Switzerland

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

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

1.1 ANTIMICROBIAL RESISTANCE (AMR)

1.1.1 AMR surveillance, detection, and reporting

1.1.1a

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

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

Current Year Score: 2

Switzerland has a national AMR strategy for the surveillance, detection and reporting of priority AMR pathogens. The Strategy on Antibiotic Resistance was published in 2015 [1, 2]. Switzerland has set up monitoring systems for four areas - humans, animals, agriculture and the environment - and the AMR strategy aims to improve current systems to allow more systematic nationwide surveillance. Switzerland's "Sentinella reporting system", a human health co-project between general practitioners and the Federal Office of Public Health, collects epidemiological data and monitors communicable and other acute conditions and looks into issues relating to the use of antibiotics. According to the World Health Organization's (WHO's) Joint External Evaluation, published in 2018, Switzerland scores five out of five points on the indicator "antimicrobial resistance detection", and four out of five points on the indicator "surveillance of infections caused by antimicrobial-resistant pathogens". The WHO notes that "Switzerland has the capability to detect new and emerging AMR features through interagency One Health collaboration between the public health and the veterinary/food safety sectors". It adds that "emerging AMR threats are monitored systematically by the National Reference Centre for Emerging Antibiotic Resistance (NARA), which fills the gap between data needed for patient management and data needed for public health. Results of resistance monitoring of a wide array of pathogens (based on antimicrobial susceptibility test results of all routine human clinical analyses) are published monthly" [3].

[1] Federal Council. 2015. "Strategy on Antibiotic Resistance". [https://www.star.admin.ch/dam/star/en/dokumente/strategiebericht-star.pdf.download.pdf/strategy-on-antibiotic-resistance-en.pdf]. Accessed 12 October 2020.
[2] World Health Organization.. "Library of national action plans. Switzerland." [www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 12 October 2020.
[3] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 12 October 2020.

1.1.1b

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

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

Current Year Score: 2

Switzerland has a national laboratory system that tests for all 7+1 priority AMR pathogens. Switzerland operates 30 national reference laboratories for human pathogens and 9 veterinary laboritories, located across the country [1]. The Swiss Centre for Antibiotic Resistance (Anresis) is a regional and national surveillance and research programme for antibiotic resistance and antibiotic consumption in human medicine [2]. The centre is operated by the Institute for Infectious Diseases, University of Bern. Anresis collects and publishes data on 7 priority antimicrobial (AMR) pathogens: E. coli, K. pneumoniae, S. aureus, S. pneumoniae, Salmonella spp., Shigella spp and N. gonorrhoeae [3]. The National Centre for Mycobacteriology at the University of Zurich, on behalf of the Federal Office of Public Health, conducts epidemiological testing for Mycobacterium tuberculosis, including for antibiotic resistant tuberculosis. [4]

[1] Swiss Centre for Antibiotic Resistance (Anresis), Institute for Infectious Diseases, University of Bern, 'Clinical microbiology laboratories linked with ANRESIS' [https://www.anresis.ch/antibiotic-resistance/laboratories/] accessed 12 October 2020
[2] Swiss Centre for Antibiotic Resistance (Anresis), 'Organisation' [https://www.anresis.ch/about-us/organisation/] accessed 12 October 2020
[3] Swiss Centre for Antibiotic resistance (ANRESIS). 'Publications'. [https://www.anresis.ch/pablication-category/anresis-publications/. Accessed 12 October 2020.
[4] University of Zurich Institute of Medical Microbiology. "National Center for Mycobacteriology". [https://www.imm.uzh.ch/de/services/mycobacteriology/NZM.html]. Accessed 12 October 2020.

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 1

The Swiss government conducts surveillance activities for antimicrobial residues and AMR organisms. The Swiss Federal Office for the Environment (FOEN), Switzerland's environmental agency, is one of the main agencies engaged in implementing the 2015 Strategy on Antibiotic Resistance [1, 2]. FOEN has a network of monitoring sites at waterways designed to detect the concentration of pharmaceuticals [3] . According to the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, "there is systematic monitoring of emerging AMR threats and common reporting of human & animal surveillance results, as well as environmental sampling in rivers and lakes" [4].

[1] Federal Office for the Environment" (FOEN). 2019. Website. [www.bafu.admin.ch/bafu/en/home.html]. Accessed 14 October 2020.
[2] The Federal Council. 2015. "Strategy on Antibiotic Resistance Switzerland". [www.star.admin.ch/dam/star/en/dokumente/strategiebericht-star.pdf.download.pdf/strategy-on-antibiotic-resistance-en.pdf]. Accessed 14 October 2020.
[3] Federal Office for the Environment. "Pharmaceuticals in groundwater". [www.bafu.admin.ch/bafu/en/home/topics/water/info-specialists/state-of-waterbodies/state-of-groundwater/groundwater-quality/pharmaceuticals-in-groundwater.html]. Accessed 14 October 2020.
[4] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 14 October 2020.

1.1.2 Antimicrobial control

1.1.2a

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

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

Current Year Score: 2

Switzerland has legislation requiring prescriptions for antibiotic use for humans, and there is no evidence of gaps in enforcement. The Federal Act on Medicinal Products and Medical Devices stipulates that the Swiss Agency for Therapeutic Products is responsible for defining prescription-only medicines [1]. As per the official listings and categorizations, in Switzerland antibiotics are only available on prescription [2]. Under the Therapeutic Products Act (adopted 2000, last amended January 2019) some prescription drugs can be prescribed by a pharmacist [3]. The most current version of this list was published in April 2020 by the Federal Health Agency, and does not include antibiotics. [4] Furthermore, the Swiss Agency for Therapeutic Products regularly updates its list of medications eligible for prescription [5]. There is no evidence that antibiotics can be bought without a prescription [6].

[1] Swiss Federal Council. "Federal Act on Medicinal Products and Medical Devices". [https://www.admin.ch/opc/en/classified-compilation/20002716/index.html#a23a]. Accessed 14 Oct 2020.
[2] Swiss Agency for Therapeutic Products. 20 July 2020. "Lists and Directories." [https://www.swissmedic.ch/swissmedic/en/home/services/listen_neu.html] accessed 26 October 2020
[3] Schweizer Radio und Fernsehen. 8 May 2015. "Also pharmacists may write prescriptions." ("Auch Apotheker dürfen Rezepte schreiben.") [www.srf.ch/news/schweiz/auch-apotheker-duerfen-rezepte-schreiben]. Accessed 14 April 2020.
[4] Federal Health Agency. April 2020. "Easier dispensing of prescription drugs." ("Erleichterte Abgabe von rezeptpflichtigen Arzneimitteln.") [https://www.bag.admin.ch/bag/de/home/medizin-und-forschung/heilmittel/abgabe-von-arzneimitteln.html#-1263374729 accessed 14 October 2020
[5] Swiss Agency for Therapeutic Products. 14 June 2019. "Revision of the law on therapeutic products - list of medicinal products transferred from dispensing category C to dispensing category B." ("Revision des Heilmittelrechts – Liste der von der Abgabekategorie C in die Abgabekategorie B umgeteilten Arzneimittel.") https://www.swissmedic.ch/swissmedic/de/home/news/mitteilungen/liste_abgabekategorie_c_abgabekategorie_bumgeteilten_am.html Accessed 14 October 2020
[6] Deutsche Apotheker Zeitung. 4 October 2019. "Which Rx drugs can now be dispensed directly." ("Welche Rx-Arzneimittel jetzt direkt abgegeben werden dürfen.") https://www.deutsche-apotheker-zeitung.de/news/artikel/2019/10/04-10-2019/welche-rx-arzneimittel-jetzt-direkt-abgegeben-werden-duerfen accessed 14 October 2020

1.1.2b

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

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

Current Year Score: 2

There is national legislation in place requiring prescriptions for antibiotic use in animals, and there is no evidence of gaps in enforcement. According to article 23a of Switzerland's Federal Law on Pharmaceuticals and Medical Devices (adopted 2000, last amended August 2020), which covers pharmaceuticals for animals as well as humans, the Swiss Agency for Therapeutic Products (Swissmedic) is responsible for determining which pharmaceuticals require prescriptions. [1] According to Swissmedic's current list of pharmaceuticals authorized for animal use in Siwtzerland, all of the most common antibiotics for animals (e.g. penicillin, betamox, pharmasin) require prescriptions. [2] The website of the Federal Food Safety and Veterinary Office (BLV) confirms that antibiotics for animal use require prescription from a veterinarian. [3, 4] Furthermore, there are

guidelines for best practices regarding animal medication, published by the Society of Swiss Veterinarians. [5]

[1] Federal Assembly of the Swiss Confederation. 15 December 2000. "Federal Law on Drugs and Medical Devices." ("Bundesgesetz Ã¼ber Arzneimittel und Medizinprodukte.") [https://www.admin.ch/opc/de/classified-compilation/20002716/index.html]. Accessed 19 November 2020.
[2] Swiss Agency for Therapeutic Products. 9 November 2020. "Lists and directories." ("Listen und Verzeichnisse.") [https://www.swissmedic.ch/swissmedic/de/home/services/listen_neu.html]. Accessed 19 November 2020.
[3] Federal Food Safety and Veterinary Office of the Swiss Confederation. 28 May 2020. "Appropriate use of antibiotics." ("SachgemÃ¤sser Antibiotikaeinsatz.") [https://www.blv.admin.ch/blv/de/home/tiere/tierarzneimittel/antibiotika/nationale-strategie-antibiotikaresistenzen--star--/sachgemaesser-antibiotikaeinsatz.html]. Accessed 26 November 2020.
[4] Federal Food Safety and Veterinary Office of the Swiss Confederation. 31 January 2019. "Veterinary pharmaceuticals." ("Tierarzneimittel.") [https://www.blv.admin.ch/blv/de/home/tiere/tierarzneimittel.html]. Accessed 26 November 2020.
[5] Society of Swiss Veterinarians. August 2018. "Guidelines on careful use of animal medication." ("Richtlinien zum sorgfÃ¤ltigen Umgang mit Tierarzneimitteln.") [https://www.gstsvs.ch/fileadmin/media/TAM/de/20180725_Richtlinien_Umgang_TAM_CICD_d_.pdf]. Accessed 26 November 2020.

1.2 ZOONOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has national legislation and a strategy on zoonotic disease. The current strategy concerning public veterinary health in Switzerland is based on the Swiss Animal Health Strategy 2010+, where the strategic objectives are: prevention; crisis prevention; control of animal epidemics and economically important animal diseases; international collaboration; and science, research and development [1]. In conjunction with this, Switzerland has legislation in place that empowers the relevant authority to deal with zoonotic diseases. The Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) gives the Federal Office of Public Health (FOPH) the authority to coordinate with other federal agencies and cantonal authorities in activities related to the investigation of zoonoses [2, 3]. The law also outlines the cooperation mechanisms between the central government and the cantons, and those for further coordination through a subsidiary One Health body. [2, 3] In the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, Switzerland gets full scores in the category assessing capabilities in the area of "Zoonotic Diseases" (the indicators being "surveillance systems in place for priority zoonotic diseases/pathogens", "veterinary or animal health workforce", and "mechanisms for responding to infectious and potential zoonotic diseases are established and functional"). [2] Zoonoses are also addressed in Switzerland's 2015 Strategy on Antibiotic Resistance [4]. According to the Epizootic Diseases Ordinance, zoonoses such as campylobacteriosis, salmonellosis, listeriosis, verocytotoxigenic E. coli (VTEC) infection, tuberculosis (caused by Mycobacterium bovis), brucellosis, trichinellosis and echinococcosis are subject to mandatory reporting. Apart from echinococcosis, the same zoonoses in humans are also subject to mandatory reporting under the FDHA Ordinance on Reporting Observations of Contagious Diseases in Humans [5].

[1] Federal Food Safety and Veterinary Office. 5 November 2019. "Swiss Animal Health Strategy 2010+." [https://www.blv.admin.ch/blv/en/home/das-blv/strategien/tiergesundheitsstrategie-schweiz.html]. Accessed 15 October 2020
[2] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 15 October 2020.
[3] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 6 November 2020.
[4] Swiss Federal Council. "Strategy on Antibiotic Resistance Switzerland". [www.star.admin.ch/dam/star/en/dokumente/strategiebericht-star.pdf.download.pdf/strategy-on-antibiotic-resistance-en.pdf]. Accessed 15 October 2020.
[5] Federal Food Safety and Veterinary Office. 22 July 2020. "Report on Monitoring of Zoonoses and Food-Borne Disease Outbreaks - 2019 Data." ("Bericht zur Überwachung von Zoonosen und lebensmittelbedingten Krankheitsausbrüchen - Daten 2019.") [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/ueberwachung/ueberwachung-von-zoonosen.html]. Accessed 26 November 2020.

1.2.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Switzerland has national legislation that includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. The Ordinance on Combating Communicable Diseases in Humans (adopted 2015, last amended March 2019) established “One Health”, the permanent executive organ designed to support cantonal and federal authorities in the detection, monitoring, prevention and control of zoonoses and vectors, as well as in the processing and coordination of other cross-divisional issues. [1, 2] In October 2018, One Health published a strategy informational graphic, in coordination with the European Commission and the World Organisation for Animal Health (OIE), outlining the measures taken to ensure food safety and prevent zoonotic spillovers on humans. [3] The document highlights the human consumption of animal products as the main risk for zoonotic transfer from animals to humans, and outlines the role of veterinarians in monitoring and ensuring safety at all stages of the food supply chain. [3] The document further highlights dog bites as a possible risks, describing them as the cause of 95% of human rabies infections worldwide, and outlines vaccination and surveillance as preventive measures. [3] There is no further evidence in the plans that would include measures for risk identification and reduction for zoonotic disease spillover events from animals to humans.

[1] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html]. Accessed 27 October 2020
[2] Federal Food Safety and Veterinary Office (FSVO). 29 December 2017. "Sub-organ One Health." ("Unterorgan One Health.") [https://www.blv.admin.ch/blv/de/home/das-blv/organisation/kommissionen/unterorgan-one-health.html] Accessed 27 October 2020
[3] Federal Food Safety and Veterinary Office (FSVO). 18 October 2018 ‘One Health - One Health for Everyone’. [https://www.blv.admin.ch/dam/blv/de/dokumente/das-blv/auftrag/infografik-oie-one-

health.pdf.download.pdf/Infografik%20OIE_One%20Health_DE.pdf] Accessed 27 October 2020

1.2.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has legislation that accounts for the surveillance and control of multiple zoonotic pathogens of public health concern. The Swiss Ordinance on Epizootic Diseases ("Tierseuchenverordnung; adopted 1995 and last updated July 2020") lays out the control measures and regulates the organization of animal disease control, as well as compensation for animal owners. [1] Section 1 of the ordinance identifies highly animal infectious diseases (foot-and-mouth disease; vesicular stomatitis; swine vesicular disease; peste des petits ruminants; rift valley fever; swine flu, avian influenza, among others). Section 2 identifies those diseases that the state is mandated to eliminate (anthrax; Aujeszky's disease; rabies; brucellosis in cattle; tuberculosis; among many others). Section 3 identifies more than a dozen animal diseases that the state seeks to combat; and Section 5 all animal diseases that must be monitored by the state.

[1] The Federal Council. 1995. "Tierseuchenverordnung". Last amended 12 February 2019. [www.admin.ch/opc/de/classified-compilation/19950206/index.html]. Accessed 17 October 2020.

1.2.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. The Federal Food Safety and Veterinary Office (FSVO) is responsible for zoonotic diseases, as well as other issues such as food safety, species conservation, and regulating animal testing [1]. The FSVO publishes reports on monitoring of zoonoses and food-borne disease outbreaks [2]. There is also the Center for Zoonoses, Animal Bacterial Diseases and Antimicrobial Resistance, a cooperation between the FSVO and the University of Bern, which provides diagnostics and monitors bacterial infections and is Switzerland's national reference laboratory for antimicrobial resistance and numerous agents of animal diseases [3]. However, there is no evidence of a department, agency or unit dedicated to zoonotic disease that functions across ministries on the websites of the FSVO, the Federal Office of Public Health or the Federal Office for Agriculture. [1, 4, 5]

[1] Federal Food Safety and Veterinary Office. [www.blv.admin.ch/blv/en/home.html]. Accessed 17 October 2020.
[2] Federal Food Safety and Veterinary Office. 22 July 2020. "Report on Monitoring of Zoonoses and Food-Borne Disease Outbreaks - 2019 Data." ("Bericht zur Überwachung von Zoonosen und lebensmittelbedingten Krankheitsausbrüchen - Daten 2019.") [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/ueberwachung/ueberwachung-von-zoonosen.html]. Accessed 16 October 2020.
[3] Center for Zoonoses, Animal Bacterial Diseases and Antimicrobial Resistance. [www.zoba.unibe.ch/]. Accessed 17 October 2020.
[4] Federal Office for Public Health. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 17 October 2020.
[5] Federal Office for Agriculture. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 17 October 2020.

1.2.2 Surveillance systems for zoonotic diseases/pathogens

1.2.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has a national mechanism for owners of livestock to report on disease surveillance to a central government agency. According to the World Health Organization's (WHO's) Joint External Evaluation of Switzerland and Liechtenstein, published in 2018, Switzerland has comprehensive surveillance of zoonoses and control systems in humans, animals and food. The WHO notes that "the system aims to collect accurate information on the occurrence of zoonotic agents at all stages of the food production chain". Under the Epizootic Diseases Ordinance ("Tierseuchenverordnung"; adopted 1995 and last updated July 2020), zoonoses are subject to mandatory reporting [2, 3, 4]. Section 61 of the ordinance ("Obligation to notify") mandates anyone keeping, caring or treating animals to notify the Cantonal Veterinarian ("the canton elects a canton veterinarian to head the cantonal veterinary service and arranges his deputy") of an outbreak of a disease and any suspicious appearance that may cause an outbreak, who, in turn, relays alarming information regarding cases to the Federal Food Safety and Veterinary Office (FSVO). [2, 3, 4]

[1] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 17 October 2020.
[2] The Federal Council. "Strategy on Antibiotic Resistance Switzerland". [www.star.admin.ch/dam/star/en/dokumente/strategiebericht-star.pdf.download.pdf/strategy-on-antibiotic-resistance-en.pdf]. Accessed 17 October 2020.
[3] Federal Food Safety and Veterinary Office. "Bericht zur Ãœberwachung von Zoonosen und lebensmittelbedingten KrankheitsausbrÃ¼chen Daten 2019". July 2020. [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/ueberwachung/ueberwachung-von-zoonosen.html]. Accessed 17 October 2020.
[4] Epizootic Diseases Ordinance (EzDO). [www.admin.ch/opc/de/classified-compilation/19950206/index.html]. Accessed 17 October 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has laws that safeguard the confidentiality of information generated through surveillance activities for animals. Regulation 916.408 on the Information Systems for the Public Veterinary Service (adopted 2014) controls which government entities are authorised to process data collected through the veterinary information systems. The regulation notes that authorized third parties must receive only data without sensitive or personal information. It also states that data protections and data security are required, and that people whose information is contained in the databases have the right to "information, rectification and destruction" as governed by the Swiss Data Protection Act, which is based on the European Union's General Data Protection Regulation. [1,2] In addition, there are provisions about sharing sensitive information about ongoing outbreaks with owners of livestock. Article 301a of the Swiss Animal Health Ordinance of 1995 stipulates that except

for particularly sensitive data, information regarding disease outbreaks can be shared with livestock owners potentially affected by the outbreak, cantonal veterinarians and public authorities active in fighting the outbreak [3].

[1] Swiss Federal Council. 2019. Regulation on the information systems for the public veterinary service (Verordnung über die Informationssysteme für den Öffentlichen Veterinärdienst). The portal of the Swiss government. [https://www.admin.ch/opc/de/classified-compilation/20140128/index.html#fn-#a26-1]. Accessed October 2023.
[2] Swiss Federal Council. 1992. Swiss Data Protection Act (Datenschutzgesetz). The portal of the Swiss government. [https://www.admin.ch/opc/de/classified-compilation/19920153/index.html]. Accessed 17 October 2020.
[3] Swiss Federal Council. 1995. "Swiss Animal Health Ordinance (Tierseuchenverordnung)." The portal of the Swiss government. [https://www.admin.ch/opc/de/classified-compilation/19950206/index.html#fn-#a7-8]. Accessed 17 October 2020.

1.2.2c

Does the country conduct surveillance of zoonotic disease in wildlife (e.g., wild animals, insects, other disease vectors)?
Yes = 1 , No = 0

Current Year Score: 1

Switzerland conducts surveillance of zoonotic disease in wildlife [1]. The Federal Food Safety and Veterinary Office (FSVO) regularly publishes data on zoonoses in wildlife such as avian influenza in wild birds [2], and tuberculosis in game [3], and in May 2020 it started surveillance on small hive beetle infestations in bees [4]. The World Health Organization's Joint External Evaluation of Switzerland and Liechtenstein, published in 2018, notes that the Swiss surveillance systems for priority zoonotic diseases/pathogens is a comprehensive control system for humans, animals and food [5]. All Swiss cantons have a complete veterinary administration led by the cantonal veterinarian, with a staff of official veterinarians. The Centre for Fish and Wildlife Health (FIWI) is responsible for the surveillance and monitoring of zoonotic diseases in fish and wild animals, including the diagnosis of diseases (FIWI acts as a reference laboratory for infectious diseases in fish and wild animals), research of infectious diseases and education activities [6]. In addition, the Ordinance on Hunting and the Protection of Wild Mammals and Birds of 1988 requires the country to support studies investigating wild animal diseases [7].

[1] Stebler, N.S. "Prioritization of zoonotic agents in Switzerland for their surveillance and control". Inaugural Dissertation to be awarded the Doctoral Degree of the Vetsuisse Faculty University of Bern. 2015. [www.aramis.admin.ch/Default.aspx?DocumentID=14426&Load=true]. Accessed 17 April 2020.
[2] The Federal Food Safety and Veterinary Office (FSVO). 24 January 2020 'Monitoring wild birds for avian influenza (AI)' [https://www.blv.admin.ch/blv/de/home/tiere/tierseuchen/uebersicht-seuchen/alle-tierseuchen/ai/ai-aktuell.html] Accessed 17 October 2020.
[3] The Federal Food Safety and Veterinary Office (FSVO). 10 October 2020 'Wildlife health monitoring' [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/frueherkennung/gm-wild.html] Accessed 26 October 2020
[4] The Federal Food Safety and Veterinary Office (FSVO). 21 October 2020. 'Apinella - program for the early detection of the small hive beetle'. [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/frueherkennung/apinella.html] Accessed 23 October 2020
[5] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 17 October 2020.
[6] Federal Food Safety and Veterinary Office (BLV) and Federal Office for Agriculture (BLW). 2018. "Anhang C - Swiss Veterinary Service Based on the OIE Tool for Evaluating the Performance of Veterinary Services". [https://www.blv.admin.ch/dam/blv/de/dokumente/das-blv/organisation/blk/nkp/nkp-anhang-c.pdf.download.pdf/NKP_2017_2019_Anhang_C_Swiss_Veterinary_System.pdf]. Accessed 17 October 2020.

[7] Swiss Federal Council. 1988. "Ordinance on hunting and the protection of wild mammals (Verordnung über die Jagd und den Schutz wildlebender Säugetiere und Vögel)". The portal of the Swiss government. [https://www.admin.ch/opc/de/classified-compilation/19880042/index.html]. Accessed 17 October 2020.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

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

Yes = 1 , No = 0

Current Year Score: 0

2019

OIE WAHIS database

1.2.4 Animal health workforce

1.2.4a

Number of veterinarians per 100,000 people

Input number

Current Year Score: 33.64

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 6.65

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has legislation including mechanisms for working with the private sector in controlling and responding to zoonoses. The surveillance programme for zoonoses requires the direct involvement of private farms, which are part of the sentinel survey [1]. Private licensed laboratories are in involved in the testing of samples for zoonoses [2]. The main law regulating the containment of zoonoses, the Law on Epizootic diseases ("Tierseuchengesetz"; adopted 1966, last amended April 2020) lists the duties and responsibilities for all actors, including those in the private sector, during a zoonotic outbreak [3]. These responsibilities include private actors taking precautions to prevent the spread of infectious disease, animal keepers immediately notifying butchers, veterinary doctors and authorities about imminent outbreaks occurring in animal populations under their control, along with agreeing to having affected populations confiscated and destroyed by the enforcement agencies.

[1] Federal Food Safety and Veterinary Office. "Bericht zur Ãœberwachung von Tierseuchen Daten 2019â€œ. July 2020 [https://www.blv.admin.ch/blv/de/home/tiere/tiergesundheit/ueberwachung/nationales-ueberwachungsprogramm.html]. Accessed 17 October 2020.
[2] Federal Food Safety and Veterinary Office. "Tierseuchendiagnostik". [www.blv.admin.ch/blv/de/home/tiere/tierseuchen/tierseuchendiagnostik.html]. Accessed 17 April 2020.
[3] Federal Council. "Tierseuchengesetz". [www.admin.ch/opc/de/classified-compilation/19660145/index.html]. Accessed 17 October 2020.

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence of Switzerland having a current record in place of the facilities in which especially dangerous pathogens and toxins are stored or processed. However, there is evidence that facility-level records are in place. Although the Joint External Evaluation for Switzerland states that "Switzerland has a sophisticated and comprehensive biosafety system that ensures safe handling and record keeping of dangerous pathogens, provides a suitable amount of training, and restricts access when necessary," there is no mention of national-level records [1]. In 1999, Switzerland passed the Ordinance on the Contained Use of Organisms (ContainO) , which regulates the contained use of organisms, including both genetically modified and pathogenic organisms. While there is evidence that facilities must apply for permits to use certain types of materials, there is insufficient evidence that the country has a current record of the inventories in the country. The ordinance indicates that facilities are required to keep a record of activities for five years and "present it to enforcement authorities upon their request". However, there is no indication of how often these records are consulted or updated by the central government. [2,3] Additionally, The Spiez Laboratory, a division of the Federal Department of Defence, Civil Protection and Sport, is the Swiss centre of expertise for protection against nuclear, biological and chemical threats and hazards [4]. There is also the Swiss Expert Committee for Biosafety (SECB), a federal advisory committee that advises Switzerland's Federal Council and the federal agencies on the drafting of laws, ordinances, guidelines and recommendations [5]. These institutions do not make reference to a record of facilities in which especially dangerous pathogens and toxins are stored or processed. The websites of the Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, and Federal Department of Economic Affairs, Education and Research do not make mention of a record of the facilities

in which especially dangerous pathogens and toxins are stored or processed [6,7,8,9]. Switzerland reports to the United Nations Office at Geneva (UNOG) for the "Confidence Building Measure Return", which is a reporting mechanism set by the Biological Weapons Convention, but there is no evidence of a record of facilities in these reports [10]. There is no further relevant information in the Verification Research, Training and Information Centre's database of legislation related to biological weapons and materials. [11]

[1] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 17 October 2020.
[2] Government of Switzerland. 1999. "Ordinance on the Contained Use of Organisms." [http://www.b-safe.ch/downloads/ESV_en.pdf]. Accessed 17 October 2020.
[3] Government of Switzerland. 2018. "Federal Coordination Centre for Biotechnology." [https://www.bafu.admin.ch/bafu/en/home/topics/biotechnology/info-specialists/activities-in-contained-use/federal-coordination-centre-for-biotechnology.html]. Accessed 17 October 2020.
[4] Virtual Biosecurity Center. "Switzerland". [www.virtualbiosecuritycenter.org/governments/switzerland/]. Accessed 17 October 2020.
[5] Swiss Expert Committee for Biosafety. Website. [www.efbs.admin.ch/en/homepage/]. Accessed 17 October 2020.
[6] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 17 October 2020.
[7] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 17 October 2020.
[8] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 17 October 2020.
[9] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 17 October 2020.
[10] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 17 April 2020.
[11] Verification Research, Training and Information Centre. "BWC Legislation Database. S." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. 26 November 2020.

1.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Switzerland has biosecurity legislation in place. According to the World Health Organization's (WHO's) Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, Switzerland's biosafety legislation "to a certain and in some areas sufficient extent, […] also address biosecurity issues; but there is no specific legislation in effect that addresses biosecurity and dual use research of concern" [1]. One of the WHO's recommendation for priority action is for Switzerland to "develop a new regulatory framework and integrate new provisions into existing national legislation to address issues related to biosecurity (physical, personal and information security) and dual use research of concern" [1]. Switzerland's Ordinance on the Contained Use of Organisms, passed in 1999, regulates the contained use of

organisms in terms of laboratories requiring licenses to work with dangerous pathogens, including both genetically modified and pathogenic organisms, but the laboratory requirements focus more on biosafety than biosecurity. [2] The United Nations' Electronic Confidence Building Measures Portal and the database of the Verification Research, Training and Information Centre do not make reference to specific biosecurity legislation being in place in Switzerland [3,4]. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research contain no further information. [5,6,7,8].

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 27 October 2020.
[2] Government of Switzerland. 1999. "Ordinance on the Contained Use of Organisms." [http://www.b-safe.ch/downloads/ESV_en.pdf]. Accessed 27 October 2020.
[3] UNOG. 2019. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 27 October 2020.
[4] VERTIC. 2020. [www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 27 October 2020.
[5] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 27 October 2020.
[6] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 27 October 2020.
[7] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 27 October 2020.
[8] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 27 October 2020.

1.3.1c

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

Current Year Score: 0

There is insufficient evidence of an agency responsible for the enforcement of biosecurity legislation and regulations in Switzerland, as there is insufficient evidence that biosecurity legislation is in place. Switzerland's Ordinance on the Contained Use of Organisms, passed in 1999, regulates the contained use of organisms in terms of laboratories requiring licenses to work with dangerous pathogens, including both genetically modified and pathogenic organisms, but the laboratory requirements focus more on biosafety than biosecurity. The ordinance notes that the Coordination Center for Biotechnology within the Swiss Agency for the Environment, Forests and Landscape (SAEFL), the Federal Office of Public Health, the Swiss National Accident Insurance Organisation (SUVA), the Swiss Expert Committee for Biosafety (SECB) and the designated cantonal office should all be informed of notifications and applications under the ordinance [1]. The Swiss Expert Committee for Biosafety (SECB), a federal advisory committee, advises the Federal Council and the federal agencies on the drafting of laws, ordinances, guidelines and recommendations [2]. The SECB also "advises the federal and cantonal authorities on the enforcement of these regulations". The SECB is attached to the Federal Office of the Environment [3]. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the UN's BWC Electronic Confidence Building Measures Portal do not make mention of a separate agency responsible for the enforcement of biosecurity legislation and

regulations in Switzerland [4,5,6,7,8].

[1] Government of Switzerland. 1999. "Ordinance on the Contained Use of Organisms." [http://www.b-safe.ch/downloads/ESV_en.pdf]. Accessed 27 October 2020.
[2] Swiss Expert Committee for Biosafety. 2020. Website. [www.efbs.admin.ch/en/homepage/]. Accessed 27 October 2020.
[3] Swiss Expert Committee for Biosafety. "Activities in contained systems". [www.efbs.admin.ch/en/topics/activities-in-contained-systems/]. Accessed 27 October 2020.
[4] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 27 October 2020.
[5] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 27 October 2020.
[6] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 27 October 2020.
[7] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 27 October 2020.
[8] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 27 October 2020.

1.3.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. Micro-organisms requiring the highest security level (BSL4) are handled by the Federal Institute of Virology and Immunology's (IVI) Mittelhäusern facility and by the Federal Office for Civil Protection's (FOCP) Spiez Laboratory [1, 2]. The use of microorganisms in laboratories is regulated by the 2012 Ordinance on Handling Organisms in Contained Systems and the 1999 Ordinance on the Protection of Workers from the Risks Posed by Microorganisms [4]. The microorganisms are used in laboratories with clearly defined security levels (BSL1 to BSL4). There is no public evidence of a legal requirement or explicit effort to consolidate inventories of especially dangerous pathogens and toxins into a minimum number of facilities. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the United Nations' BWC Electronic Confidence Building Measures Portal do not make mention that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities [5], [6], [7], [8], [9].

[1] Federal Institute of Virology and Immunology (IVI). 2020. "In the lab". [https://www.ivi.admin.ch/ivi/en/home/sicherheit/sicherheit.html]. Accessed 27 October 2020.
[2] Federal Office for Civil Protection (FOCP) Spiez Laboratory. 2020. 'Biocontainment Laboratory' [https://www.labor-spiez.ch/en/die/bio/endiebiobio.htm]. Accessed 27 October 2020
[3] Swiss Federal Council. 9 May 2012. Status as of 1 January 2020. "Ordinance on Handling Organisms in Contained Systems". [https://www.admin.ch/opc/en/classified-compilation/20100803/index.html]. Accessed 27 October 2020.
[4] Swiss Federal Council. 25 August 1999 Status as of 1 January 2020. 'Ordinance on the protection of workers from the risks

posed by microorganisms' ('Verordnung über den Schutz der Arbeitnehmerinnen und Arbeitnehmer vor Gefährdung durch Mikroorganismen') [https://www.admin.ch/opc/de/classified-compilation/19994946/index.html] Accessed 27 October 2020.
[5] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 27 October 2020.
[6] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 27 October 2020.
[7] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 27 October 2020.
[8] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 27 October 2020.
[9] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 27 October 2020.

1.3.1e

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has a laboratory with the capacity to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax. Spiez Laboratory carries out anthrax tests using the PCR method; there is insufficient evidence of the PCR method for Ebola tests in the laboratory's annual report. Spiez is the country's only laboratory that is equipped to safely work with highly infectious pathogens like the Ebola virus [1, 2]. Spiez Laboratory also has the capacity to test for reportable pathogens of anthrax, plague, tularaemia, brucellosis and botulism. The World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, mentions that Switzerland has public health emergency preparedness and response plans in place and that the plans have been tested, and meaningful experience has been gained in the management of recent major crises, including Ebola [3]. The website of the Federal Office of Public Health does not make mention of Polymerase Chain Reaction (PCR)-based diagnostic testing for Ebola [4].

[1] Spiez Laboratory. Annual Report 2015. [https://www.labor-spiez.ch/pdf/de/dok/jab/DE_BABS_Jahresbericht_Labor_Spiez_2019.pdf]. Accessed 17 October 2020.
[2] Journal of Clinical Virology. "Ebola virus disease diagnosis by real-time RT-PCR: A comparative study of 11 different procedures". Volume 77, April 2016, Pages 9-14. [www.sciencedirect.com/science/article/pii/S1386653216000408]. Accessed 17 October 2020.
[3] WHO. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein'. [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 17 October 2020.
[4] Federal Office of Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 17 October 2020.

1.3.2 Biosecurity training and practices

1.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland requires standardized biosecurity training for personnel working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Articles 10–12 of the Ordinance on the Protection of Employees from Dangerous Microorganisms (adopted 1999, last amended January 2020) require employers to provide employees working with dangerous pathogens with information and instructions about biosafety, but there is no mention of biosecurity in this context, and there are no requirements for training. [1] No training, instruction or information requirements are contained in the Ordinance on Handling Organisms in Contained Systems (adopted 2012, last amended January 2020). [2] The World Health Organization's 2018 Joint External Evaluation of Switzerland and Liechtenstein praises Switzerland's biosafety training, but does not mention biosecurity training. [3] There is no evidence of standardized biosecurity training on the websites of the Federal Office of Public Health, the Federal Office for Agriculture, the Federal Department of Defense, Civil Protection and Sport, the Federal Department of Economic Affairs, Education and Research. [4, 5, 6, 7] No relevant information is contained in the VERTIC database or in Switzerland's 2020 and 2019 Confidence Building Measure Reports, submitted to the United Nations as part of its commitments under the Biological Weapons Convention. [8, 9, 10]

[1] Swiss Federal Council. 25 August 1999. "Ordinance on the Protection of Employees from Dangerous Microorganisms." ("Verordnung über den Schutz der Arbeitnehmerinnen und Arbeitnehmer vor Gefährdung durch Mikroorganismen.") [https://www.admin.ch/opc/de/classified-compilation/19994946/index.html]. Accessed 10 November 2020.
[2] Swiss Federal Council. 9 May 2012. "Ordinance on Handling Organisms in Contained Systems." ("Verordnung über den Umgang mit Organismen in geschlossenen Systemen.") [https://www.admin.ch/opc/de/classified-compilation/20100803/index.html]. Accessed 10 November 2020.
[3] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 18 October 2020.
[4] Federal Office for Public Health. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[5] Federal Office for Agriculture. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[6] Federal Department of Defence, Civil Protection and Sport. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 October 2020.
[7] Federal Department of Economic Affairs, Education and Research. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[8] Verification Research, Training and Information Centre. "BWC Legislation Database. A." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/a/]. Accessed 20 October 2020
[9] Government of the Swiss Confederation. 2020. "Revised forms for the submission of the Confidence-Building Measures." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_switzerland.pdf]. Accessed 10 November 2020.
[10] Government of the Swiss Confederation. 2019. "Revised forms for the submission of the Confidence-Building Measures." [https://bwc-ecbm.unog.ch/system/files/form-pdf-auto-public/10053_bwc_cbm_2019_switzerland-public.pdf]. Accessed 10

November 2020.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

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

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

Current Year Score: 0

There is no evidence that Switzerland has a specific regulation or guideline that requires drug testing, background checks, or psychological or mental fitness checks. Any person working with Class 2 or higher pathogenic organisms must notify the authorities when beginning the activity, or earlier [1]. According to section 10 of the 2012 Ordinance on Handling Organisms in Contained Systems, "any person who wishes to carry out a Class 3 or a Class 4 activity with genetically modified or pathogenic organisms or alien organisms subject to a containment obligation requires authorization" [2]. The handling of pathogens is regulated in Epizootic Diseases Ordinance of 27 June 1995 [3]. Section 49 of the ordinance states that work with reproducible pathogens of highly infectious animal diseases may only be carried out at Switzerland's Institute for Virology and Immunology. It also states that the Federal Food Safety and Veterinary Office determines the safety precautions and controls but does not specify what they are. The websites of Federal Office for Public Health, Federal Office for Public Health. Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, the VERTIC database and the UN's BWC Electronic Confidence Building Measures Portal do not make mention of the relevant background, psychological or mental fitness checks in Switzerland [4, 5, 6, 7, 8, 9].

[1] Federal Office of the Environment. "Biotechnology: Acts and ordinances".[www.bafu.admin.ch/bafu/en/home/topics/biotechnology/law/acts-ordinances.html]. Accessed 20 October 2020.
[2] The Federal Council. "Ordinance on Handling Organisms in Contained Systems of 9 May 2012 (Status of 1 January 2020)â€". [www.admin.ch/opc/en/classified-compilation/20100803/index.html]. Accessed 20 October 2020.
[3] The Federal Council. "Tierseuchenverordnung". ("Epizootic Diseases Ordinance of 27 June 1995 (Status 28 July 2020)â€". [www.admin.ch/opc/de/classified-compilation/19950206/index.html]. Accessed 20 October 2020.
[4] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[5] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[6] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 April 2020.
[7] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[8] VERTIC. 2020. [www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s.php]. Accessed 20 October 2020
[9] UNOG. 14 April 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-

0]. Accessed 20 October 2020.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has publicly available information on national regulations on the safe and secure transport of infectious substances, specifically including categories A and B.

The Ordinance on the Transport of Dangerous Goods by Road (adopted 2002, last amended 2019) and the Ordinance on the Transport of Dangerous Goods by Rail and Cable Car (adopted 2012, last amended 2019) are both available in German, French and Italian on Switzerland's central legislative databse. [1, 2]

Switzerland is also covered by the European Agreement Concerning the International Carriage of Dangerous Goods by Road, which specifically regulates the handling of category A and B substances. [3] The French original of this agreement is available on Switzerland's central legislative databse, along with German and Italian translations. [3]

In addition, the Swiss Institute of Virology and Immunology has published a detailed document (available in German and English) detailing the packaging, labelling and documentation requirements for the transport of biological material, including category A and B substances. [4]

[1] Swiss Federal Council. 29 November 2002. "Ordinance on the transport of dangerous goods by road (SDR).“ (Verordnung über die Beförderung gefährlicher Güter auf der Strasse (SDR).") [https://www.admin.ch/opc/de/classified-compilation/20022136/index.html]. Accessed 11 November 2020.
[2] Swiss Federal Council. 31 October 2012. “Ordinance on the transport of dangerous goods by rail and cable car (RSD).” ("Verordnung über die Beförderung gefährlicher Güter mit Eisenbahnen und Seilbahnen (RSD).") [https://www.admin.ch/opc/de/classified-compilation/20121700/index.html] Accessed 11 November 2020.
[3] Swiss Federal Council. 13 September 1957. “European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).” ("Accord européen relatif au transport international des marchandises dangereuses par route (ADR).") [https://www.admin.ch/opc/fr/classified-compilation/19570172/index.html]. Accessed 11 November 2020.
[4] Institute of Virology and Immunology. "Safe transport of biological material." ("Sicherer Transport von biologischem Material.") [https://www.ivi.admin.ch/dam/ivi/de/dokumente/ivi/infomaterial/sicherer_transportvonbiologischemmaterial.pdf.download.pdf/sicherer_transportvonbiologischemmaterial.pdf].
[5] Institute of Virology and Immunology. "Safe transport of biological material!" [https://www.ivi.admin.ch/dam/ivi/de/dokumente/ivi/infomaterial/Sicherer%20Transport%20von%20biologischem%20Material_E.pdf.download.pdf/Sicherer%20Transport%20von%20biologischem%20Material.pdf&usg=AOvVaw2QlYfQiyPvMGwTpdVtye83]. Accessed 11 November 2020.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has explicit national legislation and protective measures in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins or pathogens with pandemic potential. The Ordinance on Handling Organisms in Contained Systems of May 2012, which relates to the handling of potentially dangerous and hazardous organisms and materials, states that appropriate measures regarding labelling, packaging, transport, storage, and safety precautions must be taken [1]. The Swiss Institute of Virology and Immunology notes that packaging, labelling and documentation is guided by rules and guidance documents, including the European agreement concerning the international carriage of dangerous goods by road and rail of 1968 (ADR/RID); the Dangerous Goods Regulations (DGR) by IATA as of 2020 (International Air Transport Association) for international transport by air basing on the Technical instructions for the safe transport of dangerous goods by air published in 2017/2018 by the International Civil Aviation Organization (ICAO); guidance by the Swiss Expert Committee for Biosafety SECB, Transport, Import, Export; and guidance by the World Health Organisation on regulations for the Transport of Infectious Substances (2015-16) [2, 3]. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport and the Federal Department of Economic Affairs, Education and Research do not make reference to national legislation or protective measures to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins and pathogens with pandemic potential [4, 5, 6, 7]. There is also no further information available on the UN's BWC Electronic Confidence Building Measures Portal. [8]

[1] Swiss Federal Council. â€˜Ordinance on Handling Organisms in Contained Systemsâ€™ 9 May 2012. Last Updated 1 January 2020. [https://www.admin.ch/opc/en/classified-compilation/20100803/index.html] accessed 20 October 2020
[2] Federal Department of Home Affairs FDHA. Institute of Virology and Immunology. "Safe transport of biological material!". [www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwi35_6OkJTfAhWJfysKHVroCt0QFjABegQICBAC&url=https%3A%2F%2Fwww.ivi.admin.ch%2Fdam%2Fivi%2Fde%2Fdokumente%2Fivi%2Finfomaterial%2FSicherer%2520Transport%2520von%2520biologischem%2520Material_E.pdf.download.pdf%2FSicherer%2520Transport%2520von%2520biologischem%2520Material.pdf&usg=AOvVaw2QlYfQiyPvMGwTpdVtye83]. Accessed 20 October 2020.
[3] VERTIC. 2020. [www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 20 April 2020
[4] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[5] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[6] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 April 2020.
[7] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 April 2020.
[8] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 April 2020.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has biosafety regulations in place. The Ordinance on Protection of Employees from Dangerous Microorganisms (adopted 1999, last amended January 2020) lays out measures to protect workers who handle or are exposed to microorganisms. [1,2] These include regular risk assessments, provision of protective equipment, limiting employee exposure to microorganisms, implementing appropriate measures for bio-waste disposal, ensuring the availability of decontamination spaces, among other things. The ordinance lists several government institutions responsible for various aspects of the law, but under article 16 indicates that the Federal Office of Public Health, in agreement with the Swiss Agency for the Environment, Forests and Landscape (SAEFL) is the primary agency responsible for enforcement of activities "when the risk is primarily to people." [1,2] In addition, articles 25–29 of the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) are dedicated to biosafety, prescribing general requirements for people working with pathogens and toxins to take measures to prevent harm to humans, including through containment measures, and noting that authorization from the Federal Council is required in order to sell pathogens or release them into the environment. [3]

[1] Swiss Federal Council. 25 August 1999. "Ordinance on the Protection of Employees from Dangerous Microorganisms." ("Verordnung über den Schutz der Arbeitnehmerinnen und Arbeitnehmer vor Gefährdung durch Mikroorganismen.") [https://www.admin.ch/opc/de/classified-compilation/19994946/index.html]. Accessed 20 October 2020.
[2] Federal Office for the Environment. 2 February 2016. "Biotechnology: Acts and ordinances." [www.bafu.admin.ch/bafu/en/home/topics/biotechnology/law/acts-ordinances.html]. Accessed 20 October 2020.
[3] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 6 November 2020.

1.4.1b

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

Yes = 1 , No = 0

Current Year Score: 1

Although there is evidence that responsibilities of enforcement are shared, there is evidence of a main agency responsible for biosafety legislation enforcement. Switzerland's primary regulation with regards to biosafety is the Ordinance on Protection of Employees from Dangerous Microorganisms of 25 August 1999 ("Verordnung über den Schutz der Arbeitnehmerinnen und Arbeitnehmer vor Gefährdung durch Mikroorganismen; SAMV). The ordinance lists several government institutions responsible for various aspects of the law, but under article 16 indicates that the Federal Office of Public Health (FOPH), in agreement with the Swiss Agency for the Environment, Forests and Landscape (SAEFL) is the primary agency responsible for enforcement of activities "when the risk is primarily to people." Cantons are also responsible for oversight, but the FOPH is the principal body responsible at the state level [1,2]. The ordinance lays down the measures to be

taken to protect workers when they are handling micro-organisms and when they are exposed to micro-organisms. The Swiss Expert Committee for Biosafety (SECB), a permanent federal advisory committee, advises the Federal Council and the federal agencies on the drafting of laws, ordinances, guidelines and recommendations. A collection of laws and regulations, including the SAMV, is available on the SECB's website [3].

[1] Federal Council. "Verordnung über den Schutz der Arbeitnehmerinnen und Arbeitnehmer vor Gefährdung durch Mikroorganismen (SAMV)". 25 August 1999. Last updated 1 January 2020. [www.admin.ch/opc/de/classified-compilation/19994946/index.html]. Accessed 20 October 2020.
[2] Federal Office for the Environment (FOEN). "Biotechnology: Acts and ordinances". Last updated 2 February 2016. [www.bafu.admin.ch/bafu/en/home/topics/biotechnology/law/acts-ordinances.html]. Accessed 20 April 2020.
[3] Swiss Expert Committee for Biosafety. Legal Bases. Last updated 15 September 2020. [www.efbs.admin.ch/en/the-committee/legal-bases/]. Accessed 20 October 2020.

1.4.2 Biosafety training and practices

1.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

Although there is evidence of standardized biosafety training, there is insufficient evidence that it is required for all personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The 2012 Ordinance on the Contained Use of Organisms (Containment Ordinance, CO) and the 1999 Ordinance on Occupational Safety in Biotechnology stipulate "that any activity involving genetically modified or pathogenic organisms be supervised by a person responsible for all aspects of biological safety, the biosafety officer (BSO)." However, the ordinance does not require biosafety training for all personnel. [1]. The Swiss Biosafety Network lists thirteen Swiss-based institutions that offer biosafety training [2,3,4]. The Biosafety Curriculum harmonizes the biosafety standards within Switzerland [1]. According to the World Health Organization's Joint External Evaluation of Switzerland and Liechtenstein in 2018, national biosafety training in Switzerland is "self sustaining"; "there is a high level of coordination and harmonization between regulators and users; "training attendance is high"; and the country "enjoys active involvement of federal and cantonal authorities, as well as experienced biosafety officers, in issues of biosafety and biosecurity" [5].

[1] Curriculum Biosafety. "The Curriculum Biosafety - An initiative of the FOEN, the FOPH, the SUVA and the SECB". 25 April 2020. [http://www.curriculum-biosafety.ch/index.php?id=17&L=1]. Accessed 20 October 2020.
[2] Swiss Biosafety Network. â€˜List of Training Opportunitiesâ€™ 18 November 2019 [https://www.swissbiosafety.ch/resources/Documents/201911_List%20of%20Training%20Opportunities_SBNet_V07.pdf]. Accessed 20 October 2020.
[3] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 October 2020.
[4] VERTIC. 2019. [www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 20 October 2020.
[5] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-

eng.pdf?sequence=1&isAllowed=y]. Accessed 18 October 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

Is there publicly available evidence that the country has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research?
Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Switzerland has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, or other dual use research. Some academic publications sporadically make reference to potential dual use activities of Swiss research institutes [1,2], and the activity report for the years 2012–2015 of the Swiss Expert Committee for Biosafety (EFBS) acknowledges the risks of dual use research [3], without confirming whether it is occurring in Switzerland. In 2015, the EFBS published its views on how to deal with the potential abuse of science and dual use research. It advocates careful, professional and responsible handling of pathogens and avoidance of unnecessary restrictions on scientific research and progress [4]. However, the websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the UN's BWC Electronic Confidence Building Measures Portal do not make mention of an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential, and/or other dual use research [5] [6] [7] [8] [9]. There is no further relevant information in the Verification Research, Training and Information Centre's database of legislation related to biological weapons and materials. [10]

[1] Franziska Oeschger, Ursula Jenal. 2017. 'Misuse potential and biosecurity in life sciences research'. Swiss Academies Reports, VOL. 12, NO 3, [http://akademien-schweiz.ch/index/Publikationen/Swiss-Academies-Reports.html] accessed 20 October 2020
[2] Roland Fischer. June 2016. 'Der Dual-Use-Joker'. Horizonte – Das Schweizer Forschungsmagazin Nr. 109, [https://www.horizonte-magazin.ch/wp-content/uploads/2017/11/Horizonte_109_D.pdf] accessed 20 October 2020
[3] Eidgenössische Fachkommission für biologische Sicherheit (EFBS). "Tätigkeitsbericht der Eidgenössischen Fachkommission für biologische Sicherheit Legislaturperiode 2012-2015". page 22ff. [www.efbs.admin.ch/inhalte/dokumentation/taetigkeitsberichte/D_Taetigkeitsbericht_EFBS_2012-2015.pdf]. Accessed 20 October 2020.
[4] Eidgenössische Fachkommission für biologische Sicherheit (EFBS). April 2015. [www.efbs.admin.ch/inhalte/dokumentation/Ansichten/D_Ansichten_EFBS_Dual-Use.pdf]. Accessed 20 October 2020.
[5] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[6] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[7] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 October 2020.
[8] Federal Department of Economic Affairs, Education and Research. 2020. Website.

[https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[9] UNOG. 2019. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 October 2020.
[10] Verification Research, Training and Information Centre. "BWC Legislation Database. S." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. 26 November 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 evidence of a national policy in Switzerland requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, or pathogens with pandemic potential. In 2015, the Swiss Expert Committee for Biosafety published its views on how to deal with the potential abuse of science and dual use research. It advocates a careful, professional and responsible handling of pathogens and avoidance of unnecessary restrictions on scientific research and progress [1]. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the UN's BWC Electronic Confidence Building Measures Portal do not mention a national policy in Switzerland requiring oversight of dual use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential [2], [3], [4], [5], [6]. There is no further relevant information in the Verification Research, Training and Information Centre's database of legislation related to biological weapons and materials. [7]

[1] Swiss Expert Committee for Biosafety. "Ansichten der EFBS zum Umgang mit dem Missbrauchs-Potential wissenschaftlicher Erkenntnisse". April 2015. [www.efbs.admin.ch/inhalte/dokumentation/Ansichten/D_Ansichten_EFBS_Dual-Use.pdf]. Accessed 20 October 2020.
[2] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[3] Federal Office for Agriculture. 2020. Website. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[4] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 October 2020.
[5] Federal Department of Economic Affairs, Education and Research. 2020. Website. [https://www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[6] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 October 2020.
[7] Verification Research, Training and Information Centre. "BWC Legislation Database. S." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. 26 November 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 evidence of an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, or other dual use research in Switzerland. The Swiss Expert Committee for Biosafety (SECB) advises the federal and cantonal authorities on the enforcement of biosafety and biosecurity regulations and issues statements on licence applications and publishes recommendations on biosafety and biosecurity measures for research with dangerous pathogens, but there is no evidence that it has specific oversight responsibilities in this area. [1], [2]. The websites of the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the UN's BWC Electronic Confidence Building Measures Portal do not make mention of an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual use research in Switzerland [3], [4], [5], [6], [7]. There is no further relevant information in the Verification Research, Training and Information Centre's database of legislation related to biological weapons and materials. [8]

[1] Swiss Expert Committee for Biosafety (SECB). "About us". [www.efbs.admin.ch/en/homepage/]. Accessed 20 October 2020.
[2] Swiss Expert Committee for Biosafety (SECB). "Ansichten der EFBS zum Umgang mit dem Missbrauchs-Potential wissenschaftlicher Erkenntnisse April 2015". [www.efbs.admin.ch/inhalte/dokumentation/Ansichten/D_Ansichten_EFBS_Dual-Use.pdf]. Accessed 20 October 2020.
[3] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[4] Federal Office for Agriculture. 2020. Website. [www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[5] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 October 2020.
[6] Federal Department of Economic Affairs, Education and Research. 2020. Website. [www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[7] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 October 2020.
[8] Verification Research, Training and Information Centre. "BWC Legislation Database. S." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. 26 November 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 public evidence of legislation or regulations requiring the screening of synthesized DNA (deoxyribonucleic acid) against lists of known pathogens and toxins before it is sold. In Switzerland, the experimental release of genetically modified, pathogenic or alien organisms generally requires authorization [1]. The relevant regulation is the 2008 Ordinance on the Handling of Organisms in the Environment [2]. It regulates, among other things, the "marketing" of organisms (defined as "transfer of organisms to third parties in Switzerland for use in the environment, in particular by sale, exchange, giving as a

gift, renting, lending or sending on approval, as well as their import for the use in the environment"). In particular, the ordinance stipulates that risk and hazard assessments must be carried out by anyone wishing to market organisms, and that they must "ensure that organisms, their metabolic and waste products [...] cannot endanger human beings, animals or the environment". While one of the stipulations for handling genetically modified organisms is ensuring that "no undesired properties can be permanently passed on to other organisms", there is no explicit mention of DNA screening in the ordinance. The websites the Federal Office for Public Health, Federal Office for Agriculture, Federal Department of Defence, Civil Protection and Sport, Federal Department of Economic Affairs, Education and Research, and the UN's BWC Electronic Confidence Building Measures Portal do not mention a requirement that code has to pass through a screener/code reader which looks for dangerous sequences before sale is authorized [3], [4], [5], [6], [7]. There is no further relevant information in the Verification Research, Training and Information Centre's database of legislation related to biological weapons and materials. [8]

[1] Swiss Expert Committee for Biosafety (SECB). Experimental releases. [www.efbs.admin.ch/en/topics/experimental-releases-of-organisms/experimental-releases/]. Accessed 20 October 2020.
[2] Federal Council. "Ordinance on the Handling of Organisms in the Environment". 10 September 2008 (Status as of 1 January 2020). [www.admin.ch/opc/en/classified-compilation/20062651/index.html]. Accessed 20 October 2020.
[3] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 20 October 2020.
[4] Federal Office for Agriculture. 2020. Website. [www.blw.admin.ch/blw/en/home.html]. Accessed 20 October 2020.
[5] Federal Department of Defence, Civil Protection and Sport. 2020. Website. [www.admin.ch/gov/en/start/departments/department-of-defence-civil-protection-sport-ddps.html]. Accessed 20 October 2020.
[6] Federal Department of Economic Affairs, Education and Research. 2020. Website. [www.admin.ch/gov/en/start/departments/department-of-economic-affairs-education-research-eaer.html]. Accessed 20 October 2020.
[7] UNOG. 2020. "Confidence Building Measures". [https://bwc-ecbm.unog.ch/switzerland/bwccbm2020switzerland-0]. Accessed 20 October 2020.
[8] Verification Research, Training and Information Centre. "BWC Legislation Database. S." [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. 26 November 2020.

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

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

Current Year Score: 1

2019

World Health Organization

1.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2020

OIE WAHIS database

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

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

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

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

Current Year Score: 2

Switzerland's laboratory system has the capacity to conduct six WHO-defined core diagnostic tests. Polymerase chain reaction (PCR) testing for Influenza virus (flu) is common across laboratories [1]. Swiss laboratories have the capacity to conduct microscopies for mycobacterium tuberculosis test [2]. Three types of test for HIV are available in Switzerland, including serology for HIV [3]. The Swiss laboratory system has the capacity to conduct rapid diagnostic testing for plasmodium spp. malaria and bacterial culture tests for Salmonella enteritidis serotype Typhityphoid [4]. Swiss laboratories also carry out virus culture for poliovirus (polio) [5]. These findings are consistent with the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, which states that Swiss laboratories are able to conduct all six mandatory core tests mentioned in the IHR (2005). They are: PCR for influenza virus; culture for polio virus; serology for HIV; microscopy for mycobacterium tuberculosis; rapid diagnostic tests for plasmodium spp. (e.g. lateral flow serology); bacterial culture for salmonella enteritidis serotype typhi. [6]. There is no evidence that Switzerland has defined national priority core tests.

[1] Universite de Geneve. "Influenza virus surveillance in Switzerland Season 2015-2016". [www.hug-ge.ch/sites/interhug/files/structures/laboratoire_de_virologie/documents/influenza_sentinela_final_report_ch_2016_final.pdf]. Accessed 20 October 2020.
[2] Swiss Lung Association(Lungenliga Schweiz). 2020.”Laboratories for the detection of tuberculosis infection by means of a blood test (interferon-gamma)". [https://www.tbinfo.ch/wissenszentrum/labors/analyse-labors-igra.html]. Accessed 20 October 2020.
[3] AIDS-HILFE SCHWEIZ. 2020. "HIV test procedure". [www.aids.ch/en/faq/hiv-test/test-procedure.php]. Accessed 20 October 2020.
[4] Swiss THP. 2020. ”Diagnosis and Treatment of Malaria". [www.swisstph.ch/fr/topics/malaria/diagnosis-and-treatment/]. Accessed 20 October 2020.

[5] polio.ch. 2020. "Labordiagnostik". [http://polio.ch/poliomyelitis/diagnose/labordiagnostik/]. Accessed 20 October 2020.
[6] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 20 October 2020.

2.1.1b

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

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

Current Year Score: 1

Switzerland has a strategy that includes testing during a public health emergency, but there is insufficient evidence that it defines goals for testing. In 2018, the Swiss Federal Office of Public Health (FOPH) published the the Influenza Pandemic Plan, which outlines measures for conducting testing during a novel influenza outbreak and forms the basis for creating action and emergency plans at cantonal, regional and local levels [1]. The plan outlines the steps to be taken and likely timeframes to develop specific laboratory diagnostic tests upon "clear warning signs for the appearance of a new variant of the influenza virus with pandemic potential". Considerations regarding designating other laboratories to support the national reference centres in processing tests are also made. There are no exact figures or defined goals mentioned regarding the scale of testing. More focus is given to general measures to contain the spread of the pandemic. In October 2020, in the context of the COVID-19 pandemic, the Swiss government published a revised strategy, which states the intention to ensure adequate testing capabilities and make test results available within 24 hours [2]. News outlets report that that health ministry is aiming for 40,000 COVID-19 tests to be conducted per day, but there are no such numerical targets in the revised strategy [3].

[1] Federal Office of Public Health (FOPH). 2018. "Influenza Pandemic Plan Switzerland" ("Influenza-Pandemieplan Schweiz") [https://www.ur.ch/_docn/125284/Influenza-Pandemieplan_Schweiz.pdf] Accessed 28 October 2020
[2] Federal Office of Public Health (FOPH). 22 October 2020. "Coping with COVID-19: Strategic foundations of the GDK and the EDI-FOPH principles - measures - cooperation" ("COVID-19-Bewältigung:Strategische Grundlagen der GDK und des EDI-BAGGrundsätze – Massnahmen – Zusammenarbeit") [https://www.bag.admin.ch/dam/bag/de/dokumente/cc/kom/covid-19-strategische-grundlagen-gdk-edi-bag.pdf.download.pdf/COVID-19-Bew%C3%A4ltigung%20%E2%80%93%20Strategische%20Grundlagen%20der%20GDK%20und%20des%20EDI-BAG.pdf] Accessed 28 October 2020
[3] Noëmi Ackermann. 29 September 2020. "Swiss Laboratories angered at FOPH" ("Schweizer Labore sind sauer auf das BAG") [https://www.srf.ch/news/schweiz/corona-tests-schweizer-labore-sind-sauer-auf-das-bag] Accessed 28 October 2020

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Swiss laboratories that serve as reference facilities are accredited. According to the World Health Organization's Joint External Evaluation (JEE) for Switzerland and Liechtenstein, published in 2018, the 19 Swiss national reference laboratories (NRL) test for all registered infectious diseases. 16 out of 19 NRLs test for human pathogens, 3 of them test for animal pathogens, and two NRLs test for both human and animal pathogens [1]. The reference laboratory for polymerase chain reaction (PCR) testing for influenza virus (flu) is the National Reference Centre of Influenza Laboratory of Virology, Geneva University Hospitals, which is not ISO accredited, but is accredited by the Federal Office of Public Health, the Swiss Society for Infectious Diseases, and other institutions [2]. The reference laboratory for virus culture for poliovirus (polio) is the National Reference Laboratory for Poliomyelitis, Department of Infection Diagnostics, Department of Biomedicine, Petersplatzhaus University of Basel, which is accredited ISO/IEC 17025:2005 [3]. The reference laboratory for serology for HIV is the Institute of Medical Virology, University of Zurich, which is accredited ISO 17025 [4]. The reference laboratory for microscopy for mycobacterium tuberculosis (tuberculosis/TB) is the Institute of Medical Microbiology, University of Zurich, which is accredited ISO 17025 [4]. The reference laboratory for rapid diagnostic testing for plasmodium spp. (malaria) is the Swiss Tropical and Public Health Institute, which is accredited ISO 17025 [5]. The reference laboratory for bacterial culture for salmonella enteritidis serotype typhi (typhoid) is the National Centre for Enteropathogenic Bacteria and Listeria (NENT), University of Zurich, which is accredited ISO 17025 [1,4]. According to the JEE, most of the Swiss national reference laboratories are accredited to ISO standards. Though accreditation is not mandatory, all laboratories in Switzerland and Liechtenstein are mandatorily authorized by Swissmedic (Swiss Federal Medicines Agency) or the Federal Food Safety and Veterinary Office (BLV). [6]

[1] Swiss Federal Office of Public Health. 2019. "National Reference Centers for Communicable Diseases 2019 [Nationale Referenzzentren meldepflichtiger übertragbarer Krankheiten 2019]". [https://www.bag.admin.ch/dam/bag/de/dokumente/mt/msys/adressliste-nat-referenzzentren.pdf.download.pdf/190305_Liste%20Referenzlabors%20NRZMT%202019_3.pdf]. Accessed 21 October 2020.
[2] University Hospitals Geneve [2018]. "CERTIFICATIONS/ACCREDITATIONS/LABELS". [https://www.hug-ge.ch/sites/interhug/files/structures/qualite_des_soins/certifications_hug_avril_2018_vd.pdf]. Accessed 21 October 2020.
[3] University of Basel Department of Biomedicine. 2016. “DBM Facts”. [https://biomedizin.unibas.ch/fileadmin/user_upload/biomedizin/about_us/media/dbm_facts/DBM_Facts_16_1.pdf]. Accessed 21 October 2020.
[4] University of Zurich. "Institute for Medical Microbiology". [https://www.imm.uzh.ch/de.html]. Accessed 21 October 2020.
[5] Swiss Tropical and Public Health Institute. 2020. “Diagnostic Centre”. [https://www.swisstph.ch/en/activities/diagnostic-centre/]. Accessed 21 October 2020.
[6] World Health Organisation (WHO). 2018. Joint External Evaluation of IHR Core Capacities of the Swiss Confederation and the Principality of Liechtenstein. [https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-2018.26-eng.pdf]. Accessed 21 October 2020.

2.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

Swiss laboratories that serve as reference facilities are subject to external quality assurance review. Article 16 of the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) mandates that all laboratories that carry out diagnostic or epidemiological studies, or conduct tests to identify communicable diseases, including designated national reference laboratories, must have a licence from the Swiss Agency for Therapeutic Products (Swissmedic). [1] Articles 10 and and 17 of the 2015 Ordinance on Microbiological Laboratories (which outlines the conditions for acquiring said licences) require all such laboratories to have a quality management system, which must include regular EQA. [2]

Furthermore, article 19 of this ordinance requires laboratories to retain documents produced for EQA for 5 years and provide them to Swissmedic, and article 15 states that Swissmedic can withdraw, suspend or limit a laboratory's licence if the results of EQA are repeatedly unsatisfactory. [2] Swissmedic's website lists all licensed microbiological laboratories in the country, and this includes all of the country's national reference laboratories for communicable diseases, as listed on the website of the Federal Office of Public Health. [3, 4] Furthermore, the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, affirms that participation in EQA is mandatory for all Swiss national reference laboratories and that all national reference laboratories participate in international proficiency testing. [5]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 26 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Microbiological Laboratories." ("Verordnung über mikrobiologische Laboratorien.") [https://www.admin.ch/opc/de/classified-compilation/20143116/index.html]. Accessed 26 November 2020.
[3] Swiss Agency for Therapeutic Products. 3 November 2020. "Holders of operating licences." ("Inhaber von Betriebsbewilligungen").
[https://www.swissmedic.ch/swissmedic/de/home/humanarzneimittel/bewilligungen_zertifikate/mikrobiologische-laboratorien/bewilligungsinhaber.html]. Accessed 26 November 2020.
[4] Federal Office of Public Health. 2019. "National Reference Centers for Communicable Diseases." ("Nationale Referenzzentren meldepflichtiger übertragbarer Krankheiten.")
[https://www.bag.admin.ch/dam/bag/de/dokumente/mt/msys/adressliste-nat-referenzzentren.pdf.download.pdf/190305_Liste%20Referenzlabors%20NRZMT%202019_3.pdf]. Accessed 26 November 2020.
[5] World Health Organization. 2018. "Joint External Evaluation of IHR Core Capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-2018.26-eng.pdf]. Accessed 21 October 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has a nationwide specimen transport system. The World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, gives Switzerland a score of five out of five on the indicator "Specimen referral and transport system" [1]. It notes, among other things, that reference laboratories are available to cover the majority of pathogens and that transport of samples for proficiency testing within the regional laboratory network is financed by the Federal Office for Public Health. Swiss regulations make the nationwide secure transport of specimen mandatory [2]. Swiss Post, which serves the whole country, uses drones to transport specimens. Matternet, a private company, has received certification from the Swiss Federal Office of Civil Aviation (FOCA) to use drones to transport specimen and fly them at any time of the day [3]. The emerging drone system is complementing the existing nationwide specimen transport system, which uses land-based courier services [4].

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein." [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 21 October 2020.
[2] Federal Department of Home Affairs (FDHA). Institute of Virology and Immunology. "Safe transport of biological material!".
[https://www.ivi.admin.ch/dam/ivi/de/dokumente/ivi/infomaterial/Sicherer%20Transport%20von%20biologischem%20Material_E.pdf.download.pdf/Sicherer%20Transport%20von%20biologischem%20Material.pdf]. Accessed 21 October 2020.
[3] DarkDaily. "Drones Used to Deliver Clinical Laboratory Specimens in Switzerland". 5th July, 2017.
[www.darkdaily.com/drones-used-to-deliver-clinical-laboratory-specimens-in-switzerland-705/]. Accessed 21 April 2020.
[4] Neue Zuericher Zeitung. "Die Blutproben aus dem Zürcher Universitätsspital gelangen jetzt per Drohne ins Labor". 4 December 2018. [https://www.nzz.ch/zuerich/die-blutproben-aus-dem-zuercher-universitaetsspital-gelangen-jetzt-per-drohne-ins-labor-ld.1441774]. Accessed 21 October 2020.

2.2.2 Laboratory cooperation and coordination

2.2.2a

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

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

Current Year Score: 0

There is no evidence that Switzerland has a plan to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak. There is no evidence of such a provision in the 2018 Influenza Pandemic Plan, the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) or the Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019). [1, 2, 3] There is no evidence of such a plan on the website of the Federal Office of Public Health or the Federal Ministry for Agriculture. [4, 5]

[1] Federal Office of Public Health (FOPH). 2018. Influenza Pandemic Plan Switzerland (“Influenza-Pandemieplan Schweiz”) [https://www.ur.ch/_docn/125284/Influenza-Pandemieplan_Schweiz.pdf] Accessed 28 October 2020
[2] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 26 November 2020.
[3] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).")
[https://www.admin.ch/opc/de/classified-compilation/20133212/index.html]. Accessed 26 November 2020.
[4] Federal Office of Public Health. [https://www.bag.admin.ch/] Accessed 28 October 2020
[5] Federal Office for Agriculture. [https://www.blw.admin.ch/blw/en/home.html]. Accessed 28 October 2020.

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

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

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

Current Year Score: 1

Switzerland conducts ongoing event-based surveillance and analysis for infectious disease. The Swiss Federal Office of Public Health (FOPH) conducts ongoing event-based surveillance and analysis for infectious disease and updates its website on a weekly basis [1]. The FOPH also provides several methods for reporting (electronic and by fax) and the contact details of relevant laboratories and responsible medical centres [2]. The 'Ordinance of the FDHA on the reporting of observations of communicable diseases in humans' of 2015 stipulates the protocols and necessary procedures for reporting infectious diseases [3]. Switzerland accordingly scores five points out of five on the World Health Organization's indicator for real-time surveillance (D.2.1 Indicator- and event-based surveillance systems) [4]. It notes that the "FOPH conducts thorough analysis and additional studies on an ad hoc, demand-orientated basis, and publishes the findings in national and international peer-reviewed journals" and "qualified and trained staff are available for human and veterinary health at the national level, check data quality, and routinely analyse the data" [4].

[1] Swiss Federal Office of Public Health (FOPH). 2020 'Data Infectious Diseases' [https://www.bag.admin.ch/bag/de/home/zahlen-und-statistiken/zahlen-zu-infektionskrankheiten.html] Accessed 21 October 2020
[2] Swiss Federal Office of Public Health (FOPH). 2020 [https://www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten/meldepflichtige-ik/meldeformulare.html] Accessed 21 October 2020
[3] Swiss Federal Council. 'Ordinance of the FDHA on the reporting of observations of communicable diseases in humans' 1 December 2015. Updated 20 July 2020 [https://www.admin.ch/opc/de/classified-compilation/20151622/] Accessed 21 October 2020
[4] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 21 October 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has reported a potential public health emergency of international concern (PHEIC) to the World Health Organization (WHO) within the last two years. Switzerland has not reported a potential PHEIC to WHO in the last two years, according to the WHO's Disease Outbreak website [1, 2]. The website of the Federal Office fro Public Health does not make reference to Switzerland having reported a potential public health emergency of international concern (PHEIC) to the WHO within the last two years [3]. Switzerland confirmed its first case of COVID-19 on February 25, 2020, after the WHO had already declared the disease a PHEIC on January 30, 2020. [4, 5]

[1] WHO. "Disease outbreak news. Switzerland". [www.who.int/csr/don/archive/country/che/en/]. Accessed 21 October 2020.
[2] WHO. "Disease outbreak by year". [www.who.int/csr/don/archive/year/2020/en/]. Accessed 21 October 2020.
[3] Federal Office for Public Health. 2020. Website. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 21 April 2020.

[4] Reuters. 25 February 2020. "Swiss authorities confirm first case of coronavirus".
[https://www.reuters.com/article/instant-article/idUKKBN20J1ZO] Accessed May 25, 2021.
[5] World Health Organisation (WHO). 27 April 2020. "Archived: WHO Timeline - COVID-19".
[https://www.who.int/news/item/27-04-2020-who-timeline---covid-19] Accessed May 25, 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: 1

The Swiss government operates an electronic national and sub-national reporting and surveillance system. Switzerland's Federal Office of Public Health (FOPH) runs two reporting systems for the early detection and surveillance of infectious diseases: the Reporting System for Notifiable Infectious Diseases and the Sentinella Reporting System. [1] The Reporting System for Notifiable Infectious Diseases allows all of Switzerland's physicians, hospitals, healthcare institutions and laboratories to report cases of notifiable diseases. [2] Physicians, hospitals and healthcare institutions can submit reports by fax, post or telephone. [2] Labatories can submit reports by these methods, or alternatively they can do so electronically, through a special system designed for this purpose, called "eLM" ("elektronische Labormeldung", German for "electronic laboratory reporting"). [2] All reports must be submitted to the relevant canton-level (sub-national) authorities, while reports from laboratories must additionally be submitted directly to the FOPH. [2] The Sentinella Reporting System, which has been operational since 1986, collects data from 150–250 voluntarily participating primary care physicians from across Switzerland. [3, 4, 5, 6]. Its purpose is to ensure the surveillance of common, non-notifiable communicable diseases, such as influenza, pertussis (whooping cough), mumps, Lyme disease and shingles. [3, 6] The websites of the FOPH and the Sentinella Reporting System do not specify how reports are submitted, though the Sententinella Reporting System's website does allow participating parties to log in. [7, 8, 9] According to the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, conducted in 2018, "the veterinary sector already [had] a state-of-the-art electronic surveillance system" where "daily reporting [was] practised and [could] be used for timely analysis of data and targeted response", but such a system for human health was still in development. [10]

[1] Federal Office of Public Health. 28 August 2018. "Reporting systems for infectious diseases." ("Meldesysteme für Infektionskrankheiten.") [https://www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten.html]. Accessed 6 November 2020.
[2] Federal Office of Public Health. 13 March 2020. "Notifiable infectious diseases." ("Meldepflichtige Infektionskrankheiten.") [https://www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten/meldepflichtige-ik.html]. Accessed 6 November 2020.
[3] Federal Office of Public Health. 20 August 2018. "Sentinella reporting system." ("Sentinella Meldesystem.")[www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten/sentinella-meldesystem.html]. Accessed 6 November 2020.
[4] Sentinella Reporting System. "Organizational form." ("Organisationsform.") [http://www.sentinella.ch/de/info/org]. Accessed 6 November 2020.
[5] Sentinella Reporting System. "Welcome to Sentinella." ("Willkommen bei Sentinella.") [http://www.sentinella.ch/de/info]. Accessed 6 November 2020.
[6] Sentinella Reporting System. "Current reporting subjects." ("Aktuelle Meldethemen.") [http://www.sentinella.ch/de/subject]. Accessed 6 November 2020.
[7] Federal Office of Public Health. [https://www.bag.admin.ch/]. Accessed 6 November 2020.

[8] Sentinella Reporting System. [http://www.sentinella.ch/]. Accessed 6 November 2020.
[9] Sentinella Reporting System. "Log in." ("Anmelden.") [https://www.sentinella.ch/de/system/account/Login]. Accessed 6 November 2020.
[10] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 6 November 2020.

2.3.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Switzerland's electronic reporting surveillance system collects ongoing or real-time laboratory data.

Laboratories can submit reports to the Reporting System for Notifiable Infectious Diseases electronically, using a system called "eLM" ("elektronische Labormeldung", German for "electronic laboratory reporting"), but they must do so manually. Depending on the pathogen detected, they are required to submit the report within 2 hours, 24 hours, or 1 week. [1] Nothing on the website of the Federal Office of Public Health (FOPH) indicates that this system collects ongoing or real-time laboratory data. [2]

Switzerland's system for reporting and surveillance of non-notifiable communicable diseases, the Sentinella Reporting System, receives data from voluntarily participating physicians' practices, rather than from laboratories. [1, 2, 3, 4] There are four participating laboratories that analyse samples sent to them by the participating physicians, but there is no indication that they provide the system with ongoing or real-time laboratory data. [2, 5] Moreover, there is insufficient evidence that reporting for this system is electronic. That said, data from the Reporting System for Notifiable Infectious Diseases and from the Sentinella Reporting System are used to produce weekly reports on numbers of cases, which are published on the FOPH website. [6, 7]

No further relevant information is available on the websites of the Sentinella Reporting System or the FOPH. [2, 10]

[1] Federal Office of Public Health. 13 March 2020. "Notifiable infectious diseases." ("Meldepflichtige Infektionskrankheiten.") [https://www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten/meldepflichtige-ik.html]. Accessed 6 November 2020.
[2] Federal Office of Public Health. [https://www.bag.admin.ch/]. Accessed 6 November 2020.
[3] Federal Office of Public Health. 20 August 2018. "Sentinella reporting system." ("Sentinella Meldesystem.")[www.bag.admin.ch/bag/de/home/krankheiten/infektionskrankheiten-bekaempfen/meldesysteme-infektionskrankheiten/sentinella-meldesystem.html]. Accessed 6 November 2020.
[4] Sentinella Reporting System. "Organizational form." ("Organisationsform.") [http://www.sentinella.ch/de/info/org]. Accessed 6 November 2020.
[5] Sentinella Reporting System. "Welcome to Sentinella." ("Willkommen bei Sentinella.") [http://www.sentinella.ch/de/info]. Accessed 6 November 2020.
[6] Sentinella Reporting System. "Current reporting subjects." ("Aktuelle Meldethemen.") [http://www.sentinella.ch/de/subject]. Accessed 6 November 2020.
[7] Sentinella Reporting System. "Uses for participating physicians." ("Nutzen für teilnehmende Ärzte.") [http://www.sentinella.ch/de/info/benefit/member]. Accessed 6 November 2020.

[8] Sentinella Reporting System. "Uses." ("Nutzen.") [http://www.sentinella.ch/de/info/benefit]. Accessed 6 November 2020.
[9] Federal Office of Public Health. "Figures for infectious diseases." ("Zahlen zu Infektionskrankheiten.") [https://www.bag.admin.ch/bag/de/home/zahlen-und-statistiken/zahlen-zu-infektionskrankheiten.html]. Accessed 6 November 2020.
[10] Federal Office of Public Health. [https://www.bag.admin.ch/]. Accessed 6 November 2020.

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

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

Current Year Score: 2

In Switzerland electronic health records are commonly used in health facilities. Switzerland introduced a national health insurance eCard in 2010 [1]. Its main purpose is as a healthcare identity document (ID). Every person with health insurance in Switzerland is issued an eCard with a chip on it, and it is mandatory for those who live or work in Switzerland to have health insurance, so around 99.5% of people in Switzerland are covered [2, 3]. Doctors, pharmacies, hospitals and other service providers are mandated by law to use the patient's healthcare ID number. The card's chip can optionally store medical data such as blood type, vaccinations, allergies, and medical conditions, with the consent of the patient [4]. Compulsory data stored on the chip include names, date of birth, home address, insurance number, and details regarding accident insurance [5]. Furthermore, as part of the 'Strategy eHealth Switzerland 2.0 2018–2022', the Federal Law on Digitalisation of Patient Records was introduced in April 2017 [6]. The law aims to improve the quality of medical treatment, treatment processes, increase patient safety, increase the efficiency of the health system and promote patient health literacy.

[1] eHealth Strategies. 2010. "Country Brief: Switzerland".[http://ehealth-strategies.eu/database/documents/Switzerland_CountryBrief_eHStrategies.pdf]. Accessed 21 October 2020.
[2] Forbes. "Why Switzerland Has the World's Best Health Care System". 29 April 2011. [https://www.forbes.com/sites/theapothecary/2011/04/29/why-switzerland-has-the-worlds-best-health-care-system/#7bd3faa97d74]. Accessed 21 October 2020.
[3] KVG. "Grundlagen der Versicherungspflicht ". [www.kvg.org/de/versicherungspflicht-_content---1--1034.html]. Accessed 21 October 2020.
[4] Bundesamt fuer Gesundheit. 2010. "Antworten auf haeufig gestellte Fragen (FAQ) zur Versichertenkarte". [https://docplayer.org/10118714-Antworten-auf-haeufig-gestellte-fragen-faq-zur-versichertenkarte.html]. Accessed 21 October 2020.
[5] Federal Office of Public Health (FOPH). 7 July 2016. "Answers to frequently asked questions (FAQ) about the insurance card" ("Antworten auf häufig gestellte Fragen (FAQ) zur Versichertenkarte")[https://www.bag.admin.ch/dam/bag/de/dokumente/kuv-leistungen/Versichertenkarte/faq-versichertenkarte.pdf.download.pdf/H%C3%A4ufige%20Fragen%20(FAQ)%20zur%20Versichertenkarte.pdf] Accessed 21 October 2020
[6] Federal Office of Public Health (FOPH). 'Strategie eHealth Schweiz 2.0'. Updated 14.07.2020. [https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitsstrategien/strategie-ehealth-schweiz.html] Accessed 21 October 2020

2.4.1b

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland's public health system has access to electronic health records of individuals. 2015's Federal Law on Electronic Patient Records regulates the requirements for data processing in electronic patient records in Switzerland. It stipulates that patients can give prior consent for doctors and other medical professionals to access decentrally stored treatment-relevant data from a patient's medical history, along with additional voluntarily provided data. In emergency situations, healthcare professionals can access records without the patient's prior consent [1]. The eHealth Strategy 2.0 2018–2022 was adopted in December 2018, and outlines the implementation of digitalizing patient records in accordance with current public health policies. It aims to increase the digitalization of patient records across Switzerland in order to improve coordination in the healthcare system and related infrastructures [2].

[1] Swiss Federal Council. 19 June 2015. Status as of 15 April 2020. "Federal law on electronic patient records" ("Bundesgesetz über das elektronische Patientendossier") [https://www.admin.ch/opc/de/classified-compilation/20111795/index.html] Accessed 28 October 2020
[2] Federal Office of Public Health (FOPH). 14 July 2020. "Strategy eHealth Switzerland 2.0"("Strategie eHealth Schweiz 2.0") [https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitsstrategien/strategie-ehealth-schweiz.html] Accessed 28 October 2020

2.4.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has data standards to ensure data are comparable. Data standards concerning healthcare were implemented starting in 2010, in order to be compatible with existing national and international technical standards [1]. Data standardization in line with ISO 21549 is also stipulated in the 2008 'Ordinance of the EDI on the technical and graphic requirements for the insurance card for compulsory health insurance' [2].

[1] ehealthsuisse. Swiss Competence and Coordination Centre of the Confederation of the Cantons. 'Technische Standards' Updated 16. December 2019 [https://www.e-health-suisse.ch/de/technik-semantik/technische-interoperabilitaet/technische-standards.html] Accessed 22 October 2020
[2] Swiss Federal Council. 20. March 2008. 'Ordinance of the EDI on the technical and graphic requirements for the insurance card for compulsory health insurance' [https://www.admin.ch/opc/de/classified-compilation/20073068/index.html] Accessed 22 October 2020

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence of established mechanisms at the relevant ministries responsible for animal, human and wildlife surveillance to share data. The 2018 Joint External Evaluation for Switzerland and Liechtenstein states that "reporting from laboratories and physicians is still paper-based, and systems for human and animal health operate in parallel" and that "data are neither integrated in a common database nor jointly analysed but they are jointly assessed on the established One Health platform." [1] The Federal Food Safety and Veterinary Office (FSVO) leads the scientific committee tasked with overseeing the One Health body [2]. In 2018, the government created the "One Health" interdisciplinary platform aimed at strengthening cooperation between public health, animal health, agriculture and the environment. [3] Switzerland has established a One Health working group consisting of representatives from the Federal Office of Public Health (FOPH), the Federal Office for the Environment (FOEN), the Federal Office for Agriculture (FOAG) as well as a physician, veterinarian and other health professionals from the canton level and the army to support the pertinent federal offices "in the detection, monitoring, prevention and control of zoonoses and vectors as well as in the processing and coordination of other cross-cutting topics". [2]

[1] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 22 October 2020.
[2] The Federal Food Safety and Veterinary Office (FSVO). 2017. "One Health Sub-Organ". ("Unterorgan One Health"). [https://www.blv.admin.ch/blv/de/home/das-blv/organisation/kommissionen/unterorgan-one-health.html]. Accessed 22 October 2020
[3] The Federal Food Safety and Veterinary Office (FSVO). "One Health: Working together for human and animal health". 18th October, 2018. [www.blv.admin.ch/blv/en/home/dokumentation/nsb-news-list.msg-id-72594.html]. Accessed 22 October 2020.

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland makes de-identified health surveillance data on disease outbreaks publicly available. The Federal Office of Public Health publishes on its website and updates weekly the number of cases of infectious diseases covered by the Swiss Sentinel Surveillance Network (SSSN) and the surveillance system for notifiable diseases [1]. The weekly updates include data on 51 infectious diseases ranging from HIV and cholera to pertussis and Zika. For some infectious diseases the time series covers a decade. The case data is broken down by gender and canton.

[1] Federal Office of Public Health. 2020. "Zahlen zu Infektionskrankheiten". [www.bag.admin.ch/bag/de/home/zahlen-und-statistiken/zahlen-zu-infektionskrankheiten.html]. Accessed 22 October 2020.

2.4.3b

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland makes de-identified COVID-19 surveillance data available on a daily basis on the website of the Federal Office of Public Health (FOPH). Data include new and total cumulative numbers of laboratory-confirmed cases, hospitalizations, deaths and tests, and data are disaggregated by location, age, and sex. [1, 2, 3, 4]. The FOPH also publishes weekly reports with deeper analysis of the situation [1].

[1] Federal Office of Public Health (FOPH). 28 October 2020. â€œNew coronavirus: Situation in Switzerlandâ€�â€�Laboratory Confirmed Cases: Geographical Distribution [https://www.bag.admin.ch/bag/en/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/situation-schweiz-und-international.html#-1680104524] Accessed 28 October 2020
[2] Federal Office of Public Health (FOPH). 28 October 2020. â€œLaboratory Confirmed Cases: Geographical Distributionâ€� (â€œLaborbestÃ¤tigte FÃ¤lle: geographische Verteilungâ€�) [https://covid-19-schweiz.bagapps.ch/de-1.html] Accessed 28 October 2020
[3] Federal Office of Public Health (FOPH). 28 October 2020. â€œLaboratory confirmed cases: evolution of geographical spread over timeâ€�. (â€œLaborbestÃ¤tigte FÃ¤lle: zeitliche Entwicklung der geografischen Ausbreitungâ€�) [https://covid-19-schweiz.bagapps.ch/de-2.html] Accessed 28 October 2020
[4] Federal Office of Public Health (FOPH). 28 October 2020. â€œTotal tests conductedâ€� (â€œTotal durchgefÃ¼hrter Testsâ€�)[https://covid-19-schweiz.bagapps.ch/de-3.html] Accessed 28 October 2020

2.4.4 Ethical considerations during surveillance

2.4.4a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has robust data protection legislation in place and existing legislation has specific protections for all health data [1, 2]. The principal data protection laws are the Federal Act on Data Protection of 19 June 1992 and the Ordinance to the Federal Act on Data Protection of 14 June 1993 [3]. According to Section 3 of the Federal Act on Data Protection all health data are "sensitive personal data". To collect and use such data, "it is necessary either to have a legal basis, to demonstrate a dominating public interest, to have informed consent, or to have anonymous or coded data" [4]. Under the Data Protection Act "secrecy obligations, such as patient secrecy regarding heath data as set out in article of 321 of the Swiss Criminal Code, have an impact on when respective data are processed" [3].

[1] The Federal Council. 1992. "Federal Act on Data Protection of 1992". [www.admin.ch/opc/en/classified-compilation/19920153/index.html]. Status as of 1 March 2019. Accessed 22 October 2020.
[2] UNCTAD. 2019. "Data Protection & Privacy Laws". [https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/CountryDetail.aspx?country=ch]. Accessed 22 October 2020.
[3] ICLG. 2020. "Switzerland: Data Protection Laws and Regulations 2020â€œ. [https://iclg.com/practice-areas/data-protection-laws-and-regulations/switzerland]. Accessed 22 October 2020.
[4] BMC Med Ethics. "Patient data and patient rights: Swiss healthcare stakeholders ethical awareness regarding large patient data sets a qualitative study". Published online 7 March 2018. [www.ncbi.nlm.nih.gov/pmc/articles/PMC5842517/]. Accessed

22 October 2020.

2.4.4b

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Switzerland has 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 (eg ransomware). Under the Ordinance to the Federal Act on Data Protection of 14 June 1993 [1], personal data (including health data) "must be protected against unauthorized processing, destruction, loss, technical faults, forgery, theft or unlawful use through the implementation of adequate technical and organisational measures, including mandatory controls of the following IT and data-related circumstances: entrance; personal data carrier; transport; disclosure; storage; usage; access; and input" [1]. A revision of the Federal Act on Data Protection (FADP) of 1992 is currently underway, with some focus being put on protections against cyber attacks [2].

[1] Swiss Federal Council. Status as of 16 October 2012. “Ordinance to the Federal Act on Data Protection of 14 June 1993”. [https://www.admin.ch/opc/en/classified-compilation/19930159/index.html]. Accessed 28 October 2020
[2] The Federal President: Doris Leuthard ,The Federal Chancellor: Walter Thurnherr. 15 September 2017 “Message on the federal law on the total revision of the federal law on data protection and the amendment of other decrees on data protection” (“Botschaft Zum Bundesgesetz über die Totalrevision Des Bundesgesetzes über den Datenschutz und die Änderung weiterer Erlasse zum Datenschutz “) [https://www.admin.ch/opc/de/federal-gazette/2017/6941.pdf] Accessed 28 October 2020

2.4.5 International data sharing

2.4.5a

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

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

Current Year Score: 0

There is insufficient evidence of a commitment via public statements, legislation, or cooperative agreement to share surveillance data during a public health emergency with other countries for one or more diseases. Switzerland is a partner in EMERGE (Efficient Response to Highly Dangerous and Emerging Pathogens at European Union (EU) Level), an EU-wide initiative in which 33 associated partners and 4 collaborating partners from 25 European countries collaborate to organize an efficient response to highly dangerous and emerging pathogens [1]. Switzerland participates in the Epidemic Intelligence Information System (EPIS) platform for Food-and Waterborne Diseases and Zoonoses (EPIS-FWD). The EPIS-FWD is aimed "at the early detection and assessment of multi-country/multinational molecular typing clusters and outbreaks of FWDs". Switzerland is one of 21 non-EU countries that participates in the platform that connects epidemiologists and microbiologists from a total of 52 countries [2]. However, there is no evidence of disease surveillance data sharing on any of these platforms by Switzerland in particular. The 2018 World Health Organization's Joint External Evaluation recommends as a priority action

for Switzerland to "explore opportunities for engaging Swiss public health authorities in sustainable information sharing and permanent regional cooperation on serious cross-border threats to health (i.e. EU decision 1082/2013/EU)". [3] The websites of the Federal Office of Public Health, the Federal Department of Federal Affairs (FDFA) and international news media do not make mention of Swiss commitments to share data during an active health emergency [4], [5].

[1] EMERGE. "EMERGE project partners". [www.emerge.rki.eu/Emerge/EN/Content/Partners/Partners_node.html;jsessionid=DA4398F4EABA231ED90BEA115C0C8D77.1_cid372]. Accessed 28 October 2020.
[2] European Centre for Disease Prevention and Control (ECDC). "Epidemic Intelligence Information System (EPIS)". [https://ecdc.europa.eu/en/publications-data/epidemic-intelligence-information-system-epis]. Accessed 28 October 2020.
[3] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 28 October 2020.
[4] Federal Office of Public Health. 2019. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 28 October 2020.
[5] Federal Department of Foreign Affairs. 2020. Website. [www.fdfa.admin.ch/eda/en/home.html]. Accessed 28 October 2020.

2.5 CASE-BASED INVESTIGATION

2.5.1 Case investigation and contact tracing

2.5.1a

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

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

Current Year Score: 0

There is no evidence of a national system in place to provide support at the sub-national level to conduct contact tracing in the event of active or future public health emergencies. In April 2020 the University of Bern established a programme for training contact tracers in conjunction with the Bern Cantonal Medical Office [1]. However, there is no indication of how widespread the application of the training program has been, or whether it was standardized or supported financially by the Swiss government. There is no evidence of a national system to provide support at the sub-national level to conduct contact tracing on the websites of the Federal Office for Public Health or the Swiss Federal Council [2, 3].

[1] University of Bern Institute for Medical Education. 08 July 2020. “Training of Contact Tracers” [https://www.iml.unibe.ch/en/topics/overview/stories-en/training-of-contact-tracers] Accessed 28 October 2020
[2] Federal Office for Public Health. [https://www.bag.admin.ch/bag/en/home.html] Accessed 28 October 2020
[3] Swiss Federal Council. [https://www.admin.ch/gov/en/start.html] Accessed 28 October 2020

2.5.1b

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

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

Current Year Score: 0

There is insufficient evidence that Switzerland 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.

Articles 32 and 35 of the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) state that people who are (or who are suspected of being) sick, infected or infectious can be required to quarantine or isolate. [1] Article 63 of the same law states that the authorities can compensate people who suffer losses due to such quarantine or isolation, but does not state that they must do so. [1] This law provides no further details on such compensation, and does not mention medical care for people required to isolate either. [1] No relevant provisions are contained in the Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019). [2]

However, under article 324a of the Code of Obligations (adopted 1911, last amended April 2020), when an employee is prevented from working by "personal circumstances for which he is not at fault, such as illness, accident, legal obligations or public duties", the employer must continue to pay the salary for up to 3 weeks, as long as the employment relationship has existed for more than 3 months. [3] During the COVID-19 pandemic, people required to self-isolate due to having the disease are covered by this provision. [4] People required to self-isolate due to having had contact with an infected person are not covered by this provision, but under a COVID-specific measure are eligible for monetary compensation of up to CHF 196 (US$ 215) per day if the isolation prevents them from working. [4, 5, 6] People required to self-isolate after visiting a designated risk country are not eligible for compensation. [6]

There is no evidence on the Federal Office of Public Health's website that there is any kind of special medical support for people required to self-isolate at home. [7]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 10 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html]. Accessed 10 November 2020.
[3] Federal Assembly of the Swiss Confederation. 30 March 1911. "Federal Law on Expanding the Swiss Civil Code (Part 5: Code of Obligations)." ("Bundesgesetz betreffend die Ergänzung des Schweizerischen Zivilgesetzbuches (Fünfter Teil: Obligationenrecht).") [https://www.admin.ch/opc/de/classified-compilation/19110009/index.html]. Accessed 10 November 2020.
[4] Federal Office of Public Health. 5 November 2020. "Coronavirus: What to do in the event of symptoms and possible infection."("Coronavirus: Vorgehen bei Symptomen und möglicher Ansteckung.") [https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/isolation-und-quarantaene.html]. Accessed 10 November 2020.
[5] Federal Social Insurance Office. 9 November 2020. "Compensation for loss of earnings when taking measures against the coronavirus." ("Entschädigung für Erwerbsausfall bei Massnahmen gegen das Coronavirus.") [https://www.bsv.admin.ch/bsv/de/home/sozialversicherungen/eo-msv/grundlagen-und-gesetze/eo-corona.html]. Accessed 11 November 2020.
[6] Federal Social Insurance Office. 4 November 2020. "Overview of measures / Corona compensation for loss of earnings" ("Massnahmenübersicht / Corona-Erwerbsausfallentschädigung").

[https://www.bsv.admin.ch/dam/bsv/de/dokumente/eo/uebersichten/ueberblick-cee-massnahmen.pdf.download.pdf/Aper%C3%A7u%20des%20mesures%20allocations%20Coronavirus%20def%20d.pdf]. Accessed 11 November 2020.
[7] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 11 November 2020.

2.5.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland makes de-identified data on contact tracing efforts for COVID-19 available on a daily basis. The Swiss Federal Office of Public Health (FOPH) publishes daily reports on its website, which include numbers of people in isolation, newly identified contacts in quarantine, and the number of additional people in quarantine after arrival from designated risk areas. [1] The information is available in German, French and Italian [2].

[1] Federal Office of Public Health. 28 October 2020. "Coronavirus: Situation in Switzerland." [https://www.bag.admin.ch/bag/en/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/situation-schweiz-und-international.html] Accessed 28 October 2020.
[2] Federal Office of Public Health. 28 October 2020. "Situation report on the epidemiological situation in Switzerland and in the Principality of Liechtenstein". ("Situationsbericht zur epidemiologischen Lage in der Schweiz und im Fürstentum Liechtenstein".) [https://www.bag.admin.ch/dam/bag/de/dokumente/mt/k-und-i/aktuelle-ausbrueche-pandemien/2019-nCoV/covid-19-lagebericht.pdf.download.pdf/COVID-19_Epidemiologische_Lage_Schweiz.pdf] Accessed 28 October 2020

2.5.2 Point of entry management

2.5.2a

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

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

Current Year Score: 0

There is no evidence of 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 an agreement websites of the State Secretariat for Migration (SEM), the Federal Customs Administration (FCA), or the Federal Office of Public Health (FOPH) [1, 2, 3]. According to the website of the FOPH, during the ongoing coronavirus pandemic, people entering Switzerland from a designated high-risk country by aeroplane or bus are required to provide contact details, though it is not specified to whom. [4] The FOPH webpage explains that these contact details are used to inform people if it is discovered that an infected passenger was on the aeroplane or bus with them, and that they are also passed on to the cantonal authorities to enable them to monitor compliance with self-isolation requirements. [4] However, the webpage does not provide any details on the legal or organizational basis for this. [4] There is no mention of such measures in Ordinance 2 on Measures to Combat the

Coronavirus (in March 2020), the Ordinance on Measures in the Special Situation to Combat the COVID-19 Epidemic (issued June 2020), Ordinance 3 on Measures to Combat the Coronavirus (issued June 2020), the Ordinance on the Proximity Tracing System for the Sars-CoV-2 Coronavirus (issued June 2020), the Ordinance on Measures to Combat the Coronavirus in International Passenger Transport (issued July 2020), or the Federal Law on the Statutory Principles for Federal Council Ordinances on Combatting the COVID-19 Epidemic (issued September 2020). [5, 6, 7, 8, 9, 10] On 9 November 2020 the State Secretariat for Migration issued Directive 323.7-5040/3, which provides instructions for the border control authorities with regard to enforcing restrictions on entering the country, but it does not mention gathering contact details or co-operation with public health authorities. [11]

[1] State Secretariat for Migration. [https://www.sem.admin.ch/sem/en/home.html] Accessed 28 October 2020
[2] Federal Customs Administration. [https://www.ezv.admin.ch/ezv/en/home.html] Accessed 28 October 2020
[3] Federal Office of Public Health. [https://www.bag.admin.ch/bag/en/home.html] Accessed 28 October 2020
[4] Federal Office of Public Health. 12 November 2020. "Coronavirus: Information for travellers." ("Coronavirus: Informationen für Reisende.") [https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/empfehlungen-fuer-reisende.html]. Accessed 26 November 2020.
[5] Swiss Federal Council. 13 March 2020. “Ordinance 2 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 2 über Massnahmen zur Bekämpfung des Coronavirus (COVID-19).”) [https://www.admin.ch/opc/de/classified-compilation/20200744/index.html] Accessed 29 October 2020. Accessed 26 November 2020.
[6] Swiss Federal Council. 19 June 2020. “Ordinance on Measures in the Special Situation to Combat the COVID-19 Epidemic." ("Verordnung über Massnahmen in der besonderen Lage zur Bekämpfung der Covid-19-Epidemie.”) [https://www.admin.ch/opc/de/classified-compilation/20201774/index.html]. Accessed 26 November 2020.
[7] Swiss Federal Council. 19 June 2020. “Ordinance 3 on Measures to Combat the Coronavirus (COVID-19).” ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html]. Accessed 26 November 2020.
[8] Swiss Federal Council. 24 June 2020. "Ordinance on the Proximity Tracing System for the Sars-CoV-2 Coronavirus." ("Verordnung über das Proximity-Tracing-System für das Coronavirus Sars-CoV-2.") [https://www.admin.ch/opc/de/classified-compilation/20201730/index.html]. Accessed 26 November 2020.
[9] Swiss Federal Council. 2 July 2020. “Ordinance on Measures to Combat the Coronavirus in International Passenger Transport." ("Verordnung über Massnahmen zur Bekämpfung des Coronavirus (Covid-19) im Bereich des internationalen Personenverkehrs.”) [https://www.admin.ch/opc/de/classified-compilation/20201948/index.html]. Accessed 26 November 2020.
[10] Federal Assembly of the Swiss Confederation. 25 September 2020. "Federal Law on the Statutory Principles for Federal Council Ordinances on Combating the COVID-19 Epidemic." ("Bundesgesetz über die gesetzlichen Grundlagen für Verordnungen des Bundesrates zur Bewältigung der Covid-19-Epidemie.") [https://www.admin.ch/opc/de/classified-compilation/20202070/index.html]. Accessed 26 November 2020.
[11] State Secretariat for Migration. 9 November 2020. "Directive 323.7-5040/3." ("Weisung 323.7-5040/3.") [https://www.sem.admin.ch/dam/sem/de/data/aktuell/aktuell/einreisestopp/weisung-covid-19-d.pdf.download.pdf/weisung-covid-19-d.pdf]. Accessed 26 November 2020.

2.6 EPIDEMIOLOGY WORKFORCE

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

2.6.1a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 0

There is no evidence that Switzerland has an applied epidemiology training program or that the Swiss government provides resources to send citizens to another country to participate in applied epidemiology training programs. According to the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, Switzerland does not offer a dedicated field epidemiology training programme for public health officers [1]. The evaluation concludes, however, that the existing system shows "veterinary and public health officers have the necessary skills/training to conduct disease prevention and outbreak investigation for animal disease events (zoonotic and non-zoonotic), and implement control measures for prioritized zoonoses". The report also notes that epidemiology training is part of Master of Health qualifications, and other master's and bachelor's degree programmes in public health. It further notes that "field epidemiology training per se is not directly offered, and is acquired through on-the-job training. Veterinary education includes public health modules". Swiss universities offer courses in epidemiology and the Swiss Tropical and Public Health Institute offers a Diploma of Advances Studies that includes applied epidemiology [2]. TEPHINET (the Training Programs in Epidemiology and Public Health Interventions Network) does not list Switzerland as a European country that offers FETP [3]. The website of the Federal Office for Public Health does not make reference to an applied epidemiology training program or resources devoted to training programmes outside the country [4]

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 22 October 2020.
[2] Swiss Tropical and Public Health Institute. 2020. "DAS Diploma of Advanced Studies". [https://advancedstudies.unibas.ch/studienangebot/kurs/das-health-care-and-management-hcm-from-research-to-implementation-19707]. Accessed 22 October 2020.
[3] Training Programs in Epidemiology and Public Health Interventions Network. "Training Programs." [https://www.tephinet.org/training-programs]. Accessed 22 October 2020.
[4] Federal Office for Public Health. [www.bag.admin.ch/bag/en/home.html]. Accessed 22 October 2020.

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of field epidemiology training programs explicitly inclusive of animal health professionals or a specific animal health field epidemiology training program. According to the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, Switzerland does not offer a dedicated field epidemiology training programme for public health officers [1]. The evaluation concludes, however, that the existing system shows "veterinary and public health officers have the necessary skills/training to conduct disease prevention and outbreak investigation for animal disease events (zoonotic and non-zoonotic), and implement control measures for prioritized zoonoses". The report also notes that epidemiology training is part of Master of Health qualifications, and other master's and bachelor's degree programmes in public health. The report further states that Swiss "curricula are driven by demand, and dependent on the universities. Field epidemiology training per se is not directly offered, and is acquired through on-the-job training. Veterinary education includes public health modules" [1]. The universities of Zurich and Bern, among others, offer courses in veterinary epidemiology [2, 3]. TEPHINET does not list Switzerland as a European country that offers FETVP [4]. The website of the Swiss Federal Office for Public Health does not make reference to a field epidemiology training programs explicitly inclusive of animal health professionals or a specific animal health field epidemiology training program [5].

[1] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 22 October 2020.
[2] University of Zurich. "Section of epidemiology". [www.vetepi.uzh.ch/en.html]. Accessed 22 October 2020.
[3] University of Bern. "Veterinary Public Health Institute". [www.vphi.ch/index_eng.html]. Accessed 22 October 2020.
[4] TEPHINET. "TEPHINET Member Programs". 2020. [https://www.tephinet.org/training-programs]. Accessed 22 October 2020.
[5] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 22 October 2020.

2.6.2 Epidemiology workforce capacity

2.6.2a

Is there public evidence that the country has at least 1 trained field epidemiologist per 200,000 people?
Yes = 1 , No = 0

Current Year Score: 0

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 2

Switzerland has an overarching national public health emergency response plan that addresses planning for multiple communicable diseases with pandemic potential. According to the World Health Organization's Joint External Evaluation (JEE) for Switzerland and Liechtenstein, published in 2018, "policies and strategies for public health emergency preparedness and response are in place" and these "have been tested, and meaningful experience has been gained in the management of recent major crises (pandemics of SARS, H1N1, avian flu, and Ebola)" [1]. The JEE does not, however, refer to specific documents. [1] Switzerland's main strategy document covering emergency response is titled "ABC Protection Switzerland" (where A stands for atomic, B for biological and C for chemical). [2] This document, which came into effect in 2007 and was last updated in 2019, explicitly covers response to pandemics and animal disease outbreaks, alongside biological attacks, nuclear attacks, nuclear accidents and chemical attacks. [2] However, it merely outlines general emergency response principles and structures; it does not detail pandemic-specific measures. [2] Instead, detailed provisions for pandemic response are contained in the Federal Law on Combatting Communicable Human Diseases, also known as the Epidemic Law, which was adopted in 2012 and last amended in June 2020. [3] As well as addressing surveillance and prevention, this law covers pandemic response, listing non-pharmaceutical interventions (e.g. disinfection, isolation of infected persons, closure of certain businesses, bans on certain activities, international travel restrictions), outlining duties of healthcare professionals and institutions during pandemics, making provisions for the distribution of medical countermeasures, addressing compensation of individuals and businesses negatively affected by pandemics and response measures, and detailing the organization of pandemic response. [3] Further, more detailed measures are included in the Ordinance on Combatting Communicable Human Diseases, also known as the Epidemic Ordinance, which was adopted in 2015 and last amended in March 2019. [4] Although the Epidemic Law covers all communicable diseases with pandemic potential, the only disease it specifically names is COVID-19. [3] The Epidemic Ordinance, which also covers all communicable diseases with pandemic potential, includes specific references to influenza, smallpox, diphtheria, botulism, rabies, tuberculosis, measles, yellow fever, and human immunodeficiency virus. [4] In addition to these overarching documents, Switzerland also has the Swiss Influenza Pandemic Plan, which was last updated in 2018. [5]

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 22 October 2020.
[2] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.") [https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 6 November 2020.
[3] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen

(Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 6 November 2020.
[4] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 6 November 2020.
[5] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.

3.1.1b

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

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

Current Year Score: 1

Switzerland's overarching pandemic plans have been updated in the last 3 years. The Federal Law on Combatting Communicable Human Diseases, which is also known as the Epidemic Law and contains measures to prevent, detect and respond to epidemics, was adopted in 2012 and last amended in June 2020. [1] The Ordinance on Combatting Communicable Human Diseases, which is also known as the Epidemic Ordinance and goes into more detail on the same topic, was adopted in 2015 and last amended in March 2019. [2] The country's main strategy document covering emergency response, "ABC Protection Switzerland" (where A stands for atomic, B for biological and C for chemical), was adopted in 2007 and last updated in late 2019. [3] According to the World Health Organization's Joint External Evaluation for Switzerland and Liechtenstein, published in 2018, "policies and strategies for public health emergency preparedness and response are in place" and "have been tested, and meaningful experience has been gained in the management of recent major crises (pandemics of SARS, H1N1, avian flu, and Ebola)". [4]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 6 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 6 November 2020.
[3] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.") [https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 6 November 2020.
[4] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 22 October 2020.

3.1.1c

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

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

Current Year Score: 1

Switzerland's pandemic plan includes considerations for pediatric and other vulnerable populations.

The Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) contains several provisions related to vulnerable populations. [1] Article 21 notes that cantonal authorities must regularly check the vaccination status of schoolchildren, and can offer vaccinations at schools. Article 22 states that, if there is significant risk, cantonal authorities can make vaccinations mandatory for vulnerable groups, persons with high exposure and persons who carry out particular activities. Article 35 states that if an institution is quarantining infectious individuals, it must take steps to ensure vulnerable people are protected from infection. Article 40 allows the cantonal authorities to close and impose restrictions on schools to prevent the spread of communicable diseases. [1]

The Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019) also contains several provisions related to vulnerable populations. [2] Article 3 notes the existence of the Swiss Pediatric Surveillance Unit, a system for surveillance and early warning of rare communicable diseases among hospitalized children. Article 28 requires schools, kindergartens and daycare centers to inform children's guardians about measles and measles vaccinations. Article 36 requires cantonal authorities to check children's vaccination status at least twice – at the start and end of mandatory education – and to encourage children's guardians to have their children fully vaccinated in line with government recommendations. Article 38 states that when determining whether a significant risk exists, among other factors, cantonal authorities must consider danger to especially vulnerable people. [2]

There is no mention of pediatric or other vulnerable groups in the main strategy document covering emergency response, "ABC Protection Switzerland" (adopted 2007, last updated 2019), or in the 2018 Swiss Influenza Pandemic Plan. [3, 4]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 10 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 10 November 2020.
[3] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.") [https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 6 November 2020.
[4] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 1

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Switzerland has specific mechanisms for engaging with the private sector to assist with outbreak emergency preparedness and response. Switzerland has an agreement with Helvecura, a private company, to maintain stockpiles of strategic goods to use in case of emergencies. [1,2] These goods include medicines and vaccines, in addition to gas and petroleum, grain, food and fertilizers. [1,2] Additionally, the 2002 Federal Law on Civil Protection and Protection and Support regulates the recruitment and remuneration of civilians in times of crisis, and gives the state the right to demand from private individuals, businesses and property owners to convert their properties into shelters (sections 30 and 57) [3]. However, there is no evidence of any specific mechanisms for engaging with the private sector in emergency preparedness or response on the aforementioned sources, or on the websites of the Swiss Federal Office for Civil Protection or the Ministry of Health. [4,5]

[1] Federal Office for National Economic Supply. "Stockpiling." [https://www.bwl.admin.ch/bwl/en/home/themen/pflichtlager.html]. Accessed 22 October 2020.
[2] Helvecura. [http://www.helvecura.ch/de/wirkstoffverzeichnis]. Accessed 22 October 2020.
[3] Swiss government. 2002 "Bundesgesetz über den Bevölkerungsschutz und den Zivilschutz". Updated 1 January 2020. [www.admin.ch/opc/de/classified-compilation/20011872/index.html]. Accessed 22 October 2020.
[4] Federal Office for Civil Protection. "Rechtliche Grundlagen". [www.babs.admin.ch/de/publikservice/grundlagen/rechtsgrundlagen.html#ui-collapse-772]. Accessed 22 October 2020.
[5] Swiss Federal Office of Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 22 October 2020.

3.1.3 Non-pharmaceutical interventions planning

3.1.3a

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

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

Current Year Score: 2

Switzerland has policies in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic for more than one disease. The Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020), which applies to all communicable human diseases, outlines NPIs including: disinfection, isolation of infected persons, closure of certain businesses, bans on certain activities, and international travel restrictions. [1] The Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019), which applies to all communicable human diseases, gives detailed guidance on disinfection, international travel restrictions, restrictions on movement of goods, and special measures regarding the handling and destruction of corpses. [2] The current Swiss Influenza Pandemic Plan, published in 2018, which applies to influenza, outlines NPIs including: contact tracing, isolation of infected persons, behavioral guidelines relating to the activities of certain businesses, bans on certain activities, international travel

restrictions, hygiene, social distancing rules, school closures, access restrictions to public places, and bans on events. [3] In addition, Switzerland has two ordinances in effect that have introduced NPIs in response to the COVID-19 pandemic: the Ordinance on Measures During the Special Situation to Combat the COVID-19 Epidemic (adopted June 2020, last amended November 2020) and Ordinance 3 on Measures to Combat the Coronavirus (adopted June 2020, last amended November 2020). [4, 5]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 10 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 10 November 2020.
[3] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[4] Swiss Federal Council. 19 June 2020. “Ordinance on Measures During the Special Situation to Combat the COVID-19 Epidemic.” ("Verordnung über Massnahmen in der besonderen Lage zur Bekämpfung der Covid-19-Epidemie.") [https://www.admin.ch/opc/de/classified-compilation/20201774/index.html] Accessed 10 November 2020.
[5] Swiss Federal Council. 19 June 2020. “Ordinance 3 on Measures to Combat the Coronavirus (Covid-19).” ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html] Accessed 10 November 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

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

Current Year Score: 1

In the past year, Switzerland has activated its national emergency response plan for an infectious disease outbreak, but there is no evidence that it has completed a national-level biological threat-focused exercise. In light of the COVID-19 pandemic, on 28 February 2020 the Swiss Federal Council declared a "special situation" ("besondere Lage") as per article 6 of the 2012 Federal Law on Combatting Communicable Human Disease (also known as the Epidemic Law). [1, 2] Article 6 of the Epidemic Law defines a "special situation" as existing if the usual authorities are unable to prevent or control the outbreak or spread of communicable diseases, or the World Health Organization has declared an international health emergency that threatens Switzerland. [2] Article 6 further states that during such a "special situation" the Federal Council can introduce various measures, which are listed in articles 30–51. [2] In order to introduce these measures, Switzerland has issued Ordinance 2 on Measures to Combat the Coronavirus (in March 2020), the Ordinance on Measures in the Special Situation to Combat the

COVID-19 Epidemic (in June 2020), Ordinance 3 on Measures to Combat the Coronavirus (in June 2020), the Ordinance on the Proximity Tracing System for the Sars-CoV-2 Coronavirus (in June 2020), the Ordinance on Measures to Combat the Coronavirus in International Passenger Transport (in July 2020), and the Federal Law on the Statutory Principles for Federal Council Ordinances on Combatting the COVID-19 Epidemic (in September 2020). [3, 4, 5, 6, 7, 8] There is no evidence that Switzerland has in the past year completed a national-level biological threat-focused exercise on the websites of the World Health Organization, the Federal Office of Public Health or the Federal Office for Agriculture. [9, 10, 11]

[1] Schweizer Radio und Fernsehen. 28 February 2020. "Federal Council announces 'special situation' – what does that mean?" ("Bundesrat ruft «besondere Lage» aus – was heisst das?") [https://www.srf.ch/news/schweiz/gestuetzt-auf-epidemiengesetz-bundesrat-ruft-besondere-lage-aus-was-heisst-das]. Accessed 11 November 2020.
[2] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 11 November 2020.
[3] Swiss Federal Council. 13 March 2020. "Ordinance 2 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 2 über Massnahmen zur Bekämpfung des Coronavirus (COVID-19).") [https://www.admin.ch/opc/de/classified-compilation/20200744/index.html] Accessed 29 October 2020. Accessed 11 November 2020.
[4] Swiss Federal Council. 19 June 2020. "Ordinance on Measures in the Special Situation to Combat the COVID-19 Epidemic." ("Verordnung über Massnahmen in der besonderen Lage zur Bekämpfung der Covid-19-Epidemie.") [https://www.admin.ch/opc/de/classified-compilation/20201774/index.html]. Accessed 11 November 2020.
[5] Swiss Federal Council. 19 June 2020. "Ordinance 3 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html]. Accessed 11 November 2020.
[6] Swiss Federal Council. 24 June 2020. "Ordinance on the Proximity Tracing System for the Sars-CoV-2 Coronavirus." ("Verordnung über das Proximity-Tracing-System für das Coronavirus Sars-CoV-2.") [https://www.admin.ch/opc/de/classified-compilation/20201730/index.html]. Accessed 11 November 2020.
[7] Swiss Federal Council. 2 July 2020. "Ordinance on Measures to Combat the Coronavirus in International Passenger Transport." ("Verordnung über Massnahmen zur Bekämpfung des Coronavirus (Covid-19) im Bereich des internationalen Personenverkehrs.") [https://www.admin.ch/opc/de/classified-compilation/20201948/index.html]. Accessed 11 November 2020.
[8] Federal Assembly of the Swiss Confederation. 25 September 2020. "Federal Law on the Statutory Principles for Federal Council Ordinances on Combating the COVID-19 Epidemic." ("Bundesgesetz über die gesetzlichen Grundlagen für Verordnungen des Bundesrates zur Bewältigung der Covid-19-Epidemie.") [https://www.admin.ch/opc/de/classified-compilation/20202070/index.html]. Accessed 11 November 2020.
[9] World Health Organization. [https://www.who.int/]. Accessed 11 November 2020.
[10] Federal Office of Public Health. [www.bag.admin.ch/bag/en/home.html]. Accessed 11 November 2020.
[11] Federal Office for Agriculture. [www.blw.admin.ch/blw/en/home.html]. Accessed 11 November 2020.

3.2.1b

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

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

Current Year Score: 0

There is no evidence that Switzerland has in the past year undergone an exercise to identify a list of gaps and best practices through an after action review or a biological threat-focused exercise. The Swiss Security Association (SSA) and its partners last conducted a pandemic response exercise and review in 2015 [1]. There are no references to infectious disease response or biological-threat focused exercises on the websites of the Federal Council, the Federal Office of Public Health or the Federal Office for Agriculture [2, 3, 4]. The World Health Organization's Health Security Calendar does not have any references for these types of exercises involving Switzerland in the last year [5].

[1] Swiss Federal Council. 28.05.2015. â€˜Joint security exercise 2014: Findings and further actionâ€™. [https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-57427.html] Accessed 23 October 2020.
[2] Swiss Federal Council. 2020. Website. [https://www.admin.ch/gov/de/start.html] Accessed 23 October 2020.
[3] Swiss Federal Office of Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html] Accessed 23 October 2020.
[4] Swiss Federal Office for Agriculture. 2020. Website. [www.blw.admin.ch/blw/en/home.html]. Accessed 23 October 2020.
[5] WHO. Health Security Calendar. 2020. [https://extranet.who.int/sph/calendar/2020?1&type=aftr_action_review&field_region_tid=All&country_tid=322]. Accessed 23 October 2020.

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has in the past year undergone a national-level biological threat-focused exercise that has included private sector representatives. None of the World Health Organization's webpages list Switzerland as ever having conducted an exercise focused on biological threats. [1, 2, 3] There is no evidence that any relevant exercise has been conducted in the past year, or is currently planned, on the websites of the Federal Office of Public Health or the Federal Office for Civil Protection. [4, 5, 6]

[1] World Health Organization (WHO). Simulation Exercise. [https://extranet.who.int/sph/simulation-exercise. Accessed 11 November 2020.
[2] World Health Organization. "Switzerland". [https://www.who.int/countries/che/]. Accessed 11 November 2020.
[3] World Health Organization Region Office for Europe. "Switzerland." [https://www.euro.who.int/en/countries/switzerland]. Accessed 11 November 2020.
[2] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 11 November 2020.
[3] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 11 November 2020.

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has an emergency operations centre. The Zurich-based National Emergency Operations Centre (NOEC) is a division of the Federal Office for Civil Protection (FOCP) [1]. The NOEC's functions include public health risk and resource mapping [2]. Both during emergencies and on a daily basis outside of emergencies, it shares information with the cantonal and federal authorities, telecommunications operators, public utilities, international organizations and situation centres in neighbouring countries. Its organizational units include an information unit, units for strategy and coordination, a reporting and situation centre, a radioactivity section, and the operational system and operations management sections [3].

[1] Swiss National Emergency Operations Centre. [www.naz.ch/index_en.html]. Accessed 23 October 2020.
[2] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[3] Swiss National Emergency Operations Centre. 2020. "Sections". [www.naz.ch/en/naz/organisation.html]. Accessed 23 October 2020.

3.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Switzerland's emergency operation center conducts, or is required to conduct, a drill for a public health emergency scenario at least once a year. On its website, the National Emergency Operations Center (NEOC) lists all emergency exercises ("Gesamtnotfallübungen") that have happened in the past decade, and the most recent one is from 2017 [1]. The NOEC website also notes that emergency drills at the country's nuclear power plants are carried out every two years, but does not mention drills for public health emergency scenarios. The World Health Organization's Joint External Evaluation for Switzerland concludes that "the frequency and scope of drills should be enhanced, and especially the medical treatment/ management components" [2]. There is no relevant information on the website of the Federal Office of Public Health. [3]

[1] Swiss Federal Office for Civil Protection. 2020. "National Emergency Operations Centre." [www.naz.ch/de/dokumentation/uebungen.html]. Accessed 23 October 2020.
[2] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". Geneva. [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[3] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 23 October 2020.

3.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has, within the past year, conducted a coordinated emergency response or emergency response exercise activated within 120 minutes of the identification of the public health emergency. Switzerland conducts emergency response exercises every two years, and these are listed on the Swiss Federal Office for Civil Protection's (FOCP's) website [1]. There is no evidence that exercises for 2020 have been announced yet, and the most recent exercise – a simulation of response measures to a radioactive event – was carried out in October 2018. Details of this exercise were published on a separate website of the FOCP [2]. The website of the FOCP does not make reference to a requirement that the time of activation is within 120 minutes of the identification of the public health emergency/scenario. The WHO's Joint External Evaluation report for Switzerland, published in 2018, notes that "Switzerland has demonstrated the capacity to activate a national EOC [Emergency Operation Centre] at short notice however, due to the bottom-up escalation process, activation happens at the request of cantons, and thus not necessarily within two hours of the occurrence of an event [3]. There is no further evidence available on the website of the Swiss Ministry of Health. [4]

[1] Swiss Federal Office for Civil Protection. 2020. "Exercises." ("Übungen") [www.naz.ch/de/dokumentation/uebungen.html]. Accessed 23 October 2020.
[2] Swiss Federal Office for Civil Protection "Übungen". 16th October, 2018. [https://blog.alertswiss.ch/de/blog/rubriken/uebungen/]. Accessed 23 October 2020.
[3] WHO. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". Geneva. [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[4] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 23 October 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

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

Current Year Score: 1

Switzerland has publicly available procedures and guidelines for the public health and security authorities to respond to a deliberate biological event, and an exercise has been conducted to respond to a deliberate biological event. At the federal level, measures to deal with harmful biological incidents are coordinated by the ABC (Atomic, Biological, Chemical) National Crisis Management Board [1]. The institutional responsibility depends on the nature of the biological event: the Federal Office of Public Health deals with incidents with pathogens that infect humans; the Federal Food Safety and Veterinary Office and the Federal Office for Agriculture with incidents with animal pathogens; and the Federal Office for the Environment with incidents involving all other organisms. The Federal Office for Civil Protection (FOCP) has developed biological threat scenarios. They are: B-toxin attack; pathogen virus attack; anthrax attack; pandemic new, yet unknown pathogen; pandemic influenza; animal epidemic outbreak of hoof-and-mouth disease. In 2017, the FOCP conducted an exercise simulating the outbreak of a highly contagious animal disease [2]. The exercise was overseen by the FOCP and carried out in cooperation

with Swiss and German border authorities. Switzerland also conducted an emergency exercise to respond to NBC terror threats in November 2019 [3].

[1] Swiss National Emergency Operations Centre. "Biology." ("Biologie.") [www.naz.ch/en/themen/biologie.html]. Accessed 23 October 2020.
[2] Swiss Federal Office for Civil Protection. "Coping with hurricanes and animal disease." ("Orkan und Tierseuche bewältigen.") [https://blog.alertswiss.ch/de/blog/rubriken/uebungen/page/2/]. Accessed 23 October 2020.
[3] ASMZ Sicherheit Schweiz. "SVU Detailed Concept on Persistent Terrorist Threat Approved." ("Anhaltende Terrorbedrohung Detailkonzept der SVU 19 genehmigt.") [https://www.vbs.admin.ch/de/themen/sicherheitspolitik/sicherheitsverbundsuebung-2019.html]. Accessed 23 October 2020.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland's risk communication plan outlines how messages will reach populations with different communication needs. The World Health Organization's Joint External Evaluation for Switzerland (JEE), published in 2018, notes that the websites of the Swiss Federal Office for Public Health (FOPH) and the Swiss Federal Food Safety and Veterinary Office (FSVO) "demonstrate best practice", making all messages available in Switzerland's four official languages (German, French, Italian and Romansh). [1] The JEE also notes that various communication campaigns and the Miges Plus project target immigrants through 18 non-official languages. Miges Plus is Switzerland's web portal for equitable health access, which supports mediators, social workers, and health professionals by providing health information in various languages [5]. It supports healthcare organizations, for developing and distributing health information via various media and running prevention campaigns. Since 2015, the government has been using a mobile application (AlertSwiss-App), which is also available on social media channels such as Facebook and Twitter [1], [2], [3]. However, the main ordinance on the warning and alerting of the population, the Regulation on the Warning, Alerting and Security Radio Network of Switzerland (adopted 2010, last updated January 2019), does not make explicit reference to different groups' communication needs.

[1] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[2] Swiss Federal Office for Civil Protection (FOCP). "Die Alarmierung der Bevoelkerung". [www.babs.admin.ch/de/publikservice/grundlagen/rechtsgrundlagen.html#ui-collapse-233]. Accessed 23 October 2020.
[3] Swiss Federal Council. From 18 August 2010 updated 1 January 2019 "Verordnung über die Warnung, die Alarmierung und das Sicherheitsfunknetz der Schweiz". [www.admin.ch/opc/de/classified-compilation/20082033/index.html]. Accessed 23 October 2020.
[4] Swiss Federal Office of Civil Protection. 2020. "Alertswiss neue Wege in der Ereigniskommunikation". [www.babs.admin.ch/de/alarm/alertswiss.html]. Accessed 23 October 2020.

[5] migesplus.ch. 2020. Website. [https://www.migesplus.ch/en/]. Accessed 23 October 2020.

3.5.1 Risk communication planning

3.5.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has response plans in place detailing a risk communication responsibilities for the use during emergencies. According to the World Health Organization's Joint External Evaluation (JEE) of Switzerland, published in 2018, the country has communication plans in place at the Swiss Federal Office for Public Health (FOPH) for specific events (e.g. pandemics and other events), and they include clear descriptions of roles and responsibilities. The JEE also notes that the Swiss Federal Food Safety and Veterinary Office (FSVO) "demonstrates the same professionalism but has a more generic approach to crisis communication, in order to increase adaptability to different crises" [1]. The JEE reports that the documents spelling out risk communication during health emergencies are the Ministry of Health Crisis Manual, a document titled "Crisis communications: Media Work of the Federal Chancellery concept and toolbox", and the Influenza Pandemic Communications Plan. However, none of these documents appear to be publicly available online. The JEE further states that "Switzerland demonstrates well-developed capacity in risk communication, but would benefit from systems and strategies for dynamic listening and rumour management, increased social media monitoring and usage, and community management" [1]. It continues that "dedicated human and financial resources are available at federal level, and communication teams are well trained" and that "in case of a national crisis, supplementary mechanisms and resources are put into place by the Department of Home Affairs/Chancellery" [1].

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.

3.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has any document designating a specific position within the government to serve as the primary spokesperson during a public health emergency. There is no such provision in the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020), the Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019), the "ABC Protection Switzerland" strategy document (adopted 2007, last updated 2019), the Swiss Influenza Pandemic Plan (adopted 2018) or the Ordinance on the Warning, Alerting and Security Radio Network of Switzerland (adopted 2010, last amended January 2019). There is no mention of such a provision on the World Health Organization's 2018 Joint External Evaluation for Switzerland, or on the websites of the Federal Office of

Public Health or the Federal Office for Civil Protection. [5, 6, 7]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 11 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 11 November 2020.
[3] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.") [https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 11 November 2020.
[4] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html].Accessed 11 November 2020.
[3] Swiss Federal Council. 18 August 2010. "Ordinance on the Warning, Alerting and Security Radio Network of Switzerland." ("Verordnung über die Warnung, die Alarmierung und das Sicherheitsfunknetz der Schweiz.") [https://www.admin.ch/opc/de/classified-compilation/20082033/index.html]
[5] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?sequence=1&isAllowed=y]. Accessed 22 October 2020.
[6] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 11 November 2020.
[7] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 11 November 2020.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 2

In the past year, the public health system has actively shared messages via online media platforms to inform the public about ongoing public health concerns. The website of the Federal Office of Public Health (FOPH) contains a "News" section that is regularly updated with German-, French-, Italian- and English-language content on public health concerns, including the COVID-19 pandemic, as well as heatwaves, non-communicable diseases, addiction, influenza, sexually transmitted diseases, healthcare-associated infections, antibiotic use and more. [1] The FOPH website also has a section dedicated to COVID-19, which contains extensive information about the disease and related issues, again in German, French, Italian and English. [2] The FOPH also operates a separate webpage dedicated to COVID-19 statistics, which are updated daily and are available in German, French, Italian, Romansh and English. [3] Furthermore, the FOPH has pages on Twitter and Facebook that regularly post information about ongoing public health concerns in German, French and Italian. [4, 5] In addition, the Federal Office for Civil Protection runs a service called Alertswiss, which consists of a website, a mobile application, a Facebook page and a Twitter account, all of which regularly provide up-to-date information about dangers and emergencies in the country, including those related to public health, such as the COVID-19 pandemic. [6, 7, 8, 9] The Alertswiss service operates in

German, French, Italian and English. [6, 7, 8, 9]

[1] Federal Office of Public Health. "News." [https://www.bag.admin.ch/bag/de/home/das-bag/aktuell/news.html].
[2] Federal Office of Public Health. "Coronavirus." [https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov.html].
[3] Federal Office of Public Health. "Covid-19 Switzerland." ("Covid-19 Schweiz.") [https://www.covid19.admin.ch/de/overview].
[4] Federal Office of Public Health. "@BAG_OFSP_UFSP." Twitter. [https://twitter.com/BAG_OFSP_UFSP]. Accessed 11 November 2020.
[5] Federal Office of Public Health. "@swiss.public.health." Facebook. [https://www.facebook.com/swiss.public.health/]. Accessed 11 November 2020.
[6] Federal Office for Civil Protection. "Alertswiss - new ways in event communication." ("Alertswiss – neue Wege in der Ereigniskommunikation.") [www.babs.admin.ch/de/alarm/alertswiss.html]. Accessed 11 November 2020.
[7] Federal Office for Civil Protection. "Alertswiss." [https://www.alert.swiss/]. Accessed 11 November 2020.
[8] Federal Office for Civil Protection. "@Alertswiss." Facebook. [https://www.facebook.com/alertswiss/]. Accessed 11 November 2020.
[9] Federal Office for Civil Protection. "@Alertswiss." Twitter. [https://twitter.com/Alertswiss]. Accessed 11 November 2020.

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 1

There is no evidence that senior government leaders in Switzerland have shared misinformation or disinformation on infectious diseases in the past two years. There is no evidence of this in Swiss or international media [1, 2, 3, 4, 5]. On 26 October 2020 the Swiss Federal Council announced a research project headed by Armasuisse Science and Technology, the center of technology at Switzerland's Department of Defense, Civil Protection and Sports (DDPS) in cooperation with Zurich University of Applied Sciences (ZHAW) that aims to develop “an algorithm designed to detect fake news on social media using Natural Language Processing (NLP)”. The project will reportedly commence in 2021 [6].

[1] Neue Zürcher Zeitung. [https://www.nzz.ch/]. Accessed 29 October 2020.
[2] Aargauer Zeitung. 2020. Website. [https://www.aargauerzeitung.ch/]. Accessed 29 October 2020.
[3] Berner Zeitung. 2020. Website. [https://www.bernerzeitung.ch/]. Accessed 29 October 2020.
[4] Luzerner Zeitung. 2020. Website. [https://www.luzernerzeitung.ch/]. Accessed 29 October 2020.
[5] swissinfo.ch. 2020. Website. [https://www.swissinfo.ch/eng/resisting-covid-19--fake-news--with-a-high-dose-of-public-trust/45859742]. Accessed 29 October 2020.
[6] Federal Office for Defence Procurement Armasuisse. 26 October 2020. “Identifying «Fake News» more quickly” [https://www.ar.admin.ch/en/home.detail.news.html/ar-internet/news-2020/news-w-t/fake-news-schneller-erkennen.html]. Accessed 29 October 2020.

3.6 ACCESS TO COMMUNICATIONS INFRASTRUCTURE

3.6.1 Internet users

3.6.1a

Percentage of households with Internet

Input number

Current Year Score: 93.15

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: 127.19

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

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

Input number

Current Year Score: 2.0

2019

Gallup; Economist Impact calculation

3.6.4 Female access to the Internet

3.6.4a

Percentage point gap between males and females whose home has access to the Internet

Input number

Current Year Score: 0

2019

Gallup; Economist Impact calculation

3.7 TRADE AND TRAVEL RESTRICTIONS

3.7.1 Trade restrictions

3.7.1a

In the past year, has the country issued a restriction, without international/bilateral support, on the export/import of medical goods (e.g. medicines, oxygen, medical supplies, PPE) due to an infectious disease outbreak?

Yes = 0 , No = 1

Current Year Score: 0

In the past year, Switzerland has issued a restriction, without international or bilateral support, on the export of medical goods, due to an infectious disease outbreak. On 25 March 2020, due to the outbreak of COVID-19, the Swiss Federal Council unilaterally introduced an authorization requirement for the export of certain medical protective equipment to countries that are not members of the Swiss-Liechtenstein customs union, the European Union (EU) or the European Free Trade Association (EFTA). [1] The requirement is contained in article 4b of Ordinance 2 on Measures to Combat the Coronavirus, and the list of affected items is contained in this ordinance's third annex. [2] The items covered include personal protective equipment and medicines containing propofol, rocuronium bromide and atracurium besilate. [2]

[1] Swiss Federal Council. 25 March 2020. “Coronavirus: Authorization requirement for the export of medical protective equipment”. (“Coronavirus: Bewilligungspflicht für die Ausfuhr medizinischer Schutzausrüstung”) [https://www.admin.ch/gov/de/start/dokumentation/medienmitteilungen.msg-id-78576.html] Accessed 29 October 2020
[2] Swiss Federal Council. 13 March 2020. “Ordinance 2 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 2 über Massnahmen zur Bekämpfung des Coronavirus (COVID-19).”) [https://www.admin.ch/opc/de/classified-compilation/20200744/index.html] Accessed 11 November 2020.

3.7.1b

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

Yes = 0 , No = 1

Current Year Score: 1

There is no evidence that Switzerland has issued restrictions on the export or import of non-medical goods due to an infectious disease outbreak in the past year. The website of the Federal Food Safety and Veterinary Office (FSVO) states that “Concerning the novel coronavirus (SARS-CoV-2), there are no specific measures in place for import of animals to Switzerland” [1]. The Federal Customs Administration (FCA) website also does not provide any information on export OR import restrictions on non-medical goods due to an infectious disease outbreak in the past year [2].

[1] Federal Food Safety and Veterinary Office (FSVO). 22 July 2020. “Import (query)”. [https://www.blv.admin.ch/blv/en/home/import-und-export/import.html]. Accessed 29 October 2020.
[2] Federal Customs Administration (FCA). 2020. Website. [https://www.ezv.admin.ch/ezv/en/home.html]. Accessed 29 October 2020.

3.7.2 Travel restrictions

3.7.2a

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

Yes = 0 , No = 1

Current Year Score: 0

In the past year, Switzerland has implemented bans, without international or bilateral support, on travellers arriving from a specific country or countries due to an infectious disease outbreak. In March 2020, due to the global COVID-19 pandemic, Switzerland introduced a ban on entering the country from Italy, France, Germany, Austria, Spain or any country outside the European Union. [1, 2] The ban does not apply to Swiss citizens, people with residence in Switzerland and a small number of other cases. [1, 2] At the same time, Switzerland also stopped issuing visas, apart from in exceptional cases. [1, 2] Restrictions for travellers from Schengen countries and the United Kingdom were lifted on 15 June 2020, and for some other countries on 6 July 2020. [3, 4, 5] As of November 2020, the ban still applies to all countries outside the Schengen area, except 17 named in Annex 1 of Ordinance 3. [4, 5]

[1] State Secretariat for Migration. 3 August 2020. “Directive” (“Weisung”) [https://www.zh.ch/content/dam/zhweb/bilder-dokumente/themen/migration-integration/gesetzliche-grundlagen/covid-19/Weisung%20des%20SEM%20zum%20Coronavirus%20(COVID-19).pdf]. Accessed 29 October 2020
[2] KPMG. 24 March 2020. "Switzerland – COVID-19: Closing Borders, Limiting Entry and Visa Issuance FAQs." [https://home.kpmg/xx/en/home/insights/2020/03/flash-alert-2020-103.html]. Accessed 11 November 2020.
[3] Swissinfo.ch. 1 July 2020. "Switzerland re-opens its European borders." [https://www.swissinfo.ch/eng/covid-19_what-s-happening-at-swiss-borders-and-airports-/45727184]. Accessed 11 November 2020.
[4] State Secretariat for Migration. 31 August 2020. “Corona: Questions and answers on entry and stay in Switzerland, the exceptions and suspension of visas” [https://www.sem.admin.ch/sem/en/home/sem/aktuell/faq-einreiseverweigerung.html]. Accessed 11 November 2020.
[5] Swiss Federal Council. 19 June 2020. “Ordinance 3 on Measures to Combat the Coronavirus (Covid-19).” ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html]. Accessed 11 November 2020.

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

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

4.1.1 Available human resources for the broader healthcare system

4.1.1a

Doctors per 100,000 people

Input number

Current Year Score: 429.57

2017

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 1753.57

2017

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 evidence that Switzerland has a health workforce strategy in place to identify fields where there is an insufficient workforce, or strategies to address such shortcomings. The Swiss Federal Statistical Office conducts quarterly surveys of businesses that are struggling to recruit people. This is the only regular public survey that directly identifies the extent of the shortage of skilled workers in Switzerland [1]. There are also publicly-supported studies. For instance, the Swiss School of Public Health, in partnership with the Federal Office of Public Health (FOPH), in February 2013 published a national study of the public health workforce in Switzerland [2]. According to the study, "the profile can assist in developing targeted strategies to strengthen the capacities of the public health workforce in Switzerland". The State Secretariat for Economic Affairs (SECO) regularly conducts labour market analyses, including on the demand for skilled jobs [3, 4]. However, there is no evidence of a health workforce strategy, including on the websites of the Federal Office of Public Health and the Labour Directorate of the SECO [5, 6].

[1] Kanton ZÃ¼rich Volkswirtschaftsdirektion Amt fÃ¼r Wirtschaft und Arbeit. "Berufe mit hohem FachkrÃ¤ftemangel". 2016. [https://www.zh.ch/content/dam/zhweb/bilder-dokumente/themen/wirtschaft-arbeit/gleichstellung/berufs--und-studienwahl/awa_berufe%20mit%20hohem%20fachkraeftemangel.pdf]. Accessed 23 October 2020.
[2] Swiss School of Public Health. "Public Health Workforce in Switzerland: A National Census". February 2013. [https://ssphplus.ch/assets/downloads/publications/public-health-february-2013b.pdf]. Accessed 23 October 2020.
[3] SECO. 2020 â€�Labour Market". [www.seco.admin.ch/seco/en/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Arbeit/Arbeitsmarkt.html]. Accessed 23 October 2020.
[4] SECO.21. September 2016"Indikatorensystem zur Beurteilung der FachkrÃ¤ftenachfrage". [www.seco.admin.ch/seco/de/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Arbeit/Arbeitsmarkt/Fachkraeftebedarf/indikatorensystem-zur-beurteilung-der-fachkraeftenachfrage.html]. 23 October 2020.

[5] Federal Office of Public Health. Website. 2020. [www.bag.admin.ch/bag/en/home.html]. Accessed 23 October 2020.
[6] State Secretariat for Economic Affairs (SECO). "Labour Directorate". [www.seco.admin.ch/seco/en/home.html]. Accessed 23 October 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 463

2018

WHO/World Bank; national sources

4.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has the capacity to isolate patients with highly communicable diseases in biocontainment patient care units located within the country. In Switzerland there are more than a dozen hospitals with the capacity to contain patients with highly communicable diseases in biocontainment patient care units, including Lucerne and Geneva University Hospitals. [1, 2, 3, 4] The containment rooms at Geneva hospital have a special air-locked double-door system and air conditioning, and part of the hospital's intensive care department is dedicated to dealing with highly infectious conditions. [1, 3] During the Ebola Crisis in 2014, twelve hospitals were selected to deal with potential Ebola cases in Switzerland (the precondition for which are high biocontainment units). [1, 3] In April 2020, the canton of Lucerne (population circa 400,000) reported that it had a total of 560 beds in isolation units suitable for COVID-19 patients, of which 62 were occupied and 498 were vacant. [2]

[1] Swissinfo. 21 October 2014. "Geneva prepares for limited Ebola cases." [https://www.swissinfo.ch/eng/society/virus-planning_geneva-prepares-for-limited-ebola-cases/41072094]. Accessed 23 October 2020.
[2] Alexander von Däniken. 8 April 2020. "500 hospital beds are unoccupied – the canton of Lucerne offers free spaces to its neighbours." ("500 Spitalbetten sind nicht belegt – Kanton Luzern bietet freie Plätze seinen Nachbarn an.") Luzerner Zeitung. [https://www.luzernerzeitung.ch/zentralschweiz/luzern/coronavirus-der-luzerner-regierungsrat-informiert-ueber-die-aktuelle-lage-ld.1211334]. 23 October 2020.
[3] Swissinfo. 19 November 2018. "Ebola patient to be brought to Geneva". [https://www.swissinfo.ch/eng/society/deadly-virus_ebola-patient-to-be-brought-to-geneva/41124588]. Accessed 23 October 2020.
[4] Swiss Federal Office for Civil Protection. Spiez Laboratory. "Biocontainment Laboratory." [www.labor-spiez.ch/en/lab/org/log/enlaborglogbit.htm]. Accessed 23 October 2020.

4.1.2c

Does the country meet one of the following criteria?

- Is there evidence that the country has demonstrated capacity to expand isolation capacity in response to an infectious

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

Current Year Score: 0

There is no evidence that Switzerland has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak, or that it has developed, updated or tested a plan to expand isolation capacity in response to an infectious disease outbreak in the past two years. There is no such evidence on the websites of the Federal Office of Public Health or the Federal Office for Civil Protection. [1, 2] The World Health Organization's Joint External Evaluation of Switzerland and Liechtenstein was conducted more than two years ago, in October and November 2017, and in any case the resultant report does not mention Switzerland's isolation capacity, or expansion thereof. [3] There is no such information available on open source either.

[1] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 6 May 2021.
[2] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 6 May 2021.
[3] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 6 May 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 public evidence of a national procurement protocol that can be utilized by the Federal Office for Public Health and the Federal Office for Agriculture for the acquisition of laboratory needs or medical supplies. Switzerland's Federal Act of Public Procurement (adopted 1994, last amended January 2020) lists the institutions covered by the national procurement system, but does not include the Federal Office for Public Health or the Federal Office for Agriculture [1,2]. The websites of the Federal Office for Public Health and the Federal Office for Agriculture do not mention a national procurement protocol that they can use to acquire laboratory supplies or medical supplies [3, 4].

[1] Federal Procurement conference. 2020. "Revision of public procurement law". [https://www.bkb.admin.ch/bkb/de/home/oeffentliches-beschaffungswesen/revision-des-beschaffungsrechts.html]. Accessed 23 October 2020.
[2] Beschaffungskonferenz des Bundes (BKB). "Federal Act of Public Procurement ". 1994. Status as of 1 January 2020. [https://www.admin.ch/opc/de/classified-compilation/19940432/index.html]. Accessed 23 October 2020.
[3] Federal Office for Public Health. 2020. Website. [www.bag.admin.ch/bag/en/home.html]. Accessed 23 October 2020.

[4] Federal Office for Agriculture. 2020. Website. [www.blw.admin.ch/blw/en/home.html]. Accessed 23 October 2020.

4.2.2 Stockpiling for emergencies

4.2.2a

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

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

Current Year Score: 2

Switzerland has a stockpile of medical supplies (e.g. MCMs, medicines, vaccines, medical equipment, PPE) for national use during a public health emergency. The Federal Council's Ordinance on the Compulsory Storage of Pharmaceuticals (adopted 2017, last amended 2019) and the Federal Department of Economic Affairs, Education and Research's Ordinance on the Compulsory Storage of Pharmaceuticals (adopted 2019, last amended 2019) require all producers and importers of certain listed medical countermeasures (MCM) to maintain reserves of these MCM. [1, 2] The MCM covered by this requirement include antibiotics, antivirals, analgesics, opiates and vaccines, and specific drugs are named in the ordinances (e.g. morphine, fentanyl, methadone, tetanus vaccine, hepatitis vaccine, adrenaline, oxytocin). [1, 2] The 2019 ordinance specifies the quantities that must be stored of each, either in terms of weight (e.g. 720 kg of doxycycline), number (e.g. 23 million 75 mg capsules of Tamiflu) or timespan (e.g. enough vaccines to last for 4 months). [2] The Federal Office for National Economic Supply (FONES) has published two full reports on the state of national emergency stockpiles – one in 2015 and one in 2019 – which confirm the stocks being maintained in practice. [3] These reports state that national stockpiles also include FFP2 and FFP3 masks, though an update on the FONES website indicates that in February 2020 the federal government bought up these masks and distributed them to the cantons' governments. [3]

[1] Swiss Federal Council. 10 May 2017. "Ordinance on the Compulsory Storage of Pharmaceuticals." ("Verordnung über die Pflichtlagerhaltung von Arzneimitteln.") [https://www.admin.ch/opc/de/classified-compilation/20170057/index.html]. Accessed 6 May 2021.
[2] Federal Department of Economic Affairs, Education and Research of the Swiss Confederation. 20 May 2019. "Ordinance on the Compulsory Storage of Pharmaceuticals." ("Verordnung über die Pflichtlagerhaltung von Arzneimitteln.") [https://www.admin.ch/opc/de/classified-compilation/20190262/index.html]. Accessed 6 May 2021.
[3] Federal Office for National Economic Supply. 25 February 2021. "Stockpiling." ("Vorratshaltung.") [https://www.bwl.admin.ch/bwl/de/home/themen/pflichtlager.html]. Accessed 6 May 2021.

4.2.2b

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

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

Current Year Score: 0

There is no evidence that Switzerland has a stockpile of laboratory supplies for national use during a public health emergency. The Swiss Federal Office for National Economic Supply (FONES) does have a stockpiling programme involving the private sector that includes stocks of specific "therapeutic products" to last 2–6 months, including drugs, vaccines, and personal protective equipment, but there is no evidence that this contains laboratory supplies [1]. No evidence regarding the stockpiling of laboratory supplies was found on the websites of the Federal Office of Public Health or Swiss Armed Forces

[3,4].

[1] Federal Office for National Economic Supply (FONES). 15 March 2019."Compulsory stock volumes: Therapeutic products". [https://www.bwl.admin.ch/bwl/en/home/themen/pflichtlager/pflichtlagersortiment/pflichtlager_heilmittel.html] Accessed 29 October 2020
[2] Federal Office for National Economic Supply (FONES) 2019. "Report on Strategic Stockpiling 2019". ("Bericht zur Vorratshaltung 2019")
[https://www.bwl.admin.ch/dam/bwl/de/dokumente/themen/pflichtlager/bericht_zur_vorratshaltung.pdf.download.pdf/2019-10-15%20Vorratshaltungsbericht-d.pdf] Accessed 29 October 2020
[3] Federal Office of Public Health (FOPH). 2020. Website. [https://www.bag.admin.ch/bag/en/home.html] Accessed 29 October 2020
[4] Swiss Armed Forces. 2020. Website. [https://www.vtg.admin.ch/en/armed-forces.html] Accessed 29 October 2020

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is insufficient evidence that Switzerland conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. The Federal Council's Ordinance on the Compulsory Storage of Pharmaceuticals (adopted 2017, last amended 2019) and the Federal Department of Economic Affairs, Education and Research's (BWL's) Ordinance on the Compulsory Storage of Pharmaceuticals (adopted 2019, last amended 2019) require all producers and importers of certain listed medical countermeasures (MCM) to maintain reserves of these MCM, and charge a private company called Helvecura with overseeing these reserves. [1, 2] Article 3 of the 2017 ordinance states that those maintaining these reserves must "periodically" inform Helvecura about the reserves' contents, while article 6 states that Helvecura is responsible for reviewing the reserves. [1] However, neither ordinance explicitly requires annual reviews. [1, 2] The BWL's 2014 directive to Helvecura states in article 7.1 that the BWL is responsible for monitoring and checking these reserves, together with Helvecura, but does not mention the frequency with which reviews should be conducted. [3] The Swiss Federal Council's Ordinance on the Reporting Office for Essential Human Pharmaceuticals (adopted 2015, last amended 2020) establishes a Reporting Office, to which those maintaining reserves of certain essential MCM must report any actual or potential bottlenecks or interruptions to their supply. [4] The ordinance requires these reports to be submitted within five working days of becoming aware of the bottleneck or interruption. [4] However, the ordinance does not mention annual reviews. [4] The Federal Office for National Economic Supply (FONES) has published two full reports on the state of national emergency stockpiles – one in 2015 and one in 2019 – which confirm the stocks being maintained in practice, but neither of them mention annual reviews. [5] The FONES website also contains a brief update about the state of the stockpiles as of February 2021. [5] There is no evidence of annual reviews on the websites of Helvecura, the BWL, FONES, or the Federal Office of Public Health. [6, 7, 8, 9]

[1] Swiss Federal Council. 10 May 2017. "Ordinance on the Compulsory Storage of Pharmaceuticals." ("Verordnung über die Pflichtlagerhaltung von Arzneimitteln.") [https://www.admin.ch/opc/de/classified-compilation/20170057/index.html]. Accessed 21 April 2021.
[2] Federal Department of Economic Affairs, Education and Research of the Swiss Confederation. 20 May 2019. "Ordinance on the Compulsory Storage of Pharmaceuticals." ("Verordnung über die Pflichtlagerhaltung von Arzneimitteln.") [https://www.admin.ch/opc/de/classified-compilation/20190262/index.html]. Accessed 21 April 2021.
[3] Federal Department of Economic Affairs, Education and Research of the Swiss Confederation. 25 June 2014. "Directives."

("Weisungen.") [http://helvecura.ch/download.php?id=31_0e5f2a22]. Accessed 21 April 2021.
[4] Swiss Federal Council. 12 August 2015. "Ordinance on the Reporting Office for Essential Human Pharmaceuticals." ("Verordnung über die Meldestelle für lebenswichtige Humanarzneimittel.")
[https://www.fedlex.admin.ch/eli/cc/2015/544/de]. Accessed 21 April 2021.
[5] Federal Office for National Economic Supply. 25 February 2021. "Stockpiling." ("Vorratshaltung.")
[https://www.bwl.admin.ch/bwl/de/home/themen/pflichtlager.html]. Accessed 6 May 2021.
[6] Helvecura. [http://helvecura.ch/]. Accessed 21 April 2021.
[7] Federal Department of Economic Affairs, Education and Research of the Swiss Confederation.
[https://www.wbf.admin.ch/wbf/de/home.html]. Accessed 21 April 2021.
[8] Federal Office for National Economic Supply of the Swiss Confederation. [https://www.bwl.admin.ch/bwl/de/home.html]. Accessed 6 May 2021.
[9] Federal Office of Public Health of the Swiss Confederation. [https://www.bag.admin.ch/bag/en/home.html]. Accessed 21 April 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 evidence that Switzerland has a plan or agreement to leverage domestic manufacturing capacity to produce medical supplies during a public health emergency, or that it has a plan or mechanism to procure medical supplies in a public health emergency.

Article 44 of the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) tasks the Swiss Federal Council with ensuring the provision of sufficient medical countermeasures (MCM) to combat communicable diseases, and to this end allows the Federal Council to issue decrees regarding the acquisition, distribution and import of MCM. [1] However, this law does not address procurement or manufacture of MCM in any further detail. [1] Article 60 of the Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019) states that the Federal Council ensures the availability of influenza vaccines, smallpox vaccines, diphtheria antitoxins, botulism antitoxins and rabies antibodies, but the ordinance does not address procurement or manufacture of these or other MCM. [2]

The COVID-19 Ordinance 2 of March 2020 obliges cantonal governments, hospitals, laboratories, and pharmacies to report on their stocks of medical supplies. In the event of stocks decreasing or being insufficient, the ordinance states that the Federal Office of Public Health, the Therapeutic Products Division of the Federal Office for National Economic Supply (FONES), and the Armed Forces Pharmacy may procure "essential medical goods […] if requirements cannot be covered through the normal procurement channels", and may be authorized to delegate procurement to third parties [3]. The ordinance also states that in the event that the provision of essential medical goods "cannot otherwise be guaranteed, the Federal Council may require manufacturers to produce essential medical goods, to prioritize the production of such goods or to increase production volumes".

The COVID-19 Ordinance 3 of June 2020 makes explicit reference to the need to procure personal protective equipment, but does not mention any plans or mechanisms to do so. [4]

Apart from the aforementioned COVID-specific measures, there is no evidence of relevant pre-existing plans or mechanisms on the websites of the Federal Office of Public Health, the Federal Office for Civil Protection or the armed forces. [5, 6, 7]

Furthermore, Switzerland is one of the few European countries that is not a signatory to the 2014 Joint Procurement Agreement, which allows its 37 signatories to access MCM from one another during public health emergencies. [8, 9]

[1] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 10 November 2020.
[2] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 10 November 2020.
[3] Swiss Federal Council. 13 March 2020. "Ordinance 2 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 2 über Massnahmen zur Bekämpfung des Coronavirus (COVID-19).") [https://www.admin.ch/opc/de/classified-compilation/20200744/index.html]. Accessed 29 October 2020.
[4] Swiss Federal Council. 19 June 2020. "Ordinance 3 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html] Accessed 29 October 2020.
[5] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[6] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.
[7] Swiss Armed Forces. [https://www.vtg.admin.ch/de/armee.html] Accessed 29 October 2020
[8] European Commission. "Signing ceremonies for Joint Procurement Agreement." [https://ec.europa.eu/health/preparedness_response/joint_procurement/jpa_signature_en]. Accessed 10 November 2020.
[9] European Commission. "Joint Procurement Of Medical Countermeasures". [https://ec.europa.eu/health/preparedness_response/joint_procurement_en]. Accessed 10 November 2020.

4.2.3b

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

Current Year Score: 0

There is no evidence of a plan to procure laboratory supplies or leverage domestic manufacturing capacity for national use during a public health emergency in Switzerland.

The COVID-19 Ordinance 3 of June 2020 makes explicit reference to the need to procure laboratory components and reagents for COVID-19 testing [1]. The COVID-19 Ordinance 2 of March 2020 includes laboratory supplies for COVID-19 tests in its list of essential medical products that are covered by procurement, supply, and production stipulations, and must be

included in reports on stocks of medical supplies from cantonal governments, hospitals, laboratories and pharmacies [2]. In the event of stocks decreasing or being insufficient, the ordinance states that the Federal Office of Public Health, the Therapeutic Products Division of the Federal Office for National Economic Supply, and the Armed Forces Pharmacy may procure "essential medical goods […] if requirements cannot be covered through the normal procurement channels", and may be authorised to delegate procurement to third parties [2]. The ordinance also states that in the event that the provision of essential medical goods "cannot otherwise be guaranteed, the Federal Council may require manufacturers to produce essential medical goods, to prioritise the production of such goods or to increase production volumes", which also applies to laboratory supplies.

However, apart from these COVID-specific measures, there is no evidence of relevant pre-existing plans or mechanisms in the Federal Law on Combatting Communicable Human Diseases (adopted 2012, last amended June 2020) or the Ordinance on Combatting Communicable Human Diseases (adopted 2015, last amended March 2019), or on the websites of the Federal Office of Public Health, the Federal Office for Civil Protection or the armed forces. [3, 4, 5, 6, 7]

[1] Swiss Federal Council. 19 June 2020. "Ordinance 3 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 3 über Massnahmen zur Bekämpfung des Coronavirus (Covid-19).") [https://www.admin.ch/opc/de/classified-compilation/20201773/index.html] Accessed 29 October 2020.
[2] Swiss Federal Council. 13 March 2020. "Ordinance 2 on Measures to Combat the Coronavirus (COVID-19)." ("Verordnung 2 über Massnahmen zur Bekämpfung des Coronavirus (COVID-19).") [https://www.admin.ch/opc/de/classified-compilation/20200744/index.html]. Accessed 29 October 2020.
[3] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Human Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 10 November 2020.
[4] Swiss Federal Council. 29 April 2015. "Ordinance on Combatting Communicable Human Diseases (Epidemic Ordinance)." ("Verordnung über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemienverordnung).") [https://www.admin.ch/opc/de/classified-compilation/20133212/index.html] Accessed 10 November 2020.
[5] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[6] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.
[7] Swiss Armed Forces. [https://www.vtg.admin.ch/de/armee.html] Accessed 29 October 2020

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

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

4.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence Switzerland has plans in place for dispensing medical countermeasures (MCM) during pulic health emergencies. The Swiss Influenza Pandemic Plan of 2018 outlines measures for stockpiling and distributing medicine, vaccines and personal protective equipment. [1] The plan tasks the Federal Office for National Economic Supply with implementing and monitoring stockpiles, including determining the amounts of drugs to be allocated to each canton, and

overseeing their distrubution. However, the plan falls short of describing how the medicines are to dispensed and reach individuals. [1] According to the website of the Federal Office for Civil Protection, during emergencies (including epidemics) the federal government sets up a medical coordination and management body to provide additional resources [2]. It is Switzerland's 26 constituent cantons that bear primary responsibility in the area of public health, and they determine the additional materials, including MCM, that are required for emergency response, as well as how they are administered [1, 3]. Individuals who administer or dispense MCMs on a commercial basis are required to report adverse effect (including suspected cases) to the Swiss Agency for Therapeutic Products (Swissmedic) through an electronic reporting portal called "Elvis ("Electronic Vigilance System") [1]. However, there is no evidence via the ....

[1] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[2] Federal Office for Civil Protection. "The health system in civil protection." ("Das Gesundheitswesen im Bevölkerungsschutz.") [https://www.babs.admin.ch/de/verbund/sanitaet.html]. Accessed 31 October 2020.
[3] Federal Office for Civil Protection. July 2017. "Civil Protection #28." ("Bevölkerungschutz #28.") [www.babs.admin.ch/content/babs-internet/de/verbund/sanitaet/_jcr_content/contentPar/tabs/items/xy/tabPar/downloadlist/downloadItems/7_1501661553604.download/zeitschrift28_2017de.pdf]. Accessed 31 October 2020.

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

4.3.2a

Is there a public plan in place to receive health personnel from other countries to respond to a public health emergency?
Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Switzerland has a public plan in place to receive health personnel from other countries to respond to a public health emergency. Switzerland has bilateral agreements that allow for the mutual provision of health personnel during emergencies, including with neighboring Liechtenstein, Austria, Germany and France. [1, 2, 3, 4] These agreements contain provisions on the legal basis and practicalities of health personnel entering and staying in the country. The Austria agreement, for example, specifies that aid teams are to consist of relief teams trained in different types of capacities, including medical assistance. The agreement outlines procedures for visa free travel, border crossings and facilitation of import / export of supplies needed by the relief teams. [2] No further evidence of such a plan on the websites of the Federal Office of Public Health or the Federal Office for Civil Protection. [5, 6] No relevant provisions are included in the 2018 Swiss Influenza Pandemic Plan, the 2007 ABC Protection Strategy or the Federal Law on Combatting Communicable Diseases (adopted 2012, last amended June 2020). [7, 8, 9]

[1] Swiss Confederation and Principality of Liechtenstein. 2006. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/20040755/index.html]. Accessed 31 October 2020.
[2] Swiss Confederation and Republic of Austria. 2002. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20001838]. Accessed 9 August 2020.
[3] Swiss Confederation and Federal Republic of Germany. 1984. "Agreement on mutual assistance with disasters or serious

accidents." ("Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.")
[https://www.admin.ch/opc/de/classified-compilation/19840295/index.html]. Accessed 31 October 2020.
[4] Swiss Confederation and French Republic. 1987. "Agreement on mutual assistance with disasters or serious accidents."
("Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.")
[https://www.admin.ch/opc/de/classified-compilation/19870007/index.html]. Accessed 31 October 2020.
[5] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[6] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.
[7] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.")
[https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[8] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.")
[https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 31 October 2020.
[9] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)."
[https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 31 October 2020.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 2

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 100

2006

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: 2378.56

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 public evidence that the government has 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. There is no such provision in the 2018 Swiss Influenza Pandemic Plan, the 2007 ABC Protection Strategy or the Federal Law on Combatting Communicable Diseases (adopted 2012, last amended June 2020). [1, 2, 3] There is no evidence of such a policy on the websites of the Federal Office of Public Health or the Federal Office for Civil Protection. [4, 5]

[1] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[2] Federal Office for Civil Protection. 2019. "ABC Protection Strategy." ("Strategie ABC-Schutz.") [https://www.newsd.admin.ch/newsd/message/attachments/61878.pdf]. Accessed 31 October 2020.
[3] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 31 October 2020.
[4] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[5] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Switzerland has a system in place for public health officials and healthcare workers to communicate during a public health emergency. The 2018 Swiss Influenza Pandemic Plan, which outlines the responsibilities of the Federal Office of Public Health (FOPH) during pandemics, notes that the FOPH is responsible for running the technical aspects of coordinating communication, which includes operating a hotline for the general population and doctors. The cantons are also given responsibility for exchanging information between the central, cantons and commune levels and communicating with cantonal doctors' and pharmacists' associations, hospitals, retirement homes and nursing homes. The plan outlines a "communication core group" which is part of the FOPH's crisis management structure. This includes the Armed Forces Pharmacy, the FOPH, the Federal Food Safety and Veterinary Office (FSVO), the Federal Chancellery, the Swiss Medical Association (FMH), Federal Department of Home Affairs (FDHA), the military surgeon general/Coordinated Medical Services (CMS) officer, Swissmedic and cantonal representatives. The plan refers to communications channels between doctors and the FOPH through the FMH as a conduit. [1] Additionally, under article 6a of the Regulation on the Warning, Alerting and Secure Radio Network (adopted 2010, last amended 2019), the federal government in case of an emergency installs a secure radio network that is to be used by key actors at the federal and the canton level in the emergency response in case civilian communications infrastructure fails – though the regulation does not specifically mention public health workers. [2] There is a separate system of communication run by the Swiss army which can be also be used in case of emergencies when civilian communication networks fail [2].

[1] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[2] Swiss Federal Council. 18 August 2010. "Regulation on the Warning, Alerting and Secure Radio Network." ("Verordnung über die Warnung, die Alarmierung und das Sicherheitsfunknetz der Schweiz.") [https://www.admin.ch/opc/de/classified-compilation/20082033/index.html]. Accessed 31 October 2020.

4.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that the system for public health officials and healthcare workers to communicate during an emergency encompasses healthcare workers in the private sector. The 2018 Swiss Influenza Pandemic Plan, which outlines the responsibilities of the Federal Office of Public Health (FOPH) during pandemics, notes that the FOPH is responsible for running the technical aspects of coordinating communication, which includes operating a hotline for the general population

and doctors. The cantons are also given responsibility for exchanging information between the central, cantons and commune levels and communicating with cantonal doctors' and pharmacists' associations, hospitals, retirement homes and nursing homes. The plan outlines a "communication core group" which is part of the FOPH's crisis management structure. This includes the Armed Forces Pharmacy, the FOPH, the Federal Food Safety and Veterinary Office (FSVO), the Federal Chancellery, the Swiss Medical Association (FMH), Federal Department of Home Affairs (FDHA), the military surgeon general/Coordinated Medical Services (CMS) officer, Swissmedic and cantonal representatives. The plan refers to communications channels between doctors and the FOPH through the FMH as a conduit. [1] However, the plan does not explicitly mention private-sector healthcare institutions or their employees. There is no further relevant information on the websites of the Federal Office of Public Health or the Federal Office for Civil Protection. [2, 3]

[1] Federal Office of Public Health. 2018. "Swiss Influenza Pandemic Plan." ("Influenza-Pandemieplan Schweiz.") [https://www.bag.admin.ch/bag/de/home/das-bag/publikationen/broschueren/publikationen-uebertragbare-krankheiten/pandemieplan-2018.html]. Accessed 31 October 2020.
[2] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[3] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.

4.6 INFECTION CONTROL PRACTICES AND AVAILABILITY OF EQUIPMENT

4.6.1 Healthcare associated infection (HCAI) prevention and control programs

4.6.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland's public health system monitors for and tracks the number of healthcare-associated infections (HCAIs). Switzerland's National Strategy for the Monitoring, Prevention and Control of Healthcare-Associated Infections (also known as the "NOSO Strategy"), published in 2016, lays out a strategy for the establishment of a nationwide system to systematically monitor and track HCAIs in inpatient care facilities, including hospitals and nursing homes. [1] The latest annual report on the strategy's implementation, published in May 2020, states that 2019 saw the launch of a nationwide monitoring system in hospitals, though it notes that the system's roll-out has started but is not yet complete. [2] Prior to this, different institutions used their own systems to monitor HCAIs. [2] The latest annual report also provides "HCAI rates" for two Swiss hospitals, as of 2017: 3.7% at the Felix Platter University Hospital for Geriatric Medicine, and 6.4% at University Hospital Zurich. [2] The Federal Office of Public Health claims on its website that 5.9% of patients in Switzerland get HCAIs, though it does not provide a date for this figure. [3] In addition, as part of a national program called Swiss Clean Care, since 2009 the National Center for Infection Prevention has carried out surveillance of surgical site infections, a specific type of HCAI. [4, 5]

[1] Swiss Federal Council. 2016. "National Strategy for the Monitoring, Prevention and Control of Healthcare-Associated Infections (NOSO Strategy)". [http://www.bag.admin.ch/dam/bag/en/dokumente/mt/i-und-i/strategie-noso.pdf.download.pdf/strategie-noso-e.pdf]. Accessed 31 October 2020.
[2] Federal Office of Public Health. May 2020. "NOSO Strategy. Annual Report 2019." ("Strategie NOSO. Jahresbericht 2019.") [https://www.bag.admin.ch/dam/bag/de/dokumente/mt/i-und-i/noso/strategie-noso-jahresbericht-2019.pdf.download.pdf/Broschuere_Strategie_Noso_2019_de_200417.pdf]. Accessed 31 October 2020.
[3] Federal Office of Public Health. 22 September 2020. "NOSO Strategy: hospital and care-home infections" ("Strategie

NOSO: Spital- und Pflegeheiminfektionen.") [https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitsstrategien/strategie-noso--spital--und-pflegeheiminfektionen.html]. Accessed 31 October 2020.
[4] National Center for Infection Prevention. "Swiss Clean Care." [https://www.swissnoso.ch/worum-geht-es/swiss-clean-care/]. Accessed 31 October 2020.
[5] National Center for Infection Prevention. "About SSI surveillance." ("Über SSI Surveillance.") [https://www.swissnoso.ch/module/ssi-surveillance/ueber-ssi-surveillance/das-modul/]. Accessed 31 October 2020.

4.7 CAPACITY TO TEST AND APPROVE NEW MEDICAL COUNTERMEASURES

4.7.1 Regulatory process for conducting clinical trials of unregistered interventions

4.7.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland requires ethical review before beginning a clinical trial. According to articles 45 and 51 of the Federal Law on Research Involving Humans (adopted 2011, last amended January 2020), all research on humans requires authorization from the relevant ethics committee, which will issue authorization within 2 months of receiving an application, if the proposed study complies with the law's ethical, legal and scientific requirements, and in particular if there is sufficient protection of test subjects. [1] Ethical principles established by the law include: the primacy of the interests, health and wellbeing of individuals over the interests of science and society (article 4); research furthering understanding of human diseases, the human body or public health (article 5); non-discrimination (article 6); informed consent of subjects, which can be revoked at any time (articles 7–8, 16–18); non-commercialization (articles 9, 14); and risk minimization (articles 12, 15). In addition, article 10 includes general requirements for research to comply with regulations on scientific integrity, meet requirements for scientific quality, observe international best practices for research on humans, and be conducted by suitably qualified individuals. Furthermore, articles 21–24 introduce restrictions on research involving minors and adults who are incapable of judgement. [1] The Ordinance on Clinical Trials in Human Research (adopted 2013, last amended 2018) affirms that the requirements laid out in the Federal Law on Research Involving Humans apply to clinical trials, and also establishes more detailed requirements specific to clinical trials. [2] Switzerland has seven ethics committes, each covering a different part of the country: Bern, Geneva, Ticino, Vaud, Zurich, Eastern Switzerland and Northwest/Central Switzerland. [3] All seven committees are united by the Swiss Association of Research Ethics Committees (Swissethics). [3, 4]

[1] Federal Assembly of the Swiss Confederation. 30 September 2011. "Federal Law on Research Involving Humans (Human Research Law)." ("Bundesgesetz über die Forschung am Menschen (Humanforschungsgesetz).") [https://www.admin.ch/opc/de/classified-compilation/20061313/index.html]. Accessed 31 October 2020.
[2] Swiss Federal Council. 20 September 2013. "Ordinance on Clinical Trials in Human Research." ("Verordnung über klinische Versuche in der Humanforschung.") [https://www.admin.ch/opc/de/classified-compilation/20121176/index.html]. Accessed 31 October 2020.
[3] Swiss Association of Research Ethics Committees. "Organization." ("Organisation.") [https://swissethics.ch/assets/swissethics/swissethics_organisation_d_v3.1.pdf]. Accessed 31 October 2020.
[4] Swiss Association of Research Ethics Committees. "About Swissethics." ("Über swissethics.")

[https://swissethics.ch/ueber]. Accessed 31 October 2020.

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that Switzerland has an expedited process for approving clinical trials for unregistered medical countermeasures (MCM) to treat ongoing epidemics.

Article 30 of the Federal Law on Research Involving Humans (adopted 2011, last amended January 2020) states that during an "emergency situation", research expected to directly address the emergency only require: that necessary precautions have been taken to clarify the will of the subject as soon as possible; that the subject does not discernibly reject participation; and that a doctor not involved in the research represents the subject's interests. [1] However, there is no indication that "emergency situation" in this context covers pandemics, or that these provisions apply to clinical trials. [1]

Chapter 5 of the Ordinance on Clinical Trials in Human Research (adopted 2013, last amended 2018) is titled "Clinical trials in emergency situations", but it does not create an expedited process for trials' approval. [2] There is no mention of an expedited process for approving clinical trials in the Federal Law on Drugs and Medical Devices (adopted 2000, last amended August 2020). [3] There is no mention of clinical trials or unregistered MCM in the Federal Law on Combatting Communicable Diseases (adopted 2012, last amended June 2020). [4] There is no evidence of an expedited process for approving clinical trials for unregistered MCM to treat ongoing epidemics on the websites of the Federal Office of Public Health, the Federal Office for Civil Protection, the State Secretariat for Education, Research and Innovation or the Swiss Agency for Therapeutic Products. [5, 6, 7, 8]

Despite the lack of a legal framework for expited approval of clinical trials, guidance issued by the Swiss Agency for Therapeutic Products and the Swiss Association of Research Ethics Committees during the COVID-19 pandemic states that applications for clinical trials with MCM to treat COVID-19 are prioritized by the authorities. [9]

[1] Federal Assembly of the Swiss Confederation. 30 September 2011. "Federal Law on Research Involving Humans (Human Research Law)." ("Bundesgesetz über die Forschung am Menschen (Humanforschungsgesetz).") [https://www.admin.ch/opc/de/classified-compilation/20061313/index.html]. Accessed 31 October 2020.
[2] Swiss Federal Council. 20 September 2013. "Ordinance on Clinical Trials in Human Research." ("Verordnung über klinische Versuche in der Humanforschung.") [https://www.admin.ch/opc/de/classified-compilation/20121176/index.html]. Accessed 31 October 2020.
[3] Federal Assembly of the Swiss Confederation. 15 December 2000. "Federal Law on Drugs and Medical Devices." ("Bundesgesetz über Arzneimittel und Medizinprodukte.") [https://www.admin.ch/opc/de/classified-compilation/20002716/index.html]. Accessed 1 November 2020.
[4] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 31 October 2020.
[5] Federal Office of Public Health. [http://www.bag.admin.ch/bag/de/home.html]. Accessed 31 October 2020.
[6] Federal Office for Civil Protection. [https://www.babs.admin.ch/de/home.html]. Accessed 31 October 2020.
[7] State Secretariat for Education, Research and Innovation. [https://www.sbfi.admin.ch/sbfi/de/home/das-sbfi.html]. Accessed 31 October 2020.

[8] Swiss Agency for Therapeutic Products. [https://www.swissmedic.ch/]. Accessed 1 November 2020.
[8] Swiss Agency for Therapeutic Products and Swiss Association of Research Ethics Committees. 15 June 2020. "Joint Guidance on the management of clinical trials with medicinal drug products in Switzerland during the COVID-19 pandemic." [https://swissethics.ch/assets/Covid-19/swiss_guidance_covid-19_v2.2_15.06.2020.pdf]. Accessed 31 October 2020.

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Switzerland has a government agency responsible for approving new medical countermeasures (MCM) for humans. As per articles 9 and 54 of the Federal Law on Drugs and Medical Devices (adopted 2000, last amended August 2020), the Swiss Agency for Therapeutic Products (Swissmedic) is responsible for approving new MCM. [1] Said article states that, before approving an MCM, Swissmedic checks that it meets requirements regarding good manufacturing practice and pharmaceutical safety, among other considerations. [1] According to Swissmedic's website, it is a public institution headquartered in Bern, and it serves as Switzerland's central supervisory authority for MCM. [2] Its main duties include approving MCM, issuing licences for manufacture and wholesale of MCM, market surveillance, prosecution, clinical trials, laboratory analysis of drug quality and setting standards. [2]

[1] Federal Assembly of the Swiss Confederation. 15 December 2000. "Federal Law on Drugs and Medical Devices." ("Bundesgesetz über Arzneimittel und Medizinprodukte.") [https://www.admin.ch/opc/de/classified-compilation/20002716/index.html]. Accessed 1 November 2020.
[2] Swiss Agency for Therapeutic Products. "Swissmedic, Swiss Agency for Therapeutic Products." ("Swissmedic, Schweizerisches Heilmittelinstitut.") [https://www.swissmedic.ch/swissmedic/de/home/ueber-uns/swissmedic--schweizerisches-heilmittelinstitut.html]. Accessed 1 November 2020.

4.7.2b

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

Yes = 1 , No = 0

Current Year Score: 0

Switzerland has an expedited process for approving medical countermeasures (MCM) for human use, but there is insufficient evidence that this can be used to address public health emergencies. Article 9a of the Federal Law on Drugs and Medical Devices (adopted 2000, last amended August 2020) states that a simplified approval process can be applied, in accordinace with article 14 of the same law, for drugs against diseases that can cause death or disability, as long as it is "compatible with the protection of health", it is expected to bring "great benefits" and no approved alternative is available in Switzerland. [1] Article 14 lists the cases in which a simplified procedure may be used. [1] This list includes "important drugs for rare diseases", "drugs produced by the army for use by the coordinated medical service" and "drugs with known active ingredients", among other things, but does not mention public health emergencies. [1] Article 44 of the Federal Law on Combatting Communicable Diseases (adopted 2012, last amended June 2020) states that in order to ensure the supply of MCM to combat communicable diseases, the Federal Council can issue regulations on allocating, distributing or facilitating

the import of MCM, but the law does not mention an expited approval process. [2]

[1] Federal Assembly of the Swiss Confederation. 15 December 2000. "Federal Law on Drugs and Medical Devices." ("Bundesgesetz über Arzneimittel und Medizinprodukte.") [https://www.admin.ch/opc/de/classified-compilation/20002716/index.html]. Accessed 1 November 2020.
[2] Federal Assembly of the Swiss Confederation. 28 September 2012. "Federal Law on Combatting Communicable Diseases (Epidemic Law)." ("Bundesgesetz über die Bekämpfung übertragbarer Krankheiten des Menschen (Epidemiengesetz)." [https://www.admin.ch/opc/de/classified-compilation/20071012/index.html]. Accessed 1 November 2020.

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 0

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Epidemics and pandemics are integrated into Switzerland's national risk reduction strategy. The Federal Office for Civil Protection's latest National Risk Analysis Report, which was published in November 2020, lists pandemics, animal disease outbreaks and biological attacks as potential dangers, and names influenza pandemics as the second greatest risk facing the country. [1] The report incorporates the experiences of the COVID-19 pandemic, and regularly refers to pandemics throughout. [1] In addition, the 2013 document "Method for Risk Analysis of Disasters and Emergencies" includes infectious diseases among the factors to be considered. [2] The Hazard Catalog also includes epidemics, pandemics and animal disease

outbreaks among hazards, and outlines some historic examples, including West Africa's 2014–2018 ebola outbreak, the worldwide 2009–2010 swine flu outbreak, and Europe's 2016–2017 bird flu outbreak. [3]

[1] Federal Office for Civil Protection. November 2020. "Disasters and Emergencies Switzerland 2020. National Risk Analysis Report." ("Katastrophen und Notlagen Schweiz 2020. Bericht zur nationalen Risikoanalyse.") [https://www.babs.admin.ch/content/babs-internet/de/aufgabenbabs/gefaehrdrisiken/natgefaehrdanalyse/_jcr_content/contentPar/tabs/items/fachunterlagen/tabPar/downloadlist/downloadItems/109_1604480153059.download/KNSRisikobericht2020-de.pdf]. Accessed 26 November 2020.
[2] Federal Office for Civil Protection. 2013. "Method for Risk Analysis of Disasters and Emergencies for Switzerland." ("Methode zur Risikoanalyse von Katastrophen und Notlagen für die Schweiz.") [https://www.babs.admin.ch/content/babs-internet/de/aufgabenbabs/gefaehrdrisiken/natgefaehrdanalyse/_jcr_content/contentPar/tabs/items/fachunterlagen/tabPar/downloadlist/downloadItems/38_1461911615743.download/methodenbericht20133107de.pdf]. Accessed 31 October 2020.
[3] Federal Office for Civil Protection. September 2019. "Hazard Catalog." ("Katalog der Gefährdungen.") [https://www.babs.admin.ch/content/babs-internet/de/aufgabenbabs/gefaehrdrisiken/natgefaehrdanalyse/gefaehrdkatalog/_jcr_content/contentPar/tabs/items/dokumente/tabPar/downloadlist/downloadItems/496_1461680266458.download/20190911_Katalog_der_Gefaehrdungen_DE_Web.pdf]. Accessed 31 October 2020.

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

5.2.1 Cross-border agreements

5.2.1a

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

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

Current Year Score: 2

Switzerland has cross-border agreements and memoranda of understanding (MOUs) on public health emergencies with neighboring countries, and there is no evidence of gaps in implementation.

Response to public health emergencies is covered by the Swiss-Liechtenstein Customs Treaty of 1923, according to which Liechtenstein is treated as 27th canton of Switzerland in preparing for and responding to potential health emergencies, as well as with regard to many other health-related responsibilities. [1, 2] In addition, Switzerland and Liechtenstein have the 2011 Agreement on Cooperation in the Field of Assessment and Reporting of Events in Accordance with the International Health Regulations (2005) of the World Health Organization (WHO), which establishes a joint system for reporting public health emergencies to the WHO. [3]

Furthermore, the Swiss Agency for Therapeutic Products (Swissmedic) has an MOU with the European Union's European Medicines Agency, which has been in force since 2010, and which covers co-operation in relation to pandemic flu. [4] The Swiss government lists the MOU as being in force, but there is no evidence of the full text online. [4]

In addition, Switzerland has bilateral agreements on mutual assistance for "disasters and serious accidents" with neighboring Liechtenstein, Austria, Germany and France. [5, 6, 7, 8] These agreements do not give specific definitions of what constitutes a disaster and do not explicitly mention public health emergencies, but do mention "medical aid" among the forms of

assistance that can be provided. [5, 6, 7, 8]

The WHO's Joint External Evaluation of Switzerland and Liechtenstein, which was conducted in 2017, confirms that there are MOU and agreements in place, but it notes that many of them need to be updated and revised to reflect current capacities. [1]

[1] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[2] Swiss Confederation and Principality of Liechtenstein. 1923. "Customs Treaty concerning the assembly of the Principality of Liechtenstein with the Swiss customs territory." ("Vereinbarung zum Vertrag über den Anschluss des Fürstentums Liechtenstein an das schweizerische Zollgebiet.") [https://www.admin.ch/opc/de/classified-compilation/19230011/index.html]. Accessed 31 October 2020.
[3] Swiss Confederation and Principality of Liechtenstein. 2011. "Agreement on the cooperation concerning the assessment and reporting of events according to tge International Healh Regulations (2005) of the World Health Organization." ("Vereinbarung betreffend die Zusammenarbeit im Bereich der Bewertung und Meldung von Ereignissen gemäss den Internationalen Gesundheitsvorschriften (2005) der Weltgesundheitsorganisation.") [https://www.admin.ch/opc/de/classified-compilation/20110865/index.html]. Accessed 31 October 2020.
[4] Federal Department of Foreign Affairs. 1 August 2020. "List of Swizerland - European Union agreements, in force on 1 August 2020." ("Liste der Abkommen Schweiz - Europäische Union, in Kraft am 1. August 2020.") [www.eda.admin.ch/dam/dea/de/documents/publikationen_dea/accords-liste_de.pdf]. Accessed 28 October 2020.
[5] Swiss Confederation and Principality of Liechtenstein. 2006. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/20040755/index.html]. Accessed 31 October 2020.
[6] Swiss Confederation and Republic of Austria. 2002. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20001838]. Accessed 9 August 2020.
[7] Swiss Confederation and Federal Republic of Germany. 1984. "Agreement on mutual assistance with disasters or serious accidents.” (“Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/19840295/index.html]. Accessed 31 October 2020.
[8] Swiss Confederation and French Republic. 1987. "Agreement on mutual assistance with disasters or serious accidents.” (“Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/19870007/index.htmll]. Accessed 31 October 2020.

5.2.1b

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

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

Current Year Score: 2

Switzerland has a cross-border agreements with neighboring countries with regards to animal health emergencies, and there is no evidence of gaps in implementation. In 1999, Switzerland and the European Community (the precursor to today's European Union) signed the Agreement on Trade in Agricultural Products. [1, 2] Annex 11 of this agreement is the Veterinary Agreement, which lays the foundations for broad cooperation in controlling animal diseases. [2] The Veterinary Agreement covers the control and reporting of certain animal diseases, as well as zootechnics, food safety, animal welfare and trade in

and import of live animals, animal semen, animal ova, animal embryos and animal products. [2] Furthermore, in accordance with the Swiss-Liechtenstein Customs Treaty of 1923, neighboring Liechtenstein is fully integrated into Switzerland's structures for animal health emergencies, functioning as if a Swiss canton. [3, 4] In addition, Switzerland has bilateral agreements on mutual assistance for "disasters and serious accidents" with neighboring Liechtenstein, Austria, Germany and France, though these agreements do not define what constitutes a disaster, and do not mention animal health. [5, 6, 7, 8]

[1] Federal Food Safety and Veterinary Office. 2019. "Anhang C - Swiss Veterinary Service. Based on the OIE Tool for Evaluating the Performance of Veterinary Services". [www.blv.admin.ch/dam/blv/de/dokumente/das-blv/organisation/blk/nkp/nkp-anhang-c.pdf.download.pdf/NKP_2017_2019_Anhang_C_Swiss_Veterinary_System.pdf]. Accessed 31 October 2020.
[2] Swiss Confederation and European Community. 1999. "Agreement on Trade in Agricultural Products." ("Abkommen über den Handel mit landwirtschaftlichen Erzeugnissen."). [www.admin.ch/opc/de/classified-compilation/19994645/index.html]. Accessed 31 October 2020.
[3] World Health Organization. 2018. "Joint external evaluation of IHR core capacities of the Swiss Confederation and the Principality of Liechtenstein". [https://apps.who.int/iris/bitstream/handle/10665/274958/WHO-WHE-CPI-2018.26-eng.pdf?ua=1]. Accessed 23 October 2020.
[4] Swiss Confederation and Principality of Liechtenstein. 1923. "Customs Treaty concerning the assembly of the Principality of Liechtenstein with the Swiss customs territory." ("Vereinbarung zum Vertrag über den Anschluss des Fürstentums Liechtenstein an das schweizerische Zollgebiet.") [https://www.admin.ch/opc/de/classified-compilation/19230011/index.html]. Accessed 31 October 2020.
[5] Swiss Confederation and Principality of Liechtenstein. 2006. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/20040755/index.html]. Accessed 31 October 2020.
[6] Swiss Confederation and Republic of Austria. 2002. “Agreement on mutual assistance with disasters or serious accidents.” (“Abkomme über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20001838]. Accessed 9 August 2020.
[7] Swiss Confederation and Federal Republic of Germany. 1984. "Agreement on mutual assistance with disasters or serious accidents.” (“Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/19840295/index.html]. Accessed 31 October 2020.
[8] Swiss Confederation and French Republic. 1987. "Agreement on mutual assistance with disasters or serious accidents.” (“Abkommen über die gegenseitige Hilfeleistung bei Katastrophen oder schweren Unglücksfällen.”) [https://www.admin.ch/opc/de/classified-compilation/19870007/index.htmll]. Accessed 31 October 2020.

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

Does the county have signatory and ratification (or same legal effect) status to the Biological Weapons Convention?
Signed and ratified (or action having the same legal effect) = 2, Signed = 1, Non-compliant or not a member = 0

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

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

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

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

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

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

Current Year Score: 1

2021

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

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

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

5.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2021

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

5.4.1b

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

Yes = 1 , No = 0

Current Year Score: 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 evidence that the government has allocated national funds to improve capacity to address epidemic threats. In response to the COVID-19 pandemic, in 2020 the Swiss government has taken numerous measures, including expansion of hospital beds, acquisition of medical countermeasures, provision of free tests, introduction of greater coordination in the healthcare system, measures to reduce costs to patients, and the launch of a new system to register the number of hospital beds available. [1, 2, 3] However, there is no evidence that the government has allocated national funds to improve capacity to address epidemic threats on the websites of the Federal Office of Public Health, the Federal Office for Agriculture and the Federal Department of Defence, Civil Protection and Sport. [4, 5, 6] Similarly, there is no evidence of such allocation on official webpages related to the federal healthcare spending or the federal budget. [7, 8, 9, 10, 11, 12, 13] Indeed, 2020's federal budget allocated less than that of the previous year to the Federal Office of Public Health. [14]

[1] Federal Office of Public Health. 27 October 2020. "Novel coronavirus: measures and decrees." ("Neues Coronavirus: Massnahmen und Verordnungen.") [https://www.bag.admin.ch/bag/de/home/krankheiten/ausbrueche-epidemien-pandemien/aktuelle-ausbrueche-epidemien/novel-cov/massnahmen-des-bundes.html#1383242619]. Accessed 28 October 2020.
[2] Federal Office of Public Health. 19 August 2020. "Health costs: Federal Council approves measures." ("Gesundheitskosten: Bundesrat beschliesst Massnahmen.") [https://www.bag.admin.ch/bag/de/home/das-bag/aktuell/news/news-19-08-20201.html]. Accessed 28 October 2020.
[3] Federal Department of Defence, Civil Protection and Sport. 13 March 2020. "New registration system records the capacity of emergency stations in Switzerland." ("Neues Meldesystem erfasst Kapazitäten der Notfallstationen in der Schweiz.") [https://www.vbs.admin.ch/de/aktuell/meldungen/wissenswertes.detail.news.html/vbs-internet/wissenswertes/2020/200313.html]. Accessed 28 October 2020.
[4] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 28 October 2020.
[5] Federal Office for Agriculture. [https://www.blw.admin.ch/blw/de/home.html]. Accessed 28 October 2020.
[6] Federal Department of Defence, Civil Protection and Sport. [https://www.vbs.admin.ch]. Accessed 28 October 2020.

[7] Federal Statistical Office. "Healthcare." ("Gesundheitswesen.")
[https://www.bfs.admin.ch/bfs/de/home/statistiken/gesundheit/gesundheitswesen.html]. Accessed 26 November 2020.
[8] Federal Statistical Office. "Healthcare spending." ("Ausgaben für das Gesundheitswesen.")
[https://www.bfs.admin.ch/bfs/de/home/statistiken/querschnittsthemen/wohlfahrtsmessung/rahmenbedingungen/gesellschaftliche/gesundheitsausgaben.html]. Accessed 26 November 2020.
[9] Federal Statistical Office. "Health. Costs, financing." ("Gesundheit. Kosten, FInanzierung.")
[https://www.bfs.admin.ch/bfs/de/home/statistiken/gesundheit/kosten-finanzierung.html]. Accessed 26 November 2020.
[10] Federal Department of Finance. "Federal finances." ("Die Bundesfinanzen.")
[https://www.efd.admin.ch/efd/de/home/finanzpolitik/die-bundesfinanzen.html]. Accessed 26 November 2020.
[11] Federal Finance Administration. 24 August 2020. "Expenditure." ("Ausgaben.")
[https://www.efv.admin.ch/efv/de/home/finanzberichterstattung/bundeshaushalt_ueb/ausgaben.html]. Accessed 26 November 2020.
[12] Federal Finance Administration. 27 August 2020. "Bundeshaushalt im Überblick." ("Federal budget at a glance.")
[https://www.efv.admin.ch/efv/de/home/finanzberichterstattung/bundeshaushalt_ueb.html]. Accessed 26 November 2020.
[13] Federal Assembly of the Swiss Confederation. "Establishing finances." ("Festlegung der Finanzen.")
[https://www.parlament.ch/de/%C3%BCber-das-parlament/parlamentsportraet/aufgaben-der-bundesversammlung/festlegung-der-finanzen]. Accessed 26 November 2020.
[14] Le Nouvelliste. 5 December 2019. "Federal budget 2020: more money for agriculture and education, less for asylum." ("Budget fédéral 2020: plus d'argent pour l'agriculture et la formation, moins pour l'asile.")
[https://www.lenouvelliste.ch/articles/suisse/budget-federal-2020-plus-d-argent-pour-l-agriculture-et-la-formation-moins-pour-l-asile-888248]. Accessed 26 November 2020.

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

5.5.2a

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

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

Current Year Score: 0

2021

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

5.5.2b

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

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

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of a publicly identified special emergency public financing mechanism and funds that Switzerland can access in the face of a public health emergency. There is no evidence of such a mechanism on the website of the Federal Office of Public Health. [1] Switzerland is not eligible for funding from the World Bank's Pandemic Emergency Financing Facility and is not eligible for support from the International Development Association [2, 3, 4].

[1] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 28 October 2020.
[2] World Bank. 1 November 2019. "Pandemic Emergency Financing Facility: Frequently Asked Questions". [www.worldbank.org/en/topic/pandemics/brief/pandemic-emergency-facility-frequently-asked-questions]. Accessed 28 October 2020.
[3] World Bank. 2017. "Pandemic Financing Facility". [http://pubdocs.worldbank.org/en/119961516647620597/PEF-Operational-Brief-Dec-2017.pdf]. Accessed 28 October 2020.
[4] International Development Association. "Borrowing Countries." [https://ida.worldbank.org/about/borrowing-countries]. Accessed 28 October 2020.

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

5.5.4a

Is there evidence that senior leaders (president or ministers), in the past three years, have made a public commitment either to:

- Support other countries to improve capacity to address epidemic threats by providing financing or support?

- Improve the country's domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity?

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

Current Year Score: 0

There is no evidence that Switzerland's senior leaders have, in the past three years, made any public commitments to support other countries to improve capacity to address epidemic threats, or to improve Switzerland's domestic capacity. There is, however, evidence ofsupport for COVID-19 response and relief. In an interview in early April 2020, Switzerland's foreign minister, Ignazio Cassis, said that he had offered his Italian counterpart support in handling the COVID-19 pandemic, and that Switzerland was working out how it could help Italy, most probably through provision of protective equipment and assistance with logistics and infrastructure. [1] In late April 2020, Cassis announced that Switzerland would issue loans worth CHF 400 million (US$ 439 million) to help international efforts to combat the pandemic, of which CHF 200 million (US$ 220 million) was allocated to the International Committee of the Red Cross, CHF 25 million (US$ 28 million) to the International

Monetary Fund and the remaining CHF 175 million (US$ 192 million) to other organizations. [2] However, neither of these statements explicitly indicated intention to help other countries improve their capacity. [1, 2] There is no evidence of senior leaders making commitments to do so, or to improve domestic capacity, on the websites of the Federal Department of Foreign Affairs, the Federal Office of Public Health, the United Nations or the World Health Organization, or in Swiss or international media. [3, 4, 5, 6]

[1] Tobias Gafafer. 4 April 2020. "Ignazio Cassis on the corona-crisis: 'As canton doctor, I was on the front line for swine flu, bird flu and SARS. The corona-crisis, however, has a completely different dimension." ("Ignazio Cassis zur Corona-Krise: «Ich habe die Schweinegrippe, die Vogelgrippe und die Sars-Epidemie als Kantonsarzt an der Front mitbekommen. Die Corona-Krise hat allerdings eine ganz andere Dimension.».") Neue Zürcher Zeitung. [https://www.nzz.ch/schweiz/aussenminister-ignazio-cassis-zur-corona-krise-italien-hat-auch-uns-im-hilfe-gebeten-ld.1550005]. Accessed 28 October 2020.
[2] Nau.ch. 30 April 2020. "Coronavirus: Switzerland supports international actions." ("Coronavirus: Schweiz unterstützt internationale Aktionen.") [https://www.nau.ch/politik/international/coronavirus-schweiz-unterstutzt-internationale-aktionen-65700591]. Accessed 28 October 2020.
[3] Federal Department of Foreign Affairs. [https://www.eda.admin.ch/eda/de/home.html]. Accessed 28 October 2020.
[4] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 28 October 2020.
[5] United Nations. [https://www.un.org/].
[6] World Health Organization. [https://www.who.int/].

5.5.4b

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

Current Year Score: 1

There is evidence that Switzerland has invested finances and provided technical support to help other countries improve capacity to address epidemic threats, as well as obtained funds to improve domestic capacity in the past three years. The Georgetown University Global Health Security Tracking platform shows that Switzerland disbursed US$ 24.56m to other countries in 2019 and US$ 75.58m in 2018 for capacity building. [1] In addition, Switzerland's Federal Department of Foreign Affairs reports that it is active in providing direct assistance to more than 50 countries, to counter the health, economic and social consequences of the COVID-19 pandemic, including with long-term measures to improve capacity to address epidemic threats. [2] There is no evidence that Switzerland has obtained funds to improve domestic capacity to address epidemic threats on the website of the Federal Office of Public Health, the Federal Office of Foreign Affairs, the United Nations or the World Health Organization. [3, 4, 5, 6] The recipient profile for Switzerland on the Georgetown University Global Health Security Tracking platform shows that US$ 53.52m in 2018 and US$ 41.99m in 2019 were disbursed to the country. [7]

[1] Georgetown University. "Funder profile: Switzerland." [https://tracking.ghscosting.org/details/1060/funder]. Accessed 24 May 2021.
[2] Federal Department of Foreign Affairs. 26 October 2020. "International co-operation: the Federal Department of Foreign Affairs is mitigating the impact of COVID-19 around the world." ("IZA: Das EDA federt weltweit die Folgen von COVID-19 ab.") [https://www.eda.admin.ch/eda/de/home/das-eda/aktuell/newsuebersicht/2020/05/engagement-deza-covid-19.html]. Accessed 28 October 2020.
[3] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 28 October 2020.
[4] Federal Department of Foreign Affairs. [https://www.eda.admin.ch/eda/de/home.html]. Accessed 28 October 2020.

[5] United Nations. [https://www.un.org/].
[6] World Health Organization. [https://www.who.int/].
[7] Georgetown University. "Recipient profile: Switzerland." [https://tracking.ghscosting.org/details/1060/recipient]. Accessed 24 May 2021.

5.5.4c

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

Yes = 1 , No = 0

Current Year Score: 1

2021

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

5.6 COMMITMENT TO SHARING OF GENETIC AND BIOLOGICAL DATA AND SPECIMENS

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

5.6.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Switzerland has a plan or policy for sharing genetic data, clinical specimens, or isolated specimens along with the associated epidemiological data with international organizations or other countries that goes beyond influenza. The websites of the Federal Office of Public Health, the State Secretariat for Education, Research and Innovation, Federal Office for Agriculture, and international and local media outlets make no reference to such a plan or policy [1, 2, 3].

[1] Federal Office of Public Health. [https://www.bag.admin.ch/bag/de/home.html]. Accessed 28 October 2020.
[2] State Secretariat for Education, Research and Innovation. [https://www.sbfi.admin.ch/sbfi/de/home.html]. Accessed 28 October 2020.
[3] Federal Office for Agriculture. [https://www.blw.admin.ch/blw/de/home.html]. Accessed 28 October 2020.

5.6.1b

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

Yes = 0 , No = 1

Current Year Score: 1

There is no public evidence that Switzerland has failed to shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years. The World Health Organization (WHO) has not reported any non-compliance from Switzerland, and there is no evidence of non-compliance in Swiss or international media. [1] According to WHO's International Virus Traceability Mechanism, Switzerland's national reference center for influenza, the National Influenza Center at Geneva University Hospital, is part of the Global Influenza Surveillance and Response System, and in January 2018 sent samples to the WHO Collaborating Centre at the Francis Crick Institute in London. [2, 3, 4]

[1] World Health Organization. [http://www.who.int/]. Accessed 28 October 2020.
[2] World Health Organization. "Hôpitauxl Universitaires de Genève (NIC Switzerland) Shipments." [https://extranet.who.int/ivtm2/Home/LaboratoryShipments/155]. Accessed 28 October 2020.
[3] World Health Organization. "IVTM 2.0." [https://extranet.who.int/ivtm2]. Accessed 28 October 2020.
[4] Geneva University Hospitals. "National reference center for influenza." ("Centre national de référence de l'influenza.") [https://www.hug.ch/laboratoire-virologie/centre-national-reference-influenza-cnri]. Accessed 28 October 2020.

5.6.1c

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

Yes = 0 , No = 1

Current Year Score: 1

There is no public evidence that Switzerland has failed to share pandemic pathogen samples during an outbreak in the past two years. There is no evidence of Switzerland either sharing or failing to share pathogen samples, including coronavirus samples, on the World Health Organization's website or in Swiss or international media. [1]

[1] World Health Organization. [http://www.who.int/]. Accessed 28 October 2020.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

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

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1b

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

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 85

2020

Transparency International

6.1.1f

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

Input number

Current Year Score: 4

2020

Economist Intelligence

6.1.1g

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

Input number

Current Year Score: 4

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: 4

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: 3

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

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

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

Current Year Score: 4

2021

Economist Intelligence

6.1.4b

What is the level of illicit arms flows within the country?

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

Current Year Score: 4

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: 3

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 4

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

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

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

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

Input number

Current Year Score: 99.9

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: 0.96

2018

United Nations Development Programme (UNDP); The Economist Intelligence Unit

6.2.3 Social inclusion

6.2.3a

Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)

Input number

Current Year Score: 0

2017

World Bank; Economist Impact

6.2.3b

Share of employment in the informal sector

Greater than 50% = 2, Between 25-50% = 1, Less than 25% = 0

Current Year Score: 0

The latest available figures indicate that less than 25% of Switzerland's employment is in the informal sector. A 2011 report from the World Bank stated that 13.7% of Switzerland's population was employed in the informal sector according to the latest available data, from 2008. [1] In a 2012 interview, an economist reported that, according to his scholarly research, Switzerland had about 460,000 people who worked informally, but most of these only did occasional informal work alongside formal employment, while around 69,000 worked informally full-time. [2] The statistical databases maintained by the World Bank and the International Labor Organization do not provide statistics on informal employment in Switzerland. [3, 4, 5] The Federal Statistical Office regularly publishes detailed statistics on employment, but it has not published anything on informal employment. [6] An International Monetary Fund working paper published in 2018 notes that in the period 1991–2015, the informal economy accounted for 7.2% of Switzerland's gross domestic product, but the document does not mention the informal sector's share of employment. [7]

[1] Mihails Hazans. December 2011. "Informal Workers across Europe. Evidence from 30 European Countries." World Bank. [https://openknowledge.worldbank.org/bitstream/handle/10986/3681/WPS5912.pdf?sequence=1&isAllowed=y]. Accessed 28 October 2020.
[2] Andreas Ornelas. "Informal work also creates value." ("Schwarzarbeit schöpft auch Mehrwert.") Swissinfo.ch. [https://www.swissinfo.ch/ger/wirtschaft/schattenwirtschaft_-schwarzarbeit-schoepft-auch-mehrwert-/32535144]. Accessed 28 October 2020.
[3] World Bank. "Informal employment (% of total non-agricultural employment)." [https://data.worldbank.org/indicator/SL.ISV.IFRM.ZS?locations=CH]. Accessed 28 October 2020.
[4] International Labor Organization. "Country profiles." [https://ilostat.ilo.org/data/country-profiles/]. Accessed 28 October 2020.
[5] International Labor Organization. "Statistics on the informal economy." [https://ilostat.ilo.org/topics/informality/]. Accessed 28 October 2020.
[6] Federal Statistical Office. "Work and employment." ("Arbeit und Erwerb.") [https://www.bfs.admin.ch/bfs/de/home/statistiken/arbeit-erwerb.html]. Accessed 28 October 2020.
[7] Leandro Medina and Friedrich Schneider. "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" International Monetary Fund. [https://www.imf.org/~/media/Files/Publications/WP/2018/wp1817.ashx]. Accessed

28 October 2020.

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 3

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

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

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.33

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: 4

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: 4

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

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

Current Year Score: 3

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 73.85

2019

World Bank

6.4.2 Land use

6.4.2a

Percentage point change in forest area between 2006–2016

Input number

Current Year Score: 0.89

2008-2018

World Bank; Economist Impact

6.4.3 Natural disaster risk

6.4.3a

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

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

Current Year Score: 4

2021

Economist Intelligence

6.5 PUBLIC HEALTH VULNERABILITIES

6.5.1 Access to quality healthcare

6.5.1a

Total life expectancy (years)

Input number

Current Year Score: 83.75

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: 269.6

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 18.84

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 25.1

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 19.5

2016

WHO

6.5.2 Access to potable water and sanitation

6.5.2a

Percentage of homes with access to at least basic water infrastructure

Input number

Current Year Score: 99

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 99

2017

UNICEF; Economist Impact

6.5.3 Public healthcare spending levels per capita

6.5.3a

Domestic general government health expenditure per capita, PPP (current international $)

Input number

Current Year Score: 2533.24

2018

WHO Global Health Expenditure database

6.5.4 Trust in medical and health advice

6.5.4a

Trust medical and health advice from the government

Share of population that trust medical and health advice from the government , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 2

2018

Wellcome Trust Global Monitor 2018

6.5.4b

Trust medical and health advice from medical workers

Share of population that trust medical and health advice from health professionals , More than 80% = 2, Between 60-80%, or no data available = 1, Less than 60% = 0

Current Year Score: 2

2018

Wellcome Trust Global Monitor 2018