

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

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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: 0

There is no publicly available evidence of a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens in Yemen.

The World Health Organization (WHO) Library of National Action Plans website does not list Yemen as one of the countries with a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens. [1] The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission and does not provide evidence that Yemen has a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens. [2]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that Yemen has a national AMR plan for the surveillance, detection and reporting of priority AMR pathogens. [3, 4]

No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Library of National Action Plans". [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed on 27 December 2020.

[2] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed on 27 December 2020.

[3] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed on 27 December 2020.

[4] Ministry of Agriculture and Irrigation [<http://www.agricultureyemen.com>]. Accessed on 27 January 2021.

1.1.1b

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

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

Current Year Score: 0

There is no publicly available evidence that there is a national laboratory/laboratory system, which tests for priority AMR pathogens in Yemen.

The World Health Organization (WHO) Library of National Action Plans website does not list Yemen as one of the countries

with a national AMR plan and does not provide evidence that there is a national laboratory/laboratory system that tests for priority AMR pathogens. [1] The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as one of the countries that has undertaken a JEE mission; neither does it provide information showing that there is a national laboratory/laboratory system that tests for priority AMR pathogens. [2]

The Ministry of Public Health and Population website and the Ministry of Agriculture and Irrigation website have no evidence of such a laboratory or system. [3, 4]

No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Library of National Action Plans". [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed 27 December 2020.

[2] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 27 December 2020.

[3] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed on 27 December 2020.

[4] Ministry of Agriculture and Irrigation [<http://www.agricultureyemen.com>]. Accessed on 27 January 2021.

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the Yemeni government conducts detection or surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues or AMR organisms. The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that the government conducts detection or surveillance activities (e.g. in soil, waterways, etc.) for antimicrobial residues or AMR organisms. [1,2] The World Health Organization (WHO) Library of National Action Plans website does not list Yemen as one of the countries with a national AMR plan. [3] A study published in April 2020 by the National Center for Biotechnology Information on Antimicrobial Resistance Profiles for Different Isolates in Aden, Yemen, does not provide any evidence on existing detection or surveillance activities of antimicrobial or AMR organisms. [4]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed on 27 December 2020.

[2] Ministry of Agriculture and Irrigation [<http://www.agricultureyemen.com>]. Accessed on 27 December 2020.

[3] World Health Organization (WHO). "Library of National Action Plans". [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed on 27 December 2020.

[4] Badulla, W. et al. "Antimicrobial Resistance Profiles for Different Isolates in Aden, Yemen: A Cross-Sectional Study in a Resource-Poor Setting." [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195635/>]. Accessed 27 December 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 evidence that there is a national legislation or regulation in place requiring prescriptions for antibiotic use for humans in Yemen.

According to the government's National Information Center website, Law 26, 2002 concerning the medical and pharmaceutical professions states that it is prohibited for pharmacists to sell drugs for human use without prescriptions. The Law, nonetheless, does not include specific list of drugs prohibited to be sold without prescriptions and therefore, it does not explicitly/specifically mention antibiotics. [1]

A study published by the Research Gate in 2014 on pharmacy practice and its challenges in Yemen, mentions that dispensing medication without prescriptions is a major problem; the study further elaborates that the lack of implantation and dearth of laws and regulations is an impediment for the pharmacy practice in the country. [2] The Ministry of Public Health and Population website does not provide evidence that there is a national legislation or regulation in place requiring prescriptions for antibiotic use for humans. [3]

The World Health Organization (WHO) Library of National Action Plans website does not list Yemen as one of the countries with a national AMR plan. [4]

[1] National Information Center. Law 26, 2002. [https://yemen-nic.info/db/laws_je/detail.php?ID=11755#]. Accessed 27 December 2020.

[2] Al-Worafi, Y. "Pharmacy Practice and its Challenges in Yemen." [https://www.researchgate.net/publication/260379548_Pharmacy_practice_and_its_challenges_in_Yemen]. Accessed 27 December 2020.

[3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 27 December 2020.

[4] World Health Organization (WHO). "Library of National Action Plans". [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed 27 December 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 requiring prescriptions for antibiotic use for animals in Yemen.

Law 17, 2004 on regulation and protection of livestock in Yemen, does not state the prescriptions are required for selling medication for animal use. [1] Law 26, 2002, on the medical and pharmaceutical professions, although states that it is prohibited for pharmacists to sell drugs without prescriptions, the law only solely includes medication for human use. [2]

Neither the Ministry of Agriculture and Irrigation website nor the Ministry of Public Health and Population provide evidence that there is a national legislation or regulation in place requiring prescriptions for antibiotic use for animals. [3, 4] The World Health Organization (WHO) Library of National Action Plans website does not list Yemen as one of the countries with a national AMR plan. [5]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] National Information Center. Law 26, 2002. [https://yemen-nic.info/db/laws_je/detail.php?ID=11755#]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed on 27 December 2020.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed on 27 December 2020.

[5] World Health Organization (WHO). "Library of National Action Plans". [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>]. Accessed on 27 December 2020.

1.2 ZOOBOTIC 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 publicly available evidence that there is a national law, plan, or equivalent strategy document, on zoonotic disease in Yemen.

Law 17, 2004, concerning regulation and protection of livestock includes articles on surveillance of zoonotic diseases, especially those with epidemic potentials and that can be transmitted to humans. For example, section four on 'animal health' states that livestock/animal owners and traders are required to inform the relevant local authorities in cases where signs and symptoms of zoonotic diseases with pandemic potential appear in animals, this includes diseases that can be transferred to humans. Local authorities are then responsible of controlling and preventing the spread of such diseases through national monitoring and surveillance activities. As per the same law, the Ministry of Agriculture and Irrigation provides isolation facilities for infected animals, in addition to other disease containment measures as/when deemed necessary. [1]

The Yemen Agricultural Veterinary Market website, published a series of documents on zoonotic diseases, their source, transmission, symptoms and protection methods. [2, 3, 4]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that there is a national law, plan, or equivalent strategy document, on zoonotic disease. [5, 6]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [1]." [<http://www.ym-agrivet.net/?content=4&article=49>]. Accessed 27 December 2020.

[3] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [2]." [<http://www.ym-agrivet.net/?content=4&article=593>]. Accessed 27 December 2020.

[4] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [3]." [<http://www.ym-agrivet.net/?content=4&article=690>]. Accessed 27 December 2020.

[5] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[6] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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 of a national legislation which includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans in Yemen.

Law 17, 2004, concerning regulation and protection of livestock states that the Ministry of Agriculture and Irrigation is responsible for conducting studies and monitoring zoonotic diseases transmission to humans, with special focus on diseases with epidemic potentials. The ministry is also responsible for all necessary coordination work with relevant authorities and parties when it comes to risk identification and reduction of zoonotic diseases spread and spillover to humans. For example, section four on 'animal health' states that livestock/animal owners and traders are required to inform the relevant local authorities in cases where signs and symptoms of zoonotic diseases with pandemic potential appear in animals, this includes diseases that can be transferred to humans. Local authorities are then responsible of controlling and preventing such diseases through national monitoring and surveillance activities. As per the same law, the Ministry of Agriculture and Irrigation provides isolation facilities for infected animals, in addition to other disease containment measures as/when deemed necessary. [1] The law, nonetheless, is generic in terms of zoonotic diseases does not mention any specific diseases that are monitored or controlled in the country or a specific risk/reduction national plan.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide further evidence. [2, 3]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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: 0

There is insufficient publicly available evidence of a national legislation that accounts for the surveillance and control of multiple zoonotic pathogens of public health concern in Yemen.

Law 17, 2004, concerning regulation and protection of livestock states that the Ministry of Agriculture and Irrigation is responsible for conducting studies and monitoring zoonotic diseases transmission to humans, with special focus on diseases with epidemic potentials. The ministry is also responsible for all necessary coordination work with relevant authorities and parties when it comes to risk identification and reduction of zoonotic diseases spread and spillover to humans. As per the same law, the Ministry of Agriculture and Irrigation should provide isolation facilities for infected animals, in addition to other

disease-control measures as/when deemed necessary. [1] The law, nonetheless, is generic in terms of zoonotic diseases and does not mention any specific diseases that are monitored or controlled in the country.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide further evidence on this matter. [2, 3]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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 suggesting that there is a department, agency or similar unit dedicated to zoonotic disease that functions across ministries in Yemen.

Law 17, 2004, concerning regulation and protection of livestock states that the Ministry of Agriculture and Irrigation is responsible for conducting studies and monitoring zoonotic diseases transmission to humans, with special focus on diseases with epidemic potentials. The ministry is also responsible for all necessary coordination work with relevant authorities and parties when it comes to risk identification and reduction of zoonotic diseases spread and spillover to humans. [1] However, there is no indication of any work done by the ministry on this regards, and it remains unclear whether the ministry is functional on this front or not.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that there is a department or agency dedicated to zoonotic diseases and works across ministries. [2, 3]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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: 0

There is insufficient publicly available evidence suggesting that there is a national mechanism (either voluntary or mandatory) for owners of livestock to conduct and report on disease surveillance to a central government agency in Yemen.

Law 17, 2004, concerning regulation and protection of livestock states that the Ministry of Agriculture and Irrigation is responsible for conducting studies and monitoring zoonotic diseases with epidemic potentials. The ministry is also responsible for all necessary coordination work with relevant authorities and parties when it comes to risk identification and reduction of zoonotic diseases spread and spillover to humans. According to the same law, livestock owners should report to the Ministry of Agriculture and Irrigation in case of suspicion of any livestock diseases with epidemic potential. [1] However, there is no indication of any national communication mechanism or hot line for the ministry.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide further evidence. [2, 3]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there are laws or guidelines that safeguard the confidentiality of information generated through surveillance activities for animals (for owners) in Yemen.

Law 17, 2004, concerning regulation and protection of livestock states that the Ministry of Agriculture and Irrigation is responsible for conducting studies and monitoring zoonotic diseases with epidemic potentials. The ministry is also responsible for all necessary coordination work with relevant authorities and parties when it comes to risk identification and reduction of zoonotic diseases spread and spillover to humans. According to the same law, livestock owners should report to the Ministry of Agriculture and Irrigation in case of suspicion of any livestock diseases with epidemic potential. [1] However, the law does not include any regulations on the confidentiality of the information of livestock owners.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation and the National Information Center do not provide evidence of confidentiality regulations regarding information generated through surveillance activities for animals (for owners) in the country. [2, 3, 4]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 2020.

[4] The National Information Center. [<https://yemen-nic.info/index.php>]. Accessed 30 December 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: 0

There is no publicly available evidence that Yemen conducts surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc.). The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide any indication of zoonotic disease surveillance in wildlife. [1,2]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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: -

No data available

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: -

No data available

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that 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 in Yemen.

Law 17, 2004, concerning regulation and protection of livestock includes articles on surveillance of zoonotic diseases, especially those with epidemic potentials and that can be transmitted to humans. [1] The law, however, does not elaborate on the involvement the private sector.

The Yemen Agricultural Veterinary Market website, published a series of documents on zoonotic diseases, their source, transmission, symptoms and protection methods. The website does not provide indication of mechanisms for working with the private sector when it comes to controlling or responding to zoonotic diseases. [2, 3, 4]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that there is a national law, plan, or equivalent strategy document, on zoonotic disease or the involvement of the private sector when it comes to controlling such diseases. [5, 6]

[1] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 27 December 2020.

[2] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [1]." [<http://www.ym-agrivet.net/?content=4&article=49>]. Accessed 27 December 2020.

[3] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [2]." [<http://www.ym-agrivet.net/?content=4&article=593>]. Accessed 27 December 2020.

[4] Yemen Agricultural Veterinary Market. "Zoonotic Diseases Manual [3]." [<http://www.ym-agrivet.net/?content=4&article=690>]. Accessed 27 December 2020.

[5] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 27 December 2020.

[6] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 27 December 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 of 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 in Yemen.

There is no evidence of such a record via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation and Ministry of Defense. [1, 2, 3]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020; therefore, it does not provide evidence that the country has in place a record, updated within the past five years, of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on inventories and inventory management systems of those facilities. [4]

Also, the VERTIC database for Yemen does not provide evidence of such record. [5] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[4] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 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 of legislation and/or regulations related to biosecurity that 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 in Yemen.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that the country of such legislation or regulations. [1,2,3]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020, and therefore it does not provide evidence that the country has in place legislation and/or regulations related to biosecurity which address requirements such as physical containment, operation practices, failure reporting systems and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed. [4]

The VERTIC database for Yemen does not include information on legislation and/or regulations related to biosecurity in the country. [5] There is no indication of a Ministry of Research, national laboratory system or national public health institute in

Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[4] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

1.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations in Yemen.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that the country of biosecurity legislation or regulations, neither do they provide evidence that there is an established agency (or agencies) responsible for the enforcement of such legislation and regulations. [1,2,3]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020, and therefore it does not provide evidence that there is an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations. [4] The VERTIC database for Yemen does not include information on legislation and/or regulations related to biosecurity in the country, or any agency responsible for that. [5]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[4] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 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 publicly available evidence that the Yemen has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation and the Ministry of Defense do not provide evidence that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. [1, 2, 3]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020. [3] The VERTIC database for Yemen does not provide information relevant to this issue. [4]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[4] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 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: 0

There is no evidence that there is an in-country capacity in Yemen to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax and/or Ebola, which would preclude culturing a live pathogen.

According to the World Health Organization (WHO) website, Yemen have not completed any Joint External Evaluation (JEE) missions, and therefore, the country does not have a JEE report. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that there is an in-country capacity to conduct PCR-based diagnostic testing for anthrax and/or Ebola. [2,3,4] There is no publicly available indication or websites of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30

December 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 no publicly available evidence that Yemen requires biosecurity training, using a standardised, required approach, such as through a common curriculum or a train-the-trainer programme, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that the country requires such biosecurity training for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. [1, 2, 3]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having completed a JEE mission. [4] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020. [5] The VERTIC database for Yemen does not provide evidence of required biosecurity training for personnel working in facilities housing or working with especially dangerous materials with pandemic potential. [6]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[4] [1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[6] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 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 publicly available evidence that Yemen has in place regulations or licensing conditions specifying that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to the following checks: drug testing, background checks, and psychological or mental fitness checks.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having completed a JEE mission. [1] The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that the country has in place related legislation and/or regulations. [2,3,4] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020. [5] Neither the VERTIC database for Yemen nor the National Information center website provide evidence of legislation or regulation relevant to this matter. [6, 7] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

[6] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

[7] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of publicly available information on national regulations on the safe and secure transport of infectious substances (Categories A and B) in Yemen.

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, the Ministry of Defense, Yemen Airways and the Ministry of Transport do not provide evidence that the country has publicly available information on such regulations; [1,2,3,4,5] The VERTIC database for Yemen and the National Information Center do not provide evidence on regulations for safe transport of infectious substances. [6, 7] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building

Measure reports in 2018, 2019 and 2020. [8] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

- [1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.
- [2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.
- [3] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.
- [4] Yemen Airways. [<https://www.yemenia.com/cargo>]. Accessed 30 December 2020.
- [5] Ministry of Transport [<https://www.mot.gov.ye/>]. Accessed 30 December 2020.
- [6] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.
- [7] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 30 December 2020.
- [8] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 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 publicly available evidence of a 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.

There is no such evidence via websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, the Ministry of Defense or the National Information Center. [1, 2, 3, 4]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020. [5] The VERTIC database for Yemen does not provide evidence of such legislation or regulation in the country. [6]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

- [1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.
- [2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.
- [3] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.
- [4] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.
- [5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.
- [6] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>].

Accessed 30 December 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 no publicly available of national biosafety legislation and/or regulations in Yemen.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation website do not provide evidence that the country has in place national biosafety legislation and/or regulations. [1, 2]

Neither the VERTIC database for Yemen, nor the National Information Center website provide information on biosafety regulation or legislation. [3, 4] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020, and therefore it does not provide evidence that the country has in place national biosafety legislation and/or regulations. [5]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

[4] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 30 December 2020.

[5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 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 publicly available of an established agency responsible for the enforcement of biosafety legislation and regulations.

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation website do not provide evidence that the country has in place national biosafety legislation and/or regulations. [1, 2] Neither the VERTIC database for Yemen, nor the National Information Center website provide information on biosafety regulation or legislation. [3, 4]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 or 2020, and therefore it does not provide evidence that the country has in place national biosafety legislation and/or regulations. [5]

There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[3] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

[4] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 30 December 2020.

[5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 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 no publicly available evidence that Yemen requires biosafety training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1] The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that Yemen requires biosafety training, using a standardized, required approach, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. [2, 3]

Neither the VERTIC database for Yemen nor the National Information Center website provide indication of such requirement in the country. [4, 5] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 and 2020. [6] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[4] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

[5] National Information Center. Law 17, 2004. [https://yemen-nic.info/agri/agrin_yemen/animal.php]. Accessed 30

December 2020.

[6] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Yemen has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, and/or other dual-use research.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide 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. [2, 3, 4]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 and 2020. [5] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[5] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 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 no publicly evidence of a national policy requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential in Yemen.

The World Health Organization (WHO) Joint External Evaluation mission reports website does not list Yemen as having undertaken a JEE mission. [1] The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence that there is a national policy requiring oversight of dual-use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. [2, 3, 4]

Neither the VERTIC database for Yemen nor the National Information Center website provide indication of such national policy. [5, 6] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 and 2020. [7] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.

[5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.

[6] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[7] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

1.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly evidence of an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research.

The World Health Organization (WHO) Joint External Evaluation mission reports website does not list Yemen as having undertaken a JEE mission. [1] The websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, and the Ministry of Defense do not provide evidence 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. [2, 3, 4]

Neither the VERTIC database for Yemen nor the National Information Center website provide indication of such an agency. [5, 6] The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 and 2020. [7] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

- [1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.
- [2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.
- [3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.
- [4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.
- [5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.
- [6] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.
- [7] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 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 publicly available evidence that there is a national legislation, regulation, policy, or other guidance, requiring the screening of synthesised DNA before it is sold in Yemen.

No such evidence is available via the websites of the Ministry of Transport, the Ministry of Public Health, the Ministry of Agriculture or the Ministry of Defense. [1, 2, 3, 4] Neither the VERTIC database for Yemen nor the National Information Center website provide indication of national legislation, regulation, policy, or other guidance, requiring the screening of synthesised DNA before it is sold in the country. [5, 6]

The UN Biological Weapons Convention Confidence Building Measures website does not list Yemen among the countries that submitted Confidence Building Measure reports in 2018, 2019 and 2020. [7] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

- [1] Ministry of Transport [<https://www.mot.gov.ye/>]. Accessed 30 December 2020.
- [2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.
- [3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 30 December 2020.
- [4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 30 December 2020.
- [5] VERTIC. "Yemen." [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/y/>]. Accessed 30 December 2020.
- [6] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.
- [7] United Nations Biological Weapons Convention. "Confidence Building Measures". [<https://bwc-ecbm.unog.ch/>]. Accessed 30 December 2020.

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

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

Current Year Score: 0

2019

World Health Organization

1.6.1b

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

Yes = 1, No = 0

Current Year Score: 0

2020

OIE WAHIS database

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

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

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

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

Current Year Score: 0

There is no publicly available evidence of a national laboratory system that has the capacity to conduct diagnostic tests for at least five of the ten WHO-defined core tests in Yemen.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having

undertaken a JEE mission. [1] The Ministry of Public Health and Population website does not provide evidence that the national laboratory system have the capacity to conduct diagnostic tests for at least five of the ten WHO-defined core tests. [2] Neither does the World Organization for Animal Health (OIE) country reports website nor the WHO's Yemen country profile page. [3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 30 December 2020.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 30 December 2020.

[3] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 30 December 2020.

[4] WHO "Yemen Country Profile" [<https://www.who.int/countries/yem/en/>]. Accessed 30 December 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 no publicly available evidence of a national plan, strategy or similar document for conducting testing during a public health emergency, which includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing in Yemen.

Neither the website of the Ministry of Health and Population nor the planning and development page include a plan, strategy or similar document for testing during health emergencies. [1, 2] The website of the Ministry of Agriculture and Irrigation does not include indication of such a plan. [3] There is no indication of a Ministry of Research, national laboratory system or national public health institute in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Health and Population. "Health Planning and Development." [http://moh.gov.ye/sec_files.aspx?id=1]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence of 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]) in Yemen.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that there is a national or regional laboratory that serves as a reference facility for the country. [2, 3]

The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [4, 5] No national laboratory system or national public health institute websites were located.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[5] World Health Organization. "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

2.1.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that there is a national or regional laboratory that serves as a reference facility in Yemen which is subject to external quality assurance review.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation website do not provide evidence that there is a national or regional laboratory that serves as a reference facility for the country. [2, 3]

The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [4, 5]

No national laboratory system or national public health institute websites were located.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[5] World Health Organization. "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there is a nationwide specimen transport system in Yemen.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence of a nationwide specimen transport system. [2, 3] The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [4, 5]

No national laboratory system or national public health institute websites were located.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[5] World Health Organization. "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

2.2.2 Laboratory cooperation and coordination

2.2.2a

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

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

Current Year Score: 0

There is no publicly available evidence of 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 in Yemen.

Law 60, issued in 1999, on Specialized Medical and Health Facilities provides regulations for the registration of medical facilities including laboratories. The law, nonetheless, does not include articles on expedited authorization or licensing processes during public health outbreaks. [1, 2]

The websites of the Ministry of Health and Population and the Ministry of agriculture and Irrigation do not provide indication of a plan in place to rapidly authorize or license laboratories during health outbreaks. [3, 4] No national laboratory system or

national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] National Information Center. Law 60, 1990. [https://yemen-nic.info/contents/laws_ye/detail.php?ID=6105]. Accessed 3 January 2021.

[2] PDF Yemen. "Specialized Medical and Health Facilities Law."

[http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[4] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

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: 0

There is no publicly available evidence that Yemen is conducting ongoing event-based surveillance and analysis for infectious disease.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that the country is conducting ongoing event-based surveillance and analysis for infectious disease. [2, 3]

The World Health Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [4, 5]

No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[5] World Health Organization. "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has reported potential public health emergencies of international concern (PHEICs) to the World Health Organization (WHO) within the past two years including for Covid-19.

The WHO Disease Outbreak News page does not provide evidence that Yemen reported potential PHEIC outbreak in 2018, 2019 or 2020; the last report was a Diphtheria outbreak in December 2017. [1] The Ministry of Public Health and Population website does not provide evidence that the country has reported potential PHEICs to the WHO within the past two years. [2] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Disease Outbreak News". [<https://www.who.int/csr/don/22-december-2017-diphtheria-yemen/en/>] Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 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 insufficient publicly available evidence that the Yemeni government operates an electronic reporting surveillance system at both the national and sub-national level.

According to the World Health Organization (WHO) media center, WHO in collaboration with the Yemeni government has activated the Early Warning and Response System (EWARS) in the country to detect, report and respond to epidemic diseases. The WHO reported that in 2019, the system recorded more than 78,000 cases of monitored diseases. [1, 2] Data is broken down by age, gender, situation and governorate. [3] The websites of the Ministry of Public Health and Population, however, last updated the weekly bulletins in January 2018 and data on the website is inaccessible. [4] However, there is no evidence suggesting that the system covers all governorates in the country including those that are out of the government-control regions.

Also, in collaboration with the Ministry of Health and population, WHO organized a workshop in October 2019 to develop an action plan to evaluate the country's surveillance system which is based on the Early Warning Alert and Response Network (EWARN). [5] The action plan, however, does not seem to be publicly available as of yet.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [6] The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that the government operates an electronic reporting surveillance system at both the national and sub-national level. [7, 8]

- [1] World Health Organization. "WHO continues to monitor, prevent and control infectious diseases in Yemen." [http://www.emro.who.int/ar/2019-arabic/who-remains-vigilant-in-the-detection-prevention-and-control-of-communicable-diseases-in-yemen.html]. Accessed 3 January 2021.
- [2] Relief Web. "Yemen: Weekly Epidemiological Bulletin: Volume 08, Issue40, Epi week 40 (28 September - 4 October,2020)." [https://reliefweb.int/report/yemen/yemen-weekly-epidemiological-bulletin-volume-08-issue40-epi-week-40-28-september-4]. Accessed 3 January 2021.
- [3] Humanitarian Response. "Yemen eDEWS Weekly Bulletins 40 2020." [https://www.humanitarianresponse.info/en/operations/yemen/infographic/yemen-edews-weekly-bulletins-40-2020-en-ar]. Accessed 3 January 2021.
- [4] Ministry of Public Health. "Weekly Epidemiological Bulletin of the eDEWS 2018." [http://www.yemen.gov.ye/portal/moh/الإصدارات/tabid/2590/Default.aspx]. Accessed 3 January 2021.
- [5] World Health Organization. "Evaluating Yemen's disease surveillance and early warning system." [http://www.emro.who.int/pandemic-epidemic-diseases/news/evaluating-yemens-disease-surveillance-and-early-warning-system.html]. Accessed 3 January 2021.
- [6] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/]. Accessed 3 January 2021.
- [7] Ministry of Public Health and Population. [http://www.moh.gov.ye/english/NHDC.html]. Accessed 3 January 2021.
- [8] Ministry of Agriculture and Irrigation. [https://www.agricultureyemen.com/]. Accessed 3 January 2021.

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 no publicly available evidence that the electronic reporting surveillance system collects ongoing or real-time laboratory data in Yemen.

According to the World Health Organization (WHO) media center, WHO in collaboration with the Yemeni government has activated the Early Warning and Response System (EWARS) in the country to detect, report and respond to epidemic diseases. The WHO reported that in 2019, the system recorded more than 78,000 cases of monitored diseases. [1, 2] Although data is published through weekly bulletins and is broken down by age, gender, situation and governorate, [3] it is not available through the govrnemnt websites, such as the Ministry of Health and Population website.

Also, in collaboration with the Ministry of Health and population, WHO organized a workshop in October 2019 to develop an action plan to evaluate the country's surveillance system which is based on the Early Warning Alert and Response Network (EWARN). According to the same source, the system monitors 28 diseases with six being immediately reported and 22 reportable on weekly basis. [4] The websites of the Ministry of Public Health and Population, however, last updated the weekly bulletins in January 2018 and data on the webste is inaccessible. [5]

The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [6] The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide further evidence that the government operates an electronic reporting surveillance system collects ongoing or real-time laboratory data. [7, 8]

- [1] World Health Organization. "WHO continues to monitor, prevent and control infectious diseases in Yemen." [http://www.emro.who.int/ar/2019-arabic/who-remains-vigilant-in-the-detection-prevention-and-control-of-communicable-

diseases-in-yemen.html]. Accessed 3 January 2021.

[2] Relief Web. "Yemen: Weekly Epidemiological Bulletin: Volume 08, Issue40, Epi week 40 (28 September - 4 October, 2020)." [https://reliefweb.int/report/yemen/yemen-weekly-epidemiological-bulletin-volume-08-issue40-epi-week-40-28-september-4]. Accessed 3 January 2021.

[3] Humanitarian Response. "Yemen eDEWS Weekly Bulletins 40 2020." [https://www.humanitarianresponse.info/en/operations/yemen/infographic/yemen-edews-weekly-bulletins-40-2020-en-ar]. Accessed 3 January 2021

[4] World Health Organization. "Evaluating Yemen's disease surveillance and early warning system." [http://www.emro.who.int/pandemic-epidemic-diseases/news/evaluating-yemens-disease-surveillance-and-early-warning-system.html]. Accessed 3 January 2021.

[5] Ministry of Public Health. "Weekly Epidemiological Bulletin of the eDEWS 2018." [http://www.yemen.gov.ye/portal/moh/الإصدارات/tabid/2590/Default.aspx]. Accessed 3 January 2020.

[6] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/]. Accessed 3 January 2021.

[7] Ministry of Public Health and Population. [http://www.moh.gov.ye/english/NHDC.html]. Accessed 3 January 2021.

[8] Ministry of Agriculture and Irrigation. [https://www.agricultureyemen.com/]. Accessed 3 January 2021.

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

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

Current Year Score: 0

There is no publicly available evidence that electronic health records commonly in use in Yemen.

The Ministry of Public Health and Population website does not provide evidence that electronic health records are used at all in Yemen. [1]

No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [http://www.moh.gov.ye/english/NHDC.html]. Accessed 27 January 2021.

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 no publicly available evidence that the national public health system in Yemen has access to electronic health records of individuals in their country.

The Ministry of Public Health and Population website does not provide evidence that electronic health records are used at all in Yemen. [1] Due to the ongoing war in Yemen since 2015, public healthcare is non-existent, according to the World Health Organisation (WHO). [2] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 27 January 2021.

[2] World Health Organisation (WHO). "Health system in Yemen close to collapse". 2015. [<https://www.who.int/bulletin/volumes/93/10/15-021015/en/>]. Accessed 27 January 2021.

2.4.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there are data standards to ensure data is comparable (e.g. ISO standards) in Yemen.

The Ministry of Public Health and Population website does not provide evidence that electronic health records are used at all in Yemen; therefore, there is no evidence that there are data standards to ensure data is comparable. [1] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data (such as through mosquito surveillance, brucellosis surveillance, etc.).

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1] There is no evidence available via the websites of the Ministry of Public Health and Population, The Ministry of Agriculture and Irrigation or the Ministry of Water and Environment indicating that there are established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data. [2, 3, 4]

The World Organization for Animal Health (OIE) PVS Evaluation Reports website does not list Yemen as having a publicly available PVS Evaluation report. [5] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

- [1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/]. Accessed 3 January 2021.
- [2] Ministry of Public Health and Population. [http://moh.gov.ye/en/home.aspx]. Accessed 3 January 2021.
- [3] Ministry of Agriculture and Irrigation. [https://www.agricultureyemen.com/]. Accessed 3 January 2021.
- [4] Ministry of Water and Environment. [http://www.mwe.gov.ye]. Accessed 3 January 2021.
- [5] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen makes de-identified health surveillance data on disease outbreaks publicly available via reports (or other format) on government websites.

The World Health Organization (WHO) in collaboration with the Yemeni government has activated the Early Warning and Response System (EWARS) in the country to detect, report and respond to epidemic diseases. The WHO reported that in 2019, the system recorded more than 78,000 cases of monitored diseases. [1, 2] Data is broken down by age, gender, situation and governorate. [3] The websites of the Ministry of Public Health and Population, however, last updated the weekly bulletins in January 2018 and data is inaccessible. [4]

Additionally, the Ministry of Health and Population Facebook page posts updates on COVID-19 cases, recovery and death rates across the government-controlled areas; Houthi-controlled areas are not included in the statistics. Data is broken down by governorate and published irregularly. [5]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [6] The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that the government makes de-identified health surveillance data on disease outbreaks publicly available. [7, 8] The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [9, 10] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

- [1] World Health Organization. "WHO continues to monitor, prevent and control infectious diseases in Yemen." [http://www.emro.who.int/ar/2019-arabic/who-remains-vigilant-in-the-detection-prevention-and-control-of-communicable-diseases-in-yemen.html]. Accessed 3 January 2021.
- [2] Relief Web. "Yemen: Weekly Epidemiological Bulletin: Volume 08, Issue40, Epi week 40 (28 September - 4 October,2020)." [https://reliefweb.int/report/yemen/yemen-weekly-epidemiological-bulletin-volume-08-issue40-epi-week-40-28-september-4]. Accessed 3 January 2021.
- [3] Humanitarian Response. "Yemen eDEWS Weekly Bulletins 40 2020." [https://www.humanitarianresponse.info/en/operations/yemen/infographic/yemen-edews-weekly-bulletins-40-2020-en-ar]. Accessed 3 January 2021.
- [4] Ministry of Public Health. "Weekly Epidemiological Bulletin of the eDEWS 2018."

- [<http://www.yemen.gov.ye/portal/moh/الإصدارات/tabid/2590/Default.aspx>]. Accessed 3 January 2021.
- [5] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.
- [6] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports". [<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.
- [7] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.
- [8] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.
- [9] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.
- [10] WHO "Yemen Country Profile" [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

2.4.3b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the country makes de-identified COVID-19 surveillance data (including details such as daily case count, mortality rate, etc) available via daily reports (or other formats) on government websites (such as the Ministry of Health, or similar). The Ministry of Health and Population makes de-identified COVID-19 surveillance data including details such as daily case count and mortality rate on the ministries' Facebook page and Twitter account. Data is published frequently but irregularly and not on daily basis. [1, 2] The websites of the Ministry of Health and Population and Ministry of Defense do not include further evidence on COVID-19 surveillance data. [3, 4]

- [1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.
- [2] Ministry of Public Twitter Account. [https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.
- [3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.
- [4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

2.4.4 Ethical considerations during surveillance

2.4.4a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there are laws, regulations or guidelines that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities.

No evidence of such laws, regulations or guidelines is available via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation or the National Information Center. [1, 2, 3] No national laboratory

system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

2.4.4b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there are laws, regulations or guidelines that safeguard the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, neither there is evidence of laws or regulations relevant to protections from cyber-attacks.

No evidence of such laws, regulations or guidelines is available via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation or the National Information Center. [1, 2, 3] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

2.4.5 International data sharing

2.4.5a

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

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

Current Year Score: 0

There is no publicly available evidence that the Yemeni government has made a commitment via public statements, legislation, and/or a co-operative agreement to share surveillance data during a public health emergency with other countries in the region for one or more diseases.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The website of the Ministry of Public Health and Population, its Facebook page and Twitter account do not provide evidence that 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. [2, 3, 4] The website of the Ministry of Defense does not provide evidence of such commitment either. [5]

The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [6, 7] The website of the Middle East Consortium on Infectious Disease Surveillance Network does not list Yemen as a member country. [8] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[4] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[7] World Health Organization. "Yemen Country Profile" [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

[8] Middle East Consortium on Infectious Disease Surveillance [<http://www.mecidsnetwork.org>] Accessed 3 January 2021.

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

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

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

Current Year Score: 0

There is no publicly available evidence of a national system in place to provide support at the sub-national level (e.g. training, metrics standardization and/or financial resources) to conduct contact tracing in the event of an active or future public health emergency.

The websites of the Ministry of Health and Population, Ministry of Defense and National Information Center do not provide indication of a national system for conducting contract tracing in the event of public health emergencies. [1, 2, 3] The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [4] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3

January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

2.5.1b

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen 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.

The websites of the Ministry of Health and Population, Ministry of Defense and National Information Center do not provide indication of wraparound services in the country that enables cases and suspected cases to self-isolate as recommended, particularly economic support and medical attention. [1, 2, 3] The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [4] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

2.5.1c

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen makes de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites (such as the Ministry of Health, or similar).

The Ministry of Health and Population makes de-identified COVID-19 surveillance data including details such as case count and mortality rate on the ministries' Facebook page and Twitter account. Data is published frequently (weekly and sometimes more than once a week) but irregularly and not on daily basis. [1, 2] The websites of the Ministry of Health and

Population and Ministry of Defense do not include further evidence on COVID-19 surveillance data. [3, 4]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

2.5.2 Point of entry management

2.5.2a

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of an active or future public health emergency.

There is no evidence of such agreement via the websites of the Ministry of Health and Population, the Ministry of Defense, the Ministry of Foreign Affairs and the Ministry of Transportation. [1, 2, 3, 4] The generic entry procedures announced on the website of the Ministry of Foreign Affairs do not include indication of a joint plan or cooperative agreement between the public health system and border control authorities. [5]

In response to COVID-19 the Ministry of Foreign Affairs announced in September 2020 on its Twitter account new country entry requirements to avoid the spread of the virus in the country; restrictions include negative Polymerase Chain Reaction (PCR) test and self-quarantine; however, it is unclear if these restrictions come as part of a national plan or agreement with the public health system in the country or not. [6]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] Ministry of Foreign Affairs. [<https://www.mofa-ye.org/Pages/ar/>]. Accessed 3 January 2021.

[4] Ministry of Transportation. [<https://www.mot.gov.ye>]. Accessed 3 January 2021.

[5] Ministry of Foreign Affairs. "Yemen Entry Procedures." [<https://www.mofa-ye.org/Pages/عن-اليمن/إجراءات-الدخول-إلى-اليمن/>]. Accessed 3 January 2021.

[6] Ministry of Foreign Affairs Twitter Account. [https://twitter.com/yemen_mofa/status/1307304431260782592/photo/1]. Accessed 3 January 2021.

2.6 EPIDEMIOLOGY WORKFORCE

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

2.6.1a

Does the country meet one of the following criteria?

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

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

Current Year Score: 1

There is publicly available evidence that an applied epidemiology training programme (such as FETP) is available in Yemen, but there is no evidence that there are resources provided by the government to send citizens to another country to participate in such programmes.

The Task Force for Global Health (TEPHINET) website states that "the Ministry of Public Health and Population (MOPHP) has established the Yemen Field Epidemiology Training Program (Y-FETP) in 2011 in partnership with the U.S. Centres for Disease Control and Prevention (CDC) and the World Health Organization in Yemen." It also states that Yemen has been a member of TEPHINET since 2014. It does not provide evidence that there are resources provided by the government to send citizens to another country to participate in applied epidemiology training programs (such as FETP). [1]

The Y-FETP website does not provide evidence that the government provides resources to send citizens to another country to participate in applied epidemiology training programs such as FETP. [2]

No further evidence is available through the Ministry of Public Health and Population. [3]

[1] The Task Force for Global Health (TEPHINET). "Training Programs". [<https://www.tephinet.org/training-programs>]. Accessed 3 January 2021.

[2] Yemen Field Epidemiology Training Program (Y-FETP). [<http://www.yfetp.com/index.html>]. Accessed 27 January 2021.

[3] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence suggesting that the available field epidemiology training programme (FETP) is explicitly inclusive of animal health professionals, or if a specific animal health field epidemiology training programme is offered (such as FETPV).

No such evidence is available via the websites of the Task Force for Global Health (TEPHINET) or the Ministry of Public Health and Population. [1, 2] A paper published by TEPHINET on Yemen FETP does not mention that animal health professionals are included in such programs. [3]

[1] The Task Force for Global Health (TEPHINET). "Training Programs". [<https://www.tephinet.org/training-programs>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Al Serouri, A; et al. "Yemen Field Epidemiology Training Programme: A Tool for Strengthening the Public Health Workforce." [<https://www.tephinet.org/tephinet-learning-center/tephinet-library/yemen-field-epidemiology-training-programme-a-tool-for>]. Accessed 3 January 2021.

2.6.2 Epidemiology workforce capacity

2.6.2a

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

Yes = 1, No = 0

Current Year Score: 0

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has an overarching national public health emergency response plan in place which addresses planning for multiple communicable diseases with epidemic or pandemic potential.

The strategies page under both the Ministry of Health and Population and the Ministry of Defense do not include an overarching national public health response plan neither for communicable diseases with pandemic potential. [1, 2]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [3] The websites of the Ministry of Public Health and Population and the Ministry of Defense do not provide evidence that the country has a national public health emergency response plan in place that addresses planning for multiple communicable diseases with pandemic potential. [4, 5] The World Organization for Animal Health (OIE) PVS Evaluation Reports website does not list Yemen as having a publicly available PVS Evaluation report. [6]

[1] Ministry of Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. "Strategies."

[http://www.yemen.gov.ye/portal/moddefense_stoped/الاستراتيجيات/tabid/2377/Default.aspx]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

3.1.1b

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has an overarching national public health emergency response plan in place that has been updated in the last three years.

The strategies page under both the Ministry of Health and Population and the Ministry of Defense do not include an overarching national public health response plan for communicable diseases with pandemic potential. [1, 2]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [3] The websites of the Ministry of Public Health and Population and the Ministry of Defense do not provide evidence that the country has a national public health emergency response plan in place that addresses planning for multiple communicable diseases with pandemic potential. [4, 5]

The World Organization for Animal Health (OIE) PVS Evaluation Reports website does not list Yemen as having a publicly available PVS Evaluation report. [6]

[1] Ministry of Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. "Strategies."

[http://www.yemen.gov.ye/portal/moddefense_stoped/الاستراتيجيات/tabid/2377/Default.aspx]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3

January 2021.

3.1.1c

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has an overarching national public health emergency response plan in place that addresses planning for multiple communicable diseases with pandemic potential and includes considerations for pediatric and/or other vulnerable populations.

The strategies page under both the Ministry of Health and Population and the Ministry of Defense do not include an overarching national public health response plan neither for communicable diseases with pandemic potential. [1, 2]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [3] The websites of the Ministry of Public Health and Population and the Ministry of Defense do not provide evidence that the country has a national public health emergency response plan in place that addresses planning for multiple communicable diseases with pandemic potential. [4, 5]

The World Organization for Animal Health (OIE) PVS Evaluation Reports website does not list Yemen as having a publicly available PVS Evaluation report. [6]

[1] Ministry of Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. "Strategies."

[http://www.yemen.gov.ye/portal/moddefense_stoped/الاستراتيجيات/tabid/2377/Default.aspx]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the Yemen has specific mechanisms for engaging with the private sector to assist with outbreak emergency preparedness and response.

No evidence of such mechanisms is available via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation or the Ministry of Defense. [1, 2, 3]

[1] Ministry of Health and Population. "Health Planning and Development." [http://moh.gov.ye/sec_files.aspx?id=1]. Accessed 3 January 2021.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has a policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic for one or more diseases.

There is no evidence through the websites of the Ministry of Health and Population, Ministry of Defense and National Information Center. [1, 2, 3] The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [4] No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has a national emergency response plan for an infectious disease outbreak which has been activated in the past year; neither there is evidence that Yemen has completed a national-level biological threat-focused exercise, either with the World Health Organization (WHO) or separately, in the past year.

There is no evidence of a national emergency response plan for an infectious disease outbreak in Yemen or a national-level biological threat-focused exercise via the websites of the Ministry of Health and Population and the Ministry of Defense. [1, 2]

The WHO simulations page shows that Yemen has never completed a national-level biological threat-focused exercise. [3] The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [4] No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Simulation Exercise". [<https://extranet.who.int/sph/simulation-exercise>]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

3.2.1b

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen in the past year has undergone an exercise to identify 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.

The World Health Organization (WHO) After Action Review website, Simulation Exercise page and Yemen Country Profile do not provide evidence that the country has undergone an exercise to identify a list of gaps and best practices through either an after action review (post emergency response) or a biological threat-focused exercise with the WHO. [1, 2, 3]

Neither the website of the Ministry of Public Health and Population (including its "Press Releases" section) nor the website of the Ministry of Defense, which is the emergency management agency in the country, provide evidence relevant to such exercises in Yemen. [4, 5]

The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [6]

[1] World Health Organization (WHO). "After Action Review". [<https://extranet.who.int/sph/after-action-review>]. Accessed 3 January 2021.

[2] World Health Organization (WHO). "Simulation Exercise". [<https://extranet.who.int/sph/simulation-exercise>]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Yemen Country Profile". [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen in the past year has undergone a national-level biological threat-focused exercise that has included private sector representatives.

There is no evidence of a national-level biological threat-focused exercise that has been conducted via the websites of the Ministry of Health and Population and the Ministry of Defense; and therefore, private sectors representatives have not been involved in such exercises. [1, 2]

The World Health Organization (WHO) simulations page shows that Yemen has never completed a national-level biological threat-focused exercise with WHO. [3] The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [4]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No

national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Simulations Page." [<https://extranet.who.int/sph/simulation-exercise?region=All&country=294>]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has in place an Emergency Operations Centre (EOC).

According to the Ministry of Health and Population Facebook page and Twitter account, specifically posts on COVID-19 updates, a Supreme National Emergency Committee is in place and responsible for the response to COVID-19 pandemic. However, the website of the ministry does not provide information on this committee, and the committees' role and responsibilities are unknown. It also remains unclear whether this committee existed before the outbreak of COVID-19 or not. [1, 2]

No website or official social media account was identified for this Yemen Supreme National Emergency Committee. The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission, and therefore does not provide evidence that the country has an EOC in place. [3] No evidence of an EOC is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense. [4, 5]

The UN Office for Disaster Risk Reduction's Sendai Framework states that Yemen has not started reporting yet and therefore does not provide evidence that the country has an EOC in place. [6]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dyJlxfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] United Nations Office for Disaster Risk Reduction. "Sendai Monitor". [<https://sendaimonitor.unisdr.org/>]. Accessed 3

January 2021.

3.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has in place an Emergency Operations Centre (EOC) for public health emergencies; therefore there is no evidence of any requirement to conduct regular drills.

According to the Ministry of Health and Population Facebook page and Twitter account, specifically posts on COVID-19 updates, a Supreme National Emergency Committee is in place and responsible for the response to COVID-19 pandemic. However, the website of the ministry does not provide information on this committee, and the committees' role and responsibilities are unknown. It also remains unclear whether this committee existed before the outbreak of COVID-19 or not. [1, 2] No website or official social media account was identified for this Yemen Supreme National Emergency Committee.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission, and therefore does not provide evidence that the country has an EOC in place. [3] No evidence of an EOC is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense. [4, 5] The UN Office for Disaster Risk Reduction's Sendai Framework states that Yemen has not started reporting yet and therefore does not provide evidence that the country has an EOC in place. [6]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] United Nations Office for Disaster Risk Reduction. "Sendai Monitor". [<https://sendaimonitor.unisdr.org/>]. Accessed 3 January 2021.

3.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that that the Emergency Operations Center (EOC) in Yemen 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.

According to the Ministry of Health and Population Facebook page and Twitter account, specifically posts on COVID-19 updates, a Supreme National Emergency Committee is in place and responsible for the response to COVID-19 pandemic. However, the website of the ministry does not provide information on this committee, and the committees' role and responsibilities are unknown. It also remains unclear whether this committee existed before the outbreak of COVID-19 or not. [1, 2] No website or official social media account was identified for this Yemen Supreme National Emergency Committee.

The WHO Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission, and therefore does not provide evidence that the country has an EOC in place. [3] No evidence of an EOC is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense. [4, 5] The UN Office for Disaster Risk Reduction's Sendai Framework states that Yemen has not started reporting yet and therefore does not provide evidence that the country has an EOC in place. [6]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-0uz8YrWmUBg]. Accessed 3 January 2021.

[3] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[6] United Nations Office for Disaster Risk Reduction. "Sendai Monitor". [<https://sendaimonitor.unisdr.org/>]. Accessed 3 January 2021.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

Does the country meet one of the following criteria?

- Is there public evidence that public health and national security authorities have carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack)?

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

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

Current Year Score: 0

There is no publicly available evidence that public health and national security authorities in Yemen have carried out an exercise to respond to a potential deliberate biological event (i.e. bioterrorism attack) nor there is evidence that there are publicly available standard operating procedures, guidelines, MOUs or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e. bioterrorism attack).

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having

undertaken a JEE mission. [1] There is no such evidence via the websites of the Ministry of Public Health and Population, the Ministry of Defense, or the Ministry of Justice. [2, 3, 4]

The World Health Organization for Animal Health (OIE) PVS Evaluation Reports website does not list Yemen as having a publicly available PVS Evaluation report. [5]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[5] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Ministry of Justice. [<http://moj.gov.ye/>]. Accessed 3 January 2021.

[5] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of 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) in Yemen.

No evidence is available of such plan or legislation via the websites of the Ministry of Public Health and Population and the National Information Center. [1, 2]

The website of the Ministry of Defence, which is the relevant emergency management agency, does not provide evidence either. [3] Also, the Ministry of Health and Population's Facebook page and Twitter account do not include information on national risk communication plan or other relevant legislation/regulation. [4, 5]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[5] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-

Ouz8YrWmUBg]. Accessed 3 January 2021.

3.5.1 Risk communication planning

3.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has 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.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population and the National Information Center do not provide indication that the country has 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 specifically intended for use during a public health emergency. [2, 3] The website of the Ministry of Defense, which is the relevant emergency management agency, does not provide information relevant to this matter. [4]

Also, the Ministry of Health and Population's Facebook page and Twitter account do not include information on national health emergency response plan or other legislation, regulation or strategy documents detailing a risk communication plan specifically during health emergencies. [5, 6]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[5] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[6] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjXnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

3.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there is a risk communication plan (or other legislation, regulation or strategy document used to guide national public health response) in Yemen; and therefore, there is no evidence of a designated specific position within the government to serve as the primary spokesperson to the public during a public health emergency.

Since the outbreak of the COVID-19 pandemic, the Supreme National Emergency Committee under the Ministry of Health and Population, publishes the pandemic updates on the ministry's official social media outlets. [1, 2] However, the website of the ministry does not provide information on this committee, and its role and responsibilities are unknown. It also remains unclear whether this committee is part of a national risk communication plan or if it existed before the outbreak of COVID-19. [3]

No website or official social media account is identified for this Yemen Supreme National Emergency Committee. The website of the Ministry of Public Health and Population has a page for its designated spokesperson; however, the website does not specify or provide indication that the spokesperson is responsible for the ministry's public communications during health emergencies. The publications under this page do not suggest that the spokesperson communicates to the public during health emergencies. [4]

No evidence is available of a designated specific position within the government to serve as the primary spokesperson to the public during a public health emergency via the National Information Center website. [5] The website of the Ministry of Defense, which is the relevant emergency management agency, does not provide evidence either. [6] Also, the Ministry of Health and Population's Facebook page and Twitter account do not include information on a primary spokesperson to the public during a public health emergency. [1, 2] The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [7]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[3] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[4] Ministry of Health and Population. "News - spokesperson." [<http://moh.gov.ye/news.aspx?id=5>]. Accessed 3 January 2021.

[5] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[6] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[7] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 2

There is publicly available evidence that the government utilizes media platforms (social media, website updates, etc.) to inform the public about public health emergencies in Yemen.

The Ministry of Public Health and Population created its Facebook page in 2016 and its Twitter account in April 2020. The Ministry utilizes both, Facebook and Twitter, to regularly inform the public about updates of the sector and public health emergencies and the activities of the ministry such as health strategy development and achievements. [1, 2] Also, the government uses the social media outlets to inform the public about the COVID-19 situation in the country. [1,2] The Ministry of Health and Population also uses the news section of the website to communicate public health emergencies. [3]

[1] Ministry of Public Health Facebook Page. [<https://www.facebook.com/MHPYemen>]. Accessed 3 January 2021.

[2] Ministry of Public Twitter Account.

[https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.

[3] Ministry of Health and Population. "Media." [<http://moh.gov.ye/news.aspx?id=1>]. Accessed 3 January 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 suggesting that senior leaders (president or ministers) in Yemen have shared misinformation or disinformation on infectious diseases in the past two years. The websites of Reuters, BBC News, CNN and Al-Jazeera do not provide evidence of Yemeni senior leaders disseminating misinformation on infectious diseases in the past two years; [1, 2, 3, 4] neither does local news agencies such as Saba Net, Yemen Post and Yemen Now do not provide evidence on this matter. [5, 6, 7]

[1] Reuters. "Yemen." [<https://www.reuters.com/search/news?blob=Yemen>]. Accessed 3 January 2021.

[2] BBC News. "Yemen." [<https://www.bbc.co.uk/search?q=Yemen>]. Accessed 3 January 2021.

[3] CNN. "Yemen." [<https://edition.cnn.com/search?q=Yemen>]. Accessed 3 January 2021.

[4] Al-Jazeera. "Yemen." [<https://www.aljazeera.com/where/yemen/>]. Accessed 3 January 2021.

[5] Saba Net. [<https://www.saba.ye/en>]. Accessed 3 January 2021.

[6] Yemen Post. [<http://www.yemenpost.net>]. Accessed 3 January 2021.

[7] Yemen Now. [<https://yemen-now.net>]. Accessed 3 January 2021.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 26.72

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: 55.17

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: 26.0

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: 24

2019

- [1] Swiss Info. "Yemen Suspends Flights for Two Weeks Because of COVID-19." [https://www.swissinfo.ch/ara/reuters/-اليمن-45617430/كورونا-بسبب-الجوية-لمدة-أسبوعين-يرعلق-كل-الرحلات-الجوية-لمدة-أسبوعين-بسبب-كورونا]. Accessed 3 January 2021.
- [2] Ministry of Foreign Affairs Twitter Account. [https://twitter.com/yemen_mofa/status/1307304431260782592/photo/1]. Accessed 3 January 2021.
- [3] Ministry of Public Health and Population. [http://moh.gov.ye/en/home.aspx]. Accessed 3 January 2021.
- [4] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.
- [5] Ministry of Transportation. [https://www.mot.gov.ye]. Accessed 3 January 2021.
- [6] Ministry of Public Health Facebook Page. [https://www.facebook.com/MHPYemen]. Accessed 3 January 2021.
- [7] Ministry of Public Twitter Account. [https://mobile.twitter.com/YEMEN__MOH?fbclid=IwAR2v7yesNwwr_48NuWxQNWN5_TmEx1MJV6wh2_dYjlxnfZy-Ouz8YrWmUBg]. Accessed 3 January 2021.
- [8] Reuters. "Yemen." [https://www.reuters.com/search/news?blob=Yemen]. Accessed 3 January 2021.
- [9] BBC News. "Yemen." [https://www.bbc.co.uk/search?q=Yemen]. Accessed 3 January 2021.
- [10] CNN. "Yemen." [https://edition.cnn.com/search?q=Yemen]. Accessed 3 January 2021.
- [11] Al-Jazeera. "Yemen." [https://www.aljazeera.com/where/yemen/]. Accessed 3 January 2021.
- [12] Saba Net. [https://www.saba.ye/en]. Accessed 3 January 2021.
- [13] Yemen Post. [http://www.yemenpost.net]. Accessed 3 January 2021.
- [14] Yemen Now. [https://yemen-now.net]. Accessed 3 January 2021.

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

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

4.1.1 Available human resources for the broader healthcare system

4.1.1a

Doctors per 100,000 people

Input number

Current Year Score: 52.51

2014

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 78.52

2018

WHO; national sources

4.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has a public 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.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Labor and Social Affairs, and the Ministry of Education do not provide evidence that the country has a public workforce strategy in place (which has been updated in the past three years) to identify fields where there is an insufficient workforce and strategies to address these shortcomings. [2, 3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[3] Ministry of Labor and Social Affairs.

[<http://www.yemen.gov.ye/portal/mosal/%D8%A7%D9%84%D8%B1%D8%A6%D9%8A%D8%B3%D9%8A%D8%A9/tabid/2201/Default.aspx>]. Accessed 3 January 2021.

[4] Ministry of Education. [<http://www.yemenmoe.net/>]. Accessed 3 January 2021.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 71

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 no publicly available evidence that Yemen has the capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation facility located within the country.

The Ministry of Public Health and Population website does not provide evidence that the country has the capacity to isolate patients with highly communicable diseases in such a facility located within the country, neither does the websites of large hospitals in Yemen such as the Saudi German Hospital Sana'a, Modern European Hospital and Yemen International Hospital. [1, 2, 3, 4]

A Yemeni Press article that was published in February 2019 states that "Yemen hospitals lack equipment and isolation rooms, and corruption has made it much worse to provide medicine and healthcare services to patients". [5] Also, another article published in February 2020 on COVID-19 in the country, mentions that Yemen lacks the necessary basic medical supplies and isolation facilities. [6]

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[2] Saudi German Hospital Sana'a. [<https://sghsanaa.com/>]. Accessed 3 January 2021.

[3] Modern European Hospital. [<http://www.mehyemen.com>]. Accessed 3 January 2021.

[4] Yemen International Hospital. [<http://www.yihtaiz.com/>]. Accessed 3 January 2021.

[5] Yemeni Press. "Yemen Hospitals Lack Equipment". [<http://www.yemenipress.net/archives/135579>] Accessed 3 January 2021.

[6] Alaraby Aljadid. "Yemen: Doctors and health workers are concerned about the possibility of the spread of COVID-19." [<https://www.alaraby.co.uk/اليمن-الاطباء-والعاملون-الصحيون-متخوفون-من-احتمال-وصول-كورونا>]. Accessed 3 January 2021.

4.1.2c

Does the country meet one of the following criteria?

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

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak; neither that Yemen developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years.

The Ministry of Public Health and Population website does not provide evidence that the country has the capacity to isolate patients or with highly communicable diseases in such a facility located within the country, neither does the websites of large hospitals in Yemen such as the Saudi German Hospital Sana'a, Modern European Hospital and Yemen International Hospital. [1, 2, 3, 4]

A Yemeni Press article that was published in February 2019 states that "Yemen hospitals lack equipment and isolation rooms, and corruption has made it much worse to provide medicine and healthcare services to patients". [5] Also, another article published in February 2020 on COVID-19 in the country, mentions that Yemen lacks the necessary basic medical supplies and isolation facilities. [6]

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[2] Saudi German Hospital Sana'a. [<https://sghsanaa.com/>]. Accessed 3 January 2021.

[3] Modern European Hospital. [<http://www.mehyemen.com>]. Accessed 3 January 2021.

[4] Yemen International Hospital. [<http://www.yihtaiz.com/>]. Accessed 3 January 2021.

[5] Yemeni Press. "Yemen Hospitals Lack Equipment". [<http://www.yemenipress.net/archives/135579>] Accessed 3 January 2021.

[6] Alaraby Aljadid. "Yemen: Doctors and health workers are concerned about the possibility of the spread of COVID-19." [<https://www.alaraby.co.uk/اليمن-الاطباء-والعاملون-الصحيون-متخوفون-من-احتمال-وصول-كورونا>]. Accessed 3 January 2021.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

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

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

Current Year Score: 0

There is no publicly available evidence that there is a national procurement protocol in place that can be utilised by the Ministry of Health and Ministry of Agriculture for the acquisition of laboratory supplies (e.g. equipment, reagents and media) and medical supplies (e.g. equipment, PPE) for routine needs.

The High Authority for Tender Control website states that the government started a study regarding a centralised procurement system in 2011; however, it is unclear whether the system has been implemented. [1] The websites of the Ministry of Public Health and Population and the Ministry of Agriculture and Irrigation do not provide evidence that there is a national procurement protocol in place that can be utilised by both ministries for the acquisition of laboratory and medical supplies. [2, 3]

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission.[4]

[1] High Authority for Tender Control. [http://www.hatcyemen.org/about_us/info_unit/]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 3 January 2021.

[3] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[4] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 0

There is no publicly available evidence of a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency in Yemen.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Defense, and the Supreme Board for Drugs and Medical Equipment do not provide evidence that the country maintains a stockpile of medical supplies such as MCMs, medicines, vaccines, medical equipment, PPE during a public health emergency. [2, 3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 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 no publicly available evidence that the country maintains a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Defense, and the Supreme Board for Drugs and Medical Equipment do not provide evidence that the country maintains a stockpile of laboratory supplies for national use during a public health emergency. [2, 3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Defense, and the Supreme Board for Drugs and Medical Equipment do not provide evidence that the country maintains a stockpile of medical and/or laboratory supplies during a public health emergency; and hence there is no evidence of a required annual review of national stockpiles. [2, 3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 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 no publicly available evidence that Yemen has in place a plan/agreement to produce medical supplies (e.g. MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency; neither there is evidence that Yemen has in place a plan/agreement to procure medical supplies during a public health emergency.

There is no evidence such national plans via the websites of the Ministry of Health and Population, the Ministry of Defense, the Ministry of Foreign Affairs and the Federation of Yemeni Chambers of Commerce and Industry. [1, 2, 3, 4]

The National Information Center website, and the national health regulations published on the Yemeni Attorney General's Office website do not provide evidence of plans to produce or procure medical supplies for national use during public health

Current Year Score: 0

There is no publicly available evidence that there is a public plan in place to receive health personnel from other countries to respond to a public health emergency in Yemen.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission. [1]

The websites of the Ministry of Public Health and Population, the Ministry of Defence (the emergency planning agency), and the Supreme Board for Drugs and Medical Equipment do not provide evidence that there is a public plan in place to receive health personnel from other countries to respond to a public health emergency. [2, 3, 4]

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 3

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 44.7

2013

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: 112.53

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 that the Yemeni government has issued legislation, a policy or a public statement committing to provide prioritised healthcare services to healthcare workers who become sick as a result of responding to a public health emergency.

No evidence is available via the websites of the Ministry of Public Health and Population, the Ministry of Defence (the emergency planning agency), or the National Information Center. [1, 2, 3]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there is a system in place for public health officials and healthcare workers to communicate during a public health emergency in Yemen. No such evidence is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense (the emergency planning agency). [1, 2]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

4.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of a system for public health officials and healthcare workers to communicate during an emergency that encompasses healthcare workers in both the public and private sector. No such evidence is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense (the emergency planning agency). [1, 2]

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the national public health system in Yemen monitors for and tracks the number of healthcare associated infections (HCAIs) that take place in healthcare facilities.

The World Health Organization (WHO) Joint External Evaluation (JEE) mission reports website does not list Yemen as having undertaken a JEE mission, and therefore does not provide evidence that the national public health. [1]

The Ministry of Public Health and Population website does not provide evidence that the national public health system monitors or tracks the number of HCAIs that take place in healthcare facilities. [2] No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization (WHO). "Joint External Evaluation (JEE) mission reports".

[<https://www.who.int/ihr/procedures/mission-reports-eastern-mediterranean/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there is a national requirement for ethical review (for example, from an ethics committee or via Institutional Review Board approval) before beginning a clinical trial in Yemen.

No evidence of such a requirement is available via the websites of the Ministry of Public Health, the Supreme Board for Drugs and Medical Equipment or the National Information Center. [1, 2, 3]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No

national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence of an expedited process for approving clinical trials for unregistered medical countermeasures to treat ongoing pandemics in Yemen.

There is no evidence that there is an expedited process in place via the websites of the Ministry of Public Health, the Supreme Board for Drugs and Medical Equipment or the National Information Center. [1, 2, 3] No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is publicly available evidence of a government agency responsible for approving new medical countermeasures (MCM) for humans in Yemen.

According to its website, the Supreme Board for Drugs and Medical Equipment is the government entity responsible for registering and approving new medical countermeasures for humans. [1] The website of the Ministry of Health and Population does not provide further evidence on this matter. [2]

[1] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

4.7.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that there is an expedited process for approving medical countermeasures for human use during public health emergencies.

No evidence of such expedited process is available via the websites of the Ministry of Public Health and Population or the Supreme Board for Drugs and Medical Equipment. [1, 2]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Supreme Board for Drugs and Medical Equipment. [<http://www.sbd-ye.org/>]. Accessed 3 January 2021.

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that pandemics are integrated into the national risk reduction strategy or that there is a standalone national disaster risk reduction strategy for pandemics in Yemen.

The websites of the Ministry of Public Health and Population and the Ministry of Defense do not provide evidence of a national disaster risk reduction strategy for pandemics. [1, 2]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

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

5.2.1 Cross-border agreements

5.2.1a

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

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

Current Year Score: 0

There is no publicly available evidence that Yemen has cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies.

No evidence of such agreements is available via the websites of the Ministry of Public Health and Population or the Ministry of Defense. [1, 2]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3

January 2021.

5.2.1b

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

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

Current Year Score: 0

There is no evidence that Yemen has cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to animal health emergencies.

No evidence of such agreements is available via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, or the Ministry of Defense. [1,2,3] The World Organization for Animal Health (OIE) country reports page and the WHO's Yemen Country Profile website also provide no such evidence. [4, 5]

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

[3] Ministry of Defense. [http://www.yemen.gov.ye/portal/moddefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[4] OIE "Country Reports" [https://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Countryreports]. Accessed 3 January 2021.

[5] WHO "Yemen Country Profile" [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

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

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

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

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

Yes = 1, No = 0

Current Year Score: 0

2021

Biological Weapons Convention

5.3.1c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

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

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

Current Year Score: 0

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

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

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

Current Year Score: 1

2021

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

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

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

5.4.1a

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

Yes = 1, No = 0

Current Year Score: 0

2021

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

5.4.1b

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

Yes = 1, No = 0

Current Year Score: 0

2021

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

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

5.4.2a

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

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.4.2b

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

Yes = 1, No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has allocated national funds to improve capacity to address epidemic threats within the past three years.

No such evidence is found through the President of Yemen website, the Yemeni Government Portal, the websites of the Ministry of Health and Population, the Ministry of Foreign Affairs, or the Ministry of Agriculture and Irrigation. [1, 2, 3, 4, 5]

Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] President Hadi. [<https://presidenthadi-gov-ye.info/ar/>]. Accessed 27 January 2021.

[2] Yemeni Government Portal. [<http://www.yemen.gov.ye/portal/>]. Accessed 27 January 2021.

[3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 7 January 2021.

[4] Ministry of Foreign Affairs. [<https://www.mofa-ye.org/Pages/ar/>]. Accessed 7 January 2021.

[5] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 7 January 2021.

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

5.5.2a

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

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

Current Year Score: 0

2021

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

5.5.2b

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

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

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

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

Yes = 1 , No = 0

Current Year Score: 1

There is a publicly identified special emergency public financing mechanism and funds that Yemen can access in the face of a public health emergency.

The International Development Association (IDA) website states that Yemen is eligible for funding. [1] The Pandemic Emergency Financing Facility (PEF) operational brief, published in November 2017, states the conditions for receiving emergency funding; Yemen is eligible to receive emergency funding as per these conditions. [2]

The UN Central Emergency Response Fund 10 Years report, published in 2016, states that Yemen received more than US\$150m in emergency aid between 2006 and the end of 2015. It also states that Yemen was one of the top ten countries receiving emergency aid globally. [3]

The Ministry of Public Health and Population does not provide evidence that there is a publicly identified special emergency public financing mechanism or funds that the country can access in the face of a public health emergency. [4]

[1] International Development Association (IDA). "Borrowing Countries". [<http://ida.worldbank.org/about/borrowing-countries>]. Accessed 7 January 2021.

[2] Pandemic Emergency Financing Facility (PEF). November 2017. "Operational Brief for Eligible Countries". [<http://pubdocs.worldbank.org/en/574211510673362977/PEF-Operational-Brief-Nov-2017.pdf>]. Accessed 7 January 2021.

[3] UN Central Emergency Response Fund. 2016. "10 Years Report". [https://reliefweb.int/sites/reliefweb.int/files/resources/CERF10layout_AR_20160518.compressed.pdf]. Accessed 7 January 2021.

[4] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 7 January 2021.

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

5.5.4a

Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:

- Support other countries to improve capacity to address epidemic threats by providing financing or support?
- Improve the country's domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity?

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

Current Year Score: 0

There is no publicly available evidence that senior leaders (the president or ministers) in Yemen 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 nor to improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity in the past three years.

There is no evidence of such commitment via the World Health Organization (WHO) Yemen Country Profile page or the websites of the Ministry of Public Health and Population, the Ministry of Foreign Affairs, the Ministry of Defense or the Ministry of Agriculture and Irrigation. [1, 2, 3, 4, 5]

No evidence of such a commitment is available via international and local media outlets. No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] World Health Organization. "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 3 January 2021.

[2] Ministry of Public Health and Population. [<http://moh.gov.ye/en/home.aspx>]. Accessed 3 January 2021.

[3] Ministry of Foreign Affairs. [<https://www.mofa-ye.org/Pages/ar/>]. Accessed 3 January 2021.

[4] Ministry of Defense. [http://www.yemen.gov.ye/portal/modefense_stoped/الرئيسية/tabid/2365/Default.aspx]. Accessed 3 January 2021.

[5] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 3 January 2021.

5.5.4b

Is there evidence that the country has, in the past three years, either:

- Provided other countries with financing or technical support to improve capacity to address epidemic threats?
- Requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats?

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

Current Year Score: 1

There is publicly available evidence that Yemen requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats; however, there is no evidence that Yemen provided other countries with financing or technical support to improve capacity to address epidemic threats.

According to the Global Health Security Funding Tracker, Yemen between the years 2014 and 2020 received funds from

multiple international donors including International Development Association, UNICEF, and the World Health Organization, with the majority being disbursed on improving the country's emergency response operations, immunization and preparedness. [1] According to the website of the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Yemen received in 2020 around US\$20,000,000 for COVID-19 pandemic emergency response plan. [2] Also, in response to COVID-19, the World Bank announced emergency funding to mitigate the risks of the potential pandemic in Yemen. [3]

The Ministry of Health and Population website does not provide evidence that Yemen has invested finances from donors or provided technical support to improve its own domestic capacity to address epidemic threats to improve capacity in the past three years. [4]

There is no indication that Yemen has supported other countries to improve their capacity to address epidemic threats or sought to improve its own domestic capacity through the Ministry of Health and Population, Ministry of Foreign Affairs, or the World Health Organization (WHO) country page. [4, 5, 6] No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Global Health Security Costing. "Funding Tracker". [<https://tracking.ghscosting.org/#/data>]. Accessed May 2019.

[2] theUnited Nations Office for the Coordination of Humanitarian Affairs.

[https://fts.unocha.org/appeals/925/flows?order=directional_property&sort=asc]. Accessed 7 January 2021.

[3] The World Bank Group. [<https://www.worldbank.org/en/news/press-release/2020/04/02/new-us269-million-grant-for-yemen-to-fund-emergency-response-activities-related-to-coronavirus-covid-19-outbreak>]. Accessed 7 January 2021.

[4] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 7 January 2021.

[5] Ministry of Foreign Affairs. [<https://www.mofa-ye.org/Pages/ar/>]. Accessed 7 January 2021.

[6] World Health Organization (WHO). "Yemen Country Profile." [<https://www.who.int/countries/yem/en/>]. Accessed 7 January 2021.

5.5.4c

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

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

5.6.1a

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

Yes = 1, No = 0

Current Year Score: 0

There is no publicly available evidence that Yemen has a plan or policy 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.

There is no evidence of such a plan or policy via the websites of the Ministry of Public Health and Population, the Ministry of Agriculture and Irrigation, the National Information Center. [1, 2, 3]

A review of international and local news outlets including Reuters, BBC News, CNN, Al-Jazeera, Saba Net, Yemen Post and Yemen Now do not provide evidence related health data sharing plans or policies. [4, 5, 6, 7, 8, 9, 10].

No relevant academic studies or external documentation were located. Yemen does not have a Ministry of Research. No national laboratory system or national public health institute websites are publicly available and there is no indication that they exist in Yemen.

[1] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 7 January 2021.

[2] Ministry of Agriculture and Irrigation. [<https://www.agricultureyemen.com/>]. Accessed 7 January 2021.

[3] National Information Center. [https://yemen-nic.info/sectors/health/strategies/index.php?SHOWALL_2=1#nav_start_2]. Accessed 3 January 2021.

[4] Reuters. "Yemen." [<https://www.reuters.com/search/news?blob=Yemen>]. Accessed 7 January 2021.

[5] BBC News. "Yemen." [<https://www.bbc.co.uk/search?q=Yemen>]. Accessed 7 January 2021.

[6] CNN. "Yemen." [<https://edition.cnn.com/search?q=Yemen>]. Accessed 7 January 2021.

[7] Al-Jazeera. "Yemen." [<https://www.aljazeera.com/where/yemen/>]. Accessed 7 January 2021.

[8] Saba Net. [<https://www.saba.ye/en>]. Accessed 7 January 2021.

[9] Yemen Post. [<http://www.yemenpost.net>]. Accessed 7 January 2021.

[10] Yemen Now. [<https://yemen-now.net>]. Accessed 7 January 2021.

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 Yemen has not shared samples in accordance with the PIP framework in the past two years.

The World Health Organization (WHO) Yemen Country Profile page does not provide such evidence. [1]

The WHO Pandemic Influenza Preparedness Recipient Countries document states that Yemen is a recipient country, and does not provide evidence that the country has not shared samples in accordance with the PIP framework in the past two years. [2]

No such evidence is available via the website of the Ministry of Public Health or international. [3] A review of international and local news outlets including Reuters, BBC News, CNN, Al-Jazeera, Saba Net, Yemen Post and Yemen Now do not provide evidence that Yemen has not shared samples in accordance with the PIP framework in the past two years. [4, 5, 6, 7, 8, 9, 10].

[1] World Health Organization (WHO). "Yemen Country Profile". [<https://www.who.int/countries/yem/en/>]. Accessed 7 January 2021.

[2] World Health Organization (WHO). "Pandemic Influenza Preparedness Recipient Countries". [https://www.who.int/influenza/pip/benefit_sharing/hlipii_2018_19_countrylist.pdf]. Accessed 7 January 2021.

[3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 7 January 2021.

[4] Reuters. "Yemen." [<https://www.reuters.com/search/news?blob=Yemen>]. Accessed 7 January 2021.

[5] BBC News. "Yemen." [<https://www.bbc.co.uk/search?q=Yemen>]. Accessed 7 January 2021.

[6] CNN. "Yemen." [<https://edition.cnn.com/search?q=Yemen>]. Accessed 7 January 2021.

[7] Al-Jazeera. "Yemen." [<https://www.aljazeera.com/where/yemen/>]. Accessed 7 January 2021.

[8] Saba Net. [<https://www.saba.ye/en>]. Accessed 7 January 2021.

[9] Yemen Post. [<http://www.yemenpost.net>]. Accessed 7 January 2021.

[10] Yemen Now. [<https://yemen-now.net>]. Accessed 7 January 2021.

5.6.1c

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

Yes = 0, No = 1

Current Year Score: 1

There is no publicly available evidence that Yemen has not shared pandemic pathogen samples, including COVID-19 samples, during an outbreak in the past two years.

The World Health Organization (WHO) Yemen Country Profile page does not provide such evidence. [1]

The WHO Pandemic Influenza Preparedness Recipient Countries document states that Yemen is a recipient country, but it does not provide evidence that the country has not shared pandemic pathogen samples, including COVID-19 samples, during an outbreak in the past two years. [2]

No such evidence is available via the website of the Ministry of Public Health. [3] A review of international and local news outlets including Reuters, BBC News, CNN, Al-Jazeera, Saba Net, Yemen Post and Yemen Now do not provide evidence on this

matter. [4, 5, 6, 7, 8, 9, 10].

[1] World Health Organization (WHO). "Yemen Country Profile". [<https://www.who.int/countries/yem/en/>]. Accessed 7 January 2021.

[2] World Health Organization (WHO). "Pandemic Influenza Preparedness Recipient Countries". [https://www.who.int/influenza/pip/benefit_sharing/hlipii_2018_19_countrylist.pdf]. Accessed 7 January 2021.

[3] Ministry of Public Health and Population. [<http://www.moh.gov.ye/english/NHDC.html>]. Accessed 7 January 2021.

[4] Reuters. "Yemen." [<https://www.reuters.com/search/news?blob=Yemen>]. Accessed 7 January 2021.

[5] BBC News. "Yemen." [<https://www.bbc.co.uk/search?q=Yemen>]. Accessed 7 January 2021.

[6] CNN. "Yemen." [<https://edition.cnn.com/search?q=Yemen>]. Accessed 7 January 2021.

[7] Al-Jazeera. "Yemen." [<https://www.aljazeera.com/where/yemen/>]. Accessed 7 January 2021.

[8] Saba Net. [<https://www.saba.ye/en>]. Accessed 7 January 2021.

[9] Yemen Post. [<http://www.yemenpost.net>]. Accessed 7 January 2021.

[10] Yemen Now. [<https://yemen-now.net>]. Accessed 7 January 2021.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

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

Input number

Current Year Score: 1

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: 15

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: 0

2021

Economist Intelligence

6.1.4b

What is the level of illicit arms flows within the country?

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

Current Year Score: 0

2020

UN Office of Drugs and Crime (UNODC)

6.1.4c

How high is the risk of organized criminal activity to the government or businesses in the country?

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

Current Year Score: 0

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 0

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: 54.8

2008-2018

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

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.17

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: 4.2

2014

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 International Labour Force Survey, conducted between 2013 and 2014, employment in the informal sector in Yemen is estimated to be 73.2 per cent of the total employment in the country. [1]

[1] International Labor Organization Regional Office for Arab States. "Yemen Labor Force Survey 2013-2014." [https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/publication/wcms_419016.pdf]. Accessed 7 January 2021.

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 1

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 0

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

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

Input number

Current Year Score: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.37

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: 0

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: 0

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 37.27

2019

World Bank

6.4.2 Land use

6.4.2a

Percentage point change in forest area between 2006–2016

Input number

Current Year Score: 0

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: 66.1

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: 717.1

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 2.9

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 20.9

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 17.1

2016

WHO

6.5.2 Access to potable water and sanitation

6.5.2a

Percentage of homes with access to at least basic water infrastructure

Input number

Current Year Score: 63.47

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 59.05

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: -

2018

WHO Global Health Expenditure database

6.5.4 Trust in medical and health advice

6.5.4a

Trust medical and health advice from the government

Share of population that trust medical and health advice from the government , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018

6.5.4b

Trust medical and health advice from medical workers

Share of population that trust medical and health advice from health professionals , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018