
- [7] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1]. Accessed 31 July 2020.
- [8] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.
- [9] Confidence Building Measures. "Overall Rate of CBM Report submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [10] National Health Laboratory. [https://www.facebook.com/search/str/National+Health+Laboratory+biosafety/keywords_search]. Facebook. Accessed 31 July 2020.
- [11] National Health Laboratory. [https://nhlmyanmar.gov.mm/search/node/biosafety]. Accessed 31 July 2020.
- [12] Verification Research, Training and Information Centre. https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/. Accessed 25 Aug 2020.

1.3.1c

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient public evidence that there is an established agency responsible for the enforcement of biosecurity legislation and regulation. The Joint External Evaluation on Myanmar, completed in 2017, recognizes that the Department of Medical Research and National Health Laboratory are subject to biosecurity assessments from international organizations such as the Food and Agriculture Organization and World Health Organization, respectively, and calls for a biosecurity legislation and/or regulation for the country [1]. There are presentations on the Ministry of Health and Sports website on the overview of biosafety and biosecurity but no mention of legislation or regulation in Myanmar regarding biosecurity [2, 3]. The World Health Organization (WHO), Myanmar, reports that the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [4]. However, the document is not publicly available online on the National Health Laboratory's official website. [2, 9] There are reports of several trainings held on biosafety and biosecurity but with no

mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017. [7, 8]. Confidence Building Measure (CBM) submission from Myanmar in 2018 also listed no legislation or regulations regarding biosecurity [5]. Myanmar did not submit a CBM for 2017, 2019, nor 2020. [6] The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/nor biosafety. [10]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[2] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosecurity>]. Accessed 31 July 2020.

[3] Myanmar News Blog Facebook. 3 October 2014.

[<https://www.facebook.com/pyithu.hluttaw.mm/photos/a.342798145795008/708540845887401/?type=3&theater>]. Accessed 31 July 2020.

[4] World Health Organization. "National biosafety and biosecurity guideline".

[<http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/>]. Accessed 31 July 2020.

[5] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.

[6] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[7] Confidence Building Measures. "Overall Rate of CBM Report submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[8] National Health Laboratory.

[https://www.facebook.com/search/str/National+Health+Laboratory+biosafety/keywords_search]. Facebook. Accessed 31 July 2020.

[9] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.

[10] Verification Research, Training and Information Centre. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>]. Accessed 25 Aug 2020.

1.3.1d

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

Yes = 1, No = 0

Current Year Score: 0

There is no sufficient public evidence that shows that Myanmar has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. There are plans for Myanmar to update national inventories and laboratory capacity in the near future through the European Union's Enhanced Biosecurity in Southeast Asia Project as well as the One Health Approach. [11,12, 13]. Myanmar ratified the the Biological and Toxin Weapons Convention (BTWC) and the Chemical Weapons Convention in 2014 and 2015 respectively. [8] However, neither the Ministry of Public Health and Sports, the Ministry of Agriculture, Livestock and Irrigation or Ministry of Defense share specific relevant information on Myanmar via public websites [1, 2, 3]. The Joint External Evaluation on Myanmar, completed in May 2017, even states that there is currently no inventory of dangerous pathogens and toxins [4]. However, Myanmar is still in its capacity building stages and it currently expanding and organizing its laboratories let alone consolidating said inventories [5]. As listed in the Confidence Building Measure (CBM) report 2018 for Myanmar, Myanmar still doesn't have any legislation and/or regulation for production stockpiling, microbial, or other biological agent, or toxins by the health-related ministry [6]. Myanmar did not submit a CBM for 2017, 2019, 2020. [7] There are reports of several trainings held on biosafety and biosecurity but with no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017.

[9,10].The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/or biosafety or other laboratory related acts/regulations. [14]

- [1] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosecurity>]. Accessed 31 July 2020.
- [2] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/en/search/node/biosecurity>]. Accessed 31 July 2020.
- [3] Ministry of Defense. [<http://www.mod.gov.mm>]. Accessed 31 July 2020.
- [4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.
- [5] Three Millennium Development Goal Fund. 24 March 2018. "Celebrating World Tuberculosis (TB) Day With Two New Major TB Facilities in Yangon—A New Laboratory and a New Outpatient Facility". [<https://www.3mdg.org/en/newsroom/item/951-celebrating-world-tuberculosis-tb-day-with-two-new-major-tb-facilities-in-yangon-a>]. Accessed 31 July 2020..
- [6] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.
- [7] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [8] Bangkok Post. 6 Jan 2016. "Bolstering Myanmar's biosecurity". [<https://www.bangkokpost.com/opinion/opinion/817224/bolstering-myanmar-biosecurity>]. Accessed 31 July 2020.
- [9] National Health Laboratory. [https://www.facebook.com/search/str/National+Health+Laboratory+biosafety/keywords_search]. Facebook. Accessed 31 July 2020.
- [10] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.
- [11] Crawford Fund. 26 April 2019. "One Health Approach to Sustainable Biosecurity, Myanmar". [<https://www.crawfordfund.org/news/one-health-approach-to-sustainable-biosecurity-myanmar-april-2019/>]. Accessed 31 July 2020.
- [12] The Myanmar Times. "EU pours million into raising biosecurity in Southeast Asia." [<https://www.mmtimes.com/news/eu-pours-million-raising-biosecurity-southeast-asia.html>]. Accessed 31 July 2020.
- [13] Mizzima. 15 March 2020. "EU invests €3.5 m in biosecurity to keep Myanmar and other ASEAN countries safe". [<http://mizzima.com/article/eu-invests-eu35-m-biosecurity-keep-myanmar-and-other-asean-countries-safe>]. Accessed 31 July 2020.
- [14] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.3.1e

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

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence of in-country capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax in Myanmar. The World Organization for Animal Health (OIE) has published information from the Livestock, Breeding, and Veterinary Department of Myanmar's investigation to an anthrax case with bacteriological examination done at the Mandalay Diagnostic Laboratory [1]. In Yangon and Mandalay, there is Real-Time PCR Diagnostic testing available for anthrax, one of Myanmar's notifiable animal diseases in 2013 [2]. Myanmar has capabilities for PCR-based diagnostic testing for

malaria as well [3]. Myanmar currently lacks a diagnostic testing for Ebola. Ebola testing during the 2014 outbreaks was conducted abroad in India and Germany [4, 5]. The Ministry of Health has not posted updates on Ebola testing either [6]. The National Health Laboratory does not have updates/articles on Ebola testing either. [7]

[1] World Organization for Animal Health. "Anthrax, Myanmar".

[https://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?page_refer=MapFullEventReport&reportid=26708]. Accessed 31 July 2020.

[2] Ministry of Livestock, Fisheries and Rural Development. August 2014. "Myanmar Activities on Preparedness and Response for Avian Influenza Myanmar". [http://www.rr-asia.oie.int/fileadmin/Regional_Representation/Programme/JTF_One_Health/2014_AI_surveillance_Tokyo/1.14_Myanmar-Activities_on_Preparedness_and_Response_for_Avian_Influenza_Myanmar.pdf]. Accessed 31 July 2020.

[3] Wang, Bo et al. "Comparison of microscopy, nested-PCR, and Real-Time-PCR assays using high-throughput screening of pooled samples for diagnosis of malaria in asymptomatic carriers from areas of endemicity in Myanmar". *Journal of Clinical Microbiology*, 52

[6] (2014): 1838-45. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4042795/>]. Accessed 31 July 2020.

[4] Kean, Thomas. 05 September 2014. "Blood Samples Negative for Ebola: Ministry". [<https://www.mmtimes.com/national-news/11547-blood-samples-negative-for-ebola.html>]. The Myanmar Times. Accessed 31 July 2020.

[5] Shwe Yee Saw Myint. 22 August 2014. "Myanmar Man Tested for Ebola Shows Signs of Improvement". The Myanmar Times. Accessed 31 July 2020.

[6] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=ebola>]. Accessed 31 July 2020.

[7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/ebola>]. Accessed 31 July 2020.

1.3.2 Biosecurity training and practices

1.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Myanmar requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Laboratories in Myanmar provide biosecurity training for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. However, this does not seem to be a requirement. The Joint External Evaluation of Myanmar completed in 2017 reports that Myanmar's Department of Medical Research (DMR) and Livestock, Breeding and Veterinary Department (LBVD) have regular training programs while National Health Laboratory (NHL) provides "biosafety and biosecurity training to some facilities". However, the JEE notes that trainings are short term and are provided by non-governmental organizations with a need for a "development of a common curriculum for biosafety/biosecurity training." [1]. These training programs are overseen by the Deputy Director General of the National Health Laboratory [2]. The World Health Organization (WHO) reports that the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [3]. There are reports of several trainings held on biosafety and biosecurity on the Ministry of Health and Sports and National Health Laboratory website but no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017 or a one-time training [4,5]. The Biosafety and Biosecurity guideline is not publicly available online on the Ministry of Health and Sports, Ministry of Agriculture, Livestock and Irrigation nor

National Health Laboratory website, so it is not clear if training on biosecurity is standardized, mandatory or not. [5, 8,9] The Confidence Building Measure (CBM) submission from Myanmar in 2018 also listed no legislation or regulations regarding biosecurity except for the Guidelines on Biosafety and Biosecurity for Biomedical Laboratories October [6]. Myanmar does not have CBM submissions for 2017, 2019 or 2020 [7]. The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/nor biosafety. [10]

[1] World Health Organisation (WHO). 3-9 May 2017. Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 11 Sept 2020.

[2] Ministry of Health and Sports. October 2019. "National Action Plan for Health Security 2018-2022". [<https://extranet.who.int/sph/republic-union-myanmar-national-action-plan-health-security-2018-2022>]. Accessed 31 July 2020

[3] World Health Organization. "National Biosafety and Biosecurity Guideline". [<http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/>]. Accessed 31 July 2020

[4] National Health Laboratory. "TOT Training on Laboratory Biosafety Training Curriculum"[<https://nhlmyanmar.gov.mm/content/tot-training-laboratory-biosafety-training-curriculum>]. Accessed 31 July 2020.

[5] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.

[6] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.

[7] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[8] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosafety>]. Accessed 31 July 2020.

[9] Ministry of Agriculture, Livestock and Irrigation.[<https://www.moali.gov.mm/en/search/node/biosafety>]. Accessed 31 July 2020.

[10] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

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

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

Current Year Score: 0

There is no sufficient publicly available document to state that regulations in Myanmar specify that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are being subject to drug testing and psychological or mental fitness checks. The Biosafety and Biosecurity guidelines from the National Laboratory System are not publicly available so it is unclear to what extent such regulation explicitly enforces drug testing, background checks or psychological or mental fitness checks [1]. However, it is normally expected of job applicants, regardless of sector, to bring in a ward recommendation certificate (a character letter confirming that the resident lives in the ward and is of good character) from the respective administrator and police recommendation letter from the applicant's residential zone in Myanmar [2]. The 2018 Confidence Building Measure (CBM) report for Myanmar states that Myanmar still

doesn't have any legislation or regulation for biosafety and biosecurity [3]. Myanmar did not submit a CBM for 2017, 2019, 2020 [4]. The National Health Laboratory's website, Ministry of Agriculture, Livestock and Irrigation' and Ministry of Public Health's public website does not publish any regulations that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are being subject to such checks [5,6,7]. The National Standards and Quality Department under the Ministry of Education (science and technology) does not publish regulations on such either on their public website [8]. The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/nor biosafety. [9]

- [1] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosecurity>]. Accessed 31 July 2020
- [2] Tilleke & Gibbins. 01 May 2018. "Employment and Employee Benefits in Myanmar: Overview". Thomson Reuters. [[https://content.next.westlaw.com/Document/1a36aa1608c6411e598dc8b09b4f043e0/View/FullText.html?contextData=\(sc.Default\)&transitionType=Default&firstPage=true&bhpc=1](https://content.next.westlaw.com/Document/1a36aa1608c6411e598dc8b09b4f043e0/View/FullText.html?contextData=(sc.Default)&transitionType=Default&firstPage=true&bhpc=1)]. Accessed 31 July 2020
- [3] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020
- [4] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [5] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/security>]. Accessed 31 July 2020
- [6] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/my/search/node/safety>]. Accessed 31 July 2020
- [7] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=safety>]. Accessed 31 July 2020
- [8] National Standards and Quality Department. [<https://www.myanmarstandards.org.mm/accreditation-division/#1550233120645-7fa473d3-f33d>]. Accessed 31 July 2020
- [9] Verification Research, Training and Information Centre. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>]. Accessed 25 Aug 2020.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 0

Myanmar does not have sufficient publicly available information on national regulations on the safe and secure transport of infectious substances for both categories A and B pathogens. Although there are guidelines and standard operating procedures on the transport of the substances, it is not clear if these carry the force of law. The Ministry of Health published an outline of the UN guidelines for packaging infectious substances and biological substances for transport on its public website for both category A and category B pathogens. However, the document does not make mention if Myanmar requires that these guidelines are followed [1]. There are also standard operating procedures for category B-pathogens and specimen transportation in compliance with UN standard, as reported in the Joint External Evaluation completed in 2017. However, no mention is made of SOPs for category A pathogens [2]. The Dangerous Goods Inspector Manual by the Ministry of Transport and Communications specifically mentions that Category B pathogens are allowed on air mail with dry ice as refrigeration, but also makes no mention of Category A substances. [3] The Confidence Building Measure (CBM) report for Myanmar in 2018 states that Myanmar still doesn't have any legislation and/or regulation for movement of microorganism and toxins by the health-related ministry [4]. Myanmar did not submit a CBM for 2017, 2019, 2020 [5]. The Verification Research, Training and Information Centre database mentioned other acts related to general export/import measures but none specific to

biosecurity, biosafety and/or transport of infectious substances. [6]

[1] Ministry of Health and Sports. "Biological Substances: Transportation of Infectious Substances and Biological Substances" [<http://mohs.gov.mm/Main/content/publication/biological-substances-transportation-of-infectious-substances-and-biological-substances>]. Accessed 25 Aug 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[3] Ministry of Transport and Communications. 2017. "Dangerous Goods Inspector Manual". [https://dcamyanmar.com/dcadca/images/dcafiles/files/DCA2017/FSD2017/DGInspector_Manual_2ndEd._June2017.pdf]. Accessed 31 July 2020.

[4] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.

[5] Confidence Building Measures. "Overall Rate of CBM Report submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[6] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

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

Yes = 1, No = 0

Current Year Score: 0

There is no evidence of national legislation, regulation, or other guidance in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins and pathogens with pandemic potential in Myanmar. The Import and Exports (Temporary) Act, 1947, governs the export/import, baggages brought in by passengers, etc while import/export businesses have to go through the Directorate of Trade for registration [1]. According to the Ministry of Industry Notification No. (85/2015-2016), the Central Supervisory Board is responsible for inspecting, licensing and registering chemical and related substances, making sure that the substances are transported (transit or import in Myanmar) in accordance with United Nations Recommendation of Transport and Dangerous Goods (UNRTDG) [2]. The Dangerous Goods Inspector Manual by the Ministry of Transport and Communications specifically mentions that Category B pathogens are allowed on air mail with dry ice as refrigeration. [9] However, both regulations do not deal specifically with cross-border transportation of pathogens with pandemic potential. Myanmar is also part of the Mekong Basin Disease Surveillance (MBDS) coordinating for exchange of retina surveillance data at cross-border sites for pandemic outbreaks. There is, however, no mention of end-user screening in such sites for dangerous pathogens and toxins [3, 4]. Neither the Ministry of Health and Sports, the National Health Laboratory nor the Ministry of Agriculture, Livestock and Irrigation share relevant information on end-user screening of dangerous pathogens via public websites. [5,6,10] Confidence Building Measure (CBM) report for Myanmar in 2018 states that Myanmar still doesn't have any legislation and/or regulation for export and import of microorganisms and toxins [7]. Myanmar did not submit a CBM for 2017, 2019, 2020 [8]. The Verification Research, Training and Information Centre database mentioned other acts related to general customs (export/import) measures but none further evidence that includes biosecurity and/or biosafety. [11]

- [1] Ministry of Commerce. "Export/Import Procedure". [<https://www.commerce.gov.mm/en/dot/article/exportimport-procedure>]. Accessed 31 July 2020.
- [2] Ministry of Industry. "Ministry of Industry Notification No. (85/2015-2016)". [http://www.ajcsd.org/chrip_search/dt/pdf/Useful_materials/Myanmar/Prevention_of_Hazard_from_Chemical_and_Related_Substances_Rules.pdf]. Accessed 31 July 2020.
- [3] Phommasack, Bounlay et al. 2013. ["Mekong Basin Disease Surveillance (MBDS): a trust-based network"]. Emerging Health and Threat Journal. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3557908/>]. Accessed 31 July 2020.
- [4] Mekong Basin Disease Surveillance. [<http://www.mbdnet.org>]. Accessed 31 July 2020.
- [5] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=pathogen>]. Accessed 31 July 2020.
- [6] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/en/search/node/pathogen>]. Accessed 31 July 2020.
- [7] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.
- [8] Confidence Building Measures. "Overall Rate of CBM Report submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [9] Ministry of Transport and Communications. 2017. "Dangerous Goods Inspector Manual". [https://dcamyanmar.com/dcadca/images/dcafiles/files/DCA2017/FSD2017/DGInspector_Manual_2ndEd._June2017.pdf]. Accessed 31 July 2020.
- [10] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/transport>]. Accessed 31 July 2020.
- [11] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is not enough specific public evidence to confirm that Myanmar does have in place national biosafety legislation and/or regulations. According to a press release by the World Health Organization Myanmar, the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [1]. The guideline, however, is not publicly available on the Ministry of Health and Sports and Ministry of Agriculture, Livestock and Irrigation websites or the National Health Laboratory's official website [2, 3, 4]. It is also unclear how much of the guideline has been adopted and followed as well. The Confidence Building Measure (CBM) report for Myanmar in 2018 also states that there is no national biosafety legislation and/or other regulations by the health and defense ministries except for the Biosafety and Biosecurity guideline (which was not linked in the CBM document and isn't publicly available online) [5]. Myanmar did not submit a CBM for 2017, 2019 nor 2020 [6]. There are plans for Myanmar to update national inventories and laboratory capacity in the near future through the European Union's Enhanced Biosecurity in Southeast Asia Project as well as the One Health Approach. [9,10,11]. There are reports of several trainings held on biosafety and biosecurity but with no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017. [4, 7,8]. The latest available framework regarding Biosafety in Myanmar available online is a Draft National Biosafety Framework (Developed under the UNEP-GEF Biosafety Project) published in 2006. [12] The Verification Research, Training and Information Centre database mentioned other acts related to

general defense measures but none specific/related to biosecurity and/or biosafety. [13]

- [1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.
- [2] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosafety>]. Accessed 31 July 2020.
- [3] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/en/search/node/biosafety>]. Accessed 31 July 2020.
- [4] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.
- [5] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 28 July 2020
- [6] Confidence Building Measures. "Overall Rate of CBM Report submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 28 July 2020
- [7] National Health Laboratory. [https://www.facebook.com/search/str/National+Health+Laboratory+biosafety/keywords_search]. Facebook. Accessed 31 July 2020.
- [8] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.
- [9] Crawford Fund. 26 April 2019. "One Health Approach to Sustainable Biosecurity, Myanmar". [<https://www.crawfordfund.org/news/one-health-approach-to-sustainable-biosecurity-myanmar-april-2019/>]. Accessed 31 July 2020.
- [10] The Myanmar Times. "EU pours million into raising biosecurity in Southeast Asia." [<https://www.mmtimes.com/news/eu-pours-million-raising-biosecurity-southeast-asia.html>]. Accessed 31 July 2020.
- [11] Mizzima. 15 March 2020. "EU invests €3.5 m in biosecurity to keep Myanmar and other ASEAN countries safe". [<http://mizzima.com/article/eu-invests-eu35-m-biosecurity-keep-myanmar-and-other-asean-countries-safe>]. Accessed 31 July 2020.
- [12] Ministry of Agriculture and Irrigation. November 2006. National Biosafety Framework. [<https://bch.cbd.int/database/record.shtml?documentid=43450>]. Accessed 31 July 2020.
- [13] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.4.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no sufficient publicly available data to confirm that an established agency responsible for the enforcement of biosafety legislation and regulations exists in Myanmar. According to a press release by the World Health Organization (WHO) Myanmar, the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [1]. There are presentations on the Ministry of Health and Sports website on the overview of biosafety and biosecurity but no mention of legislation or regulation in Myanmar regarding biosecurity [2]. There are reports of several trainings held on biosafety and biosecurity on the National Health Laboratory website but with no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017. [3, 4]. There is no publicly available Biosafety and Biosecurity guideline for Myanmar on the National Health Laboratory's or on the Ministry of Health and Sports' website [2,3, 4]. The Confidence Building Measure (CBM) report for Myanmar in 2018 also states that there is no national biosafety legislation and/or other regulations by the health and defense ministries and has no mention on an established agency responsible for the enforcement of such regulations except for the Biosafety and Biosecurity guideline (which was not linked in the CBM

document and isn't publicly available online) [5]. Myanmar did not submit a CBM for 2017, 2019 and 2020 [6]. The latest available framework regarding Biosafety in Myanmar available online is a Draft National Biosafety Framework (Developed under the UNEP-GEF Biosafety Project) published in 2006. [7] The Verification Research, Training and Information Centre database mentioned other acts related to general defense measures but none specific to biosecurity and/or biosafety. [8]

[1] World Health Organization. "National Biosafety and Biosecurity Guideline Launched".

[<http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/>]. Accessed 31 July 2020..

[2] National Health Laboratory. [<https://www.facebook.com/NationalHealthLaboratory/>]. Facebook. Accessed 31 July 2020.

[3] Ministry of Health and Sports. [<http://www.mohs.gov.mm/cat/SOPs%20and%20Guidelines>]. Accessed 31 July 2020.

[4] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020. [5] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.

[6] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[7] Ministry of Agriculture and Irrigation. November 2006. National Biosafety Framework.

[<https://bch.cbd.int/database/record.shtml?documentid=43450>]. Accessed 31 July 2020.

[8] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.4.2 Biosafety training and practices

1.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Myanmar requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Laboratories in Myanmar provides biosecurity training for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. However, this does not seem to be a requirement. The Joint External Evaluation of Myanmar completed in 2017 reports that Myanmar's Department of Medical Research (DMR) and Livestock, Breeding and Veterinary Department (LBVD) have regular training programs while National Health Laboratory (NHL) provides "biosafety and biosecurity training to some facilities". However, the JEE notes that training are short term and are provided by non-governmental organizations with a need for a "development of a common curriculum for biosafety/biosecurity training " [1]. These training programs are overseen by the Deputy Director General of the National Health Laboratory [2]. The World Health Organization (WHO), Myanmar, reports that the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [3]. There are reports of several trainings held on biosafety and biosecurity on the Ministry of Health and Sports and National Health Laboratory website but with no mention of whether this was part of the Biosafety and Biosecurity guideline published in 2017 or a one-time training [4,5] . The launched Biosafety and Biosecurity guideline is not publicly available online on the Ministry of Health and Sports, Ministry of Agriculture, Livestock and Irrigation nor National Health Laboratory website so it is not clear where training on biosecurity is standardized, mandatory or not. [5, 8,9] Confidence Building Measure (CBM) submission from Myanmar in 2018 also listed no legislation or regulations regarding biosecurity except for the Guidelines on Biosafety and Biosecurity for Biomedical Laboratories October

[6]. Myanmar does not have a CBM submission in 2017, 2019, 2020 [7]. The Verification Research, Training and Information Centre database does not have further evidence on regulations related to biosecurity and/or biosafety measures. [10]

[1] World Health Organisation (WHO). 3-9 May 2017. Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[2] Ministry of Health and Sports. October 2019. "National Action Plan for Health Security 2018-2022". [<https://extranet.who.int/sph/republic-union-myanmar-national-action-plan-health-security-2018-2022>]. Accessed 31 July 2020

[3] World Health Organization. "National Biosafety and Biosecurity Guideline". [<http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/>]. Accessed 31 July 2020

[4] National Health Laboratory. "TOT Training on Laboratory Biosafety Training Curriculum"[<https://nhlmyanmar.gov.mm/content/tot-training-laboratory-biosafety-training-curriculum>]. Accessed 31 July 2020.

[5] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/biosafety>]. Accessed 31 July 2020.

[6] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.

[7] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[8] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=biosafety>]. Accessed 31 July 2020.

[9] Ministry of Agriculture, Livestock and Irrigation.[<https://www.moali.gov.mm/en/search/node/biosafety>]. Accessed 31 July 2020.

[10] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient public evidence that Myanmar 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. While there is evidence of oversight of research for animal diseases, there is no evidence of a comprehensive assessment on ongoing research for dual use research. The Myanmar Investment Notification No. 15/2017 mandates all research and development on animal diseases to be inspected by the Livestock, Breeding and Veterinary Department, Ministry of Agriculture, Livestock and Irrigation [1]. Health research on infectious diseases (mainly HIV/AIDS, malaria, TB, typhoid and hepatitis) is performed in military hospitals and Medical Research Centers under the Ministry of Defense as well as the Department of Medical Research and Medical Universities under the Ministry of Health. [2] However, there is no evidence of an overarching assessment of research on dangerous pathogens which includes these studies. Myanmar received workshops from EU P2P Export Control Programme for dual-use materials in 2018 although it was not specified on how Myanmar plans

to implement the skills from such workshops [3]. The Confidence Building Measure (CBM) report for Myanmar in 2018 does not mention a presence of an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, and/or other dual use research by the health and defense related ministries [4]. Myanmar did not submit a CBM for 2017, 2019 or 2020 [5]. The Biosafety and Biosecurity guidelines from the National Laboratory System are not publicly available. The Ministry of Home Affairs, the Ministry of Defense, Ministry of Public Health and Sports and the National Health Laboratory public website has no mention of overseeing dual-use research [6,7,8,9]. The Verification Research, Training and Information Centre database does not have further evidence on regulations related to biosecurity and/or biosafety. [10]

[1] Myanmar Investment Commission. "Notification No. 15/2017".

[https://www.dica.gov.mm/sites/dica.gov.mm/files/document-files/notification_15-2017_eng.pdf]. Accessed 31 July 2020

[2] Zaw-Zaw Oo et al., 21 July 2018. "Current Status of Research Ethics Capacity in Myanmar". *Asian Bioethics Review* 10:123-132. [https://www.researchgate.net/publication/326826906_Current_Status_of_Research_Ethics_Capacity_in_Myanmar]. Accessed 1 Aug 2020.

[3] EU P2P Export Control Programme. "STCE Workshop for Myanmar Enforcement Agencies.". [<https://export-control.jrc.ec.europa.eu/News/ArtMID/481/ArticleID/15656/STCE-workshop-for-Myanmar-enforcement-agencies>]. Accessed 31 July 2020.

[4] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020

[5] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.

[6] Ministry of Home Affairs. [<https://www.facebook.com/officemohamyanmar/>]. Facebook. Accessed 31 July 2020.

[7] Ministry of Defense. [<http://www.mod.gov.mm>]. Accessed 31 July 2020.

[8] Ministry of Health and Sports. [<http://mohs.gov.mm>]. Accessed 31 July 2020.

[9] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/dual-use>]. Accessed 31 July 2020

[10] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is limited publicly available information to claim that there is legislation and/or regulation for oversight for dual use research in Myanmar for dangerous pathogens, toxins, and/or pathogens with pandemic potential in Myanmar. The World Health Organization (WHO), Myanmar, reports that the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [1]. The Biosafety and Biosecurity guidelines published in 2017 from the National Laboratory System are not publicly available so it is unclear to what extent (if at all) there is oversight. [2,3,4,5] The Confidence Building Measure (CBM) report for Myanmar in 2018 does not mention a presence of a national policy requiring oversight of specifically dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential at the relevant health and defense ministries [6]. Myanmar did not submit a CBM for 2017, 2019 and 2020 [7]. Research and experiments on genetics, animal health has to be inspected by Livestock, Breeding and Veterinary Department, Ministry of Agriculture, Livestock and Irrigation as per Myanmar Investment Commission Notification (15/2017) [8]. All health research in the country has to get approval of the Ethics Review Committee of the Department of Medical Research or the Institutional Review Board, as announced by the Health and Sports Minister Dr. Myint Htwe [9]. It is unclear

to claim how much this step is followed as the article itself is reporting on studies being done without the approval of the board. Health research on infectious diseases (mainly HIV/AIDS, malaria, TB, typhoid and hepatitis) is performed in military hospitals and Medical Research Centers under the Military of Defense as well as the Department of Medical Research and Medical Universities under the Ministry of Health. [10] It is unclear whether these centers oversee their own research or whether or not they are a separate oversight procedure.

- [1] World Health Organization. "National Biosafety and Biosecurity Guideline". [http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/]. Accessed 31 July 2020
- [2] Ministry of Home Affairs. [https://www.facebook.com/officemohamyanmar/]. Facebook. Accessed 31 July 2020.
- [3] Ministry of Defense. [http://www.mod.gov.mm]. Accessed 31 July 2020.
- [4] Ministry of Health and Sports. [http://mohs.gov.mm]. Accessed 31 July 2020.
- [5] National Health Laboratory. [https://nhlmyanmar.gov.mm/search/node/dual-use]. Accessed 31 July 2020
- [6] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020
- [7] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [8] Myanmar Investment Commission. "Notification No. 15/2017". [https://www.dica.gov.mm/sites/dica.gov.mm/files/document-files/notification_15-2017_eng.pdf]. Accessed 31 July 2020.
- [9] Aung Phay Kyi Soe. 10 Jan 2019. "https://www.mmtimes.com/news/health-minister-get-approval-doing-research.html". The Myanmar Times. Accessed 31 July 2020.
- [10] Zaw-Zaw Oo et al., 21 July 2018. "Current Status of Research Ethics Capacity in Myanmar". Asian Bioethics Review 10:123-132. [https://www.researchgate.net/publication/326826906_Current_Status_of_Research_Ethics_Capacity_in_Myanmar]. Accessed 1 Aug 2020.
- [11] Verification Research, Training and Information Centre. https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/. Accessed 25 Aug 2020.

1.5.1c

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient publicly available evidence to claim that there is an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research. There are several agencies responsible for oversight of general research on diseases and animals but it is not explicitly mentioned whether the agencies are responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research outside of their own research projects. Health research on infectious diseases (mainly HIV/AIDS, malaria, TB, typhoid and hepatitis) is performed in military hospitals and Medical Research Centers under the Military of Defense as well as the Department of Medical Research and Medical Universities under the Ministry of Health. [1] Research and experiments on genetics, animal health has to be inspected by Livestock, Breeding and Veterinary Department, Ministry of Agriculture, Livestock and Irrigation as per Myanmar Investment Commission Notification (15/2017). [2] It is unclear whether these centers oversee their own research or whether or not they are a separate oversight procedure. The Department of Public Health and Department of Medical Research, Ministry of Public Health have ethical review committees which review research studies -such as on Biosafety and biosecurity- as mentioned in an article on Myanmar Times Jan 2018 and the Joint External Evaluation, completed 2019 [3,4]. The World Health Organization (WHO),

Myanmar, reports that the National Health Laboratory (NHL) launched the Biosafety and Biosecurity guideline on 20 November 2017 [11]. The Biosafety and Biosecurity guidelines published in 2017 from the National Laboratory System are not publicly available so it is unclear to what extent (if at all) oversight. [7,8,9,10] The Confidence Building Measure (CBM) report for Myanmar in 2018 states that Myanmar still doesn't have any legislation and/or regulations for the oversight of dangerous pathogens, pathogens with pandemic potential, or other dual-use research in Myanmar with the related health and defense ministries [5]. Hence, it is assumed that Myanmar does not conduct assessments to whether or not there are dual-use research going on and/or keep track of such stockpiles/biological agents (i.e. dangerous pathogens). Myanmar did not submit a CBM for 2017, 2019, 2020 [6]. The Ministry of Home Affairs, the Ministry of Defense, Ministry of Public Health and Sports and the National Health Laboratory public website has no mention of agencies responsible for oversight of dual-use research either and/or reporting on ongoing dual use research to the public [7,8,9,10]. The Verification Research, Training and Information Centre database does not have further evidence on regulations related to biosecurity and/or biosafety. [12]

[1] Zaw-Zaw Oo et al., 21 July 2018. "Current Status of Research Ethics Capacity in Myanmar". *Asian Bioethics Review* 10:123-132. [https://www.researchgate.net/publication/326826906_Current_Status_of_Research_Ethics_Capacity_in_Myanmar]. Accessed 1 Aug 2020.

[2] Myanmar Investment Commission. "Notification No. 15/2017". [https://www.dica.gov.mm/sites/dica.gov.mm/files/document-files/notification_15-2017_eng.pdf]. Accessed 1 Aug 2020.

[3] Myint Kay Thi. 9 January 2018. "Minister: No medical research in Rakhine". [<https://www.mmtimes.com/news/minister-no-medical-research-rakhine.html>]. *The Myanmar Times*. Accessed 1 Aug 2020.

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 1 Aug 2020.

[5] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 1 Aug 2020

[6] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 1 Aug 2020

[7] Ministry of Home Affairs. [<https://www.facebook.com/officemohamyanmar/>]. Facebook. Accessed 31 July 2020.

[8] Ministry of Defense. [<http://www.mod.gov.mm>]. Accessed 31 July 2020.

[9] Ministry of Health and Sports. [<http://mohs.gov.mm>]. Accessed 31 July 2020.

[10] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/dual-use>]. Accessed 31 July 2020

[11] World Health Organization. "National Biosafety and Biosecurity Guideline".

[<http://www.searo.who.int/myanmar/areas/nationalbiosafetybiosecurity/en/>]. Accessed 31 July 2020

[12] Verification Research, Training and Information Centre. <https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/>. Accessed 25 Aug 2020.

1.5.2 Screening guidance for providers of genetic material

1.5.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no sufficient publicly available evidence to claim that there is a national legislation, regulation, policy, or other guidance, requiring the screening of synthesized DNA before it is sold in Myanmar. There are broad regulations that

encompass synthesized DNA, although none mention pathogens explicitly. This may be because synthesized DNA is not imported nor sold widespread in Myanmar (except for non-edible crops). Genetically Modified Animals are not allowed for imports, according to Myanmar Investment Notification No. 15/2017. The same notification mandates veterinary biological products manufactured for sale to be inspected by the Livestock, Breeding, and Veterinary Laboratory before it is sold and/or distributed [1]. The Sales of Goods Act has not been updated since 1930 and does not mention synthesized DNA [2]. The Ministry of Agriculture, Livestock and Irrigation also prohibits sale of genetic modification of edible crops (non-edible crops such as cotton are acceptable) [3]. The Confidence Building Measure (CBM) report for Myanmar in 2018 states that Myanmar still doesn't have any legislation and/or regulation for exporting and importing microorganisms and toxins let alone requiring the screening of synthesized DNA before it is sold [4]. Myanmar did not submit a CBM for 2017, 2019, 2020 [5]. The Ministry of Home Affairs and National Health Laboratory official website does not have posts regarding requiring the screening of synthesized DNA before it is sold [6, 7]. The Ministry of Defense, Ministry of Health and Sport and Ministry of Agriculture, Livestock and Irrigation's public website has no mention of overseeing screening of synthesized DNA as well [8, 9, 10]. The Verification Research, Training and Information Centre database does not have further evidence on regulations related to biosecurity and/or biosafety or ones specific to synthesized DNA. [11]

- [1] Myanmar Investment Commission. "Notification No. 15/2017". [https://www.dica.gov.mm/sites/dica.gov.mm/files/document-files/notification_15-2017_eng.pdf]. Accessed 31 July 2020.
- [2] The Myanmar Times. "Edible Crops Not Allowed To Be Genetically Modified". [https://www.mmmtimes.com/news/edible-crops-not-allowed-be-genetically-modified.html]. Accessed 31 July 2020.
- [3] Constitutional Tribunal of the Union of Myanmar. 1930. "The Sale of Goods Act." [https://www.myanmarconstitutionaltribunal.org.mm/lawdatabase/en/content/sale-goods-act]. Accessed 31 July 2020.
- [4] Confidence Building Measures. 11 April 2018. "CBM 2018 Myanmar". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_myanmar.pdf]. Accessed 31 July 2020.
- [5] Confidence Building Measures. "Overall Rate of CBM Report Submissions". [https://bwc-ecbm.unog.ch/?field_form_year_tid=510]. Accessed 31 July 2020.
- [6] The Ministry of Home Affairs. [https://www.facebook.com/officemohamyanmar/]. Facebook. Accessed 31 July 2020
- [7] National Health Laboratory. [https://nhlmyanmar.gov.mm/search/node/dual-use]. Accessed 31 July 2020
- [8] The Ministry of Defense. [http://www.mod.gov.mm]. Accessed 31 July 2020
- [9] Ministry of Health and Sports. [http://mohs.gov.mm]. Accessed 31 July 2020
- [10] Ministry of Agriculture, Livestock and Irrigation. [https://www.moali.gov.mm]. Accessed 31 July 2020
- [11] Verification Research, Training and Information Centre. https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/m/. Accessed 25 Aug 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: 1

2019

World Health Organization

1.6.1b

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

Yes = 1, No = 0

Current Year Score: 1

2020

OIE WAHIS database

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

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

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

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

Current Year Score: 2

The national laboratory system in Myanmar has the capacity to conduct diagnostic tests for 10 core tests defined by the World Health Organization (WHO). According to the Joint External Evaluation (JEE) for Myanmar completed in 2017, the National Health Laboratory has the capacity to detect 10 WHO-defined core tests (Influenza, TB, HIV, Malaria, Typhoid, Dengue, Measles, Rubella, Polio and Japanese Encephalitis). Unfortunately, the 10 core tests are not available for the whole population. Hence, even if the National Health Laboratory is capable of the core tests, it falls short on accessibility and reliability [1]. Myanmar Laboratory Diagnosis Capacities include Serology, Conventional and real-time PCR and Virus culture across the country [2]. Studies also confirm laboratories to be capable of microscopy for mycobacterium tuberculosis (tuberculosis/TB) microscopy for TB [3, 4, 5]. The National Health Laboratory is capable of polymerase chain reaction (PCR) testing for Influenza virus (flu) as per the Influenza Like Illness (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance Guideline [6]. Serotyping for Salmonella Typhi is also available in Myanmar at the Department of Medical Research (Upper Myanmar). [7] The National Health Laboratory in Myanmar is also WHO accredited for polio testing. [8]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 28 July 2020.

[2] Livestock Breeding & Veterinary Department. 2014. "Country Report". [http://www.rr-asia.oie.int/fileadmin/Regional_Representation/Programme/JTF_One_Health/2014_AI_surveillance_Tokyo/1.14_Myanmar-Activities_on_Preparedness_and_Response_for_Avian_Influenza_Myanmar.pdf] Accessed 28 July 2020

[3] Khan, M S et al. 3 March 2016. "Are Current Case-finding Methods Under-Diagnosing Tuberculosis Among Women in

- Myanmar? An Analysis of Operational Data from Yangon and the Nationwide Prevalence Survey" BMC Infectious Diseases, 16(110). [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4778364/]. Accessed 28 July 2020
- [4] Myint, Ohnmar et al. 2 June 2017. "Active Case-Finding For Tuberculosis by Mobile Teams in Myanmar: Yield and Treatment Outcomes". Infectious Diseases of Poverty, 6(177). [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5455111/]. Accessed 28 July 2020
- [5] World Health Organization (WHO). "WHO Facilitates Training on Malaria Microscopy Technique and Field Assessment of Malaria Laboratories". [http://www.searo.who.int/myanmar/areas/malaria_trainingmicroscopy/en/]. Accessed 28 July 2020
- [6] Ministry of Health and Sports. "Influenza Like Illness (ILI) and Severe Acute Respiratory Infection (SARI) Surveillance Guideline." January 2018. [http://mohs.gov.mm/su/7GPpH]. Accessed 28 July 2020
- [7] Saw Myat Thwe et. al. 2016. "Initiation of Hospital-based Active Typhoid Fever Sentinel Surveillance among Suspected Cases in Mandalay". Myanmar Health Sciences Research Journal 28 [1]. [http://www.myanmarhsrj.com/file/display_fulltext.php?articleid=Reg-000790&issue=1&vol=28]. Accessed 30 July 30, 2020.
- [8] Wang, Hai-Bo. 17 Jan 2015. "Cross-border collaboration between China and Myanmar for emergency response to imported vaccine derived poliovirus case". BMC Infectious Diseases
- [15]. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4308939/]. Accessed 30 July 2020.

2.1.1b

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

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

Current Year Score: 0

There is insufficient evidence of a national plan, strategy or similar document for conducting testing during a public health emergency and insufficient evidence that it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing.

Although there is a national plan for conducting testing during a public health emergency, it doesn't include considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. According to the National Action Plan for Health Security (2018-2022), published in October 2018, there are plans for the Ministry of Health to strengthen the capacity of the Public Health Emergency Operation Center (PHEOC) by procuring more equipment as well as develop necessary guidelines or Standard operating procedures (SOPs) for prioritized diseases. One of its objectives is "Strengthening laboratory capacity and upgrading" for which it lists MoHS and MoALI as responsible agencies to "validate test result and improve QA/QC, sustainable BSL2+ facilities" and conduct "Workshop/meeting on harmonization of the laboratory tests". It also lists MoHS as responsible for "procurement of equipment, supplies and test kits related to diagnosis of emerging and reemerging diseases". Though the plan mentions the JEE recommendations to develop guidelines for improving testing, no such policy measures are listed in this plan. [1]

Human Influenza Pandemic Preparedness and Response (2006) also mentions guidelines to develop plans for surge capacity in the public health services. [2] The documents, however, do not have defined goals for testing or mentions testing novel pathogens. The Human Influenza Pandemic Preparedness and Response (2006) only mentions the novel virus under the criteria of declaring a pandemic alert level. [2] Myanmar's Strategic Plan for Zika published in 2016 includes a section that confirms it can conduct RT-PCR for Zika within 48 hours but does not include considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. [3]

From the proposal for financing to the World Bank from Myanmar, there are plans to scale up testing with assistance from the United Nations and United States Center for Disease Control for COVID-19 response. According to this, the project is targeting to put ten state/regional level laboratories with increased testing capacity in place by January 31, 2021 though no further evidence is available yet. [4]

No further evidence on a national plan for testing is available on the Ministry of Health, Myanmar National portal, Ministry of Agriculture, Livestock and Irrigation or the Ministry of Information public websites. [5, 6, 7, 8]

- [1] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security (2018-2022)". [https://extranet.who.int/sph/sites/default/files/2021-01/Myanmar%20%282018-2022%29%20-%20Report.pdf]. Accessed 5 Aug 2020.
- [2] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response]. Accessed 5 Aug 2020.
- [3] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection]. Accessed 30 July 2020.
- [4] The World Bank. "Myanmar COVID-19 Emergency Response Project". [https://projects.worldbank.org/en/projects-operations/project-detail/P173902]. Accessed 6 Aug 2020.
- [5] Ministry of Health and Sports. [https://www.mohs.gov.mm/]. Accessed 25 Aug 2020.
- [6] Myanmar National Portal. [https://myanmar.gov.mm/]. Accessed 25 Aug 2020.
- [7] Ministry of Agriculture, Livestock and Irrigation. https://www.moali.gov.mm/. Accessed 15 Sept 2020.
- [8] Ministry of Information. [https://www.moi.gov.mm/]. Accessed 25 Aug 2020.

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1, No = 0

Current Year Score: 1

The national laboratory that serves as a reference facility is accredited. The National Health Laboratory, the reference laboratory for humans, is accredited for WHO disease-specific testing according the Joint External Evaluation (JEE) for Myanmar completed in 2017 [1]. The Food and Drug Administration, with its own medical testing laboratory in the state capital, holds the ISO/IEC 17025:2005 certificate [1, 2]. Additionally, the National Health Laboratory has a National Influenza Centre, certified by the World Health Organization. It also has a National Measles/Rubella Laboratory Accreditation and is also WHO accredited for poilo testing[3, 4].

- [1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1]. Accessed 28 July 2020.
- [2] Pyae Thet Phyo. 11 Jan 2017. "FDA Medical Laboratory in Nay Pyi Taw receives international accreditation". [https://www.mmtimes.com/national-news/nay-pyi-taw/24483-fda-medical-laboratory-in-nay-pyi-taw-receives-international-accreditation.html]. Accessed 28 July 2020.
- [3] National Health Laboratory. [https://nhlmyanmar.gov.mm/node?page=1]. Accessed July 30, 2020.

[4] Wang, Hai-Bo. 17 Jan 2015. "Cross-border collaboration between China and Myanmar for emergency response to imported vaccine derived poliovirus case". BMC Infectious Diseases

[15]. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4308939/>]. Accessed 30 July 2020.

2.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

The national laboratory that serves as a reference facility for humans is subject to external quality assurance review. As reported in the Joint External Evaluation (JEE) for Myanmar completed in May 2017, the National Health Laboratory is subject to external quality assurance review programs with the National Institute of Health -Thailand, and the Prince of Wales Hospital, Australia [1]. Myanmar is also part of the Global Influenza Surveillance network (GISN) for surveillance and control of influenza with the National Health Laboratory declared as a National Influenza Center (NIC) that shares data with other WHO collaboration centers. NIC recognized by WHO maintain direct working relations with WHO and members of the Global Influenza Surveillance and Response System (GISRS), in particular the WHO Collaborating Centres on influenza [2, 3]. The National Health Laboratory is also development partners with University Research Co., LLC (URC) and Asian Development Bank for Malaria surveillance and Quality assurance as well as International Atomic Energy Agency on quality assurance for laboratory supplies. [4]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 28 July 2020.

[2] World Health Organisation (WHO). "How to become and remain as a WHO-recognized National Influenza Centre of the Global Influenza Surveillance and Response System (GISRS)". [https://www.who.int/influenza/gisrs_laboratory/national_influenza_centres/GISRS_how_to_become_a_NIC.pdf?ua=1]. Accessed 28 July 2020..

[3] World Health Organisation (WHO). "National Influenza Center". [https://www.who.int/influenza/gisrs_laboratory/national_influenza_centres/list/en/index4.html]. Accessed 28 July 2020.

[4] National Health Laboratory. "Project Collaboration". [<https://nhlmyanmar.gov.mm/project-collaboration>] Accessed 30 July 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence of a nationwide specimen transport system in place in Myanmar. As reported by the Joint External Evaluation (JEE) completed in 2017, the National Health Laboratory, Ministry of health is capable to receive specimens from more than 80% its intermediate level facilities in a 24-hour period with shorter periods during outbreaks. Unfortunately, the intermediate level facilities aren't across the whole country and, therefore, the National Health

Laboratory might not enjoy the same response time for harder to reach regions . There are also standard operating procedures for category B-pathogens and specimen transportation in compliance with UN standard, as reported in the JEE report [1].

The Ministry of Health (and Sports) and the Ministry of Livestock and Fisheries (now the Ministry of Agriculture, Livestock and Irrigation) are responsible to transport atypical isolates to either the WHO Collaborating Centers and World Organisation for Animal Health [2]. In a review of the national tuberculosis programme, it was noted that the two culture laboratories at Yangon and Mandalay are inadequate to cover the diagnostic needs of the entire country for reasons of limited capacity, human resource requirements, challenges faced in specimen referrals, transportation of samples within 48 hours, maintenance of cold chain during transport, reporting results on time and the difficult and diverse terrain of the country [3]. The Guidelines for the Management of Drug Resistant Tuberculosis have guidelines on packaging but does not mention connection with a specimen transport system for movement of the specimen. [4]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 1 August 2020.

[2] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/post/pandemic-plan-english>]. Accessed 1 August 2020.

[3] World Health Organization. "Review of the National Tuberculosis Programme". [<http://www.searo.who.int/myanmar/documents/TBreviewreportbook.pdf>]. Accessed 1 August 2020.

[4] Ministry of Health and Sports. February 2017. "Guidelines for the Management of Drug Resistant Tuberculosis". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/TB/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=DR-TB+management+guideline_Feb+2017.pdf]. Accessed 1 August 2020.

2.2.2 Laboratory cooperation and coordination

2.2.2a

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

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

Current Year Score: 0

There is no publicly available evidence to conclude that there is 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. The National Action Plan for Health Security (NAPHS) 2018-2022 mentions that there is a National Strategic Plan for Health Laboratories drafted. [1] The document, however, is not available on the Ministry of Health and Sports' website. [2] Early on during the COVID 19 outbreak, the National Health Laboratory did not possess testing capabilities until Feb 2020 and sent samples to Thailand for COVID testing. The Ministry of Health's proposal get financing for COVID-19 only included laboratory supplies, not expansion. The "Surge Plan for increasing testing volume" also only included additional human resources for the National Laboratory system. [3] On the other hand, new laboratories are being built to scale-up testing across Myanmar for COVID-19. There is a Public Health Laboratory in Mandalay currently under construction and two new laboratories set to open later in Mawlamyine and Taungyi. [4,5] The Ministry of Agriculture, Livestock and Irrigation official facebook account as well the Ministry of Health and National Health Laboratory's public health website do not have further evidence. [6,7,8]

- [1] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022". [[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 5 Aug 2020.
- [2] Ministry of Health. [<https://www.mohs.gov.mm/search?question=laboratory>]. Accessed 5 Aug 2020.
- [3] The World Bank. 2 April 2020. "Project Appraisal Document". [<http://documents1.worldbank.org/curated/en/185931587609194332/pdf/Myanmar-COVID-19-Emergency-Response-Project.pdf>]. Accessed 5 Aug 2020.
- [4] Nyan Hlaing Lin. 21 April 2020. "New laboratories and machine may mean wider Covid-19 testing - health ministry". Myanmar Now. [<https://myanmar-now.org/en/news/new-laboratories-and-machine-may-mean-wider-covid-19-testing-health-ministry>]. Accessed 5 Aug 2020.
- [5] Hmue Angel, Aung Loon. 22 Jun 2020. "Taunggyi COVID-19 lab to start testing in July, Mandalay constructs new virus testing lab." The Myanmar Times." [<https://www.mmtimes.com/news/taunggyi-covid-19-lab-start-testing-july-mandalay-constructs-new-virus-testing-lab.html-0>]. Accessed 5 Aug 2020.
- [6] Ministry of Agriculture, Livestock and Irrigation. [<https://www.facebook.com/moalint/>]. Facebook. Accessed 25 Aug 2020.
- [7] Ministry of Health. <https://mohs.gov.mm/Home>. Accessed 25 Aug 2020.
- [8] National Health laboratory. <https://nhlmyanmar.gov.mm/>. Accessed 25 Aug 2020.

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

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

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

Current Year Score: 1

There is evidence that Myanmar has an ongoing event-based surveillance and analysis for infectious disease. However, there is insufficient evidence to claim that the data is analysed on a daily basis. The Animal Health and Development Law (17/93) provides steps for livestock owners to report animals with a contagious disease to the designated public health worker from the Livestock Breeding and Veterinary Department. The owner of the animal and/or vet shall report promptly to the nearest employee of the Livestock Breeding and Veterinary Department. This suggest that there is an active event-based surveillance and reporting system. However, whether or not the collected data is analyzed is unclear [1]. In the National Strategic Plan for Preparedness and Response to Zika Virus Infection mentions a subcommittee for health facilities based surveillance and event based surveillance activities across all hospitals (public and private) for Zika Virus. It is again, unclear, how and when the data collected is analyzed. [2] According to the Joint External Evaluation Report for Myanmar published in 2017, there is evidence of event-based surveillance systems in place for Avian Influenza, Rabies, Anthrax, Japanese Encephalitis on an ad-hoc basis. Even though data is collected on a daily basis for notifiable disease, there is only a weekly bulletin of collated data. [3] The Ministry of Health also performs routine event-based surveillance that can detect unusual events from the grassroots (township) level. The data is aggregated on a weekly basis. [4]

- [1] Ministry of Agriculture, Livestock and Irrigation. "Animal Health and Development Law". [<https://www.moali.gov.mm/sites/default/files/attached-files/2016/11/AH%20&%20D%20Law.pdf>] Accessed 28 July 2020.
- [2] Ministry of Health and Sports. "National Strategic Plan for Preparedness and Response to Zika Virus Infection" [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/CEU/CEU_May+2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=4.+Strategic+Plan+for+Zika+25+Feb+2016.pdf] Accessed 28 July 2020.
- [3] World Health Organization. 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar." [<https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-REP-2018.5-eng.pdf>]. Accessed 28 July 2020.
- [4] Ministry of Health and Sports. 18 Dec 2019. "Early Warning, Alert and Response System (EWARS) Standard Operating Procedure." [<https://mohs.gov.mm/su/QCKtXR>]. Accessed 28 July 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is publicly available evidence that Myanmar reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years. In 2019, Myanmar reported an isolated case of vaccine-derived poliovirus type 1 to the WHO. [1] No further evidence of a reported outbreak is available on the WHO 2019 and 2020 disease outbreak pages. [2, 3]. Myanmar declared its first case of COVID-19 on March 23, 2020, after the WHO declared it a PHEIC on January 30, 2020. [4, 5]

- [1] World Health Organization. "Circulating vaccine-derived poliovirus type 1 - Myanmar." [<https://www.who.int/csr/don/22-august-2019-polio-myanmar/en>]. Accessed September 16 , 2020
- [2] World Health Organization (WHO). 2019."Emergencies preparedness, response: 2019". [<https://www.who.int/csr/don/archive/year/2019/en/>]. Accessed 24 May 2021.
- [3] World Health Organization (WHO). 2020."Emergencies preparedness, response: 2020". [<https://www.who.int/csr/don/archive/year/2020/en/>]. Accessed 24 May 2021.
- [4] Reuters. March 24, 2020. "Myanmar reports first cases of coronavirus". [<https://www.reuters.com/article/us-health-coronavirus-myanmar-idUSKBN21B0HB>] Accessed 24 May 2021.
- [5] World Health Organization (WHO). 27 April 2020."Archived: WHO Timeline - COVID-19". [<https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>]. Accessed 24 May 2021.

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is limited evidence that Myanmar have a government operated electronic reporting surveillance system at both the national and the sub-national level. Although there is evidence of a system in place, there is limited publicly available evidence on whether the system is fully utilized. The Early Warning, Alert and Response System (EWARS) is a reporting

system where data is reported daily from non-governmental organization (NGO) clinics (mobile and fixed), township level government health facilities which feeds into the system in the Department of Public Health, Ministry of Health and Sports. There are 17 diseases that are monitored including influenza like illness and dengue. [1] The Joint External Evaluation Report published in 2017 also reports of an event-based surveillance systems where electronic communication methods are utilized. However, the report also notes that the electronic surveillance system was still at an initial stage at that time [2] More recent evidence notes that the National Health Laboratory operates an electronic database created from paper based data from hospital laboratories across different levels in the country, although the data is only regarding isolates without epidemiological information. [3] The Health Management Information System (HMIS) of Myanmar collects electronic health records from both public and private hospitals and has a data sharing flow from health facilities to the Department of Public Health, Ministry of Health and Sports. Other departments and research centers share information upon request. [4] The system is claimed to be a "Nation-wide electronic Public Health Reporting System … which was adopted as National Platform in Myanmar since 2014" as per the Ministry of Health and Information website. The system, however, only detects for surveillance in newborn babies and pregnant mothers for tuberculosis and malaria cases. [5] For tuberculosis and malaria, data flow comes from township level management units which reports to the District Health Information System 2 (DHIS2), a national platform for health information. [6,7] The electronic HMIS of Myanmar, powered by DHIS2 reports real-time data from the township level, as reported on the Ministry of Health's public website, last updated 15 March 2018. [8]

[1] Ministry of Health and Sports. 18 Dec 2019. "Early Warning, Alert and Response System (EWARS) Standard Operating Procedure." [https://www.mohs.gov.mm/page/5164]. Accessed 28 July 2020.

[2] World Health Organization. 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar." [https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-REP-2018.5-eng.pdf]. Accessed 28 July 2020.

[3] Ministry of Health and Sports. July 2017. "National Action Plan for Containment of Antimicrobial Resistance: Myanmar 2017-2022 (Draft)".

[http://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 28 July 2020.

[4] Ministry of Health and Sports. June 2018. "NATIONAL TUBERCULOSIS PROGRAMME MYANMAR. Annual Report 2016." [https://www.mohs.gov.mm/page/5604]. Accessed 28 July 2020.

[5] Ministry of Health and Sports. "Electronic Health Management Information System".

https://mohs.gov.mm/Main/content/page/electronic-health-management-information-system. Accessed 28 July 2020.

[6] Poe Pong Aung et al. 10 Feb 2020. "Challenges in early phase of implementing the 1-3-7 surveillance and response approach in malaria elimination setting: A field study from Myanmar". *Infectious Diseases of Poverty* 9:18.

[https://idpjournal.biomedcentral.com/articles/10.1186/s40249-020-0632-7]. Accessed 25 Aug 2020.

[7] World Health Organization.

https://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/tf7_p11_Myanmar_esurveillance.pdf?ua=1. Accessed 25 Aug 2020.

[8] Ministry of Health and Sports. "Electronic Health Management Information System."

https://mohs.gov.mm/Main/content/page/electronic-health-management-information-system. Accessed 14 Sept 2020.

2.3.2b

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient publicly available evidence to claim that electronic reporting surveillance system collect real-time laboratory data on a daily basis and is reported on a weekly basis. Although there is evidence of a system in place, there is

limited publicly available evidence on whether the system is fully functional. According to the Joint External Evaluation for Myanmar conducted in 2017, the electronic health system was at an initial stage. There was no mention if laboratory data was included [1] The Early Warning, Alert and Response System (EWARS) is a reporting system where data is reported daily from non-governmental organization (NGO) clinics (mobile and fixed), township level government health facilities which feeds into the system in the Department of Public Health, Ministry of Health and Sports. There are 17 diseases that are monitored including influenza like illnesses and dengue; however, there is no mention of laboratory data. [2] The Health Management Information System of Myanmar collects electronic health records from both public and private hospitals and has a data sharing flow from health facilities to the Department of Public Health, Ministry of Health and Sports. Other departments and research centers share information upon request. [3] The system is claimed to be a "Nation-wide electronic Public Health Reporting System … which was adopted as National Platform in Myanmar since 2014" as per the Ministry of Health and Information website. The system, however, only detects for surveillance in newborn babies and pregnant mothers for tuberculosis and malaria cases. [4] The District Health Information System 2 (DHIS2), a national platform for health information also includes a laboratory information system in its architecture. [5,6] However, there were no mentions of how often the data is reported. No further evidence is available on the Ministry of Health and Sports, National Health laboratory official websites and Ministry of Agriculture, Livestock and Irrigation official facebook page. [7,8,9]

[1] World Health Organization. 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar." [<https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-REP-2018.5-eng.pdf>]. Accessed 28 July 2020.

[2] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ". [<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 6 Aug 2020.

[3] Ministry of Health and Sports. "HMIS: Health Management Information System 2017". [<http://mohs.gov.mm/Main/content/publication/hmis-health-management-information-system-2017>]. Accessed 31 July 2020

[4] Ministry of Health and Sports. " Electronic Health Management Information System ". <https://mohs.gov.mm/Main/content/page/electronic-health-management-information-system>. Accessed 28 July 2020.

[5] World Health Organization. https://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/tf7_p11_Myanmar_esurveillance.pdf?ua=1. Accessed 25 Aug 2020.

[6] University of Oslo. Institute of Health and Society. 6 Mar 2017. "From paper based- to electronic health information (DHIS2) in Myanmar." <https://www.med.uio.no/helsam/english/research/projects/health-sustainable-development-myanmar/news/dhis2.html>. Accessed 25 Aug 2020.

[7] Ministry of Health. <https://www.mohs.gov.mm/>. Accessed 25 Aug 2020.

[8] National Health Laboratory. <https://nhlmyanmar.gov.mm/>. Accessed 25 Aug 2020

[9] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalintp>. Facebook. Accessed 25 Aug 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

Electronic health records (EHRs) are in use in Myanmar but the system is still in its early implementation stage and is not fully functional across the whole country. The Health Management Information System, which utilizes the DHIS2, has been rolled out for data entry in public hospitals, with the exception of those in four of Myanmar's regions (Kachin, Shan, Ayeyarwady, and Rakhine). The e-HMIS requires patient biodata, investigation, treatment, and discharge and diagnosis [1]. There is a cloud-based software by a private start-up that is employed in 60 clinics in Yangon and Mandalay region but has yet to achieve nationwide access. [2] The electronic HMIS of Myanmar, powered by DHIS2 reports real-time data from the township level, as reported on the Ministry of Health's public website, was last updated 15 March 2018. [7] There are also other pilot projects regarding EMR for selected clinics by Population Services International. [3]. No further evidence is available on the Ministry of Health and Sports, National Health laboratory official websites and Ministry of Agriculture, Livestock and Irrigation official facebook page. [4, 5, 6]

[1] Ministry of Health and Sports. "HMIS: Health Management Information System 2017".

[<http://mohs.gov.mm/Main/content/publication/hmis-health-management-information-system-2017>]. Accessed 30 July 2020.

[2] Aung Phay Kyi Soe. 20 Jun 2019. "Tech start-up offers solution for medical record-keeping". Myanmar Times.

[<https://www.mmtimes.com/news/tech-start-offers-solution-medical-record-keeping.html>]. Accessed 31 July 2020.

[3] Health Finance and Governance Project. September 2018. "Myanmar Strategic Purchasing 6: Improving Medical Record Keeping". [<https://www.hfgproject.org/myanmar-strategic-purchasing-6-improving-medical-record-keeping/>]. Accessed 31 July 2020.

[4] Ministry of Health. <https://www.mohs.gov.mm/>. Accessed 25 Aug 2020.

[5] National Health Laboratory. <https://nhlmyanmar.gov.mm/>. Accessed 25 Aug 2020

[6] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalinpt>. Facebook. Accessed 25 Aug 2020.

[7] Ministry of Health and Sports. "Electronic Health Management Information System."

<https://mohs.gov.mm/Main/content/page/electronic-health-management-information-system>. Accessed 14 Sept 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

There is insufficient evidence that the national public health system has access to electronic health records of individuals in Myanmar. The Ministry of Health and Sports is responsible for the national public health system, with the Department of Health being the main organization in providing to healthcare through the whole country [1]. The Health Management Information System of Myanmar collects electronic health records from both public and private hospitals for electronic registration and reporting [2]. However, it is impossible to access the electronic health records of individuals from a private hospital if the hospital is not registered for the Health Management Information System [3]. Electronic health records (EHRs) are in use in Myanmar but the system is still in its early implementation stage and is not fully functional across the whole country [4]. The Law Relating to Private Health Care Services published in 2007 that health records in the private industry can be accessed by the Ministry of Health. [5] The document, however, doesn't mention electronic health records. The Early Warning, Alert and Response System (EWARS) is a reporting system where data is reported daily from non-governmental organization (NGO) clinics (mobile and fixed), township level government health facilities which feeds into the system in the Department of Public Health, Ministry of Health and Sports. There are 17 diseases that are monitored including influenza like illness and dengue. [6] The Health Management Information System of Myanmar collects electronic health records from both public and private hospitals and has a data sharing flow from health facilities to the Department of Public Health, Ministry of

Health and Sports. Other departments and research centers share information upon request. [1] The system is claimed to be a "Nation-wide electronic Public Health Reporting System; which was adopted as National Platform in Myanmar since 2014" as per the Ministry of Health and Information website. The system, however, only detects for surveillance in newborn babies and pregnant mothers for tuberculosis and malaria cases. [7] The District Health Information System 2 (DHIS2), a national platform for health information also includes a laboratory information system in its architecture. [8,9] All the data that is reported under these programs are available to the Ministry of Health and Sports.

- [1] World Health Organization, South-East Asia Regional Office. "Myanmar Health Care System".
[http://www.searo.who.int/myanmar/documents/HealthinMyanmar_2012_4_healthcaresystem.pdf]. Accessed 30 July 2020.
- [2] Ministry of Health and Sports. "HMIS: Health Management Information System 2017".
[<http://mohs.gov.mm/Main/content/publication/hmis-health-management-information-system-2017>]. Accessed 30 July 2020..
- [3] Asia Pacific Observatory on Health Systems and Policies. 2014. "The Republic of Union of Myanmar Health System Review." [http://apps.searo.who.int/PDS_DOCS/B5411.pdf]. Health Systems in Transition Vol. 4 No. 3. Accessed 30 July 2020.
- [4] Sector-Wide Impact Assessment. 24 September 2015. "Myanmar ICT Sector-Wide Impact Assessment".
[<https://www.myanmar-responsiblebusiness.org/swia/ict.html>]. Accessed 30 July 2020.
- [5] Ministry of Health and Sports. 2007. "Health Policy Mapping." [<http://mohs.gov.mm/su/10EwLV>]. Accessed 2 Aug 2020..
- [6] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ".
[<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 6 Aug 2020.
- [7] Ministry of Health and Sports. " Electronic Health Management Information System ".
<https://mohs.gov.mm/Main/content/page/electronic-health-management-information-system>. Accessed 28 July 2020.
- [8] World Health Organization.
https://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/tf7_p11_Myanmar_esurveillance.pdf?ua=1. Accessed 25 Aug 2020.
- [9] University of Oslo. Institute of Health and Society. 6 Mar 2017. "From paper based- to electronic health information (DHIS2) in Myanmar." <https://www.med.uio.no/helsam/english/research/projects/health-sustainable-development-myanmar/news/dhis2.html>. Accessed 25 Aug 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

There is limited publicly available information to confirm that Myanmar has data standards to ensure data is comparable. The Health Management Information System of Myanmar collects electronic health records from both public and private hospitals and has a data sharing flow from health facilities to the Department of Public Health, Ministry of Health and Sports. Other departments and research centers share information upon request [1]. However, there are no specifics on standards of data on the Ministry of Health and Sport's public website as well as the National Health Laboratory website [2, 3]. A presentation on the Health Management Information System by the Director of Department Health has no mention of data standards as well. [4]

- [1] Ministry of Health and Sports. "HMIS: Health Management Information System 2017".
[<http://mohs.gov.mm/Main/content/publication/hmis-health-management-information-system-2017>]. Accessed 31 July 2020
- [2] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=data>]. Accessed 31 July 2020

[3] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 31 July 2020

[4] Ministry Of Health. "Health Management Information System." [<http://mohs.gov.mm/su/xKCToD>]. Accessed 2 Aug 2020.

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is sufficient publicly available data to suggest that Myanmar has established mechanisms at the relevant ministries responsible for animal, human, and wildlife surveillance to share data with each other. According to the Joint External Evaluation for Myanmar completed in May 2017, data sharing across sectors (and ministries) is carried out in an ad hoc/project basis or in response to emergency outbreaks [1]. There is frequent collaboration for joint investigation activities between Department of Public Health (DoPH) and Livestock Breeding and Veterinary department (LBVD) for pandemic threats as well such as rabies and influenza [2, 3]. The Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation in Myanmar are currently working with Smithsonian's researchers in areas where there is close contact interaction with the locals and wildlife. They recently discovered six new coronaviruses and will continue surveillance to identify diseases and manage threats to prevent pandemics. [4] The Ministry of Health and Sports, and the Ministry of Agriculture, Livestock and Irrigation in Myanmar are also working together along with Cambridge Researchers on surveillance and control of zoonoses in emerging livestock systems, focusing on pigs. [5]. In the National Strategic Plan for Preparedness and Response to Zika Virus Infection published in 2016, there are plans for collaboration with Ministry of Transport for zika surveillance (eg. reporting to Ministry of Health if there are people entering from affected countries. [6]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[2] World Organization for Animal Health. "Rabies Update in Myanmar". [http://www.rr-asia.oie.int/fileadmin/Regional_Representation/Programme/B_One_Health/2018.12_ASEAN_Rabies_Hanoi/Update_Rabies_Poster_Vietnam_Myanmar_-_E4%BA%E6%E3%83%E3%83%E3%83_.pdf]. Accessed 31 July 2020.

[3] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 31 July 2020.

[4] Smithsonian's National Zoo and Conservation Biology Institute. 9 April 2020. "Scientists discover six new coronaviruses in bats". [<https://www.sciencedaily.com/releases/2020/04/200409141429.htm>]. Accessed July 26, 2020.

[5] Institute of Development Studies. "Myanmar Pig Partnership". [<https://www.ids.ac.uk/projects/myanmar-pig-partnership/>]. Accessed 28 July 2020.

[6] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available evidence that Myanmar has de-identified health surveillance data on infectious diseases publicly available via reports/surveillance dashboards on government websites. The Ministry of Health has a Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard with disease statistics updated at least twice per day on their official website with aggregated reports on their Facebook page daily . [1, 2] However, such kind of reporting is only available for COVID-19 as health statistics are published rather as reports annually [3]. The Ministry of Health and Sports publishes a nationwide electronic public health reporting system that includes data for malaria and tuberculosis from 2014-2016. The website also has hospital Statistics Reports that includes mortality rates from infectious and parasitic diseases up till 2016 . [4, 5] Under the list of publications by the Ministry of Health, there are no such surveillance data updated on a weekly basis. [6] There is no further evidence on the Ministry of Health and the National Health Laboratory's public website, Ministry of Agriculture, Livestock and Irrigation official facebook. [7, 8, 9]

[1] Ministry of Health and Sports. "COVID-19 Myanmar Surveillance Dashboard."

[https://datastudio.google.com/u/0/reporting/445c1281-c6ea-45e4-9bc0-5d561c511354/page/l44CB?fbclid=IwAR0kCntVO1K2dfcvsmpjN0FZUu_ehGfXnlE5sjDHMNFrHQxtS8jhI0Hg]. Accessed July 29, 2020

[2] Ministry of Health and Sports. [<https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/>]. Facebook. Accessed July 29, 2020.

[3] Ministry of Health and Sports. "Annual Public Health Statistics."

<https://mohs.gov.mm/cat/Annual%20Public%20Health%20Statistics?pagenumber=1&pagesize=40>. Accessed Sept 12 2020.

[4] Ministry of Health and Sports. "Health Management Information System". [<https://www.mohs.gov.mm/e-hmisdashboard.html>]. Accessed Aug 25, 2020

[5] Ministry of Health and Sports. "Hospital Statistics Report (2014-2016)".

[<http://mohs.gov.mm/Main/content/publication/hospital-hospital-statistics-report-2014-16>]. Accessed Aug 25, 2020

[6] Ministry of Health and Sports.

[<https://mohs.gov.mm/cat/Annual%20Public%20Health%20Statistics?pagenumber=1&pagesize=40>]. Accessed Aug 25, 2020

[7] Ministry of Health. <https://www.mohs.gov.mm/>. Accessed 25 Aug 2020.

[8] National Health Laboratory. <https://nhlmyanmar.gov.mm/>. Accessed 25 Aug 2020

[9] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalintpt>. Facebook. Accessed 25 Aug 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

Myanmar has a de-identified health surveillance data on infectious diseases publicly available via reports/surveillance dashboards on government websites. The Ministry of Health has a Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard updated at least twice per day on their official website that lists total specimens tested, lab confirmed positives,

number of persons under investigation and lab confirmed death cases. [1] The Ministry of Health and Sports also publishes aggregated reports on the COVID-19 outbreak on their Facebook page daily . [2]

[1] Ministry of Health and Sports. "COVID-19 Myanmar Surveillance Dashboard." [https://datastudio.google.com/u/0/reporting/445c1281-c6ea-45e4-9bc0-5d561c511354/page/l44CB?fbclid=IwAR0kCntVO1K2dfcvsmpjN0FZUu_ehGfXnIE5sjDHMNFrfHQxtS8jhIOHg]. Accessed July 29, 2020

[2] Ministry of Health and Sports. [https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/]. Facebook. Accessed July 29, 2020.

2.4.4 Ethical considerations during surveillance

2.4.4a

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

Yes = 1 , No = 0

Current Year Score: 0

Myanmar does not have specific laws, regulations, or guidelines that safeguard the confidentiality of identifiable health information for individuals through health surveillance activities. There is the Law Relating to Private Health Care Services published in 2007 that prohibits sharing of patient health matter except when requested by the Ministry of Health.[7] Therefore, the law safeguard information to an extent (not to the government). Neither the Ministry of Health and Sports or the Ministry of Agriculture, Livestock and Irrigation share additional relevant information via their official public websites [1, 2]. The Ministry of Health and Sports has an official Facebook page for Myanmar Center for Disease Control that publishes outbreaks/risk areas and none of them identifies any individuals responsible [3]. The coronavirus 2019 dashboard shares only the township of residence for the confirmed coronavirus cases on the Ministry of Health's website while the Ministry of Health's facebook page shares name and age of the confirmed case. [3, 8] The Ministry of Health and Sports public website does not publish any rules and guidelines regarding confidentiality of identifiable health information for individuals [4]. Myanmar's 2013 Telecommunications Law also prohibits disclosure of confidential and personal information to irrelevant persons or persons without a court order when obtaining information stored in secured or encrypted systems. However, the law is not specific to health surveillance activities [5]. The National Health Laboratory's website does not contain information on rules regarding the confidentiality of identifiable health information either. [6]

[1] Ministry of Health and Sports. [http://mohs.gov.mm/search?question=confidentiality]. Accessed 2 August 2020.

[2] Ministry of Agriculture, Livestock and Irrigation.[https://www.moali.gov.mm/en/search/node/confidentiality]. Accessed 2 August 2020

[3] Myanmar CDC. [https://www.facebook.com/MyanmarCDC/]. Facebook. Accessed 2 August 2020

[4] Ministry of Health and Sports. [http://mohs.gov.mm/search?question=confidential]. Accessed 2 August 2020

[5] Ministry of Transport and Communication. 8 October 2013. "The Telecommunications Law". [https://www.motc.gov.mm/sites/default/files/Telecom%20Law%28Eng%29.pdf]. Accessed 2 August 2020

[6] National Health Laboratory.[https://nhlmyanmar.gov.mm/search/node/dual-use]. Accessed 31 July 2020

[7] Ministry of Health and Sports. 2007. "Health Policy Mapping." [http://mohs.gov.mm/su/10EwLV]. Accessed 2 Aug 2020.

[8] Ministry of Health. "Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard (Myanmar)". [https://mohs.gov.mm/Main/content/publication/2019-ncov]. Accessed 3 Aug 2020

2.4.4b

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

Yes = 1, No = 0

Current Year Score: 0

There is no evidence that the laws safeguarding the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, include mention of protection from cyber attacks (e.g., ransomware). Neither the Ministry of Health and Sports, the National Health Laboratory nor the Ministry of Agriculture, Livestock and Irrigation share relevant information on cyber attacks via public websites [1, 2, 6]. Cyber attacks are not mentioned, explicitly or implicitly on any of Myanmar's related laws including Myanmar Telecommunications Law (No. 31/2013) and Electronic Transactions Law (No 5/2004) [3, 4]. The Law Relating to Private Health Care Services published in 2007 that prohibits sharing of patient health matter except when requested by the Ministry of Health does not mention cyber attacks as well. [7] There is no law or regulation regarding data protection or cybersecurity, although there is speculation that a cybersecurity/cybercrime law is currently being drafted [5].

[1] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=confidentiality>]. Accessed 31 July 2020

[2] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/en/search/node/confidential>]. Accessed 31 July 2020.

[3] Ministry of Transport and Communication. 8 October 2013. "The Telecommunications Law (2013)". [<https://www.motc.gov.mm/sites/default/files/Telecom%20Law%28Eng%29.pdf>]. Accessed 31 July 2020.

[4] Union of Myanmar. 30 April 2004. "The Electronic Transactions Law". [<https://www.myanmarconstitutionaltribunal.org.mm/lawdatabase/en/law/1485>]. Accessed 31 July 2020.

[5] Myanmar Responsible Business Organization. September 2015. "Sector Wide Impact Assessment of Myanmar's ICT sector". [<https://www.myanmar-responsiblebusiness.org/swia/ict.html>]. Accessed 31 July 2020.

[6] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/dual-use>]. Accessed 31 July 2020

[7] Ministry of Health and Sports. 2007. "Health Policy Mapping." [<http://mohs.gov.mm/su/10EwLV>]. Accessed 2 Aug 2020.

2.4.5 International data sharing

2.4.5a

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

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

Current Year Score: 2

Myanmar has made commitments via public statements and cooperative agreements to share surveillance data during a public health emergency with other countries in the region for more than one disease. Following the declaration of COVID-19 as a public health emergency of international concern (PHEIC) by the World Health Organization, the Ministry of Health & Sports met with international organizations, development partners and UN agencies and set up a COVID-19 Myanmar Surveillance Dashboard available to the public as well as partners. [1,2] In 2019, Myanmar also shared data on Wild Poliovirus with the World Health Organization, concerning an outbreak of circulating vaccine derived polioviruses (cVDPV), considered a PHEIC, which was reviewed by the Emergency Committee of WHO. [3] There is also a continuous flow of information between WHO and Myanmar's government regarding epidemiological information. [4] Myanmar is also part of the Mekong Basin

Disease Surveillance (MBDS) network whose goals include sharing surveillance data to control disease outbreaks. [5,6]
Diseases include H1N1/H5N1, AFP, SARS, Encephalitis, Tetanus and Meningitis [7]

- [1] World Health Organization. 4 March 2020. "Coronavirus disease (Covid-19) update as at 4 March 2020".
[[https://www.who.int/myanmar/news/detail/04-03-2020-coronavirus-disease-\(covid-19\)-update-as-at-4-march-2020](https://www.who.int/myanmar/news/detail/04-03-2020-coronavirus-disease-(covid-19)-update-as-at-4-march-2020)].
Accessed May 12, 2021
- [2] Ministry of Health and Sports. "COVID-19 Myanmar Surveillance Dashboard."
[https://datastudio.google.com/u/0/reporting/445c1281-c6ea-45e4-9bc0-5d561c511354/page/l44CB?fbclid=IwAR0kCntVO1K2dfcvsmpjN0FZUu_ehGfXnIE5sjDHMNFrfHQxtS8jhIOHg]. Accessed May 12, 2021
- [3] World Health Organization. 3 Oct 2019. "Statement of the Twenty-Second IHR Emergency Committee Regarding the International Spread of Poliovirus". [<https://www.who.int/news-room/detail/03-10-2019-statement-of-the-twenty-second-ihr-emergency-committee-regarding-the-international-spread-of-poliovirus>]. Accessed May 12, 2021
- [4] Kyaw Phyo Tha. 1 July 2020. "WHO Country Chief Urges Myanmar to Sustain ;Amazing' COVID-19 Response." The Irrawaddy. [<https://www.irrawaddy.com/in-person/country-chief-urges-myanmar-sustain-amazing-covid-19-response.html>]. Accessed May 12, 2021
- [5] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed May 12, 2021
- [6] Mekong zBasin Disease Surveillance. "About Us." <https://mbdsnet.org/about-us/>. Accessed May 12, 2021
- [7] Mekong zBasin Disease Surveillance. "MBDX XB Map" <https://mbdsnet.org/wp-content/uploads/2021/03/MBDS-XB-Infomrtion-1.pdf>. Accessed May 14, 2021

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

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

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

Current Year Score: 2

There is publicly available evidence that there is national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of an active or future public health emergency.

There is evidence that training for contract tracing was held often in different parts of Myanmar such as in Sittwe, Taungtha and Ayeyarwaddy Region in 2019 by the Ministry of Health and Sports. [1] Additionally, there are reports that the government is relying on volunteers for contact tracing efforts such as in the case of Multi-drug-resistant tuberculosis (MDR-TB) and COVID-19. [2, 3] During several contact tracing efforts for COVID-19, more than 80+ volunteers total were employed in two separate townships. [4, 5] Proposal for funding covers training for health workers, clinical staff and laboratory personals. However, there is no mention of training, standardisation, or funding for expanding contact tracing efforts across efforts. [6]

Contact tracing is not mentioned in the National Action Plan for Health Security (NAPHS) 2018-2022 or the draft of National Action Plan for Containment of Antimicrobial Resistance 2017-2022. [7, 8] The Human Influenza Pandemic Preparedness and Response published in 2006 mentions contact tracing but without specifics on how it will be expanded during a public health emergency. It did, however, mentions a subcommittee on surveillance and response that will oversee contacts. [9] There is no further evidence on the Ministry of Health and the National Health Laboratory's public website. [10, 11]

[1] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=Contact+Tracing>]. Accessed 5 Aug 2020.

[2] Aung Phay Kyi Soe and Naing Aung. 06 July 2020. "Myanmar govt contact tracing capability works overdrive over flouter returnee." The Myanmar Times. [<https://www.mmtimes.com/news/myanmar-govt-contact-tracing-capability-works-overdrive-over-flouter-returnee.html>]. Accessed 5 Aug 2020.

[3] Department of Public Health. "Role of community volunteers in Patient-centered Community- based MDR-TB care in Yangon Region, Myanmar".

[http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/64th+MMA+Power+Point_2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=4.+MDR-TB+care+.pdf]. Accessed 5 Aug 2020.

[4] San Yamin Aung. 12 May 2020. "Intensive contact tracing will be Prioritized: Yangon COVID-19 Response Committee" [<https://www.irrawaddy.com/in-person/intensive-contact-tracing-will-prioritized-yangon-covid-19-response-committee.html>]. Accessed 5 Aug 2020.

[5] Ministry of Health and Sports. 25 May 2020. "CONTACT TRACING ACTIVITIES AT NO.

[16] WARD, MALA MYAING

[8] STREET". [<https://www.mohs.gov.mm/page/10207>]. Accessed 5 Aug 2020.

[6] The World Bank. 2 April 2020. "Project Appraisal Document".

[<http://documents1.worldbank.org/curated/en/185931587609194332/pdf/Myanmar-COVID-19-Emergency-Response-Project.pdf>

[2]. Accessed 5 Aug 2020.

[7] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022".

[[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 5 Aug 2020.

[8] Ministry of Health and Sports. July 2017. "National Action Plan for Containment of Antimicrobial Resistance 2017-2022 (draft)".

[https://apps.who.int/datacol/answer_upload.asp?survey_id=666&view_id=722&question_id=13163&answer_id=19958&respondent_id=249312]. Accessed 5 Aug 2020.

[9] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020

[10] Ministry of Health. <https://www.mohs.gov.mm/>. Accessed 25 Aug 2020.

[11] National Health Laboratory. <https://nhlmyanmar.gov.mm/>. Accessed 25 Aug 2020

2.5.1b

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

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

Current Year Score: 0

There is no publicly available evidence that Myanmar 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. Media reporting on coronavirus in Myanmar (Anadolu Agency, Irrawaddy Myanmar, Eleven Myanmar, Burma News International) do not mention economic support in terms of job security and/or paycheck or medical attention for those asked to self-isolate. [1, 2, 3, 4, 5, 6] There are food rations given out to the general public and meals provided for some quarantine sites although these seems to be the case for some states and not on a national level. [4, 5, 6] Reports on outbreaks on foot and mouth diseases in 2017 and 2018 did not mention wraparound services offered. [7, 8] Reports on the Schistosomiasis outbreak or the Measles outbreak in 2019 did not mention wraparound services nor cases/suspected cases isolating. [9,10] The National Health Plan (2017-202) and National Action Plan for Health Security 2018-2022 has no mention of wraparound services for cases and suspected cases to self-isolate either. [11, 12] No further evidence is available on the Ministry of Health, National Health Laboratory or Ministry of Information public websites. [13, 14, 15, 16]

[1] Kyaw Ye Lynn. Anadolu Agency. "Myanmar announces first two cases of coronavirus". [<https://www.aa.com.tr/en/asia-pacific/myanmar-announces-first-two-cases-of-coronavirus/1776851>]. Accessed 6 Aug 2020.

[2] Irrawaddy Myanmar. April 3, 2020. "Latest COVID-19 Developments in Myanmar:" [<https://www.irrawaddy.com/specials/myanmar-covid-19/latest-covid-19-developments-myanmar-april-3-2020.html>]. Accessed 6 Aug 2020.

[3] Eleven Myanmar. 31 May 2020. Private quarantine facilities at own cost offered to returning foreigners. [<https://elevenmyanmar.com/news/private-quarantine-facilities-at-own-cost-offered-to-returning-foreigners>]. Accessed 6 Aug 2020.

[4] United Nations. 15 July 2020. "WFP steps up food assistance and logistics support to help fight COVID-19 in Myanmar". [<https://myanmar.un.org/en/53123-wfp-steps-food-assistance-and-logistics-support-help-fight-covid-19-myanmar>]. Accessed 6 Aug 2020.

[5] Burma News International. 13 April 2020. "Food Donations Not Enough For Families During COVID-19 Lockdown". [<https://www.bnionline.net/en/news/food-donations-not-enough-families-during-covid-19-lockdown>]. Accessed 6 Aug 2020.

[6] Wunna, Sai. 29 April 2020. "Shan armed group seeks food for quarantined people." [<https://www.mmtimes.com/news/shan-armed-group-seeks-food-quarantined-people.html>]. Accessed 6 Aug 2020.

[7] Lin Lin Bo et al., 2018. "Foot and mouth disease outbreaks due to an exotic serotype Asia 1 virus in Myanmar in 2017". *Transboundary and Emerging Diseases*

[12]. https://www.researchgate.net/publication/329899281_Foot-and-mouth_disease_outbreaks_due_to_an_exotic_serotype_Asia_1_virus_in_Myanmar_in_2017. Accessed 14 Sept 2020.

[8] The Cattle Site. 25 May 2018. "OIE Reports FMD Outbreaks in Myanmar" <https://www.thecattlesite.com/news/53003/oie-reports-fmd-outbreaks-in-myanmar/>. Accessed 14 Sept 2020.

[9] Outbreak News Today. 2 July 2019. "Schistosomiasis: 200 cases reported in Rakhine state, Myanmar." <http://outbreaknewstoday.com/schistosomiasis-200-cases-reported-in-rakhine-state-myanmar-18692/>. Accessed 14 Sept 2020.

[10] Outbreak News Today. 13 March 2019. <http://outbreaknewstoday.com/myanmar-reports-measles-death-measles-vaccination-campaign-yangon-49499/>. Accessed 14 Sept 2020.

[11] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)". [<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 6 Aug 2020.

[12] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022". [[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 15 Sept 2020

[13] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 15 Sept 2020.

[14] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 15 Sept 2020.

[15] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 15 Sept 2020.

[16] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 15 Sept 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

Myanmar makes de-identified data on contact tracing efforts for COVID-19 available via daily reports on government websites. The Ministry of Health publishes information daily on confirmed cases from laboratory test inspections which includes whether or not the confirmed case has had contact with another confirmed case (mentioning the case number) both on the Ministry's public website and official Facebook. [1,2] The Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard has a separate link to COVID-19 Contact Tracing and Reporting. [3,4] The page have specific tabs for Case numbers of laboratory confirmed patients, places they went, the vehicle used as well as notes that specify the time/date of arrival at specific points. For example, the tab for Case 150 lists whether or not the person had contact with patients that had a laboratory confirmed positive of COVID-19 (he didn't) as well as his travel history from 20/3/2020 to 13/4/2020. There is however, no more travelling sites published for the rest of the confirmed cases. Myanmar currently has 474. [3,4] On the facebook page, announcements of new confirmed cases has a remark column on whether the patient was under isolation or not before the test was confirmed. [2]

[1] Ministry of Health. "Press release on COVID-19 Disease Surveillance." [<https://www.mohs.gov.mm/page/11681>]. Accessed 3 Aug 2020.

[2] Ministry of Health and Sports.Facebook. [<https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/>]. Accessed 3 Aug 2020.

[3] Ministry of Health and Sports. "Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard". <https://mohs.gov.mm/Main/content/publication/2019-ncov>. Accessed 25 Aug 2020.

[4] Ministry of Health and Sports"COVID-19 Contact Tracing and Reporting". <https://mohs.gov.mm/page/8509>. Accessed 25 Aug 2020.

2.5.2 Point of entry management

2.5.2a

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

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

Current Year Score: 0

There is insufficient evidence of joint plans or cooperative agreements between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts for active health emergencies.

According to the Avian Influenza and Human Influenza Pandemic Preparedness and Response published in 2006, there are protocols for cooperation with the Ministry of Transport and Ministry of Health to monitor health measures at airports and border crossing in case of an outbreak. However, there is no evidence this is applicable to any other type of outbreaks and public health emergencies[1]

For the COVID-19 pandemic, arrivals to Myanmar are subject to a 14-day government facility quarantine and is managed by the Ministry of Foreign Affairs while the Ministry of Health and Sports prepare staff/equipment and medical supplies for those in quarantine. [2,3] The inter-ministerial committee formed by the President to coordinate COVID-19 cases' main function is contact tracing efforts. Although the committee includes the Defense Ministry, Transport and Communication Ministry, Home Affairs Ministry and the Chief of General Staff from the Office of the Commander-in-Chief (Army), the committee does not have a representative from the Ministry of Health and Sports. [4] Contact tracing efforts are mainly carried out by volunteers in response to the State Counselor's (chair of the COVID committee) request. [5] However, there is no evidence that this is applicable to other public health emergencies.

The Joint External Evaluation on Myanmar published in 2017 notes that although there is a national disaster management committee, no formal agreements or protocols are in place linking public health and security agencies. [6] The National Action Plan for Health Security 2018-2022 states national plans to develop "draft agreement between public Health and Security Organizations for better coordination and response to biological Events". [7]

There is no further evidence of joint plans or cooperative agreements 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 (not limiting to one disease) on the Ministry of Health and Sports, Ministry of Defense, Ministry of Home Affairs (official facebook), Ministry of Social Welfare, Relief and Resettlement or the Ministry of Agriculture, Livestock and Irrigation public websites. [8, 9, 10, 11, 12]

[1] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020

[2] Tint Zaw Tun. 15 July 2020. "Flood of returning Myanmar workers strains quarantine capacity." The Myanmar Times. [<https://www.mmtimes.com/news/flood-returning-myanmar-workers-strains-quarantine-capacity.html>]. Accessed 6 Aug 2020.

[3] Nan Lwin. 24 March 2020. "Myanmar to Quarantine Arrivals from All Countries Over COVID-19". The Irrawaddy. [<https://www.irrawaddy.com/news/burma/myanmar-quarantine-arrivals-countries-covid-19.html>]. Accessed 6 Aug 2020.

[4] Aye Nyein Win. 31 March 2020. "Myanmar leader forms new anti-covid-19 committee". The Myanmar Times. [<https://www.mmtimes.com/news/myanmar-leader-forms-new-anti-covid-19-committee.html>]. Accessed 6 Aug 2020.

[5] Aung Phay Kyi Soe and Naing Aung. 6 July 2020. " Myanmar govt contact tracing capability works overdrive over flouter returnee". The Myanmar Times. [<https://www.mmtimes.com/news/myanmar-govt-contact-tracing-capability-works-overdrive-over-flouter-returnee.html>]. Accessed 6 Aug 2020.

[6] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 August 2020.

[7] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022". [[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 15 Sept 2020

[8] Ministry of Health and Sports. <https://mohs.gov.mm/Home> Accessed 15 Sept 2020

[9] Ministry of Defense. <https://mod.gov.mm/>. Accessed 15 Sept 2020

[10] Ministry of Home Affairs. <https://www.facebook.com/officemohamyanmar/>. Facebook. Accessed 15 Sept 2020

[11] Ministry of Social Welfare, Relief and Resettlement. <http://www.moswrr.gov.mm/>. Accessed 15 Sept 2020

[12] Ministry of Agriculture, Livestock and Irrigation. <https://www.moali.gov.mm/>. Accessed 15 Sept 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

Myanmar has applied epidemiology training program (such as FETP) available in the country as well resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs (such as FETP). However, it is unclear whether the training abroad is funded by the government or solely through regional networks/NGOs. According to the Joint External Evaluation completed in May 2017 and the official program description by the Ministry of Health and Sports, Myanmar FETP has two types of courses : the intermediate (9-month) and the shorter frontline course (1-3 months)[1,4]. The program description does not mention training programs abroad. [4] Students are selected from these courses to go on to attend regional FETP training programs (eg. FETP Thailand). Several students have been sent to Massey University by the New Zealand Agency for International Development (NZAID)[2]. Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) also have plans to provide funding for two Burmese FETP trainees to participate in the international field epidemiology training program in Thailand [3]. Selected trainees from the Myanmar FETP program have also participated in the regional FETPs in India as well in courses ranging from 3 months to 2 years. [5]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 30 July 2020.

[2] 2018 DFAT Indo-Pacific Centre for Health Security. 8 November 2018. "Myanmar report- Southeast Asia Health Security Scoping Mission".

[<https://indopacifichealthsecurity.dfat.gov.au/sites/default/files/FINAL%20Myanmar%20Country%20Report%20-%20190114.pdf?v=1547430308>]. Accessed 30 July 2020.

[3] TEPHINET. "Support to the Burma Field Epidemiology Program". [<https://www.tephinet.org/support-to-the-burma-field-epidemiology-training-program>]. Accessed 30 July 2020.

[4] Ministry of Health and Sports. "FETP-Intermediate Implementation in Myanmar". [<http://mohs.gov.mm/su/xcYEd8>]. Accessed July 31 2020.

[5] ASEAN plus three. "Field Epidemiology Training Programs." [http://www.aseanplus3fetn.net/read_more_pdf/FETNP21-

30.pdf]. Accessed 31 July 2020.

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

The available field epidemiology training programs in Myanmar include animal health professionals, although there is no specific animal health field epidemiology training program offered (such as FETPV) in Myanmar. The official program description by the Ministry of Health and Sports states that both medical officers and animal health professionals (veterinarians) working in disease control are allowed to apply. [1] According to the Joint External Evaluation (JEE) for Myanmar, completed in May 2017, veterinarians undergo the same basic programs as doctors and other health professionals. Joint public health which includes Joint Field Epidemiology Training Programme (FETP) training is offered to animal health veterinary staff within the country [2]. Myanmar has also sent veterinarians for veterinary epidemiology abroad with support from the New Zealand Agency for International Development [3]. Myanmar is a member of the Regional Field Epidemiology Training Program for Veterinarians (Southeast Asia), which is the only training veterinary epidemiology program available in the region. [4]

[1] Ministry of Health and Sports. "FETP-Intermediate Implementation in Myanmar". [<http://mohs.gov.mm/su/xcYE8>]. Accessed July 31 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[3] 2018 DFAT Indo-Pacific Centre for Health Security. 8 November 2018. "Myanmar Report—Southeast Asia Health Security Scoping Mission".

[<https://indopacifichealthsecurity.dfat.gov.au/sites/default/files/FINAL%20Myanmar%20Country%20Report%20-%20190114.pdf?v=1547430308>]. Accessed 31 July 2020.

[4] Training Programs in Epidemiology and Public Health Interventions Network. "Regional Field Epidemiology Training Program for Veterinarians (Southeast Asia)". <https://www.tephinet.org/training-programs/regional-field-epidemiology-training-program-for-veterinarians-southeast-asia>. Accessed 25 Aug 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: 1

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 1

There is evidence that disease-specific plans are in place in Myanmar, but there is no evidence of an overarching plan.

There is no evidence of an overarching plan on the Ministry of Health, Myanmar National portal, or the National Health Laboratory's public websites. [1,2,3] Myanmar's emergency operation centers do not have a public website.

There is a 'Health Emergency: Preparedness and Response' Plan, which addresses multiple communicable disease but only in the context of disaster management. [4] There is no evidence that this plan serves as the overarching emergency response plan in case of a public health emergency or disease outbreak when unrelated to a physical or natural disaster. [1, 2, 3]

The Pandemic Preparedness and Response plan, created in 2006, addresses planning for Avian Influenza and other pandemic phases (inter-pandemic phase/pandemic alert). The plan does not specify it can be applied to other types of outbreaks other than influenza pandemic [5].

The Early Warning, Alert, and Response System (EWARS) also contains a list of outbreak control teams at various levels of the government and the hierarchy of response and reporting to control for morbidity and mortality in case of an outbreak. The Outbreak Control Team includes a range of skills and expertise from different levels of government and different combination of epidemiologist, medical officers, health assistants, and laboratory technicians depending on the suspected disease, available resources, and required control measure [6].

The Guideline for Disease Surveillance also includes response plans for diseases such as Dysentery, Acute Jaundice, Typhoid, food poisoning due to *Salmonella typhimureum*/*Clostridium welchii*, measles and meningococcal meningitis [7]. There is also a strategic response framework for Zika, with subcommittees on confirmation and verification, clinical management, laboratory investigation, as well as International Coordination & Logistic and Supply [8].

[1] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 10 May 2021.

[2] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 10 May 2021.

[3] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 10 May 2021.

[4] Ministry of Health and Sports. 2017. "Preparedness and Response to Health Emergency Plan". [<https://www.mohs.gov.mm/page/4076>]. Accessed 10 May 2021.

[5] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national->

strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response]. Accessed 10 May 2021.

[6] Ministry of Health and Sports. 18 December 2018. "Early Warning, Alert and Response System (EWARS) ". [http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english]. Accessed 10 May 2021.

[7] Ministry of Health and Sports. June 2014. "Guideline for Disease Surveillance". [http://mohs.gov.mm/Main/content/publication/surveillance-guideline-for-disease-surveillance http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/CEU/CEU_May+2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=3.+Guideline+for+Disease+Surveillance.pdf]. Accessed 10 May 2021.

[8] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection]. Accessed 10 May 2021.

3.1.1b

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

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

Current Year Score: 0

Although Myanmar has national public health emergency response plans in place which addresses planning for multiple communicable diseases with pandemic potential, there is no overarching plan in place. An overarching plan is not available on the Ministry of Health, Myanmar National portal, National Health Laboratory or the Ministry of Information public website. [1, 2, 3, 4]. The Pandemic Preparedness and Response plan, created in 2006 planning for Avian Influenza and other pandemic phases, has not been updated since [5]. The Guideline for Disease Surveillance, published 2014, also includes response plans for diseases such as Dysentery, Acute Jaundice, Typhoid, food poisoning due to Salmonella typhimureum/Clostridium welchii, measles and meningococcal meningitis [6]. There is also a strategic response framework for Zika, published 2016, with subcommittees on confirmation and verification, clinical management, laboratory investigation, as well as International Coordination & Logistic and Supply. [7] There is also a Preparedness and Response to Health Emergency Plan that includes communicable diseases also part of Disaster Management available on the Ministry of Health's website. [8] The interagency Emergency Response Preparedness (ERP) Plan for Myanmar 2017 has response plans for tuberculosis & communicable diseases in pandemics. There are general coordination arrangements, arrangements for when disaster strikes and outlines of roles and responsibilities of several organizations on what they have to lead/assist in. For example, the health sector consisting of WHO and UN Population Fund is responsible to prevent further spread of communicable diseases ensuring that a proper surveillance system is in place. The Myanmar Medical Association (MMA), Myanmar Nurse and Midwife Association (MNMA), and Myanmar Health Assistant Association (MHAA) provide trained staff for the medical response. The plan however, is not an official plan by the government but rather is by non-governmental agencies that works with the Ministry of Social Affairs [9].

[1] Ministry of Health and Sports. [https://www.mohs.gov.mm/]. Accessed 25 Aug 2020.

[2] Myanmar National Portal. [https://myanmar.gov.mm/]. Accessed 25 Aug 2020.

[3] National Health Laboratory. [https://nhlmyanmar.gov.mm/]. Accessed 25 Aug 2020.

[4] Ministry of Information. [https://www.moi.gov.mm/]. Accessed 25 Aug 2020.

[5] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response]. Accessed 28 July 2020.

[6] Ministry of Health and Sports. June 2014. "Guideline for Disease Surveillance".

[<http://mohs.gov.mm/Main/content/publication/surveillance-guideline-for-disease-surveillance>
http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/CEU/CEU_May+2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=3.+Guideline+for+Disease+Surveillance.pdf].
Accessed 29 July, 2020.

[7] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 29 July, 2020.

[8] Ministry of Health and Sports. "Preparedness and Response to Health Emergency Plan". [<https://www.mohs.gov.mm/page/4076>]. Accessed 29 July, 2020.

[9] Humanitarian Country Team. June 2017. "Interagency Emergency Response Preparedness (ERP) Plan for Myanmar". [https://reliefweb.int/sites/reliefweb.int/files/resources/hct_inter-agency_emergency_preparedness_plan_june_2017.pdf]. Accessed 29 July, 2020

3.1.1c

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

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

Current Year Score: 0

Although Myanmar has national public health emergency response plans in place which addresses planning for multiple communicable diseases with pandemic potential, there is no overarching plan in place that accounts for the needs of vulnerable population. There are, however, mentions of vulnerable populations in the more specific plans. The interagency Emergency Response Preparedness (ERP) Plan for Myanmar 2017 has priority for women (especially pregnant and lactating women) and emergency learning for children during an emergency. The plan however, is not an official plan by the government but rather is by non-governmental agencies that works with the Ministry of Social Affairs[1]. The Guideline for Disease Surveillance and the strategic response framework for Zika published in 2016 explicitly mentions priority groups that include "pregnant women, high risk group, health care personnels, young age (under 5) , older age groups (above 65), persons with chronic diseases". [2] The Joint External Evaluation report on Myanmar from 2017 has no mention of vulnerable populations [3]. There is no evidence of an overarching plan with considerations for pediatric and other vulnerable population on the Ministry of Health, Myanmar National portal, National Health Laboratory or the Ministry of Information public website. [5,6,7, 8]

[1] Humanitarian Country Team Myanmar. June 2017. "Interagency Emergency Response Preparedness (ERP) Plan for Myanmar". [https://reliefweb.int/sites/reliefweb.int/files/resources/hct_inter-agency_emergency_preparedness_plan_june_2017.pdf]. Accessed 30 July 2020..

[2] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020

[3] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 30 July 2020

[5] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.

[6] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.

[7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.

[8] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.

3.1.1d

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

Yes = 1, No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1, No = 0

Current Year Score: 1

Myanmar has a specific mechanism for engaging with the private sector, specifically private laboratories, to assist with outbreak emergency preparedness and response. For the National Tuberculosis Programme, private laboratories were included in an network of public and private laboratories for sputum microscopy. [1,2] In the Myanmar Action Plan for Disaster Risk Reduction published in 2017, there is a Myanmar Private Sector Disaster Management Network (MPD-Network) platform of the private sector participation in disaster management for financial, technical and human resource assistance. The plan also mentions the involvement of the private media and communication networks for a communication plan for Myanmar Action Plan for Disaster Risk Reduction (MAPDRR) implementation. Although the plan doesn't explicitly cover health outbreak emergency preparedness, epidemics and disease control and response are mentioned as part of the overall approach and objective of the disaster risk management plan [3].

[1] World Health Organization. 2018. "rGLC Country support mission report." [https://www.who.int/docs/default-source/searo/tuberculosis/rglc-report--myanmar--2018.pdf?sfvrsn=16d31f38_2]. Accessed 31 July 2020.

[2] Ministry of Health and Sports. June 2018. "National Tuberculosis Programme Myanmar Annual Report: 2016." [<http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/DPH/Disease+Control/TB/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=Annual+Report+2016,+National+Tuberculosis+Programme+Myanmar.pdf>]. Accessed 31 July 2020.

[3] Ministry of Social Welfare, Relief and Resettlement. 2017. "Myanmar Action Plan for Disaster Risk Reduction (MAPDRR)". [http://www.rrdmyanmar.gov.mm/?page_id=102]. Accessed July 31, 2020.

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

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

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

Current Year Score: 2

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

The Human Influenza Pandemic Preparedness and Response (2006) states that it can be adopted for "avian influenza/pandemic influenza." The "Human Influenza Pandemic Phase" is declared when there is a "(a) Global human influenza pandemic announced by World Health Organization (WHO) and b) Efficient and sustained human-to-human transmission in more than one country". Strategic actions will be taken as in Human Influenza Pandemic Alert Level II which includes "social distancing, prophylaxis for essential workers and maintenance of essential services". In the plan there are budgets included to enforce NPIs such as social distancing and the enforcing of social distancing from 2006-2008. [1] The NPI, social distancing, is also included in the 'Myanmar Health Sector Contingency Plan for COVID-19'. [2]

The 'National Action Plan for Health Security (2018-2022)', published in October 2018, however, does not mention NPIs. [3] There is no evidence of NPIs listed in the country's National Strategic Plans for Zika. [4] No further evidence is available on the Ministry of Health, Myanmar National portal, National Health Laboratory or the Ministry of Information public website. [5, 6, 7, 8]

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 5 Aug 2020.

[2] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf>]. Accessed 5 Aug 2020.

[3] The World Bank. "Myanmar COVID-19 Emergency Response Project". [<https://projects.worldbank.org/en/projects-operations/project-detail/P173902>]. Accessed 6 Aug 2020.

[4] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.

[5] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.

[6] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.

[7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.

[8] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 1

There is evidence that Myanmar has completed a national-level biological threat-focused exercise with WHO in the past year. There is also evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year.

The National Institute for Environmental Studies and the World Health Organization both reported a simulation exercise on a Health Emergency Operations Center Plan based on a pandemic influenza outbreak scenario during 2019. [1, 2] This is further confirmed by the WHO website on the Strategic Partnership for International Health Regulations and Health Security. [3] Myanmar has also activated its National COVID-19 Emergency Response Plan and financed within the past year. [4] There is also proof of outbreak response during the vaccine-derived polio virus type 1 (cVDPV1) outbreak in Myanmar in 2019. [5, 6]

- [1] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.." [https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.
- [2] World Health Organization. "Simulation Exercises." [https://extranet.who.int/sph/simulation-exercise]. Accessed 6 Aug 2020.
- [3] Professor Hla Hla Win. 2 March 2020. "Disaster prevention and management in Myanmar". [http://www.nies.go.jp/i-forum/jqjm1000000h0hx0-att/jqjm1000000i8ivm.pdf]. Accessed 3 August 2020.
- [4] The World Bank. "Myanmar COVID-19 Emergency Response Project". [https://projects.worldbank.org/en/projects-operations/project-detail/P173902]. Accessed 6 Aug 2020.
- [5] Travel Health Pro UK. 29 July 2019. "MYANMAR: NEW OUTBREAK OF CIRCULATING VACCINE-DERIVED POLIOVIRUS (CVDPV)". [https://travelhealthpro.org.uk/news/446/myanmar-new-outbreak-of-circulating-vaccine-derived-poliovirus-cvdpv]. Accessed 6 Aug 2020.
- [6] WHO. 22 Aug 2019. "Circulating vaccine-derived poliovirus type 1 - Myanmar". [https://www.who.int/csr/don/22-august-2019-polio-myanmar/en/]. Accessed 6 Aug 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: 1

There is evidence of an after-action review conducted in Myanmar. The WHO After Action Review page highlights that an AAR was conducted in Myanmar in December 2019. However, there is no further following evidence of a report being developed or published following the exercise. [5] The National Institute for Environmental Studies and the World Health Organization both reported a simulation exercise on a Health Emergency Operations Center Plan based on a pandemic influenza outbreak scenario during 2019. [1,2] This is further confirmed by the World Health Organization website on the Strategic Partnership for International Health Regulations and Health Security. [3] No further evidence can be found World Health Organization after action review portal or Ministry of Health, Ministry of Information, Ministry of Agriculture, Livestock and Irrigation and National Health Laboratory's public website regarding the simulation exercise held in 2019 nor press release regarding plans/documents to identify gaps and improve capacities. [4,5,6,7, 8]

- [1] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.." [https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.
- [2] Professor Hla Hla Win. 2 March 2020. "Disaster prevention and management in Myanmar". [http://www.nies.go.jp/i-forum/jqjm1000000h0hx0-att/jqjm1000000i8ivm.pdf]. Accessed 3 August 2020.
- [3] World Health Organization. "Simulation Exercises." [https://extranet.who.int/sph/simulation-exercise]. Accessed 6 Aug 2020.
- [4] Ministry of Health. [https://www.mohs.gov.mm]. Accessed 7 Aug 2020.
- [5] World Health Organization. "After Action Review". [https://extranet.who.int/sph/after-action-review]. Accessed 25 Aug 2020.
- [6] Ministry of Information. https://www.moi.gov.mm]. Accessed 25 Aug 2020.
- [7] National Health Laboratory. [https://nhlmyanmar.gov.mm/]. Accessed 25 Aug 2020
- [8] Ministry of Agriculture, Livestock and Irrigation.[https://www.moali.gov.mm]. Accessed 13 Sept 2020.

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available evidence that Myanmar in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives. The National Institute for Environmental Studies and the World Health Organization both reported a simulation exercise on a Health Emergency Operations Center Plan based on a pandemic influenza outbreak scenario during 2019. [1,2] However, there is no mention of private sector representatives in either of the reports. There is no further evidence on the World Health Organization Simulation Exercise webpage, Ministry of Health, Myanmar National portal, National Health Laboratory , Ministry of Information or Ministry of Defense's public website. [3,4,5,6, 7]

- [1] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.." [https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.
- [2] Professor Hla Hla Win. 2 March 2020. "Disaster prevention and management in Myanmar". [http://www.nies.go.jp/i-forum/jqjm1000000h0hx0-att/jqjm1000000i8ivm.pdf]. Accessed 3 August 2020.
- [3] World Health Organization. "Simulation Exercises." [https://extranet.who.int/sph/simulation-exercise]. Accessed 6 Aug 2020.
- [4] Ministry of Health and Sports. [https://www.mohs.gov.mm/]. Accessed 25 Aug 2020.
- [5] Myanmar National Portal. [https://myanmar.gov.mm/]. Accessed 25 Aug 2020.
- [6] National Health Laboratory. [https://nhlmyanmar.gov.mm/]. Accessed 25 Aug 2020.
- [7] Ministry of Information. [https://www.moi.gov.mm/]. Accessed 25 Aug 2020. https://mod.gov.mm/

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

Myanmar has two Emergency Operations Centers. According to the Joint External Evaluation for Myanmar completed in May 2017, the Ministry of Health and Sports has a Public Health Emergency Operations Center (PHEOC) for public health, while there is another Emergency Operations Center (EOC) in the Department of Disaster Management, Ministry of Social Welfare, Relief and Resettlement in [1]. These centers are created out of the National Disaster Management Law (31 July, 2013), one for monitoring and screening information relating to disasters and prompt dissemination of early warnings (PHEOC) and another for emergency management centre to respond to emergencies closely supervising national disaster (EOC) [2]. The National EOC in Naypyitaw works with other non-governmental organizations and ministries (eg. Ministry of Health, Myanmar Red Cross Society) for community-based diseases prevention as part of their operations as demonstrated by the flood of July 2015 in Myanmar. [3]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed July 29, 2020.

[2] Pyidaungsu Hluttaw. 31 July 2013. "National Disaster Management Law". Natural Disaster Management Centre for Monitoring and Screening Information Relating to Disasters and Prompt Dissemination of Early Warnings. Accessed July 29, 2020.

[3] International Federation of Red Cross and Red Crescent Societies. "Emergency appeal operations update 2.". [<http://adore.ifrc.org/Download.aspx?FileId=103782>]. Accessed July 29, 2020.

3.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the Emergency Operations Centers is required to conduct a drill at least once per year or that it conducts an annual drill. There is evidence in the Joint External Evaluation for Myanmar completed May 2017 that there is currently no permanent staff nor standard operating procedures, let alone a drill, for the Public Health Emergency Operations Center (PHEOC). There is also no mention of annual drills, the report even noting no functional exercise being held for a public health emergency. Training of EOC responsible persons and surge staff are also lacking. [1] Reports of the drills are not notified nor published on Myanmar CDC's public Facebook, ministry of Social Welfare, Relief and Resettlement (MoSWRR), Ministry of Health and Sport's and the National Health Laboratory's public website. [2, 3, 4, 5]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 Aug 2020.

- [2] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=emergency>]. Accessed 3 Aug 2020
- [3] Myanmar CDC. [<https://www.facebook.com/MyanmarCDC/posts/d41d8cd9/1870411069654639/>]. Facebook. Accessed 3 Aug 2020
- [4] Ministry of Social Welfare, Relief and Resettlement. [<http://www.mswrr.gov.mm>]. Accessed 3 Aug 2020
- [5] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 31 July 2020

3.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available evidence to show that the Emergency Operations Center (EOC) has conducted within the last year a coordinated emergency response activated within 120 minutes of the identification of the public health emergency/scenario. The national Institute for Environmental Studies and the World Health Organization both reported a simulation exercise on a Health Emergency Operations Center Plan based on a pandemic influenza outbreak scenario during 2019. There were plans to hold one in 2020 mentioned in the articles although there has been no confirmation of another one held in 2020. [1,2] The World Health Organization also published that an influenza public health emergency scenario exercise was carried out in 2019. However, there was no after action review to confirm whether or not it was activated within 120 minutes of identification of a health emergency. [4] There is evidence in the Joint External Evaluation completed May 2017 that there is currently no permanent staff nor standard operating procedures, let alone an exercise, for the Public Health Emergency Operations Center (PHEOC). There is also no mention of annual drills, the report even noting no functional exercise being held for a public health emergency. Training of responsible persons in the EOC and surge staff is also lacking [3]. The Ministry of Health, Myanmar National portal, National Health Laboratory, Ministry of Information, Ministry of Defense's public websites or the Ministry of Agriculture, Livestock and Irrigation and Myanmar's Center for Disease Control official facebook do not have further evidence on a coordinated emergency response exercise activated within 120 minutes of identification of a public health emergency scenario. [5, 6, 7, 8, 9, 10, 11]

- [1] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.." [https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.
- [2] Professor Hla Hla Win. 2 March 2020. "Disaster prevention and management in Myanmar". [<http://www.nies.go.jp/i-forum/jqjm1000000h0hx0-att/jqjm1000000i8ivm.pdf>]. Accessed 3 August 2020.
- [3] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 25 Aug 2020.
- [4] World Health Organization. "After Action Review." <https://extranet.who.int/sph/after-action-review>. Accessed 25 Aug 2020.
- [5] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.
- [6] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.
- [7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.
- [8] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.
- [9] Ministry of Defense. [<https://mod.gov.mm/>]. Accessed 25 Aug 2020.
- [10] Ministry of Agriculture, Livestock and Irrigation. [<https://www.facebook.com/moalinpt>]. Facebook. Accessed 25 Aug 2020.

[11] Myanmar Center for Disease Control. [<https://www.facebook.com/MyanmarCDC/>]. Facebook. Accessed 25 Aug 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

Does the country meet one of the following criteria?

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

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

Current Year Score: 0

There is no publicly available evidence that Myanmar has carried out an exercise to respond to a potential deliberate biological event; there are no 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. There is no mention of bioattacks in the Ministry of Health and Sports public website or in articles on outbreak simulation exercises [1, 2]. It is possible that simulation exercises involving emergency responses to bioterrorism are conducted (or planned to be conducted) in the National Biosafety and Biosecurity guideline. However, the document is not available publicly on the Ministry of Health and Sports' website or Ministry of Defense [2, 3]. The emergency response centers, as outlined by the Natural Disaster Management Law 2013, does not have any public website or Facebook page [4]. The National Institute for Environmental Studies and the World Health Organization both reported a simulation exercise on a Health Emergency Operations Center Plan based on a pandemic influenza outbreak scenario during 2019. The training does not mention bioterrorism [5,6]

[1] Food and Agriculture Organization of the United Nations. 29 September 2019. "Building Response Capacity for Pandemic Threats of Zoonotic Influenza in Myanmar Animal Health Services". [<http://www.fao.org/myanmar/news/detail-events/ru/c/1160566/>]. Accessed 3 August 2020.

[2] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=bioattack>]. Accessed 3 Aug 2020.

[3] Ministry of Defense. [<http://www.mod.gov.mm> Accessed 3 August 2020.

[4] Pyidaungsu Hluttaw. 31 July 2013. "Natural Disaster Management Law". [http://www.themimu.info/sites/themimu.info/files/documents/Ref_Doc_Natural_Disaster_Management_Law_31Jul2013.pdf]. Accessed 3 August 2020.

[5] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.." [https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.

[6] Professor Hla Hla Win. 2 March 2020. "Disaster prevention and management in Myanmar". [<http://www.nies.go.jp/i-forum/jqjm100000h0hx0-att/jqjm100000i8ivm.pdf>]. Accessed 3 August 2020.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

Although Myanmar has a risk communications plan, there is no evidence that either this plan or another plan outlines how messages will reach populations and sectors with different communications needs (e.g. different languages, location within country, media reach, etc.). According to the Joint External Evaluation (JEE) for Myanmar completed 2017, "risk communication at the national level is jointly led by three government departments—the Ministry of Health and Sports (MoHS), the Ministry of Information (MOI), and the Ministry of Social Welfare, Relief, and Resettlement (MSWRR). Coordination across these departments, and with other agencies, is guided by the National Disaster Standing Order as part of the National Disaster Coordination Committee mechanism. This standing order currently serves as the national risk communications plan, but is limited in its scope and level of detail". The report also states that even though major ethnic languages are available for television and 17 languages for radio channels for disseminating public health news, there is no specific outline to reach such population and sectors. It is also mentioned in the JEE that there was no formalized hazard risk communication law or plan that is coordinated and communicated to all stake holders in Myanmar. The Central Epidemiology Unit usually leads communications for public health emergencies, according to the JEE [1]. In Myanmar's Strategic Plan for Zika published in 2016, there are specific sections regarding community engagement and risk communication. The plan briefly mentioned for advocacy meeting on Zika in "all State and Regions" and to update information for the public through the Ministry of Health's website, Myanmar Center for Disease control Facebook and media interviews. No further details were given regarding different communication needs of different sectors/population.[2] The Ministry of Health and Sports public website only offers two languages, Burmese and English [3]. The Livestock Breeding and Veterinary department also lists risk communication as one of the control measures implemented by the agency for avian influenza although there are no details regarding how messages will reach population and sectors with different communication needs. [4] No further evidence is available on the Ministry of Health, Ministry of Information or the Myanmar Center for Disease Control Facebook page. [3, 5, 6]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 1 August 2020.

[2] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.

[3] Ministry of Health and Sports. [<http://mohs.gov.mm>]. Accessed 14 Sept 2020.

[4] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose+s+in+Myanmar.pdf]. Accessed July 26, 2020

[5] Ministry of Information. <https://www.moi.gov.mm/>. 14 Sept 2020.

[6] Myanmar Center for Disease Control. <https://www.facebook.com/MyanmarCDC/>. Facebook. Accessed 14 Sept 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

There is public evidence that Myanmar has in place a risk communication plan that is specifically intended for use during a public health emergency. According to the Joint External Evaluation (JEE) for Myanmar completed 2017, "risk communication at the national level is jointly led by three government departments- the Ministry of Health and Sports (MoHS), the Ministry of Information (MOI), and the Ministry of Social Welfare, Relief, and Resettlement (MSWRR). Coordination across these departments, and with other agencies, is guided by the National Disaster Standing Order as part of the National Disaster Coordination Committee mechanism. This standing order currently serves as the national risk communications plan, but is limited in its scope and level of detail" [1]. The Central Epidemiology Unit usually leads communications for public health emergencies, according to the JEE [1]. In Myanmar's Strategic Plan for Zika published in 2016, there are specific sections regarding community engagement and risk communication . [2] The Annual Report on the National Tuberculosis Programme also reports Information, Education, Communication materials being distributed for improving community awareness. [3] The Livestock Breeding and Veterinary department also lists risk communication as one of the control measures implemented by the agency for avian influenza although there are no details[4]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 August 2020.

[2] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.

[3] World Health Organization. "Review of the National Tuberculosis Programme".

[<http://www.searo.who.int/myanmar/documents/TBreviewreportbook.pdf>]. Accessed 1 August 2020.

[4] Ministry of Agriculture, Livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar ". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonoses+in+Myanmar.pdf]. Accessed 28 July 2020.

3.5.1c

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Myanmar's risk communication plan has designated a specific position within the government to serve as the primary spokesperson to the public during a public health emergency. According to the Joint External Evaluation for Myanmar completed 2017, "risk communication at the national level is jointly led by three government departments—the MoHS, the Ministry of Information (MOI), and the Ministry of Social Welfare, Relief, and Resettlement (MSWRR). Coordination across these departments, and with other agencies, is guided by the National

Disaster Standing Order as part of the National Disaster Coordination Committee mechanism. This standing order currently serves as the national risk communications plan, but is limited in its scope and level of detail". According to the JEE, the Central Epidemiology Unit usually leads communications for public health emergencies. However, there is no mention of a specific person who serves as the primary spokesperson [1]. In Myanmar's Strategic Plan for Zika published in 2016, there are specific sections regarding community engagement and risk communication with the responsibility distributed with three different government agencies -Department of Health, Department of Medical Services and HEB (the Health Education Bureau). [2] The Avian Influenza and Human Influenza Pandemic Preparedness and Response does mention a subcommittee that will coordinate with other organizations and community to update the public and various partners through various media and reports. This, however, only applies to avian influenza. [3] There is no designated primary spokesperson mentioned in the plans mentioned above nor in a presentation given by the Livestock Breeding and Veterinary Department (LBVD) representative, Ministry of Agriculture, livestock and Irrigation on One Health approach in 2018. [1,2,3, 4]. Neither the Myanmar National Portal public website, Ministry of Information public website, Myanmar Center for Disease Control Facebook nor Ministry of Health and Sports public website have further evidence. [5, 6, 7, 8]

[1] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 August 2020.

[2] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020

[3] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020.

[4] Ministry of Agriculture, livestock and Irrigation. 25 Jan 2018. "One Health and important zoonoses in Myanmar". [http://www.mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/Power+Point_2018/FETP/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=One+Health+and+Important+Zoonose+s+in+Myanmar.pdf]. Accessed July 26, 2020

[5] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020

[6] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.

[7] Myanmar Center for Disease Control. <https://www.facebook.com/MyanmarCDC/>. Facebook. Accessed 14 Sept 2020.

[8] Ministry of Health and Sports. [<http://mohs.gov.mm>]. Accessed 14 Sept 2020.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 1

There is evidence that the Myanmar government uses media platforms (social media, website updates, etc.) to inform the public about public health emergencies. The schistosomiasis outbreak in Myanmar was announced via state television and a news release on the Ministry of Health's public website [1, 2]. According to the Joint External Evaluation completed in May

2017, the Central Epidemiology Unit and Ministry of Information also monitors social media for rumours and address them as well [3]. The Myanmar Center for Disease control also have a Facebook page along with the Ministry of Information that publishes updates [4, 5]. Myanmar emergency management agencies do not have public websites as almost all information are shared via Ministry of Health's public website and Facebook. For the COVID-19 outbreak, health knowledge, situation reports, surveillance and case confirmations are shared through the Ministry of Health's public website and Facebook as well as other related Ministry's official channels (MOI, CDC). In 2019, Myanmar's Ministry of Health and Sports published diplomatic, policy, and events information but there is no evidence that any public health concerns were addressed or discussed on the platform. [4, 5, 6, 7]

[1] Herriman, Robert. 23 July 2018. "Schistosomiasis Outbreak in Myanmar".

[<http://outbreaknewstoday.com/schistosomiasis-outbreak-myanmar-54962/>]. Accessed May 12, 2021

[2] Ministry of Health and Sports. August 2018. "Schistosomiasis (WHO Myanmar)". [

<https://www.mohs.gov.mm/page/5385>]. May 12, 2021

[3] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. May 12, 2021

[4] Myanmar Center for Disease Control. [<https://www.facebook.com/MyanmarCDC/>]. Accessed 6 May 12, 2021

[5] Ministry of Information Web Portal. Facebook. [<https://www.facebook.com/MOIWebportalMyanmar/>]. May 12, 2021

[6] Ministry of Health. "Coronavirus Disease 2019 (COVID-19) Surveillance Dashboard (Myanmar)"

[<https://mohs.gov.mm/Main/content/publication/2019-ncov>]. May 12, 2021

[7] Ministry Of Health and Sports. Facebook. [<https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/>]. Accessed May 12, 2021

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 1

There is no publicly available evidence that senior leaders have shared misinformation or disinformation on infectious diseases in the past two years. During the outbreak of Schistosomiasis and anthrax in 2018 and COVID-19 in 2019 and 2020, neither the president, ministers nor the state counsellor has shared misinformation regarding the disease outbreak. The State Counsellor often participates in press releases urging people to stay calm, wear masks or hand washing demonstration videos. [1,2,3,4, 5,6] There have been reports of users on Facebook spreading misinformation (eg. Strong immune systems of Burmese protect them from coronavirus) and news articles reporting fake confirmed case (the editor was later jailed). [7,8] The Ministry of Health has gathered together a team of CDC [Myanmar National Center of Disease Control], public health and electronic health system officials to counter misinformation by the public regarding coronavirus 2019. [9] The Myanmar Food and Drug Administration has also given out warnings for self-medication against coronavirus by using anti-malaria drugs. [12] The inter-ministerial committee formed by the President to coordinate COVID-19 cases doesn't have any committee member from the Ministry of Health and Sports. [10,11] There are no articles in major new websites regarding misinformation spread by this inter-ministerial committee.

[1] Relief Web. 11 Sept 2018. "Disease outbreak kills seven in Nanyun". [<https://reliefweb.int/report/myanmar/disease-outbreak-kills-seven-nanyun>]. Accessed 6 Aug 2020.

[2] Outbreak News Today. 2 July 2019. "Schistosomiasis: 200 cases reported in Rakhine state, Myanmar".

[<http://outbreaknewstoday.com/schistosomiasis-200-cases-reported-in-rakhine-state-myanmar-18692/>]. Accessed 6 Aug

2020.

[3] State Counsellor Office. "PEOPLE ARE REQUESTED NOT TO PANIC, BUT TO REMAIN CALM AND FOLLOW THE ADVICE FROM THE HEALTH AUTHORITIES ON COVID-19: STATE COUNSELLOR".

[<https://www.statecounsellor.gov.mm/en/node/2853>]. Accessed 6 Aug 2020.

[4] Myanmar State Counsellor Office. Facebook. [<https://www.facebook.com/state.counsellor/>]. Accessed 6 Aug 2020.

[5] Global New Light of Myanmar. 10 April 2020. "State Counsellor: strong immune system important, plans underway to distribute food supplies". [<https://www.globalnewlightofmyanmar.com/state-counsellor-strong-immune-system-important-plans-underway-to-distribute-food-supplies/>]. 6 Aug 2020.

[6] The Cattle Site. 28 May 2018. "Anthrax Outbreak Reported in Myanmar's Mandalay Region".

[<https://www.thecattlesite.com/news/53009/anthrax-outbreak-reported-in-myanmars-mandalay-region/>]. Accessed 6 Aug 2020.

[7] Nachemson, Andrew. 1 May 2020. "In Myanmar, the Coronavirus Gives Nationalists an Opening" Foreign Policy.

[<https://foreignpolicy.com/2020/05/01/myanmar-coronavirus-pandemic-gives-nationalists-opening-ethnic-minorities-risk/>]. Accessed 6 Aug 2020.

[8] The Bangkok Post. 22 May 2020. "Myanmar editor jailed for Covid error."

[<https://www.bangkokpost.com/world/1922648/myanmar-editor-jailed-for-covid-error>]. Accessed 6 Aug 2020.

[9] Nan Lwin. 20 March 2020. "Combating Fake News in the Time of Coronavirus in Myanmar." The Irrawaddy.

[<https://www.irrawaddy.com/news/burma/myanmar-combating-fake-news-time-coronavirus.html>]. Accessed 6 Aug 2020.

[10] Myanmar President's Office.

[<https://www.facebook.com/myanmarpresidentoffice.gov.mm/posts/2776886345692417/>]. Accessed 6 August 2020.

[11] Aye Nyein Win. 31 March 2020. "Myanmar leader forms new anti-covid-19 committee". The Myanmar Times.

[<https://www.mmtimes.com/news/myanmar-leader-forms-new-anti-covid-19-committee.html>]. Accessed 6 Aug 2020.

[12] Aung Phay Kyi Soe. 30 March 2020. "Myanmar warns people against anti-malaria, antibiotic drugs." The Myanmar Times.

[<https://www.mmtimes.com/news/myanmar-warns-people-against-anti-malaria-antibiotic-drugs.html>]. Accessed 6 Aug 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: 30.68

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: 113.84

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

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

Input number

Current Year Score: 9.0

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: 21.0

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

There has not been a restriction issued on the export/import of medical goods from another country in the past year due to the risk posed by an infectious disease outbreak. In 2016, there was a ban of poultry transport due to an outbreak of bird flu in Monywa and temporary ban of people traveling in Naga region after the death of 30 children [1, 2]. An immediate notification by the Chief Veterinary Officer Director General, Livestock Breeding and Veterinary Department, Ministry of Livestock and Fisheries to the World Animal Health confirms a restriction of movement control inside the country in May 2018 due to anthrax and foot-and-mouth disease [3]. The coronavirus outbreak of 2020 in fact had an opposite effect where government bodies such as the Food and Drug Administration eased rules on importation of essential medical items where surgical masks, personal protective equipment (PPE), ventilator and other medical related equipment were waived import licenses. [4,5] No further evidence is available on the Ministry of Health, Ministry of Agriculture official facebook page,

Myanmar National portal, National Health Laboratory , Ministry of Information or Ministry of Foreign public websites.
[6,7,8,9,10, 11] Major new sites do not have reports on such either.

- [1] Phyo Wai Kyaw. 27 April 2016. " Bird Flu Outbreak in Monywa Leads to Poultry Transport Ban".
[<https://www.mmtimes.com/national-news/mandalay-upper-myanmar/19986-bird-flu-outbreak-in-monywa-leads-to-poultry-transport-ban.html>]. Accessed 7 Aug 2020.
- [2] The Associated Press. 4 August 2016. "At least 30 Children Dead in Myanmar From Unknown Disease".
[<https://www.cbc.ca/news/health/myanmar-outbreak-1.3707057>]. Accessed 7 Aug 2020.
- [3] World Animal Health. "Food and Mouth Disease Myanmar".
[https://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI]. Accessed 7 Aug 2020.
- [4] Global New Light of Myanmar. 24 April 2020. "FDA eases import permit process on six medical equipment during COVID-19 crisis". [<https://www.globalnewlightofmyanmar.com/fda-eases-import-permit-process-on-six-medical-equipment-during-covid-19-crisis/>]. Accessed 7 Aug 2020.
- [5] Eleven Media Group. 8 April 2020. "Import of essential items for COVID-19 approved without licence".
[<https://elevenmyanmar.com/news/import-of-essential-items-for-covid-19-approved-without-licence>]. Accessed 7 Aug 2020.
- [6] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.
- [7] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalinct>. Accessed 25 Aug 2020.
- [8] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.
- [9] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.
- [10] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.
- [11] Ministry of Foreign Affairs. <https://www.mofa.gov.mm/> Accessed 26 Aug 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: 0

There is evidence that Myanmar has issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc) due to an infectious disease outbreak. The World Trade Organisation's "COVID-19: Measures affecting trade in goods" list confirms that Myanmar issued "Due to the COVID-19 pandemic, the Government of the Republic of the Union of Myanmar through Ministry of Commerce Bulletin Nos. 3/2020 (7 April 2020) and 5/2020 (24 April 2020) adopted a temporary measure on the restrictions of export of rice, with the aim of preventing critical shortage of rice which is an essential foodstuff in the national diet", which was extended for a period of 90 days from 1 July to 30 September 2020. Measure eliminated. [1]

- [1] World Trade Organisation. June 4, 2021. "COVID-19: Measures affecting trade in goods".
[https://www.wto.org/english/tratop_e/covid19_e/trade_related_goods_measure_e.htm] Accessed June 24, 2021.

3.7.2 Travel restrictions

3.7.2a

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

Yes = 0 , No = 1

Current Year Score: 0

There is evidence that Myanmar has implemented a ban on travelers, without international/bilateral support, due to an infectious disease outbreak in the past year. In response to the coronavirus COVID-19 pandemic, Myanmar suspended all types of visas to all foreign nationals except diplomats, United Nations officials who are residents of Myanmar and crew of ships/aircrafts starting 28 March 2020. [1] The suspension for foreign nationals entering through border checkpoints started earlier on 19 March 2020. [2] The restriction of international flights and visa issuance for foreign nationals still stands as of 31 July 2020. [3] Airlines operating commercial international flights have been suspended as well effective 30 March 2020 until 30 August 2020. [4,5] No further evidence can be found on Ministry of Foreign Affairs, Ministry of Border Affairs official facebook, Myanmar National Portal or the Ministry of Information. [6,7,8,9]

[1] Ministry of Foreign Affairs. 28 March 2020. "Announcement on Temporary suspension of all types of visas for foreign nationals from all countries visiting Myanmar". [<https://www.mofa.gov.mm/announcement-on-temporary-suspension-of-all-types-of-visas-for-foreign-nationals-from-all-countries-visiting-myanmar/>]. Accessed 31 July 2020.

[2] Ministry of Foreign Affairs. 19 March 2020. "Notification on temporary suspension of entry of foreign nationals with entry visa through border check points". [<https://www.mofa.gov.mm/notification-on-temporary-suspension-of-entry-of-foreign-nationals-with-entry-visa-through-border-check-points-2/>]. Accessed 31 July 2020.

[3] The Irrawaddy. "Myanmar Extends Bans on Gatherings, Int'l Flights as Imported COVID-19 Cases Rise". [<https://www.irrawaddy.com/news/burma/myanmar-extends-bans-gatherings-intl-flights-imported-covid-19-cases-rise.html>]. Accessed 31 July 2020

[4] Yangon International Airport. 29 March 2020. "Immediate Notice: Landing at Yangon International Airport will not be Allowed for All International Commercial Passenger Flights". [<https://www.yangonairport.aero/index.php/en/media-ygn-airport/news/281-immediate-notice-landing-at-yangon-international-airport-will-not-be-allowed-for-all-international-commercial-passenger-flights>]. Accessed 31 July 2020.

[5] Yangon International Airport. 29 July 2020. "Further Extension of Effective Period of Temporary Measures to Prevent Importation of COVID-19 to Myanmar Through Air Travel". [<https://www.yangonairport.aero/index.php/en/media-ygn-airport/news/299-july-29>]. Accessed 31 July 2020.

[6] Ministry of Foreign Affairs. <https://www.mofa.gov.mm/> Accessed 26 Aug 2020.

[7] Ministry of Border Affairs. <https://www.facebook.com/www.mba.gov.mm>. Facebook. Accessed 26 Aug 2020.

[8] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.

[9] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 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: 67.7

2018

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 99.93

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

Myanmar has a public workforce strategy in place, updated in 2017, to identify fields where there is an insufficient workforce and strategies to address these shortcomings. The National Health Plan (2017-2021) mentioned goals to improve the human resource challenges and outlined specific strategies such as in-service training and continuous professional education to address these shortcomings [1]. Myanmar also had a Health Workforce Strategic Plan 2012-2017 by the Ministry of Health to address shortcomings concerning HR supply, demands, and gaps in both public and private sectors [2].

[1] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 31 July 2020.

[2] Ministry of Health. "Health Workforce Strategic Plan (2012-2017)".

[http://www.nationalplanningcycles.org/sites/default/files/country_docs/Myanmar/health_workforce_strategic_plan_2012-

2017.pdf]. Accessed 31 July 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 104

2017

WHO/World Bank; national sources

4.1.2b

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Myanmar has the capacity to isolate patients with highly communicable diseases in a patient isolation room/unit located within the country.

Several infectious disease hospitals for treating coronavirus (COVID-19) has been established throughout the nation by the government such as the Wai Bar Gi Hospital and South Okkalapa Women's Hospital. They are designated hospitals for infected patients with their own special ward/unit [1,2, 4] The Hospital Infection Control Guidelines mentioned isolation rooms for children who are born with suspected infectious diseases. It is unclear whether this applies for adults. [3] During the Ebola outbreak in 2014, the Ebola patient was placed in the Waibargi Hospital for isolation. [5] There is no evidence that any of the aforementioned isolation rooms is indeed a permanent biocontainment patient care unit and/or advanced patient isolation facility for patients with highly communicable diseases.

[1] Thu, Kyaw and Christoph Gelsdorf. 7 May 2020. "From Fragmentation to Collaboration: Fighting COVID-19 in Myanmar". Primary Health Care Performance Initiative. [<https://improvingphc.org/blog/2020/05/07/fragmentation-collaboration-fighting-covid-19-myanmar>]. Accessed 31 July 31, 2020.

[2] Aung Phay Kyi Soe. 22 April 2020. "Yangon opens new facility to treat up to 2000 COVID-19 patients." Myanmar Times. [<https://improvingphc.org/blog/2020/05/07/fragmentation-collaboration-fighting-covid-19-myanmar>]. Accessed 31 July 2020.

[3] Ministry of Health and Sports. 2016. "Hospital Infection Control Guidelines." [<https://mohs.gov.mm/page/2490>]. Accessed 31 July 2020.

[4] Nyan Hlaing Lin. 5 April 2020. "Myanmar well equipped to battle Covid-19, says health ministry spokesperson". [<https://myanmar-now.org/en/news/myanmar-well-equipped-to-battle-covid-19-says-health-ministry-spokesperson>]. Accessed 31 July 2020.

[5] Shwe Yee Saw Mying. 22 Aug 2014. "Myanmar man tested for Ebola shows signs of improvement.". The Myanmar Times. [<https://www.mmtimes.com/national-news/11425-myanmar-man-being-tested-for-ebola-virus.html>]. Accessed 31 July 2020.

4.1.2c

Does the country meet one of the following criteria?

- Is there evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years?

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

Yes = 1, No = 0

Current Year Score: 1

There is some evidence to claim that Myanmar has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years. There is no publicly available that Myanmar has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years.

The government had built temporary hospitals as well as designating over 20 hotels and transforming education centers for quarantine to tackle the COVID 19 outbreak. [1, 2, 3] However, there is no publicly evidence on the Ministry of Health and Sports and the Ministry of Agriculture, Livestock and Irrigation websites that these are permanent fixtures or that this development of isolation capacity is a result of a policy or planning document. [4, 5] The COVID-19 Economic Relief Plan as well as the National Response and Recovery plan for the Education Sector have also been put in place in the past year. However, neither document mentions expansion of isolation capacities. [6,7] No further evidence is available on the Ministry of Health, Myanmar National portal, National Health Laboratory or the Ministry of Information public website. [8, 9, 10, 11]

[1] Myanmar Now. 14 Sept 2020. "In pictures: Yangon builds temporary hospital for Covid-19 patients as cases soar". <https://www.myanmar-now.org/en/news/in-pictures-yangon-builds-temporary-hospital-for-covid-19-patients-as-cases-soar>. Accessed 12 May 2021.

[2] Nyein Ei Ei Htwe. 31 Oct 2020. "The costs of hotel quarantine." Myanmar Times. <https://www.mmtimes.com/news/costs-hotel-quarantine.html>. Accessed 12 May 2021.

[3] Phyto Wai Kyaw. 21 Oct 2020. "Mandalay readies more COVID-19 quarantine centers." <https://www.mmtimes.com/news/mandalay-readies-more-covid-19-quarantine-centers.html>. Accessed 12 May 2021.

[4] Ministry of Health and Sports. "Publications, Reports, Presentations & Documents." <https://www.mohs.gov.mm/Main/content/publication/list?pagenumber=1&pagesize=9>. Accessed 12 May 2021.

[5] Ministry of Agriculture, Livestock and Irrigation. "Announcements." <https://www.moali.gov.mm/en/announcements>. Accessed 12 May 2021.

[6] Government of the Republic of the Union of Myanmar. 27 April 2020. "COVID-19 Economic Relief Plan." [https://www.mopfi.gov.mm/sites/default/files/COVID-19%20Economic%20Relief%20Plan\(CERP\)-Eng_0.pdf](https://www.mopfi.gov.mm/sites/default/files/COVID-19%20Economic%20Relief%20Plan(CERP)-Eng_0.pdf). Accessed 12 May 2021.

[7] Government of the Republic of the Union of Myanmar. 14 May 2020. "Myanmar COVID-19 National Response and Recovery Plan for the Education Sector (May 2020 - October 2021)". [<https://reliefweb.int/report/myanmar/myanmar-covid-19-national-response-and-recovery-plan-education-sector-may-2020#:~:text=Myanmar%20unveiled%20its%20COVID%2D19,government's%20long%2Dterm%20strategic%20direction>]. Accessed 12 May 2021.

[8] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.

[9] Myanmar National Portal. [<https://myanmar.gov.mm/>]. Accessed 25 Aug 2020.

[10] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.

[11] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

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

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

Current Year Score: 1

There is publicly available evidence suggesting that Myanmar has a national procurement protocol in place which can be utilized by the Ministry of Agriculture but not the Ministry of Health for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine needs.

There is only mention of procurement protocol for medical supplies in case of a public health emergency and not for routine needs and is unclear whether or not the Ministry of Agriculture, Livestock and Irrigation has access to that. The National Action Plan for Health Security 2018-2022 mentions that the Ministry of Health and Sports is responsible for "regular supply and maintenance of laboratory equipment and reagents" which includes test kits relating to diagnosis of diseases. [6] The Ministry of Agriculture, Livestock and Irrigation has a portal by the ministry to publish tenders. It shows an Open Tender for Lab Equipment dated 11/12/2020 [1]. There is also the National Supply Chain Task Force that is trying to build itself as the national platform for the public sector supply chain system for medicines, medical supplies and equipment as outlined in the Ministry of Health and Sports National Health Supply Chain Strategy (2015-2020) [2]. The document is not available on the Ministry of Health and Sports website [3]. The Global Health Supply Chain Program-Procurement and Supply Management provides commodity procurement regarding malaria to Myanmar to support the National Health Supply Chain Strategy (2015-2020). The main key commodities are artemisinin-based combination therapies (ACTs), long-lasting insecticidal nets (LLINs) and malaria rapid diagnostic tests (RDTs). Other laboratory equipments aren't specifically mentioned [4]. Myanmar is also part of the Regional Supply Chain Strengthening (RSCS) project supports the Myanmar Ministry of Health and Sports (MoHS) in strengthening supply chain management capacities at the national level for the MOHS regional staff to effectively forecast, procure and distribute health commodities at the regional level [5].

[1] Ministry of Agriculture, Livestock and Irrigation. [<https://www.moali.gov.mm/my/tender>]. Accessed 5 Aug 2020.

[2] Ministry of Health and Sports. "National Health Plan (2017-2021)". [[http://www.mohs.gov.mm/cat/NHP%20\(2017-2021\)](http://www.mohs.gov.mm/cat/NHP%20(2017-2021))]. Accessed 5 Aug 2020..

[3] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=supply>]. Accessed 5 Aug 2020.

[4] USAID Global Health Supply Chain Program. "Burma". [<https://www.ghsupplychain.org/country-profile/burma>]. Accessed 5 Aug 2020.

[5] The Three Millennium Development Goal Fund. "Partnership for Supply Chain Management". [<https://www.3mdg.org/en/what-we-do/health-systems-strengthening/partners-projects/item/654-pfscm-regional-supply-chain-strengthening-in-myanmar>]. Accessed 5 Aug 2020.

[6] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022". [[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 5 Aug 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 0

There is insufficient evidence that Myanmar maintains a stockpile of medical supplies for national use during a public health emergency. According to the National Action Plan for Health Security (2018-2022), published in October 2018, there are plans to provide sufficient laboratory equipment and PPE for laboratory needs but whether there is enough for a public health emergency is not mentioned. The document also only mentions the costs and not enough details on the amount and type of equipment the budget has bought. [1] The Human Pandemic Plan does have a budget for stockpile of antivirals and PPE up till 2008. [2] It appears that the NAPHS supersedes that as the NAPHS also includes budget for stockpiles. The country does not seem to have enough stockpile for national use during a public health emergency as there are reports of shortages during the COVID-19 pandemic. [3] Evidence of a stockpile for a public health emergency are not mentioned in National Health Plan (2017-2021) or Early Warning, Alert, and Response System (EWARS) Standard Operating Procedures (2018) [4,5]. The Joint External Evaluation of Myanmar (2017) mentions that there is a need to create an accurate inventory of emergency resources, such as a stockpile, but does not mention if the stockpile exists or what it contains [6].

[1] Ministry of Health and Sports. "National Action Plan for Health Security (2018-2022)".

[<https://extranet.who.int/sph/sites/default/files/2021-01/Myanmar%20%282018-2022%29%20-%20Report.pdf>]. Accessed 24 May 2021

[2] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 12 May 2021

[3] Kyaw Ye Lin. 27 March 2020. "COVID-19: Myanmar's slow response faces criticism". Anadolu Agency.

[<https://www.aa.com.tr/en/asia-pacific/covid-19-myanmar-s-slow-response-faces-criticism/1781357>]. Accessed 12 May 2021

[4] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ".

[<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 12 May 2021

[5] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 12 May 2021

[6] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 12 May 2021

4.2.2b

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

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

Current Year Score: 0

There is insufficient evidence that Myanmar has a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency. During the COVID-19 pandemic, Myanmar was unable to procure reagents itself to process

samples. However, after receiving donations of reagents donated by UNICEF and neighboring countries such as Singapore and Thailand as well as South Korea, Myanmar now have enough supplies. [1] There is a budget approved in the National Action Plan for Health Security 2018-2022 published in October 2018 for regular procurement of lab reagents for surveillance activities for notifiable diseases and syndromes. There is a budget set aside for procurement of laboratory supplies and plans to develop a standard operating procedures for water and soil testing for chemical events. It is unclear how far the steps have been taken. [2] Evidence of a stockpile for of laboratory supplies for use public health emergency are not mentioned in National Health Plan (2017-2021) or the Early Warning, Alert, and Response System (EWARS) Standard Operating Procedures (2018) [3,4]. The Joint External Evaluation of Myanmar (2017) mentions that there is a need to create an accurate inventory of emergency resources, such as a stockpile, but does not mention if the stockpile exists or what it contains [5]. No relevant information was available on the National Health Laboratory, Ministry of Defense portal and Ministry of Health's public website. [6,7,8]

[1] Hein Thar. 10 June 2020. "Swabs, staff and supply chains: How Myanmar cleared resource hurdles to ramp up COVID-19 testing". [<https://www.frontiermyanmar.net/en/swabs-staff-and-supply-chains-how-myanmar-cleared-resource-hurdles-to-ramp-up-covid-19-testing/>]. Frontier Myanmar. Accessed 6 Aug 2020.

[2] Ministry of Health and Sports. "National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf>]. Accessed 5 Aug 2020.

[3] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS)". [<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>] Accessed 6 Aug 2020.

[4] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)". [<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>] Accessed 6 Aug 2020.

[5] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 6 Aug 2020.

[6] National Health Laboratory. "<https://nhlmyanmar.gov.mm/search/node/reagents>". Accessed 6 Aug 2020.

[7] Myanmar National Portal, Ministry of Defense. "https://myanmar.gov.mm/en/ministry-of-defense?_com_liferay_portal_search_web_portlet_SearchPortlet_formDate=1596734604737&p_p_id=com_liferay_portal_search_web_portlet_SearchPortlet&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&_com_liferay_portal_search_web_portlet_SearchPortlet_mvcPath=%2Fsearch.jsp&_com_liferay_portal_search_web_portlet_SearchPortlet_redirect=https%3A%2F%2Fmyanmar.gov.mm%2Fen%2Fministry-of-defense%3Fp_p_id%3Dcom_liferay_portal_search_web_portlet_SearchPortlet%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview&_com_liferay_portal_search_web_portlet_SearchPortlet_keywords=reagent&_com_liferay_portal_search_web_portlet_SearchPortlet_scope=this-site". Accessed 6 Aug 2020.

[8] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=reagents>]. Accessed 6 Aug 2020.

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Myanmar conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergencies. Although the National Action Plan for Health Security (2018-2022), published in October 2018, includes plans for regular supply and surveillance support of vaccines, it is not clear if the

stockpile is in place for national use during a public health emergency. [5] The Human Pandemic Plan does have a budget for stockpile of antivirals and PPE till 2008. The Human Pandemic Plan does mention a stockpile of "vaccine (if available). " However, it does not mention reviews of supplies [1] It is unclear whether or not there is a stockpile of vaccines or not, or if it has been funded or maintained since 2008. Stockpiles are not mentioned in the Human Influenza Pandemic Preparedness and Response (2006), National Health Plan (2017-2021) or the Early Warning, Alert, and Response System (EWARS) Standard Operating Procedures (2018).[1,2,3] The Joint External Evaluation of Myanmar (2017) mentions that there is a need to create an accurate inventory of emergency resources, such as a stockpile, but does not mention if the stockpile exists or what it contains [4]. A logistic information management system (LMIS) is still in its development, with training for LMIS still underway to ensure that medicines and test kits are ordered before they are out of stock [7]. No further evidence is available on the Ministry of Health, Ministry of Defense public website nor the Ministry of Agriculture, Livestock and Irrigation or Food and Drug regulation official facebook. [8,9,10,11]

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 10 May 2021.

[2] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ". [<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 10 May 2021.

[3] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)". [<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 5 Aug 2020.

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 10 May 2021.

[5] Ministry of Health and Sports. " National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf>]. Accessed 10 May 2021.

[6] Kyaw Ye Lin. 27 March 2020. "COVID-19: Myanmar's slow response faces criticism". Anadolu Agency. [<https://www.aa.com.tr/en/asia-pacific/covid-19-myanmar-s-slow-response-faces-criticism/1781357>]. Accessed 10 May 2021.

[7] Department of Public Health. September 2017. "National Hepatitis Control Program (2017-2020)". [http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=/Publications/CEU/CEU_May+2018/&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=17.++Myanmar+National+Action+Plan+for+Viral+Hepatitis+Response+2017-2020.pdf]. Accessed 10 May 2021.

[8] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 10 May 2021.

[9] Ministry of Defense. <https://mod.gov.mm/>. Accessed 10 May 2021.

[10] Food and Drug Administration Myanmar. <https://www.facebook.com/myanmarfda/>. Facebook. Accessed 10 May 2021.

[11] Ministry of Agriculture, Livestock and Irrigation. <https://www.facebook.com/moalinpt>. Facebook. Accessed 10 May 2021.

4.2.3 Manufacturing and procurement for emergencies

4.2.3a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 0

There is insufficient publicly available evidence that Myanmar has plan/mechanism to procure medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency. There is also insufficient publicly available evidence of a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g. equipment, PPE) for national use during a public health emergency.

In the Pandemic Preparedness and Response Plan (2007), there is a list of funds dedicated to PPE, categorized by year with a stockpile available for surveillance and response teams. The budget ended in 2008. It is unclear what the budget is for other years. The Ministry of Health is responsible for acquisition and stocking of adequate personal protective equipment (PPE) as well as placing an immediate request to fulfil the surge capacity of PPE during a human influenza outbreak. However, the plan is limited to only Human Influenza Pandemic Alerts and the plan was published in 2006. [1]. There is no mention of PPE supply in the National Health Plan (2017-2021), the Early Warning, Alert, and Response System (EWARS) or the Joint External Evaluation (JEE) of IHR Core Capacities for Myanmar [2, 3, 4]. The Myanmar Ministry of Labor, Immigration, and Population also do not have specific plans on PPE supply issues and the EOCs in Myanmar does not have either a public website nor a public Facebook page [5].

As of mid-2020, the Ministry of Investment and Foreign Economic Relations, Director General of the Directorate of Investment and Company Administration (DICA) and representatives from the Myanmar Garment Manufacturers Association are in discussions to produce personal protective equipment in Myanmar as some factories are willing to switch to mask and PPE from garment production. The government had also been accepting proposals for additional agreements. [6,7] Procurement of PPE supplies for quarantine services are mentioned to be led by the Ministry of Health and Sports in the National Action Plan for Health Security 2018-2022. [8] There have also been deals with PPE production factories with the government as the need for protective equipment surges. [9] However, there is no evidence that these systems are applicable during public health emergencies at large or other than COVID-19.

There is a mention of the National Health Supply Chain Strategy for Medicines, Medical Supplies, and Equipment (2015-2020) in the National Health Plan (2017-2021) although not enough details is given on what the plan covers. The document isn't available on the MoH website. [2,10]

No further evidence is available on the Ministry of Health, Ministry of Defense or Ministry of Information public websites. [10, 11,12] The Global Health Supply Chain Program-Procurement and Supply Management provides commodity procurement regarding malaria to Myanmar to support the National Health Supply Chain Strategy (2015-2020). The main key commodities are artemisinin-based combination therapies (ACTs), long-lasting insecticidal nets (LLINs) and malaria rapid diagnostic tests (RDTs). There seem to be no other mention of medical supplies [13].

[1] Ministry of Health and Sports. 2006[1] Ministry of Health and Sports. 2006. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response".

[<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 10 May 2021.

[2] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 10 May 2021.

[3] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ".

[<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>].

Accessed 10 May 2021.

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 10 May 2021.

[5] Ministry of Labor. [<https://www.mol.gov.mm/en/>]. Accessed 10 May 2021.

[6] Nyein Nyein. 02 June 2020. "Garment manufacturers show enthusiasm to turn to mask, PPE production". Global New Light of Myanmar. [<https://www.globalnewlightofmyanmar.com/garment-manufacturers-show-enthusiasm-to-turn-to-mask-ppe-production/>]. Accessed 10 May 2021.

[7] Directorate of Investment and Company Administration (DICA). 04 Aug 2020. "Virtual Meeting on the Policy Dialogue on Clothing Operations to Produce PPE in Myanmar". [<https://www.dica.gov.mm/en/news/virtual-meeting-policy-dialogue-clothing-operations-produce-personal-protective-equipment-ppe>]. Accessed 10 May 2021.

[8] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022".

[[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 10 May 2021.

[9] Kyaw Ye Lin. 27 March 2020. "COVID-19: Myanmar's slow response faces criticism". Anadolu Agency.

[<https://www.aa.com.tr/en/asia-pacific/covid-19-myanmar-s-slow-response-faces-criticism/1781357>]. Accessed 10 May 2021.

[10] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=supply+chain>]. Accessed 10 May 2021.

[11] Ministry of Defense. <https://mod.gov.mm/>. Accessed 27 Aug 2020.

[12] Ministry of Information. [<https://www.moi.gov.mm/>] Accessed 10 May 2021.


[13] USAID Global Health Supply Chain Program. "Burma". [<https://www.ghsupplychain.org/country-profile/burma>]. Accessed 10 May 2021.. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 6 Aug 2020.

[2] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 6 Aug 2020.

[3] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ".

[<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 6 Aug 2020.

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar"  [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 6 Aug 2020.

[5] Ministry of Labor. [<https://www.mol.gov.mm/en/>]. Accessed 23 Aug 2020.

[6] Nyein Nyein. 02 June 2020. "Garment manufacturers show enthusiasm to turn to mask, PPE production". Global New Light of Myanmar. [<https://www.globalnewlightofmyanmar.com/garment-manufacturers-show-enthusiasm-to-turn-to-mask-ppe-production/>]. Accessed 6 Aug 2020.

[7] Directorate of Investment and Company Administration (DICA). 04 Aug 2020. "Virtual Meeting on the Policy Dialogue on Clothing Operations to Produce PPE in Myanmar". [<https://www.dica.gov.mm/en/news/virtual-meeting-policy-dialogue-clothing-operations-produce-personal-protective-equipment-ppe>]. Accessed 6 Aug 2020.

[8] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022".

[[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 5 Aug 2020.

[9] Kyaw Ye Lin. 27 March 2020. "COVID-19: Myanmar's slow response faces criticism". Anadolu Agency.

[<https://www.aa.com.tr/en/asia-pacific/covid-19-myanmar-s-slow-response-faces-criticism/1781357>]. Accessed 6 Aug 2020.

[10] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=supply+chain>]. Accessed 7 Aug 2020.

[11] Ministry of Defense. [<https://mod.gov.mm/>]. Accessed 27 Aug 2020.

[12] Ministry of Information. [<https://www.moi.gov.mm/>] Accessed 27 Aug 2020.

4.2.3b

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 0

There is insufficient publicly available evidence of a plan to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency. There is no publicly available 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. The National Action Plan for Health Security 2018-2022 designates the National Health Laboratory to procure lab reagents for syndromic surveillance system. A budget of 205 million Kyats has been allocated for this. There are plans for procurement of lab reagents for water and soil testing at the focal laboratory as well. However, these are more geared towards routine use versus a public health emergency. [1] There are no reports on major news sites on a plan to leverage domestic manufacturing to produce laboratory supplies. No such plans are mentioned in the Ministry of Commerce nor the Directorate of Investment and Company Administration. [2,3] There is also the National Supply Chain Task Force that is trying to build itself as the national platform for the public sector supply chain system for medicines, medical supplies and equipment as outlined in the Ministry of Health and Sports National Health Supply Chain Strategy (2015-2020) [4]. The document is not available on the Ministry of Health and Sports website [5]. Myanmar is also part of the Regional Supply Chain Strengthening (RSCS) project that supports the Myanmar Ministry of Health and Sports (MoHS) in strengthening supply chain management capacities at the national level for the MOHS regional staff to effectively forecast, procure and distribute health commodities at the regional level [6]. United Nations Office for Project Services is also listed as a procurement partner on the National health laboratory website. [7] The Ministry of Health and Sports, Ministry of Defense and the National Health Laboratory public websites do not have further evidence. [8,9, 10]

[1] Ministry of Health and Sports. October 2018. "National Action Plan for Health Security 2018-2022".

[[http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20\(NAPHS\)%202018-2022.pdf](http://mohs.gov.mm/ckfinder/connector?command=Proxy&lang=en&type=Main¤tFolder=%2FPublications%2FCEU%2F&hash=a6a1c319429b7abc0a8e21dc137ab33930842cf5&fileName=National%20Action%20Plan%20for%20Health%20Security%20(NAPHS)%202018-2022.pdf)]. Accessed 5 Aug 2020.

[2] Ministry of Commerce. [<https://www.commerce.gov.mm/>]. Accessed 5 Aug 2020.

[3] Directorate of Investment and Company Administration. [<https://www.dica.gov.mm/>]. Accessed 5 Aug 2020.

[4] Ministry of Health and Sports. "National Health Plan (2017-2021)". [[http://www.mohs.gov.mm/cat/NHP%20\(2017-2021\)](http://www.mohs.gov.mm/cat/NHP%20(2017-2021))]. Accessed 5 Aug 2020.

[5] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=supply>]. Accessed 5 Aug 2020.

[6] The Three Millennium Development Goal Fund. "Partnership for Supply Chain Management." [<https://www.3mdg.org/en/what-we-do/health-systems-strengthening/partners-projects/item/654-pfscm-regional-supply-chain-strengthening-in-myanmar>]. Accessed 5 Aug 2020.

[7] National Health Laboratory. "Projects and Collaborations." [<https://nhlmyanmar.gov.mm/project-collaboration>]. Accessed 6 Aug 2020.

[8] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.

[9] Ministry of Defense. [<https://mod.gov.mm/>] Accessed 26 Aug 2020.

[10] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

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

4.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available information to claim that Myanmar has plans in place for dispensing medical countermeasures for national use during a public health emergency (i.e. antibiotics, vaccines, therapeutics and diagnostics). There is no mention of plans on how medical countermeasures will reach individuals from regional points (hospitals, clinics, etc) in the Human Influenza Pandemic Preparedness and Response (2006), National Health Plan (2017-2021);, Early Warning, Alert, and Response System (EWARS) Standard Operating Procedures (2018), National Action Plan for Health Security (2018-2022) or the Joint External Evaluation (JEE) of Myanmar (2017) [1, 2, 3, 4, 7]. However, the Pandemic Preparedness and Response Plan, created in 2006, sets aside a budget for a stockpile of antivirals and vaccines [1]. The Ministry of Health and Sports does not have any documents regarding dispensing medical countermeasures during a public health emergency either [5]. The Health System Review on Myanmar also published that government general expenditure on medicine was reported to be low with frequent running out of stock and Central Medical Store Depot (CMSD) was able to supply less than half of the medicine on the national essential medicine list due to budget constraints [6].

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 Aug 2020.

[3] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)". [<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 3 Aug 2020.

[4] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS)". [<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 3 Aug 2020.

[5] Ministry of Health and Sports. [<http://www.mohs.gov.mm/search?question=dispense>].

[6] Asia Pacific Observatory on Public Health Systems and Policies. 2014. "The Republic of the Union of Myanmar Health System Review". [http://apps.searo.who.int/PDS_DOCS/B5411.pdf]. Accessed 3 Aug 2020.

[7] Ministry of Health and Sports. "National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf>]. Accessed 3 Aug 2020.

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

4.3.2a

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient public evidence that Myanmar has a plan in place to receive health personnel from other countries to respond to a public health emergency. In the National Action Plan for Health Security (2018-2022), there are plans to develop national standard operating procedures to receive health personnel during the response. [9] It is unclear how far the plan has progressed since. According to the Mutual Recognition Arrangement (MRA) signed between the ASEAN Member States, Nursing Services, Medical Practitioners and Dental Practitioners allows ASEAN country health professionals to work in Myanmar temporarily, although not specific to public health emergencies [1]. The Joint External Evaluation completed in May 2017 also mentioned different sectors being responsible for local and international processes, with activation from both the NGO system and coordination by the Ministry of Foreign Affairs for receiving foreign health personnel from other countries. However, it explicitly states that there is no national plan for receiving and sending health personnel during a public health emergency [2]. The Ministry of Foreign Affairs, Ministry of Home Affairs, Ministry of Defense, and Ministry of Health and Sports do not have memorandums of understanding (MoUs) nor plans published on receiving (helping with visa and travel) health personnel on their website [3, 4, 5, 6]. Even the Myanmar COVID-19 Emergency Response Project, the latest document in respond to a public health emergency, does not mention plans to receive health personnel from other countries. [7] The Ministry of Health and Sport's proposal for COVID-19 activities does not include aid to receive health personnel as well. [8]

[1] ASEAN. "ASEAN Mutual Recognition Arrangements". [http://investasean.asean.org/index.php/page/view/asean-free-trade-area-agreements/view/757/newsid/868/mutual-recognition-arrangements.html]. Accessed 3 Aug 2020

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar" �. [https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1]. Accessed 3 Aug 2020

[3] Ministry of Foreign Affairs. [http://www.mofa.gov.mm/?cat=rxjerugqpdhaf&paged=21]. Accessed 3 Aug 2020

[4] Ministry of Home Affairs. [http://moha.gov.mm/index.php?lang=en]. Accessed 3 Aug 2020.

[5] Ministry of Defense. [http://www.mod.gov.mm]. Accessed 3 Aug 2020

[6] Ministry of Health and Sports. [http://www.mohs.gov.mm/search?question=MoU]. Accessed 3 Aug 2020

[7] World Bank. "Myanmar COVID-19 Emergency Response Project" [https://projects.worldbank.org/en/projects-operations/project-detail/P173902]. Accessed 3 August 2020.

[8] World Health Organization. 5 March 2020. "WHO Myanmar newsletter November 2019- April 2020.."

[https://www.who.int/docs/default-source/searo/myanmar/newsletter-issue-61-vol17.pdf?sfvrsn=c2b15f13_0]. Accessed 3 August 2020.

[9] Ministry of Health and Sports. " National Action Plan for Health Security (2018-2022)".

[https://extranet.who.int/sph/sites/default/files/document-library/document/NAPHS%20Narrative%20report%20%288-1-2019%29.pdf]. Accessed 5 Aug 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: 3

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 60.2

2016

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

4.4.1c

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

Input number

Current Year Score: 219.27

2017

WHO Global Health Expenditure database

4.4.2 Paid medical leave

4.4.2a

Are workers guaranteed paid sick leave?

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

Current Year Score: 2

2020

World Policy Analysis Center

4.4.3 Healthcare worker access to healthcare

4.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of legislation, policy or public statements committing to provide prioritized health care services to healthcare workers who become sick as a result of responding to a public health emergency. When health workers are mentioned in published documents—such as the National Health Plan (2017-2021), the Human Influenza Pandemic Preparedness and Response (2006), National Action Plan for Health Security (2018-2022), Prevention and Control of Communicable Diseases Law No. 16/11 and Joint External Evaluation (May 2017)—it has been regarding the capacity building of such workers and does not mention health care for them when responding to a public health emergency [1, 2, 3, 4, 5]. The Ministry of Social Welfare, Relief and Resettlement, Department of Disaster Management does not have this information on its public websites or official Facebook account [6, 7]. A doctor who caught the deadly Coronavirus 2019 while treating a patient did not mention prioritized health care in an interview with the media. [8] Other mentions on health care workers who caught the virus on the frontline also did not report prioritized health care treatment. [9]

[1] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 3 Aug 2020.

[2] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020.

[3] Ministry of Health and Sports. October 2019. "National Action Plan for Health Security 2018-2022".

[<https://extranet.who.int/sph/republic-union-myanmar-national-action-plan-health-security-2018-2022>]. Accessed 3 Aug 2020.

[4] Ministry of Health and Sports. 27 January 2011. "Law Amending the Prevention and Control of Communicable Diseases Law". [http://www.burmalibrary.org/docs18/2011-01-27-SPDC_Law2011-16-Law_Amending_Prevention_and_Control_of_Communicable_Diseases_Law-en.pdf]. Accessed 3 Aug 2020.

[5] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 Aug 2020.

[6] Ministry of Social Welfare, Relief and Resettlement. [<http://www.mswww.gov.mm/index.php/main/about>]. Accessed 3 Aug 2020.

[7] Department of Disaster Management- Myanmar. [<https://www.facebook.com/ddmmswww/>]. Facebook. Accessed 3 Aug 2020.

[8] San Yamin Aung. 29 April 2020. "Doctor-Turned-COVID-19 Patient Sheds Light on Myanmar Health Care Workers' Struggle." [<https://www.irrawaddy.com/specials/myanmar-covid-19/doctor-turned-covid-19-patient-sheds-light-myanmar-health-care-workers-struggle.html>]. Accessed 3 August 2020.

[9] Xinhua. 04 June 2020. "14 health workers infected with COVID-19 in Myanmar"

[http://www.xinhuanet.com/english/2020-06/04/c_139114588.htm]. Accessed 3 Aug 2020.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Myanmar has a system in place for public health officials and health care workers to communicate during a public health emergency.

The Early Warning, Alert, and Response System (EWARS) standard operating procedure lists the different departments at various levels of government that will form an Outbreak Control Team in response to an outbreak on an ad hoc basis. [1]. According to the Joint External Evaluation (JEE) completed in May 2017, there are "communication channels are in place to coordinate communication with the hospital and healthcare sector during emergency" [2].

In the 2016 Strategic Plan for Zika, the Ministry of Health mandates subcommittees to provide information to health profession bodies. [3] For the COVID-19 response, there is a two way communication between the Central Committee that oversees all policy decisions (eg. social distancing, lockdowns, post-outbreak reviews of the health system) and the operation management body that consists of managers from Ministry of Health and Sports and other civil/ external organizations that are performing contract tracing/surveillance as well as testing. [4] According to a Stakeholder Engagement Plan Template for Emergency Projects in Response to COVID-19 draft published March 2020, there are plans to support "better and timely information sharing and coordination of responses between public health and clinical teams within MOHS, as well as across the various public and private (profit and non-profit) agencies." [5]

[1] Ministry of Health and Sports. 18 Dec 2018. "Early Warning, Alert and Response System (EWARS) ". [<http://mohs.gov.mm/Main/content/publication/early-warning-alert-and-response-system-ewars-sop-version-1-1-english>]. Accessed 31 July 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 31 July 2020.

[3] Ministry of Health and Sports. 2 May 2016. "Strategic Plan for Zika". [<http://mohs.gov.mm/Main/content/publication/zika-virus-infection-national-strategic-plan-for-preparedness-and-response-to-zika-virus-infection>]. Accessed 30 July 2020.

[4] Aung Hein and Paul Minoletti. April 2020. "Coronavirus policy response needs and options for Myanmar." International Growth Center. <https://www.theigc.org/wp-content/uploads/2020/04/Hein-2020-coronavirus-report.pdf>. Accessed 26 Aug 2020.

[5] Ministry of Health and Sports. 30 March 2020. "Stakeholder Engagement Plan Template for Emergency Projects in Response to COVID-19 (Draft)." <http://mohs.gov.mm/su/maq5319MA>. Accessed 26 Aug 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

Although there is evidence of communication systems for public health officials and healthcare workers to communicate during an emergency, there is insufficient evidence it encompasses healthcare workers in both the public and private sector. There is evidence of communication efforts with the private sector, but no evidence of a system. According to the National Strategic Plan for Prevention and Control of Avian Influenza, private sectors work closely together with state and division subcommittees especially communicating for surge capacity needs [1]. According to the Joint External Evaluation (JEE) completed in May 2017, there are "communication channels are in place to coordinate communication with the hospital and healthcare sector during emergency". However, it did not mention whether this applies only to public hospitals or both private and public hospitals[2]. The Department of Disaster Management, Myanmar often posts about its collaborations on its Facebook page on an event-by-event basis [3]. There is the Law Relating to Private Health Care Services published in 2007 that mandates the private sector to share patient information requested by the Ministry of Health.[4] According to a Stakeholder Engagement Plan Template for Emergency Projects in Response to COVID-19 draft published March 2020, there are plans to support "better and timely information sharing and coordination of responses between public health and clinical teams within MOHS, as well as across the various public and private (profit and non-profit) agencies." [5] The Ministry of Health and Sports, National Health Laboratory and Ministry of Information public websites have no further evidence of a national all-encompassing communication document/plan/regulation. [6, 7, 8]

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 2 Aug 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 2 Aug 2020.

[3] Department of Disaster Management. [<https://www.facebook.com/ddmmswrr/>]. Facebook. Accessed 2 Aug 2020.

[4] Ministry of Health and Sports. 2007. "Health Policy Mapping." [<http://mohs.gov.mm/su/10EwLV>]. Accessed 2 Aug 2020.

[5] Ministry of Health and Sports. 30 March 2020. "Stakeholder Engagement Plan Template for Emergency Projects in Response to COVID-19 (Draft)." <http://mohs.gov.mm/su/maq5319MA>. Accessed 26 Aug 2020.

[6] Ministry of Health and Sports. [<https://www.mohs.gov.mm/>]. Accessed 25 Aug 2020.

[7] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 25 Aug 2020.

[8] Ministry of Information. [<https://www.moi.gov.mm/>]. Accessed 25 Aug 2020.

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the national public health system is monitoring for and tracking the number of health care associated infections (HCAI) that take place in health care facilities. The Hospital Infection Control Guideline 2016 published on the Ministry of Health's website lists the steps and procedures for hospital infection control, and surveillance and reporting for pandemics and communicable diseases but has no mention of control, surveillance, and reporting for HCAI [1]. The Facebook page of Myanmar Center for Disease Control and the websites of the National Health Laboratory and the Ministry of Health do not mention a reporting system for HCAI [2, 3, 4].

[1] Ministry of Health and Sports. 2016. "Hospital Infection Control Guideline 2016".

[<http://mohs.gov.mm/Main/content/publication/hospital-infection-control-guidelines-2016>]. Accessed 3 Aug 2020.

[2] Myanmar CDC. [<https://www.facebook.com/MyanmarCDC/>]. Facebook. Accessed 3 Aug 2020.

[3] National Health Laboratory. [<https://nhlmyanmar.gov.mm/search/node/HCAI>]. Accessed 3 Aug 2020.

[4] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=HCAI>]. Accessed 3 Aug 2020

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient publicly available information to conclude that Myanmar has a national requirement for ethical review (e.g. from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial. According to the Minister of Health and Sports, Dr. Myint Htwe, at the opening ceremony of the 47th Myanmar Health Research Congress, all health research in Myanmar has to obtain an approval from the Ethics Review Committee of the Department of Medical Research or the Institutional review board of the University of Public Health [1]. According to the Joint External Evaluation for Myanmar conducted in May 2017, these committees have components for biosafety and biosecurity as well [2]. However, it is unclear whether submitting to these committees for review is a legislative requirement. A search for Ethics Review Committee in the University of Public Health returned no results [3]. The public website of the Ministry of Health and Sports (MOHS) does not have a page for the Ethics Review Committee and there is no proper procedures and/or requirements posted regarding the Ethics Review Committee on the Department of Medical Research's official Facebook page [4, 5]. The MOHS has shown a strong emphasis to enhance the research culture that is focused on building research ethics capacity as well as enhancing the responsible conduct in research. Universities are now required to offer workshops in research ethics and the responsible conduct of research. Postgraduate students enrolled in diploma, master, and doctoral programs are required to conduct medical research projects and submit their projects that involve human subjects to a research ethics committee to obtain approval prior to beginning their research. Currently, there are 16 established Research Ethic Committees (REC) associated with the public universities, one at the Department of Medical Research, and three RECs at military institutions [6, 7].

[1] Aung Phay Kyi Soe. 10 January 2019. "<https://www.mmtimes.com/news/health-minister-get-approval-doing-research.html>". The Myanmar Times. Accessed 2 August 2020.

[2] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the

Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 2 August 2020.

[3] University of Public Health. [<http://www.uph-myanmar.gov.mm/?s=institutional+review+board>]. Accessed 2 August 2020.

[4] Department of Medical Research.

[https://www.facebook.com/search/top/?q=department%20of%20medical%20research%20myanmar%20ethical%20review&epa=SEARCH_BOX]. Accessed 2 August 2020.

[5] Ministry of Health and Sports. [<http://mohs.gov.mm/search?question=ethics>]. Accessed 2 August 2020

[6] Myint Kay Thi. 21 Feb 2018. "Research Ethics to be Promoted in Medical Universities".

[<https://www.mmtimes.com/news/research-ethics-be-promoted-medical-universities.html>]. Accessed 2 August 2020.

[7] Zaw-Zaw Oo et al. 21 July 2018. " Current Status of Research Ethics Capacity in Myanmar

[https://www.researchgate.net/publication/326826906_Current_Status_of_Research_Ethics_Capacity_in_Myanmar/download

https://www.researchgate.net/profile/Kyaw_Soe_Htun2/publication/326826906_Current_Status_of_Research_Ethics_Capacity_in_Myanmar/links/5bb718a04585159e8d86987f/Current-Status-of-Research-Ethics-Capacity-in-Myanmar.pdf?origin=publication_detail. Accessed 2 August 2020

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics. All health research in Myanmar has to obtain approval from the Ethics Review Committee of the Department of Medical Research or the Institutional Review Board, as announced by the Health and Sports Minister Dr. Myint Htwe [1]. There is no information about expedited processes for clinical trials on the websites of the Ministry of Health or Department of Medical Research or National Health Laboratory [2, 3, 4].

[1] Aung Phay Kyi Soe. 10 Jan 2019. "<https://www.mmtimes.com/news/health-minister-get-approval-doing-research.html>". The Myanmar Times. Accessed 2 August 2020.

[2] The Ministry of Health and Sports. [<http://mohs.gov.mm/Main/content/new/list?pagenumber=1&pagesize=9>]. Accessed 2 August 2020

[3] Department of Medical Research. [<https://www.dmr.gov.mm>]. Accessed 2 August 2020

[4] National Health Laboratory [<https://nhlmyanmar.gov.mm/search/node/clinical>]. Accessed 31 July 2020

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is a government agency responsible for approving new medical countermeasures for humans. Pharmacovigilance is overseen by the Department of Medical Research and Food and Drug Administration (FDA). The FDA is responsible for review all new biological products as per Association of Southeast Asian Nations (ASEAN) guidelines [1]. The Drug Control Division

under the Ministry of Health supervises inspection and licensing of manufacturing and import of drugs. [2]

[1] Asia Pacific Observatory on Health Systems and Policies. 2014. "The Republic of Union of Myanmar Health System Review." [http://apps.searo.who.int/PDS_DOCS/B5411.pdf]. Health Systems in Transition Vol. 4 No. 3. Accessed 2 Aug 2020.

[2] Ministry of Health and Sports. 03 Aug 2017. " Drug Regulations in Myanmar."

[<https://www.fda.gov.tw/tc/includes/GetFile.ashx?id=f636695447956123279>]. Accessed 2 Aug 2020.

4.7.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of an expedited process for approving medical countermeasures to treat ongoing pandemics. All health research in Myanmar has to obtain approval from the Ethics Review Committee of the Department of Medical Research or the Institutional Review Board, as announced by the Health and Sports Minister Dr. Myint Htwe [1]. There is no information about an expedited process for approving medical countermeasures on the websites of the Ministry of Health or Department of Medical Research or the National Health Laboratory [2, 3, 4].

[1] Aung Phay Kyi Soe. 10 Jan 2019. "<https://www.mmtimes.com/news/health-minister-get-approval-doing-research.html>". The Myanmar Times. Accessed 31 July 2020

[2] The Ministry of Health and Sports. [<http://mohs.gov.mm/Main/content/new/list?pagenumber=1&pagesize=9>]. Accessed 31 July 2020.

[3] Department of Medical Research. [<https://www.dmr.gov.mm>]. Accessed 31 July 2020

[4] National Health Laboratory [<https://nhlmyanmar.gov.mm/search/node/clinical>]. Accessed 31 July 2020

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1, No = 0

Current Year Score: 1

There is evidence that Myanmar has a national risk reduction strategy that integrates pandemics. The Myanmar Action Plan on Disaster Risk reduction 2017 includes epidemic and disease control under its pillar for enhancing disaster preparedness. The Myanmar Action Plan on Disaster Risk Reduction published in 2017 mentions controlling for epidemics and disease through the disaster risk management system. Some activities mentioned include "epidemic control, acquisition and deployment of resources, medicine and equipment stockpiling and deployment" as well as simulation exercises and "community-based epidemic prone disease surveillance system". The Ministry of Health and Sports is listed as the lead Ministry for the actions related to pandemic risk reduction [1].

[1] Government of the Union of Myanmar. October 2017. "The Myanmar Action Plan on Disaster Risk Reduction 2017". [http://www.mm.undp.org/content/myanmar/en/home/library/environment_energy/Myanmar_Action_Plan_DRR_2017.html]. Accessed 3 Aug 2020.

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

5.2.1 Cross-border agreements

5.2.1a

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

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

Current Year Score: 2

Myanmar has cross-border agreements with neighbouring countries and also as part of a larger regional group or international group with regional stakeholders, with regards to public health emergencies There is no evidence of gaps in implementation. According to the a report by Infectious Diseases Data Observatory (IDDO), Myanmar is part of Mekong Basin Data Surveillance Network (MBDS), Malaria Genomic Epidemiology Network and World Health Organization (WHO)'s Global Influenza Surveillance and Response System [1]. The MBDS was formed in 2001 through an MoU with six signatories: Cambodia, China (Yunnan and Guangxi provinces), Lao PDR, Myanmar, Thailand and Vietnam. The aim is to work together to combat disease outbreaks by sharing surveillance data, jointly responding to outbreaks, develop expertise and best practices and, enhance communication between the countries. The team works daily for any case of influenza H1N1, acute flaccid paralysis (AFP, i.e., potential polio), SARS, cholera/severe diarrhoea, encephalitis, tetanus, meningitis, diphtheria, and public health emergencies of international concern (PHEIC); weekly for cases of leptospirosis, chikungunya, dengue fever, typhoid

fever and measles; monthly for cases of malaria and pneumonia; and less frequently for cases of HIV/AIDS and tuberculosis. They have also responded and contained several cases, such as the typhoid and malaria outbreak between provincial sites in Lao PDR and Vietnam in 2006 and effects of Cyclone Nargis in 2008 in Myanmar [2]. Myanmar is also part of the Malaria Genomic Epidemiology Network. There are 30 malaria-endemic countries in the network, including all Myanmar's neighbours. The international collaboration works in various partner studies, including several monitoring and investigating malaria parasites in efforts to eliminate malaria [3]. The World Health Organization's (WHO's) Global Influenza Surveillance and Response System monitors and alerts for influenza viruses such as seasonal, pandemic, and zoonotic influenza. The centers collect virus specimens and perform preliminary analysis, which are later sent to WHO Collaboration Centers for advanced antigenic and genetic analysis. Myanmar has the National Health Laboratory as the WHO National Influenza Center (NHC). In the Southeast Asia region of WHO alone, there are 10 WHO NHCs [4, 5]. Myanmar is also a recipient from the MBDS for cross border surveillance and sharing. [6]

- [1] Ashley EA, Recht J, Chua A et al. 2017. "Antimicrobial Resistance in Low and Middle Income Countries. An Analysis of Surveillance Networks. Report 2017". [www.iddo.org/amr-networks]. Accessed 6 Aug 2020.
- [2] Phommasack, Bounlay et al. 2013. "Mekong Basin Disease Surveillance (MBDS): A Trust-based Network". [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3557908/]. Emerging Health Threats Journal vol. 6. Accessed 6 Aug 2020.
- [3] MalariaGEN. [https://www.malariagen.net/network/where-we-work]. Accessed 6 Aug 2020.
- [4] World Health Organization. "Global Influenza Surveillance and Response System (GISRS)". [https://www.who.int/influenza/gisrs_laboratory/en/]. Accessed 6 Aug 2020.
- [5] World Health Organization. "National Influenza Centers". [https://www.who.int/influenza/gisrs_laboratory/national_influenza_centres/list/en/index4.html]. Accessed 6 Aug 2020.
- [6] WHO. "Contribution MBDS- Myanmar." [https://extranet.who.int/sph/contributions/contribution-mbds-myanmar]. Accessed 6 Aug 2020.

5.2.1b

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

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

Current Year Score: 0

There is insufficient evidence that Myanmar has cross-border agreements, protocols, or memorandums of understanding (MOUs) with neighbouring countries, or as part of a regional group, with regard to animal health emergencies.

Myanmar is part of the Network of Aquaculture Centers in the Asia-Pacific (NACA), the World Health Organization's (WHO) Global Influenza Surveillance and Response System and is cooperating with the Food and Agriculture Organization for avian outbreaks in poultry species [1, 2]. NACA (Network of Aquaculture Centres in Asia-Pacific) includes Thailand, Vietnam, Sri Lanka, Philippines, Pakistan, Nepal, Myanmar, Maldives, Malaysia, Lao PDR, Iran, Indonesia, India, China, Cambodia, Australia and Bangladesh [3]. NACA acts as an intergovernmental organization that implements collaboration development assistant projects on issues of regional interest. Projects include ASEAN consultation on emergency aquatic animal disease preparedness and response and Emergency Regional Consultation for Prevention and Management of Tilapia Lake Virus [4]. Myanmar is also part of the The Indo-Pacific Regulatory Strengthening Program (RSP) that works in training veterinary workforce for disease detection and response [5]. The Food and Agriculture Organization of the United Nations have an Emergency Center for Transboundary Animal Diseases (ECTAD) in Myanmar to assist the country in "helping to stop emergence and spread of potential pandemics at source." [6]

- [1] Ashley EA, Recht J, Chua A et al. 2017. "Antimicrobial Resistance in Low and Middle Income Countries. An Analysis of Surveillance Networks. Report 2017". [www.iddo.org/amr-networks]. Accessed 7 Aug 2020.
- [2] World Health Organization (WHO). 2014. "WHO Country Cooperation Strategy Myanmar 2014-2018". [http://apps.searo.who.int/PDS_DOCS/B5065.pdf]. Accessed 7 Aug 2020.
- [3] Network of Aquaculture Centres in Asia-Pacific. "Governing Council". [https://enaca.org/?id=34&title=naca-governing-council]. Accessed 7 Aug 2020.
- [4] NACA. [https://enaca.org/?id=1065&title=asean-consultation-on-aquatic-emergency-preparedness-and-response-systems]. Accessed 7 Aug 2020.
- [5] The Indo-Pacific Regulatory Strengthening Program (RSP). [https://indopacifichealthsecurity.dfat.gov.au/indo-pacific-regulatory-strengthening-program-rsp]. Accessed 7 Aug 2020.
- [6] Food and Agriculture Organization of the United Nations. "Myanmar." <http://www.fao.org/emergencies/countries/detail/en/c/326208>. Accessed 13 Sept 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: 1

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

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

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

Current Year Score: 0

2021

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

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

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

5.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

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: 1

2021

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

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

5.4.2a

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

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.4.2b

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

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

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

Yes = 1, No = 0

Current Year Score: 1

There is evidence to claim that Myanmar has allocated national funds to improve capacity to address epidemic threats within the past three years. In the 2019-2020 fiscal year budget and budget bill, the Greater Mekong Subregion Health Security Project: Myanmar Procurement Plan was specifically mentioned with funds allocated. [1] There is also budget allocated for laboratory staff and equipment (likely for the ones mentioned in National Action Plan for Health Security (NAPHS) (2018-2022)) in the 2018-2019 Budget. The National Action Plan for Health Security (NAPHS) (2018-2022), for example, allocated approx. 495 million Kyats and 1 billion Kyats over 2018-2022 for costs towards case investigations (specimen collections and transport) as well as procuring lab reagents, test kits and vaccines. An additional 116 million Kyats were specifically allocated for simulation exercises and general exercises for response for all stakeholders to public health emergency. The budget also included allocations for hiring consultants to "develop mechanism/standard operating procedures for sending or receiving of health personnel during a public health emergency." [2,3] Disease control and prevention of communicable diseases were given funding in 2014-2015 as per National Health Accounts published in 2018 for that year. [4] There has not been updated accounts published for the consequent years on the Ministry of Health's website. [5] The NAPHS also states that the operations listed in the action plan will be integrated into the national budget and financing. [3]

[1] The Government of Myanmar. [<https://myanmar.gov.mm/documents/20143/9099620/2019-2020+FY+Budget+and+Budget+Bill.pdf/11b18e94-a5e7-7fad-2dde-74e30ae76957?t=1564626267054>]. Accessed 7 August 2020.

[2] The Government of Myanmar. December 2018. "2018-2019 Citizen's Budget". [<https://myanmar.gov.mm/documents/20143/9099620/2018-2019+Citizen%27s+Budget+%281%29.pdf/c527553b-a1a9-822f-0bf2-0ca0c448c92f?t=1546957393975>]. Accessed 6 Aug 2020.

[3] Ministry of Health and Sports. "National Action Plan for Health Security (2018-2022)". [<https://extranet.who.int/sph/republic-union-myanmar-national-action-plan-health-security-2018-2022>]. Accessed 5 Aug 2020.

[4] Department of Public Health. Jan 2018. "National Health Accounts (2014-2015)". [<https://www.mohs.gov.mm/page/4981>]. Accessed 5 Aug 2020.

[5] Ministry of Health. [<https://www.mohs.gov.mm/search?question=national+health+account>]. Accessed 5 Aug 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

Myanmar has a special emergency public financing mechanism, which can be accessed in case of a public health emergency. Myanmar is listed as a borrowing country on blended credit terms by the International Development Association (IDA) and is, therefore, already covered by the Pandemic Financing Facility [1, 2]. During the Coronavirus pandemic 2019, Myanmar received a US\$50 million fast track financing for Myanmar COVID-19 Emergency Response Project from the World Bank as part of the Pandemic Emergency Financing Facility (PEF). [5] Myanmar is also part of the South-East Asia Regional Health Emergency Fund and has received aid during the aftermath of Cyclone Nargis in 2008. The Regional Health Emergency Fund includes basic equipment, laboratory diagnostic kits for detection and management of diseases, and for prevention of epidemics [3]. The Joint External Evaluation for Myanmar conducted in 2017 (JEE) notes a lack of dedicated funding and maintenance of emergency resources [4].

[1] WB Pandemic Financing Facility. [<http://pubdocs.worldbank.org/en/119961516647620597/PEF-Operational-Brief-Dec-2017.pdf>]. Accessed 3 Aug 2020.

[2] International Development Fund. Borrowing Countries. [<http://ida.worldbank.org/about/borrowing-countries>]. Accessed 3 Aug 2020.

[3] South East Asia Regional Health Emergency Fund. [http://apps.searo.who.int/PDS_DOCS/B4858.pdf]. Accessed 3 Aug 2020.

[4] World Health Organisation (WHO). 3-9 May 2017. "Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5-eng.pdf?sequence=1>]. Accessed 3 Aug 2020.

[5] World Bank. 20 April 2020. [<https://www.worldbank.org/en/news/press-release/2020/04/20/myanmar-50-million-in-fast-track-financing-for-national-covid-19-coronavirus-emergency-response>]. Accessed 3 Aug 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: 1

There is public evidence that senior leaders (president or ministers) have made a public commitment either to support other countries to improve capacity to address epidemic threats by providing financing or support in the past three years and to improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity in the past three years. The Joint Statement from Health Ministers of ASEAN and the United States on COVID-19 Cooperation (30 April 2020) addresses funding and capacity development for future disease outbreaks by stating that that the Ministers "[welcome] the announcement of the ASEAN Member States' plan to establish the COVID-19 Response Fund to address COVID-19 and future public health emergencies, and a Regional Reserve of Medical Supplies to enable rapid response to emergency medical supply needs, with the partnership of external partners." [10] The financial aid received by the Myanmar government from the World Bank for the 2019 coronavirus pandemic is not mentioned by senior leaders or Myanmar media but rather on official World Bank website. [9] Myanmar has made very limited public commitments to support other countries to improve capacity to address epidemic threats by providing technical support in the past three years. Myanmar is part of the Mekong Basin Disease Surveillance (MBDS) that supports each other in capability building to response to epidemic threats. For example, Myanmar is responsible for suggesting risk communication strategies during a pandemic outbreak [1]. There is no evidence in international and local media of the Minister of Health and Sports/Minister of Foreign affairs discussing Myanmar's involvement. Myanmar has also been ambiguous regarding improving its own domestic capacity to address epidemic threats by expanding financing to improve capacity in the past three years. According to the National Health Plan (2017-2021), Myanmar is trying to build a process to funnel funds from Corporate Social Responsibility and other philanthropic giving to increase share of funding to support system building of the Ministry of Health Departments [2]. The Minister of Ministry of Health and Sports, during an opening speech on Reprogramming workshop with HIV/AIDS, TB and Malaria, held on 12 March 2019, emphasized the need for continued importance placed on communicable diseases and gave thanks to the global fund [3]. The Minister has also expressed Myanmar's commitment to work with Office of Public Health, USAID on vector mapping and vector survey for malaria on a post of the ministry's Facebook page on 25 February 2019 [4]. Local news regarding the latest epidemic threats (COVID-19) from senior leaders are dominated by the details of state's own efforts to fight the pandemic and the country's State Counsellor and Ministers urging people to follow government restrictions and guidelines. [5,6,7,8]

1] Mekong Basin Disease Surveillance. [<http://www.mbdnet.org>]. Accessed 3 Aug 2020

[2] The Ministry of Health and Sports. December 2017. "The National Health Plan (2017-2021)".

[<http://mohs.gov.mm/Main/content/publication/national-health-plan-2017-2021-eng>]. Accessed 28 July 2020

[3] Ministry of Health and Sports. 12 March 2019. "Union Minister delivers an opening speech at the 'Reprogramming Workshop with HIV/AIDS, TB and Malaria Programmes, Implementing Partners, WHO and UNOPS" .[<https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/posts/2490468667649090>]. Accessed 3 Aug 2020.

[4] Ministry of health and Sports. 25 Feb 2019. "Union Minister receives Mission Director and Director (Office of Public Health), USAID". [<https://www.facebook.com/MinistryOfHealthAndSportsMyanmar/>]. Accessed 3 Aug 2020

[5] Nitta, Yuichi. 22 April 2020. "Myanmar's generals take center stage in coronavirus battle".

[<https://asia.nikkei.com/Politics/Myanmar-s-generals-take-center-stage-in-coronavirus-battle>]. Accessed 3 Aug 2020.

[6] Bemba, Adam. 24 April 2020. "Aung San Suu Kyi turns to Facebook to get coronavirus message out".

[<https://www.aljazeera.com/news/2020/04/aung-san-suu-kyi-turns-facebook-coronavirus-message-200423065832014.html>]. Accessed 3 Aug 2020.

[7] Mizzima. 17 July 2020. "In the wake of the Coronavirus, questions are raised about China's relationship with Myanmar."

[<http://mizzima.com/article/wake-coronavirus-questions-are-raised-about-chinas-relationship-myanmar>]. Accessed 3 Aug

2020.

[8] Aung San Su Kyi. [<https://www.facebook.com/aungsan.suukyi.5661>]. Facebook. Accessed 3 Aug 2020.

[9] World Bank. 20 April 2020. [<https://www.worldbank.org/en/news/press-release/2020/04/20/myanmar-50-million-in-fast-track-financing-for-national-covid-19-coronavirus-emergency-response>]. Accessed 3 Aug 2020.

[10] Ministry of Health and Sports. [<https://www.mohs.gov.mm/search?question=funding>]. Accessed 3 Aug 2020

[10] Association of Southeast Asian Nations (ASEAN). 30 April 2020. "Joint Statement Special Video Conference of Health Ministers of ASEAN and the United States in Enhancing Cooperation on Coronavirus Disease 2019 (COVID-19) Response". [https://asean.org/storage/2020/05/Adopted_ASEAN-US-Joint-Statement-on-COVID-19.pdf]. Accessed September 2020.

5.5.4b

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

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

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

Current Year Score: 1

There is evidence that Myanmar has requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats but there is no publicly available evidence that Myanmar provided other countries with financing or technical support to improve capacity to address epidemic threats.

According to the Global Health Security (GHS) Tracking Dashboard, Myanmar received approximately US\$903 million between 2017-2020 to improve its own domestic capacity to address epidemic threats in the past three years.. Within the past three years, the World Health Organisation (WHO) contributed approximately US\$324,000 for control strategies, plans, and capacities developed for diseases such as cholera, viral haemorrhagic fever, meningitis and influenza and those due to vector-borne, emerging and re-emerging pathogens. [1] There is no evidence of Myanmar as a funder on the same GHS tracker [2]. Myanmar also requested \$50 million and has already received 36.5 million for the Myanmar COVID-19 Emergency Response Project by the World Bank. [3] Myanmar also received donations of reagents from UNICEF and neighboring countries such as Singapore and Thailand as well as South Korea due to lack of testing capacity. [4]

[1] GHS Tacking Dashboard. "Myanmar". [<https://tracking.ghscosting.org/details/1006/recipient>]. Accessed 12 May 2021.

[2] GHS Tacking Dashboard. "Funder Profile: Myanmar". [<https://tracking.ghscosting.org/details/1006/funder>]. Accessed 12 May 2021.

[3] The World Bank. "Myanmar COVID-19 Emergency Response Project". [<https://projects.worldbank.org/en/projects-operations/project-detail/P173902>]. Accessed 12 May 2021.

[4] Hein Thar. 10 June 2020. "Swabs, staff and supply chains: How Myanmar cleared resource hurdles to ramp up COVID-19 testing". [<https://www.frontiermyanmar.net/en/swabs-staff-and-supply-chains-how-myanmar-cleared-resource-hurdles-to-ramp-up-covid-19-testing/>]. Frontier Myanmar. Accessed 12 May 2021.

5.5.4c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

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

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

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

5.6.1a

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

Yes = 1, No = 0

Current Year Score: 0

There is limited evidence of a publicly available plan for sharing genetic data, epidemiological data, clinical specimens, and/or isolated specimens (biological materials) with international organizations and/or other countries that goes beyond influenza. Myanmar is part of the Nagoya Protocol and is a signatory of the International Treaty on Plant Genetic Resources for Food and Agriculture. [9,10] However, the legal framework for access and benefits sharing of genetic data is still in development as per the National Biodiversity Strategy and Action Plan 2015-2020. [11]The Human Influenza Pandemic Preparedness and Response 2006 specified that field and clinical specimens for avian influenza is sent to World Health Organization and The Food and Agriculture Organization of the United Nations(FAO)/World Organisation for Animal Health(OIE) reference centers [1]. There is evidence of other specimen sharing such as when biological samples were sent to Germany to be tested for Ebola [2]. Samples for discovery of new viruses in Myanmar have also been sent to the One Health Institute Laboratory in the United States [3]. According to the Joint External Evaluation report for Myanmar, completed in 2017, the National Health Laboratory is part of international laboratory networks such as Association of Southeast Asian Nations [4]. However, there was no mention of these programmes in the Ministry of Health and Sports public website, National Health Laboratory's website, and Ministry of Information [5, 6, 7]. The Emergency Centre for Transboundary Animal Diseases (ECTAD) Programme team in Myanmar is housed in the Department of Livestock Veterinary and Breeding (LBVD), Ministry of Agriculture, Livestock and Irrigation compound, although it is not sure how much of the work links the Myanmar's livestock breeding and veterinary department with the technical agencies in the region [8].

[1] Ministry of Health and Sports. "National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response". [<http://mohs.gov.mm/Main/content/publication/influenza-national-strategic-plan-for-prevention-and-control-of-avian-influenza-and-human-influenza-pandemic-preparedness-and-response>]. Accessed 3 Aug 2020

[2] Kean, Thomas. 05 September 2014. "Blood Samples Negative for Ebola: Ministry". [<https://www.mmtimes.com/national-news/11547-blood-samples-negative-for-ebola.html>]. Accessed 3 Aug 2020

[3] Smithsonian. 2 July 2018. "New Virus Discovered in Myanmar by Smithsonian's Global Health Program". [<https://www.si.edu/newsdesk/releases/new-virus-discovered-myanmar-smithsonian-s-global-health-program>]. Accessed 3 Aug 2020.

[4] World Health Organisation (WHO). 3-9 May 2017. Joint External Evaluation of IHR Core Capacities of the Republic of the Union of Myanmar". [<https://apps.who.int/iris/bitstream/handle/10665/260524/WHO-WHE-CPI-REP-2018.5->

eng.pdf?sequence=1]. Accessed 3 Aug 2020

[5] The Ministry of Health and Sports. [<http://mohs.gov.mm/Main/content/new/list?pagenumber=1&pagesize=9>]. Accessed 3 Aug 2020

[6] National Health Laboratory. [<https://nhlmyanmar.gov.mm/>]. Accessed 3 Aug 2020

[7] Ministry of Information. [<https://www.moi.gov.mm/moi:eng/?q=search/node/virus>]. Accessed 3 Aug 2020.

[8] Food and Agriculture Organization of the United Nations. July 2017. "Emergency Centre for Transboundary Animal Diseases (ECTAD) Programme in Myanmar". [<http://www.fao.org/3/I8563EN/i8563en.pdf>]. Accessed 3 Aug 2020

[9] United Nations Development Programme Access and Benefit-sharing. "Myanmar" [<https://abs-sustainabledevelopment.net/country/myanmar/>]. Accessed 3 Aug 2020.

[10] Food and Agriculture Organization. [<http://www.fao.org/plant-treaty/en/>]. Accessed 3 Aug 2020.

[11] Republic of the Union of Myanmar. October 2015. "National Biodiversity Strategy and Action Plan 2015-2020". [<https://www.cbd.int/doc/world/mm/mm-nbsap-v2-en.pdf>]. Accessed 3 Aug 2020.

5.6.1b

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

Yes = 0 , No = 1

Current Year Score: 1

There is no publicly available evidence that the country has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years. According to the Pandemic Influenza Preparedness Framework by the World Health Organization (WHO), PIP support has enabled Myanmar's laboratory to be able to share viruses with WHO in a faster and more timely manner [1]. WHO implementation reports, including the latest update (Q4-2020) and the PIP Biennial Progress report do not mention that Myanmar has not shared samples in accordance with the PIP framework in the past two years [2, 3,4].

[1] World Health Organization. "Pandemic Influenza Preparedness Framework 2014-2017".

[<https://extranet.who.int/sph/sites/default/files/document-library/document/WHO-WHE-IHM-PIP-2018.3-eng.pdf>]. Accessed 3 Aug 2020

[2] Pandemic Influenza Preparedness Framework. 2017 "Regional and Country Implementation". [

https://www.who.int/influenza/pip/partnership_contribution/hlipi_final_report_reg_cntry.pdf?ua=1]. Accessed 3 Aug 2020

[3] World Health Organization (WHO). 2018. "Myanmar: Pandemic Influenza Preparedness (PIP) Framework (Category)".

[<https://open.who.int/2018-19/country-category/MMR/20>]. Accessed 3 Aug 2020

[4] Pandemic Influenza Preparedness Framework. 2020. "Biennial Progress Report 1 Jan 2018- 31 Dec 2019."

[<https://apps.who.int/iris/bitstream/handle/10665/332171/WHO-WHE-GIH-PIP-2020.1-eng.pdf?ua=1>]. Accessed 3 Aug 2020.

5.6.1c

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

Yes = 0 , No = 1

Current Year Score: 1

There is no publicly available evidence to conclude that Myanmar has not shared pandemic pathogen samples during an outbreak in the past two years. In January 2020, Samples were sent for COVID-19 testing to Thailand as the National Health Laboratory lacked proper equipment. [4] There is evidence of specimen sharing, such as when biological samples from

Myanmar were sent to Germany to be tested for Ebola in 2014 [1]. Samples for discovery of new viruses in Myanmar have also been sent to the One Health Institute Laboratory in the United States. This recently led to a discovery of a new virus [2]. Samples for foot-and-mouth disease outbreak in Myanmar in 2018 were also analysed in-country, with no evidence of samples being shared [3]. There is no evidence in international and local media that Myanmar has not shared pandemic pathogen samples during an outbreak.

[1] Kean, Thomas. 05 September 2014. "Blood Samples Negative for Ebola: Ministry". [<https://www.mmtimes.com/national-news/11547-blood-samples-negative-for-ebola.html>]. Accessed 3 Aug 2020.

[2] Smithsonian. 2 July 2018. "New Virus Discovered in Myanmar by Smithsonian's Global Health Program". [<https://www.si.edu/newsdesk/releases/new-virus-discovered-myanmar-smithsonian-s-global-health-program>]. Accessed 3 Aug 2020..

[3] OIE Report. [https://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?page_refer=MapFullEventReport&reportid=26700]. Accessed 3 Aug 2020.

[4] Myanmar Mix. 31 Jan 2020. "First suspected case of coronavirus in Myanmar, samples sent to Thailand". [<https://myanmarmix.com/en/articles/first-suspected-case-of-coronavirus-in-myanmar-samples-sent-to-thailand>]. Accessed 3 Aug 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: 0

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 0

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 0

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 28

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: 0

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: 0

2021

Economist Intelligence

6.1.3 Risk of social unrest

6.1.3a

What is the risk of disruptive social unrest?

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

Current Year Score: 0

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

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

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

Current Year Score: 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: 3

2020

UN Office of Drugs and Crime (UNODC)

6.1.4c

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

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

Current Year Score: 1

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 1

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: 0

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: 75.6

2016

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

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.54

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: 0.2

2017

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 Labor Force Survey published for the 1 Quarter of 2017, the share of employment in the informal sector was 60.2 percent at a national level. [1] The 2014 Census found that the share was at 56.2 percent. [2] There has not been an updated number since. [3]

[1] Ministry of Labour, Immigration and Population. September 2017. "Annual Labour Force Survey".

[https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-yangon/documents/publication/wcms_622556.pdf].

Accessed 6 Aug 2020.

[2] Ministry of Labour, Immigration and Population. "Myanmar Decent Work Country Programme 2018-2021".

[https://www.ilo.org/wcmsp5/groups/public/---ed_mas/---program/documents/genericdocument/wcms_651152.pdf

[2]]. Accessed 6 Aug 2020.

[3] International Labor Organization. [<https://ilostat.ilo.org/data/>]. Accessed 6 Aug 2020.

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 1

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

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

Input number

Current Year Score: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.31

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: 0

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

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

Current Year Score: 1

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 30.85

2019

World Bank

6.4.2 Land use

6.4.2a

Percentage point change in forest area between 2006–2016

Input number

Current Year Score: -4.56

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

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

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

Current Year Score: 0

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)

Input number

Current Year Score: 66.87

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: 673.7

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 6.01

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 45.5

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 5.8

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: 81.77

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 64.33

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: 43.26

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: 2

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