Serbia

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

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: 1

Serbia has a national antimicrobial resistance (AMR) plan, but it does not have specific measures for detection and reporting of priority AMR pathogens. The National Antibiotic Resistance Control Programme lays down the objectives and the activities and procedures to be carried out in order to stop the spread of AMR in human and veterinary medicine. The general objective of the program is to improve the health and quality of life of the population of the Serbia through the reduction of AMR. This objective will be achieved through the implementation of the following specific objectives: strengthening the monitoring of AMR and providing evidence-based data on AMR; rational use of antibiotics and prevention; and reduction of outbreaks and infection spread control. The program is the basis for developing an action plan for the implementation of the set general objective as well as specific ones, which is an integral outcome [1]. However, although the plan addresses surveillance, it does not cover detection and reporting of priority AMR pathogens.

[1] World Health Organization (WHO). Library of National Action Plans. 2019. "National Antibiotic Resistance Control Programme". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 23 July 2020.

1.1.1b

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

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

Current Year Score: 1

There is a laboratory system that tests for five of the priority antimicrobial resistance (AMR) pathogens. According to the World Health Organization (WHO), the national reference laboratory for AMR is the Centre for Microbiology of the Institute for Public Health of Vojvodina in Novi Sad. In 2016, the AMR surveillance network in Serbia comprised 24 laboratories [1]. According to the WHO report and the website of the Centre for Microbiology of the Institute for Public Health of Vojvodina, Serbia has the capacity to test the following AMR priority pathogens: E. coli, K. pneumonia, S. aureus, S. pneumoniae, Salmonella spp. [1,2]. According to the National Antibiotic Resistance Control Program, Serbia can test for drug-resistant versions of these pathogens [3]. Furthermore, according to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, a system for notification and surveillance of AMR in human isolates is in place and includes a national reference laboratory and a national network of 22 clinical laboratories that monitors the susceptibility of invasive isolates of bacteria from blood and liquor. The veterinary system in Serbia has a network of 12 laboratories located within various veterinary specialist and scientific institutes. Although AMR surveillance is undertaken within this network as part of daily activities and scientific research, its methodology is not accredited [4]. The

websites of the Ministry of Health and Ministry of Agriculture do not provide additional information about a laboratory system that tests for priority AMR pathogens [5, 6].

[1] World Health Organization (WHO). 2019. "Annual Report for 2019, Central Asian and Eastern European Surveillance of Antimicrobial Resistance". [https://www.euro.who.int/__data/assets/pdf_file/0003/418863/53373-WHO-CAESAR-annual-report-2019.pdf]. Accessed 23 July 2020.
[2] Institute for Public Health of Vojvodina. "Microbiological Analysis". [http://izjzv.org.rs/?lng=lat&cir=0&link=5-24]. Accessed 23 July 2020.
[3] World Health Organization (WHO). Library of National Action Plans. 2019. "National Antibiotic Resistance Control Programme". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 23 July 2020.
[4] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[5] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

Although there is evidence that relevant agencies in Serbia conduct detection or surveillance activities (e.g., in soil, waterways, etc.), there is no firm evidence that these activities include surveillance for antimicrobial residues (AMR) or AMR organisms. The Institute for Public Health of Vojvodina conducts testing of waterways, the Institute for Public Health of Serbia Dr Milan Jovanovic Batut conducts testing of waterways and air, and the Agency for Environmental Protection conducts testing of waterways, soil, etc. However, none of these testing regimes include surveillance for AMRs or AMR organisms [1, 2, 3]. Furthermore, the websites of the Ministry of Health and Ministry of Agriculture do not provide information regarding agencies conducting such detection or surveillance activities [4, 5]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia and National Antibiotic Resistance Control Program do not provide evidence of any agency conducting detection or surveillance activities for AMR residues or organisms [6].

[1] Institute for Public Health of Vojvodina. "Analysis of Water". [http://izjzv.org.rs/?lng=lat&link=5-27]. Accessed 23 July 2020.
[2] Institute for Public Health of Serbia Dr Milan Jovanovic Batut. "Testing of Air, Water, Foodstuffs, and Objects of General Use". [http://www.batut.org.rs/index.php?content=88]. Accessed 23 July 2020.
[3] Agency for Environmental Protection. [http://www.sepa.gov.rs/index.php?menu=201&id=205&akcija=showXlinked]. Accessed 23 July 2020.
[4] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[6] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[7] World Health Organization (WHO). Library of National Action Plans. 2019. "National Antibiotic Resistance Control

Programme". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 23 July 2020.

1.1.2 Antimicrobial control

1.1.2a

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

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

Current Year Score: 2

Serbia has national legislation or regulation in place requiring prescriptions for antibiotic use for humans. A document entitled "The ordinance on the list of medicines that are prescribed and issued by the means of obligatory health insurance" contains a list of medicines that patients can use as well as a reference for which medicines require prescriptions, including antibiotics [1,2]. In addition, the document determines the manner of prescribing and issuing medicines, including antibiotics (e.g., according to Article 13, prescriptions for antibiotics are valid for three days). [3] According to the National Antibiotic Resistance Control Program, in accordance with regulations governing the field of medicines, the method of dispensing medicines is part of the authorisation for a medicine, which defines the method of dispensing antibiotics in human and veterinary medicine is only through a prescription [4]. Moroever, according to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, antibiotics are available by prescription only in the public health and animal sectors [5]. According to a World Health Organization (WHO) report on a survey assessing non-prescription and inapropriate use of antibiotics, respondents from Serbia reported that there were no other ways patients can obtain antibiotics apart from with a doctor's prescription [6].

[1] Republic Fund for Health Insurance. 2020. "Ordinance on the List of Medicines which are Prescribed and Issued by the Means of Obligatory Health Insurance. (Pravilnik o listi lekova koji se propisuju i izdaju na teret sredstava obaveznog zdravstvenog osiguranja, 110-80/18)". [https://www.paragraf.rs/propisi/pravilnik_o_listi_lekova_koji_se_propisuju_i_izdaju_na_teret_sredstava_obaveznog_zdravstvenog_osiguranja.html]. Accessed 22 July 2020.
[2] The Republic Fund for Health Insurance. 2018. "List A Medicines that are Prescribed and Issued in the Form of a Medical Prescription of the 'Ordinance on the list of medicines which are prescribed and issued by the means of obligatory health insurance' (Lista A Lekovi koji se propisuju i izdaju na obrascu lekarskog recepta koja je deo Pravilnika o listi lekova koji se propisuju i izdaju na teret sredstava obaveznog zdravstvenog osiguranja, 110-80/18)". [https://www.rfzo.rs/download/pravilnici/lekovi/A%20lista%20_%20primena%20od%2018.09.2018.pdf]. Accessed 23 July 2020.
[3] Ministry of Health. 2019. "Ordinance on the Content of the Medicinal Receipt and the Method of Prescription of Medicines (Pravilnik o obrascu i sadržini lekarskog recepta, na?inu izdavanja i propisivanja, Sl. glasnik RS, br. 74/2018 i 87/2018)". [https://www.paragraf.rs/propisi/pravilnik-o-obrascu-i-sadrzini-lekarskog-recepta-nacinu-izdavanja-i-propisivanja-lekova.html]. Accessed 23 July 2020.
[4] World Health Organization (WHO). Library of National Action Plans. 2019. "National Antibiotic Resistance Control Programme". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2019. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[6] World Health Organization (WHO). 2019. "Report Survey Assessing Non-prescription and Inapropriate Use of Antibiotics". [https://apps.who.int/iris/bitstream/handle/10665/312306/9789289054089-eng.pdf?sequence=1&isAllowed=y]. Accessed 23 July 2020.

1.1.2b

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

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

Current Year Score: 2

Serbia has national legislation in place requiring prescriptions for antibiotic use in animals. According to the National Antibiotic Resistance Control Program, dispensing antibiotics in human and veterinary medicine can only be done via a prescription [1]. Article 4 of the "Ordinance on the form and content of prescriptions for veterinary medicines, as well as the manner of issuing and prescribing veterinary medicines" describes which type of medicines for which prescription is needed, such as medicines intended for the healing process [2]. Moreover, according to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, antibiotics are available by prescription only in the public health and animal sectors [3]. In the European Commission document enittled "Serbia 2019 Progress Report," under "Chapter 12: Food Safety, Veterinary and Phytosanitary Policy," there are no findings about weak enforcement of legislation relevant for antibiotic use in animals [4].

[1] World Health Organization (WHO). Library of National Action Plans. 2019. "National Antibiotic Resistance Control Programme". [https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/]. Accessed 23 July 2020.
[2] Ministry of Agriculture, Forestry, and Water Management. 2017. "Ordinance on the form and content of prescriptions for veterinary medicines, as well as the manner of issuing and prescribing veterinary medicines, (Pravilnik o obrascu i sadržini recepta za veterinarske lekove, kao i nacinu izdavanja i propisivanja veterinarskih lekova, 'Sl. glasnik RS', br. 48/2017)". [http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20obrascu%20i%20sadrzini%20recepta%20za%20vet%20lekova%20kao%20i%20nacinu%20izdavanja%20i%20propisivanja%20vet%20lekova.pdf]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[4] European Commission. 2019. "Serbia 2019 Report". [https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20190529-serbia-report.pdf] Accessed 23 July 2020.

1.2 ZOONOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has relevant legislation on zoonotic disease. The Law on Protection of Population from Infectious Diseases determines the infectious diseases that endanger the health of the population and whose prevention and control is of general interest to the country, the implementation of epidemiological surveillance and measures, the manner of their implementation and the provision of funds for their implementation, exercising supervision over the enforcement of this law, as well as other issues of importance for the protection of the population against infectious diseases. Zoonotic diseases are classified as one of several categories of infectious diseases [1]. In addition, the "Ordinance on surveillance of zoonoses and causes of zoonoses," which was adopted in 2017, based on the "Law on Protection of Population from Infectious Diseases," in Article 3 lists the following zoonotic diseases: Brucellosis, Echinococcosis, Rabies, Q-febris, Tularaemia, Avian influenzae, Febris West Nile, Febris haemorrhagica cum syndroma renali, Anthrax, Botulismus, Campylobacteriosis, Cryptosporidiosis, Giardiosis,

Lambliasis, Infectio intestinalis per E. Coli enterohaemorrhagicam, Leptospirosis, Listeriosis, Salmonellosis, Toxoplasmosis, Trichinelosis, Yersinosis, Mycobacterium bovis, SARS, Pestis, Viral haemorrhagic fevers, and Encephalitis viralis ixodibus. This legislation identifies contagious diseases from the zoonoses group, the method of monitoring zoonoses and zoonotic agents, the method of reporting on zoonotic agents, as well as method for recording contagious diseases from the zoonosis group. [2] According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, the human and animal health sectors have jointly identified the following priority zoonotic diseases in co-operation with the European Union, the World Health Organization (WHO), the World Organization for Animal Health (OIE), and countries in the region: brucellosis, echinococcosis, rabies, Q fever, tularaemia, avian influenza, West Nile virus, and hemorrhagic fever with renal syndrome. Except for the latter, all are under surveillance by both the animal and the human health sectors. Notwithstanding, the human and animal health sectors have issued separate surveillance plans and procedures and run mostly parallel systems. Exchange of information and collaboration occurs regularly, but largely at an informal level [3].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health and Ministry of Agriculture, Forestry, and Water Management. 2017. "Ordinance on Surveillance of Zoonoses and Causes of Zoonoses (Pravilnik o nacinu pracenja zoonoza i uzrocnika zoonoza, Sl. gl. RS, br. 76/17)".
[http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".
[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.2.1b

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

Yes = 1 , No = 0

Current Year Score: 0

In Serbia, there is no national legislation, plans, or equivalent strategy document(s) that includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. Although the 2016 Law on Protection of Population from Infectious Diseases in Article 18 regulates early detection of sources, reservoirs, and routes of transmission of infectious diseases, there are no specific measures for risk identification and reduction for zoonotic disease spillover events from animals to humans [1]. The 2017 Ordinance on surveillance of zoonoses and causes of zoonoses does not have references related to risk identification and reduction for zoonotic disease spillover events from animals to humans [2]. According to the Joint External Evaluation (JEE) of IHR Core Capacities of the Republic of Serbia, published in 2018, cross-sectoral multi-hazard risk assessment has been developed in 2017. However, the JEE notes that there is a lack of available resources (human and financial) for the maintenance of the risk assessment and mapping of resources [3]. Furthermore, the websites of the Ministries of Health and Agriculture, Forestry, and Water Management do not provide additional information regarding measures for risk identification and reduction for zoonotic disease spillover events from animals to humans [4, 5].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health and Ministry of Agriculture, Forestry and Water Management. 2017. "Ordinance on Surveillance of Zoonoses and Causes of Zoonoses (Pravilnik o nacinu pracenja zoonoza i uzrocnika zoonoza, Sl. gl. RS, br. 76/17)".
[http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.

[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[4] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.

1.2.1c

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has relevant legislation that account for the surveillance and control of multiple zoonotic pathogens of public health concern. The Law on Protection of Population from Infectious Diseases regulates protection of the population against infectious diseases, determines infectious diseases that endanger the health of the population, and whose prevention and control is of general interest to the Republic of Serbia, oversees the implementation of epidemiological surveillance and measures, the manner of their implementation and the provision of funds for their implementation, and exercises supervision over the enforcement of this law, as well as other issues of importance for the protection of the population against infectious diseases. Zoonotic diseases are classified as one of the categories of infectious diseases and are listed under Article 5 of the Law on Protection of Population from Infectious Diseases as a group of diseases over which epidemiological surveillance is conducted and against which measures for the prevention and suppression of communicable diseases are performed. Heading IV of this law defines general and specific measures for protection of the population from infectious diseases (e.g., general measures: ensuring healthy water, food safety etc.; specific measures: epidemiological examination and research, laboratory testing to determine the cause of infectious diseases, etc.) [1]. Furthermore, Article 3 of the Ordinance on surveillance of zoonosis and zoonotic agents, which was adopted in 2017 based on the Law on Protection of Population from Infectious Diseases, lists zoonotic diseases that are under surveillance and for which the control measures mentioned above apply: Brucellosis; Echinococcosis; Rabies; Q-febris; Tularaemia; Avian influenzae; Febris West Nile; Febris haemorrhagica cum syndroma renali; Anthrax; Botulismus; Campylobacteriosis; Cryptosporidiosis; Giardiosis; Lambliasis; Infectio intestinalis per E. Coli enterohaemorrhagicam; Leptospirosis; Listeriosis; Salmonellosis; Toxoplasmosis; Trichinelosis; Yersinosis; Mycobacterium bovis; SARS; Pestis; Viral haemorrhagic fevers; Encephalitis viralis ixodibus [2]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, there is a legal document that supports intersectoral collaboration for zoonotic disease surveillance, in the framework of the One-Health approach in Serbia (Ordinance on surveillance of zoonoses and zoonotic agents). Further, the human and animal health sectors have jointly identified the following priority zoonotic diseases in co-operation with the European Union (EU), World Health Organization (WHO), World Organization for Animal Health (OIE), and countries in the region: brucellosis, echinococcosis, rabies, Q fever, tularaemia, avian influenza, West Nile virus, and haemorrhagic fever with renal syndrome. Except for the latter, all are under surveillance by both the animal and the human health sectors in the country [3].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health and Ministry of Agriculture, Forestry, and Water Management. 2017. "Ordinance on surveillance of zoonoses and causes of zoonoses (Pravilnik o na?inu pra?enja zoonoza i uzro?nika zoonoza, Sl. gl. RS, br. 76/17)". [http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".

[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.2.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has a department, agency or similar unit dedicated to zoonotic disease that functions across ministries. The Law on Protection of Population from Infectious Diseases defines the responsibilities of institutes for public health and veterinary organisations to report cases of zoonotic diseases, as well as obligations of the Ministry of Health and the Ministry in charge of veterinary issues to regularly exchange data related to zoonotic diseases [1]. According to the Ordinance on surveillance of zoonoses and causes of zoonoses, protection of the population from zoonotic diseases is the responsibility of healthcare institutions, in co-operation with veterinary institutions [2]. However, this legislation does not delineate a cross-ministerial agency. The websites of the Ministry of Health and Agriculture do not have information about an agency or similar unit dedicated to zoonotic disease that functions across ministries [3,4]. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, "the human and animal health sectors have issued separate surveillance plans/procedures and run mostly parallel systems. Exchange of information and collaboration occurs regularly but largely at an informal level. This collaboration mechanism is strengthened and has been proven effective, during emergency situations. An interinstitutional agreement on data exchange between the main institutions in charge of human and animal health surveillance is in the process of being approved. This should favour a more formalized interaction between the two sectors in the field of zoonotic disease surveillance" [5].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health and Ministry of Agriculture, Forestry and Water Management. 2017. "Ordinance on surveillance of zoonoses and causes of zoonoses (Pravilnik o na?inu pra?enja zoonoza i uzro?nika zoonoza, Sl. gl. RS, br. 76/17)".
[http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.
[3] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".
[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.2.2 Surveillance systems for zoonotic diseases/pathogens

1.2.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has a national mandatory mechanism for owners of livestock to conduct and report on disease surveillance to a central government agency. According to the "Ordinance on the list of particularly dangerous infectious diseases of animals

and the list of infectious diseases of animals that are obliged to report, as well as the manner of their registration and cancellation, in case of doubt about the infectious disease that must be reported, the owner or keeper of the animal is obliged to immediately report it to the veterinarian or veterinary inspector." The Ordinance does not stipulate how livestock owners should report disease to relevant authorities. However, the same article states that the veterinary inspector is obliged to inform the Ministry of Agriculture and Livestock about the case within 24 hours by telephone, fax, mail, or other electronic means [1].

[1] Ministry of Agriculture, Forestry, and Water Management. 2006. "Ordinance on the list of particularly dangerous infectious diseases of animals and the list of infectious diseases of animals that are obliged to report, as well as the manner of their registration and cancellation, Pravilnik o listi naro?ito opasnih zaraznih bolesti životinja i listi zaraznih bolesti životinja koje se obavezno prijavljuju, kao i o na?inu njihove prijave i odjave, Sl. gl. RS, br. 49/06)". [http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik_prijava_zaraznih_bolesti.pdf]. Accessed 23 July 2020.

1.2.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has laws or guidelines that safeguard the confidentiality of information generated through surveillance activities for animals (for owners). Veterinary Law does not refer to safeguarding the confidentiality of information generated through surveillance activities for animals for owners. In addition, there are no by-laws that regulate this area [1]. In addition, according to the Law on Personal Data Protection, there is a general formulation that "data processing is not allowed if the natural person has not given consent for processing, or if processing is performed without legal authorisation." However, this law do not safeguard explicitly the confidentiality of information generated through surveillance activities for animals for owners [2]. The "Ordinance on the list of particularly dangerous infectious diseases of animals and the list of infectious diseases of animals that are obliged to report, as well as the manner of their registration and cancellation" does not regulate the confidentiality of information generated through surveillance activities for animals [3]. Furthermore, the websites of the Ministry of Health and Ministry of Agriculture do not have information about the confidentiality of information generated through surveillance activities for animals [4,5].

[1] National Parliament. 2012. "Veterinary Law (Zakon o veterinarstvu, Sl. gl. RS, br. 91/2005, 30/2010, 93/2012 i 17/2019)". [https://www.paragraf.rs/propisi/zakon_o_veterinarstvu.html]. Accessed 23 July 2020.
[2] National Parliament. 2012. "Law on Personal Data Protection (Zakon o zaštiti podataka o li?nosti, Sl. gl. RS, br. 97/2008, 104/2009 - dr. zakon, 68/2012 - odluka US i 107/2012)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_podataka_o_licnosti.html]. Accessed 23 July 2020.
[3] Ministry of Agriculture, Forestry, and Water Management. 2006. "Ordinance on the list of particularly dangerous infectious diseases of animals and the list of infectious diseases of animals that are obliged to report, as well as the manner of their registration and cancellation (Pravilnik o listi naro?ito opasnih zaraznih bolesti životinja i listi zaraznih bolesti životinja koje se obavezno prijavljuju, kao i o na?inu njihove prijave i odjave, Sl. gl. RS, br. 49/06)". [http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik_prijava_zaraznih_bolesti.pdf]. Accessed 23 July 2020.
[4] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.

1.2.2c

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

Current Year Score: 1

Serbia conducts surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc.). The Veterinary Directorate of the Ministry of Agriculture, Forestry and Water Management monitors and keeps the records of the occurrence and cessation of infectious and parasitic diseases of animals, zoonoses and antimicrobial resistance in animals and measures undertaken [1]. The Directorate publishes monthly reports on the movement of infectious diseases of animals. In some of these reports, zoonotic diseases in wildlife have been reported (e.g., American plague of bee litters, S.enteritidis and S. typhymurium of birds, Trihinelosis of wild animals) [2]. Moreover, the country's Joint External Evaluation (JEE) states that "examples of good practice of zoonotic multisectoral surveillance in Serbia include the ongoing surveillance of avian influenza, rabies and West Nile virus. Surveillance of the first two diseases is done using older, formalized systems. Further, the surveillance of avian influenza led to the organization of annual human-animal health meetings (taking place since 2004) and the production of a joint animal and human health pandemic plan in 2005 that was tested successfully during the 2009 influenza pandemic across administrative levels and sectors. Active rabies surveillance on animals and wildlife, combined with successful implementation of rabies vaccination measures have led to the elimination of rabies in domestic animals and to a drastic reduction of the number of cases of rabies in wild animals" [3].

[1] Ministry of Agriculture, Forestry, and Water Management. Veterinary Directorate. [http://www.vet.minpolj.gov.rs/sr/organizacija/zdravstvena-zastita-dobrobit-i-sledljivost-zivotinja/epizootiologija]. Accessed 23 July 2020.
[2] Ministry of Agriculture, Forestry, and Water Management. Veterinary Directorate. 2017. "Report on the Movement of Infectious Diseases of Animals for August 2017." [http://www.vet.minpolj.gov.rs/images/mesecni_izvestaji/2017/Kretanje%20zaraznih%20bolesti%20avgust%202017.pdf]. Accessed 23 July 2020.
[3] World Health Organizaation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.2.3 International reporting of animal disease outbreaks

1.2.3a

Has the country submitted a report to OIE on the incidence of human cases of zoonotic disease for the last calendar year?
Yes = 1 , No = 0

Current Year Score: 0

2019

OIE WAHIS database

1.2.4 Animal health workforce

1.2.4a

Number of veterinarians per 100,000 people

Input number

Current Year Score: 65.66

2018

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 19.44

2018

OIE WAHIS database

1.2.5 Private sector and zoonotic

1.2.5a

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

Yes = 1 , No = 0

Current Year Score: 0

Relevant legislation in Serbia does not include mechanisms for working with the private sector in controlling or responding to zoonoses. Article 5 of the Law on Protection of Population from Infectious Diseases and Article 5 of the Ordinance on surveillance of zoonoses and causes of zoonoses envisage that the protection of the population against infectious diseases that can be transferred from animals to humans is carried out by health institutions, private practice, and legal persons performing health activities in co-operation with the competent authorities in the veterinary field, but there are no provisions for how co-operation with the private sector is ensured [1,2]. The websites of the Ministry of Health, the Veterinary Directorate of the Ministry of Agriculture, Forestry, and Water Management, and the Institute for Public Health do not have further information about mechanisms for working with the private sector in controlling or responding to zoonoses [3, 4, 5]. The Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia does not have reference to mechanisms for working with the private sector in controlling or responding to zoonoses [6].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health and Ministry of Agriculture, Forestry and Water Management. 2017. "Ordinance on Surveillance of Zoonoses and Causes of Zoonoses (Pravilnik o na?inu pra?enja zoonoza i uzro?nika zoonoza, Sl. gl. RS, br. 76/17)".
[http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry, and Water Management. Veterinary Directorate.
[http://www.vet.minpolj.gov.rs/sr/pocetna]. Accessed 23 July 2020.
[5] Institute for Public Health. "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/]. Accessed 23 July 2020.

[6] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of any consolidated record, updated within the past five years, of facilities that store or process especially dangerous pathogens and toxins, including details on inventories and inventory management systems of those facilities. The Ministries of Agriculture, Defence, Health, and Science do not have any information about monitoring facilities that have dangerous pathogens and toxins [1,2,3,4]. As a party to the United Nations (UN) Biological Weapons Convention BWC, Serbia is required to submit annual reports on biological research to the UN Office at Geneva to comply with six Confidence-Building Measures, with the aim of improving international co-operation and preventing suspicion arising between BWC member states. Moreover, the reports for 2019 and 2020 do not have information about monitoring facilities that have dangerous pathogens and toxins. The reports have mentioned that "the Republic of Serbia does not currently have maximum containment Biosafety Level 3 and 4 (BL 3, BL 4) laboratories, which meet the criteria for a "maximum containment laboratory" as specified in the World health Organization (WHO) Laboratory Biosafety Manual. None are envisaged for the foreseeable future" [5,6]. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, Serbia has laboratories for pathogens that require either biosafety level 1 (BSL-1) or BSL-2. Currently, no facilities exist in the country that can handle pathogens requiring a BSL-3 or higher. One of recommendations for priority actions is that "the Government should develop and maintain an inventory of dangerous pathogens and toxins, a record of the facilities that conserve or treat them, and a programme of active monitoring" [7]. Futhermore, there is no evidence of any progress on this recommendation. In addition, the Verification Research, Training, and Information Centre (VERTIC) Database does not have documents related to the facilities in which especially dangerous pathogens and toxins are stored or processed [8].

[1] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Education and Science. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[7] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[8] Verification Research, Training, and Information Centre (VERTIC) Database.

[https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/1]. Accessed 23 July 2020.

1.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

Serbia does not have in place legislation and/or regulations related to biosecurity that address requirements such as physical containment, operation practices, failure reporting systems, and/or cybersecurity of facilities in which especially dangerous pathogens and toxins are stored or processed. The Ordinance on Preventive Measures for Safety and Healty Work with Biological Damages, Manual for Biological Security in the Laboratory, and Instruction for Safe Work in Laboratories of the Institute for Biology and Ecology of the PMF in Kragujevac do not regulate biosecurity that addresses 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 [1,2,3]. Furthermore, the websites of the Ministries of Health, Defence, and Agriculture do not provide information about biosecurity issues [4,5,6]. As a state party to the UN Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2019 and 2020 do not contain information about biosecurity regulations [7,8]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, the country has rulebooks on "biosafety and biosecurity addressing such areas as safety at work, waste management, dangerous goods transport, dual-use goods and dangerous pathogens." However, the JEE does not mention whether these regulations address physical containment, operation practices, failure reporting systems and/or cybersecurity of facilities. It also notes that "there are no common safety and security requirements or licensing conditions for all laboratories" [9]. The Verification Research, Training, and Information Centre (VERTIC) Database does not contain documents 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 [10].

[1] Government of Serbia. 2010. "Ordinance on Preventive Measures for Safety and Healty Work with Biological Damages (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri izlaganju biološkim štetnostima, Sl. gl. RS, br. 96/2010)". [https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_izlaganju_bioloskim_stetnostima.html]. Accessed 23 July 2020.
[2] World Health Organization (WHO). 2004. "Manual for Biological Security in the Laboratory (Prirucnik za biološku bezbednost u laboratoriji)".
[https://www.who.int/csr/resources/publications/biosafety/WHO_CDS_CPR_LYO_2004_11SER.pdf]. Accessed 23 July 2020.
[3] University in Kragujevac. "Instruction for Safe Work in Laboratories of the Institute for Biology and Ecology of the PMF in Kragujevac)".
[https://www.pmf.kg.ac.rs/bioeko/documents/Uputstvo%20za%20bezbedan%20rad%20u%20%20laboratorijama%20Institut a%20za%20bi%E2%80%A6.pdf]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-

ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[9] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[10] The Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/1]. Accessed 23 July 2020.

1.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

Serbia does not have an established agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations. The websites of the Labour Inspectorate, Institute for Public Health, and the Ministries of Health, Defence, and Agriculture do not provide information about the agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations [1,2,3,4,5]. As a state party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2019 and 2020 do not have information about biosecurity issues [6,7]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia does not provide evidence of any agency responsible for the enforcement of biosecurity legislation and regulations [8]. The Verification Research, Training, and Information Centre (VERTIC) Database does not have information about agency (or agencies) responsible for the enforcement of biosecurity legislation and regulations [9].

[1] Ministry of Labor, Employment, Veterans' and Social Affairs. Labor Inspectorate. "Responsibilities". [https://www.minrzs.gov.rs/lat/nadleznost-inspektorata.html]. Accessed 23 July 2020.
[2] Serbian Institute for Public Health "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[8] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[9] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/1]. 23 July 2020.

1.3.1d

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence that shows that Serbia has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, there is no centralised inventory of dangerous pathogens and toxins, monitoring of facilities that contain them or policy for the consolidation of sites [1]. The websites of the Ministires of Agriculture, Defence, Health, and Science and the Institute for Public Health do not have public evidence that shows that Serbia has taken actions to consolidate its inventory of dangerous pathogens into a minimum number of facilities [2,3,4,5,6]. As a state party to the UN Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2019 and 2020 do not have information about action taken to consolidate Serbia's inventories of especially dangerous pathogens and toxins into a minimum number of facilities. The reports state that "Serbia does not currently have maximum containment Biosafety Level 3 and 4 (BL 3, BL 4) laboratories, which meet the criteria for a "maximum containment laboratory," as specified in WHO Laboratory Biosafety Manual. None are envisaged for the foreseeable future" [7,8]. The Verification Research, Training, and Information Centre (VERTIC) database does not have information that the country has taken action to consolidate its inventories of especially dangerous pathogens and toxins into a minimum number of facilities [9].

[1] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Education and Science. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.
[5] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[8] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[9] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/1]. Accessed 23 July 2020.

1.3.1e

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

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence of in-country capacity to conduct polymerase chain reaction (PCR)-based diagnostic testing for Ebola, which would preclude culturing a live pathogen. However, there is no public evidence that such testing exists for anthrax. The websites of the Dr Milan Jovanovic Batut Institute for Public Health, the Institute for Public Health of Vojvodina and the Clinic for Infectious and Tropical Diseases do not have information about the capacity to conduct PCR-based diagnostic testing for anthrax and/or Ebola [1,2,3]. However, based on information related to supply of equipment, it can be concluded that PCR-based diagnostic testing for Ebola exists within the military medical institutions, which can be used by

military personnel and civilians [4]. According to the "Recommendations for Preventing and Combating Ebola Transmission in Health Institutions," one of the methods to be used by health institutions for detection of Ebola is PCR testing [5]. In addition, based on the anaylsis of virus diagnostic capacity and capability in laboratories of the two European preparedness laboratory networks EMERGE and EVD-LabNet, all EBOV diagnostic laboratories, including Serbian, performed molecular EBOV assays and had access to a positive control, including virus controls provided in commercial PCR kits [6]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia makes no mention of Serbia's capacity to conduct PCR-based diagnostic testing for anthrax and/or Ebola [7]. The websites of the Ministry of Health, Serbian Institute for Public Health, and Institute for Public Health of Vojvodina do not have information about capacity to conduct PCR-based diagnostic testing for antrax [1, 2, 8].

[1] Serbian Institute for Public Health "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[2] Institute for Public Health of Vojvodina. Microbiological Analysis. [http://izjzv.org.rs/?lng=lat&cir=0&link=5-24]. Accessed 23 July 2020.
[3] Clinical Center of Serbia. Clinic for Infectious and Tropical Diseases. [http://www.kcs.ac.rs/index.php/klinike/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.
[4] Public Procurement Portal. Directorate for Military Health. [https://www.nabavke.com/javne-nabavke-tenderi-srbija/elektroforeza-i-pcr/uprava-za-vojno-zdravstvo-mo/beograd/1690571]. Accessed 23 July 2020.
[5] Ministry of Health. 2019. "Recommendations for Preventing and Combating Ebola Transmission in Health Institutions (Preporuke za spre?avanje i suzbijanje prenošenja Ebola virusnog oboljenja u zdravstvenim ustanovama)". [http://www.batut.org.rs/download/uputstva/Ebola%20Preporuke%20zdravstvene%20ustanove.pdf]. Accessed 23 July 2020.
[6] Europe PCM. "Virus Diagnostic Capacity and Capability in Laboratories of the two European Preparedness Laboratory Networks EMERGE and EVD-LabNet". [https://europepmc.org/article/PMC/5954606]. Accessed 23 July 2020.
[7] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[8] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

1.3.2 Biosecurity training and practices

1.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The websites of the Ministries of Defence and Health, Dr Milan Jovanovic Batut Institute for Public Health, Institute for Public Health of Vojvodina, and the Clinic for Infectious and Tropical Diseases, and the Verification Research, Training, and Information Centre (VERTIC) Biological Weapons Convention (BWC) Legislation Database do not contain information about biosecurity training [1,2,3,4,5,6]. On the website of the Ministry of Agriculture, Forestry, and Water Management and Ministry of Interior, there is information about a training that included biosecurity issues in the work of farms, but this and similar training is organized on an ad hoc basis without a common curriculum or a train-the-trainer program [7, 8]. As a state party to the UN Biological Weapons

Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2017 and 2018 do not have information about biosecurity training [9, 10]. Furthrmore, according to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, Serbia "has not performed a sufficiently comprehensive assessment of training needs for biosafety and biosecurity. There is no national record of staff training or testing of biosecurity/biosafety procedures. There is no comprehensive and sustainable academic training in institutions, including those where employees maintain or work with dangerous pathogens and toxins. Insufficient resources, personnel and facilities are available to maintain training and supervision of staff competencies on biosafety and biosecurity" [11].

[1] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[4] Institute for Public Health of Vojvodina. "Trainings". [http://izjzv.org.rs/?lng=lat&cir=0&link=3-20]. Accessed 23 July 2020.
[5] Clinical Center of Serbia. "Clinic for Infectious and Tropical Diseases". [http://www.kcs.ac.rs/index.php/klinike/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.
[6] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.
[7] Ministry of Agriculture, Forestry, and Water Management. Veterinary Directorate. [http://www.vet.minpolj.gov.rs/sr/component/content/article/474-program-obuke-kontrola-klasicne-kuge-svinja-i-besnila]. Accessed 23 July 2020.
[8] Ministry of Interior. "Projects: Cooperation with the European Commission and UN". [http://mup.rs/wps/portal/sr/sektori/smsepp/saradnja%20sa%20ujedinjenim%20nacijama%20evropskom%20komisijom/!ut/p/z0/nY9LT8MwEIT_ihHqjchO2uZxLFBSQaMiCqLkEm0SUzaPdbCdivLrSXncEAIOK81KM7vz8ZRveEqwwy1YVATNsD-kfuZ6kbcYx2K5mnsXYuauzm_v5slpvAz42ujsZp0dL8ESv-Tp4F5Fie_GwrsKJ7PBnYipuF6PRbyYHM55OjlLtjztwD45SI-Kb1wIZCFl6PhC5s4kDyInL_PICUPhB1CIKIqmhyhWz8_pjKeFIitfLN90fd5gkRV7jc0gRqJThbQEIwG17WVD6l3hjpSxOBK_evQB8QPy9xAGNJRUATPA-kqWSJUkbBlBgRW0wOROq87UqmXDoMFKtX-EMrK2SuOXYK_AWllWPYFWJfXss0LPTpjsGbKuAUINQ5Eh8p96XR3fhzbcj5vt0RsmwBkX/]. Accessed 23 July 2020.
[9] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[10] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[11] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.3.3 Personnel vetting: regulating access to sensitive locations

1.3.3a

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

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

Current Year Score: 0

There is no evidence that regulations specify that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to background checks. The internal rules of the Dr Milan Jovanovic Batut Institute for Public Health, Institute for Public Health of Vojvodina, Clinic for Infectious and Tropical Diseases, and Directorate for National Reference Laboratories which might contain such data (e.g., Rulebook or Internal systematisation Act) are not publicly available [1,2,3,4]. Furthermore, the websites of the Ministries of Health, Agriculture, and Defence, as well as the Verification Research, Training, and Information Centre (VERTIC) Database do not provide information that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to background checks [5,6,7,8]. The Ordinance on Preventive Measures for Safety and Healthy Work with Biological Damages and the Confidence Building Measures Reports for 2019 and 2020 submitted by Serbia to the United Nations (UN) Biological Weapons Convention do not have information that security and other personnel with access to especially dangerous pathogens, toxins, or biological materials with pandemic potential are subject to background checks [9,10,11]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia also does not contain evidence on this [12].

[1] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=142]. Accessed 23 July 2020.
[2] Institute for Public Health of Vojvodina. [http://izjzv.org.rs/?lng=lat&cir=0&link=2-3]. Accessed 23 July 2020.
[3] Clinical Center of Serbia. Clinic for Infectious and Tropical Diseases. [http://www.kcs.ac.rs/index.php/klinike/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry, and Water Management. Directorate for National Reference Laboratories. [http://www.dnrl.minpolj.gov.rs/en/index.html]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[7] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[8] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.
[9] Government of Serbia. 2010. "Ordinance on Preventive Measures for Safety and Healty Work with Biological Damages (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri izlaganju biološkim štetnostima, Sl. gl. RS, br. 96/2010)". [https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_izlaganju_bioloskim_stetnostima.html]. Accessed 23 July 2020.
[10] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[11] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[12] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.3.4 Transportation security

1.3.4a

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has publicly available information on national regulations on the safe and secure transport of infectious substances (Categories A and B). The Law on the Transport of Dangerous Goods regulates all modes of transportation. The law prescribes the conditions for the transport of dangerous goods, the obligations of persons involved in the transport, and the conditions for packaging and vehicles. Article 3 of this law refers to dangerous goods and classifies them in accordance with international regulations such as the European Agreement concerning the International Carriage of Dangerous Goods by Road, the Regulation Concerning the International Carriage of Dangerous Goods by Rail, and the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways, covering transport of infectious substances, including those in Categories A and B [1]. The latter includes provisions related to the safe and secure transport of infectious substances (Categories A and B) [2]. Furthermore. the Confidence Building Measures reports for 2019 and 2020 submitted by Serbia to the United Nations (UN) Biological Weapons Convention do not have information about the safe and secure transport of infectious substances [3, 4].

[1] National Parliament. 2018. "Law on Transport of Dangerous Goods (Zakon o prevozu opasne robe, Sl. gl. RS, br. 104/16, 83/2018 i 10/2019)". [https://www.paragraf.rs/propisi/zakon_o_transportu_opasne_robe.html]. Accessed 23 July 2020.
[2] United Nations Economic Commission for Europe (UNECE). "European Agreement Concerning the International Carriage of Dangerous Goods by Road". [https://www.unece.org/trans/danger/publi/adr/adr_e.html]. Accessed 23 July 2020.
[3] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[4] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.

1.3.5 Cross-border transfer and end-user screening

1.3.5a

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has national legislation in place to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential. Article 47 of the Law on Transport of Dangerous Goods envisages that the customs authority on the border is responsible for the implementation of the provisions of this law, but the law does not have provisions related to end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential [1]. However, the Law on Export and Import of Goods with Dual-Purpose prescribes that with the application for issuing a license for the export and import of dual-use goods, the applicant is obliged to submit the original End User Certificate obtained by official authority of the state of the final beneficiary that is not older than six months. The End User Certificate contains the following information: the business name and address of the exporter; the business name and address of the end user of goods; the country of final destination; description, quantity and purpose of the goods; statement that the goods will not be used for other purposes, that they will not be re-exported or otherwise re-put into circulation without the written approval of the competent ministry of the state of the supplier; signature, name, and function of the authorized person, and number and date of issue [2]. The Confidence Building Measures reports for 2019 and 2020 submitted by Serbia to the United Nations (UN) Biological Weapons Convention do not have information to oversee the cross-border transfer and end-user screening of especially dangerous pathogens, toxins, and pathogens with pandemic potential [3,4].

[1] National Parliament. 2018. "Law on Transport of Dangerous Goods (Zakon o prevozu opasne robe, Sl. gl. RS, br. 104/16, 83/2018 i 10/2019)". [http://utot.gov.rs/doc/Zakon%20o%20transportu%20opasne%20robe%202018%20104-16%20i%2083-18.pdf]. Accessed 23 July 2020.
[2] National Parliament. 2013. "Law on Export and Import of Goods with Dual-Purpose (Zakon o uvozu i izvozu robe dvostruke namene, Sl. gl. RS, br. 95/2013 i 77/2019)". [http://www.carina.rs/lat/Zakoni%20latinicaa/ZAKON%20O%20IZVOZU%20I%20UVOZU%20RDN,%20Sl.%20glasnik%20RS%2095-2013.pdf]. Accessed 23 July 2020.
[3] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[4] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.

1.4 BIOSAFETY

1.4.1 Whole-of-government biosafety systems

1.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Serbia has in place national biosafety legislation. The Law on Safety and Health at Work regulates the implementation and improvement of the safety and health at work of persons involved in work processes, as well as persons encountered in the workplace, in order to prevent injuries at work, occupational diseases, and diseases related to work. This law also regulates protection from biological substances that are used at work or are present in the working environment. The law regulates preventive measures, risk assessment, specific protection measures, safety signs, written notices and instructions [1]. In addition, the Ordinance on Preventive Measures for Safety and Healthy Work with Biological Damages prescribes the minimum requirements that the employer is obliged to fulfil in ensuring the application of preventive measures in order to eliminate or reduce the risk of injury or damage to the health of employees that occur or can occur in the event of exposure to biological harmfulness in the workplace. The legislation applies to all laboratories in the country [2]. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, the country "has laws and regulations on biosafety and biosecurity in place, such as the Rulebook on Preventive Measures for Safe and Healthy Work during Exposure to Biological Hazards. There is a comprehensive body of legal regulations and rulebooks on biosafety and biosecurity addressing areas such as safety at work, waste management, dangerous goods transport, dual-use goods, and dangerous pathogens" [3]. The Confidence Building Measures reports for 2020 and 2019 submitted by Serbia to the United Nations (UN) Biological Weapons Convention do not have information about national biosafety legislation [4,5].

[1] National Parliament. 2017. "Law on Safety and Health at Work (Zakon o bezbednosti i zdravlju na radu, Sl. gl. RS, 101/2005, 91/2015 i 113/2017)". [https://www.paragraf.rs/propisi/zakon_o_bezbednosti_i_zdravlju_na_radu.html]. Accessed 23 July 2020.
[2] Government of Serbia. 2010. "Ordinance on Preventive Measures for Safety and Healty Work with Biological Damages (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri izlaganju biološkim štetnostima, Sl. gl. RS, br. 96/2010)". [https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_izlaganju_bioloskim_stetnostima.html]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July

2020.
[4] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[5] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.

1.4.1b

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

Yes = 1 , No = 0

Current Year Score: 1

There is public evidence that Serbia has an established agency responsible for the enforcement of biosafety legislation and regulations. The Directorate for Safety and Health at Work is established by Article 1 of the Law on Safety and Health at Work. Based on Articles 59 and 60 of the law, the Directorate for Safety and Health at Work is responsible for overseeing the implementation of the Law on Safety and Health at Work, and the Ordinance on Preventive Measures for Safety and Healthy Work with Biological Damages [1]. Among other things, the Directorate is responsible for monitoring and evaluating the state of occupational health and safety and providing professional assistance in the field of employee health and safety [2]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, the country has laws and regulations on biosafety and biosecurity in place, such as the Rulebook on Preventive Measures for Safe and Healthy Work during Exposure to Biological Hazards. It also has a developed laboratory system with many biosafety and biosecurity practices in place in individual laboratories. However, the JEE notes that national direction and national oversight has not been emphasized [3]. The Confidence Building Measures Reports for 2019 and 2020 submitted by Serbia to the UN Biological Weapons Convention do not have information about an established agency responsible for the enforcement of biosafety legislation and regulations [4,5]. Furthermore, the websites of the Ministry of Health and Ministry of Labor, Employment, Veterans' and Social Affairs do not have additional information about an agency responsible for the enforcement of biosafety legislation and regulations [6, 7].

[1] National Parliament. 2017. "Law on Safety and Health at Work (Zakon o bezbednosti i zdravlju na radu, Sl. gl. RS, 101/2005, 91/2015 i 113/2017)". [https://www.paragraf.rs/propisi/zakon_o_bezbednosti_i_zdravlju_na_radu.html]. Accessed 23 July 2020.
[2] Ministry of Labor, Employment, Veterans' and Social Affairs. Directorate for Safety and Health at Work. "Responsibilities". [https://www.minrzs.gov.rs/uprava-za-bezbednost-i-zdravlje-na-radu.html]. Accessed 23 July 2020.
[3] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[4] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[5] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[6] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[7] Ministry of Labour, Employment, Veterans' and Social Affairs. [https://www.minrzs.gov.rs/sr]. Accessed 23 July 2020.

1.4.2 Biosafety training and practices

1.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Serbia requires biosecurity training, using a standardized, required approach, such as through a common curriculum or a train-the-trainer program, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. Article 38 of the Law on Safety and Health at Work that "the employer is obliged to provide upgrading knowledge in the field of occupational safety and health to an employee whom he / she designates to perform these tasks" and Section 1.4 of the Action Plan for Strategy for Security and Health at Work (2018-2022) makes reference to education and training. However, neither document includes detail on if training is required or standardized. [1,2]. The websites of the Ministry of Defence, Ministry of Health, Ministry of Labor, the Dr Milan Jovanovic Batut Institute for Public Health, Institute for Public Health of Vojvodina, the Clinic for Infectious and Tropical Diseases, and the Verification Research, Training, and Information Centre (VERTIC) Biological Weapons Convention (BWC) Legislation Database do not contain information about biosecurity training [3,4,5,6,7,8,9]. On the website of the Ministry of Agriculture, Forestry, and Water Management there is information about a training that included biosecurity issues in the work of farms, but this and similar training is organized on an ad hoc basis without a common curriculum or a train-the-trainer program [10]. As a state party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2017 and 2018 do not contain information about biosecurity training [11,12]. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, Serbia "has not performed a sufficiently comprehensive assessment of training needs for biosafety and biosecurity. There is no national record of staff training or testing of biosecurity/biosafety procedures. There is no comprehensive and sustainable academic training in institutions, including those where employees maintain or work with dangerous pathogens and toxins. Insufficient resources, personnel and facilities are available to maintain training and supervision of staff competencies on biosafety and biosecurity" [13].

[1] National Parliament. 2017. "Law on Safety and Health at Work (Zakon o bezbednosti i zdravlju na radu, Sl. gl. RS, 101/2005, 91/2015 i 113/2017)". [https://www.paragraf.rs/propisi/zakon_o_bezbednosti_i_zdravlju_na_radu.html] Accessed 23 July 2020
[2] Ministry of Labor, Employment, Veterans' and Social Affairs. 2018. "Strategy for Security and Health at Work for period 2018-2022 with Action Plan for its implementation ("Strategija bezbednosti i zdravlja na radu u Republici Srbiji za period od 2018. do 2022. godine sa Akcionim planom za njeno sprovo?enje)". [https://www.minrzs.gov.rs/files/strategija_bezbednosti_i_zdravlja_na_radu_u_rs_za_period_2018-2022._godine__1_.pdf]. Accessed 23 July 2020.
[3] Ministry of Defence. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Labor, Employment, Veterans' and Social Affairs. Directorate for Safety and Health at Work. "Responsibilities". [https://www.minrzs.gov.rs/uprava-za-bezbednost-i-zdravlje-na-radu.html]. Accessed 23 July 2020.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] Dr Milan Jovanovic Batut Institute for Public Health. "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[7] Institute for Public Health of Vojvodina. "Trainings". [http://izjzv.org.rs/?lng=lat&cir=0&link=3-20]. Accessed 23 July 2020.
[8] Clinical Centre of Serbia. "Clinic for Infectious and Tropical Diseases". [http://www.kcs.ac.rs/index.php/klinike/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.

[9] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.
[10] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[11] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[12] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[13] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

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

Current Year Score: 0

There is no publicly available evidence that Serbia 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. There is no evidence 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 on the websites of the Ministry of Agriculture, Forestry and Water Management, Ministry of Defence, Ministry of Health, Ministry of Education and Science, the Serbian Institute for Public Health, and the Institute for Public Health of Vojvodina [1,2,3,4,5,6]. As a state that is party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. According to the reports for 2019 and 2020, "no active programs of research directly related to the Biological and Toxin Weapons Convention exist in Republic of Serbia" [7,8]. The Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia and Verification Research, Training, and Information Centre (VERTIC) Database do not have information about dual-use research [9,10].

[1] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/] Accessed 23 July 2020.
[2] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Education and Science. [http://www.mpn.gov.rs/] Accessed 23 July 2020
[5] Serbian Institute for Public Health "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[6] Institute for Public Health of Vojvodina. "Trainings". [http://izjzv.org.rs/?lng=lat&cir=0&link=3-20] Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[8] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[9] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".

[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[10] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.

1.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no national policy in Serbia requiring oversight of dual-use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential. The Law on Export and Import of Goods with Dual-Purpose is applicable to "technical assistance," which is defined as "a service that relates to the development, production, modification, handling, assembly, testing, repair, maintenance, storage or detection of dual-use goods, and other technical services that can be instruction, training, transfer of business knowledge and skills, or professional and advisory services, including assistance provided on a verbal basis." However, the law does not include oversight of dual-use research [1]. As a state that is party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. According to the reports for 2019 and 2020, "no active programmes of research directly related to the Biological and Toxin Weapons Convention exist in Republic of Serbia" [2,3]. The websites of the health, agriculture, defence and research ministries, and the Institute for Public Health do not provide information regarding oversight of dual-use research [4,5,6,7,8,9]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia and Verification Research, Training, and Information Centre (VERTIC) Database do not provide evidence of oversight of dual-use research [9].

[1] National Parliament. 2013. "Law on Export and Import of Goods with Dual-Purpose (Zakon o uvozu i izvozu robe dvostruke namene, Sl. gl. RS, br. 95/2013 i 77/2019)". [http://www.carina.rs/lat/Zakoni%20latinicaa/ZAKON%20O%20IZVOZU%20I%20UVOZU%20RDN,%20Sl.%20glasnik%20RS%2095-2013.pdf]. Accessed 23 July 2020.
[2] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020
[3] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020
[4] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020
[5] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[7] Ministry of Education and Science. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.
[8] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". "Responsibilities". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[9] World Health Organization (WHO). 2018. "Joint external evaluation of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[10] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.

1.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of an agency responsible for oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual-use research. Although, according to the Law on Export and Import of Goods with Dual-Purpose, the Ministry of Trade sets licensing conditions for those handling dual-use materials, there is no mention of direct oversight of research with especially dangerous pathogens, pathogens with pandemic potential, and/or other dual-use research [1]. In addition, there is no information on the websites of the Ministries of Agriculture, Defence, Health, and Science about oversight of dual-use research, such as research with especially dangerous pathogens, toxins, and/or pathogens with pandemic potential [2,3,4,5]. Furthermore, as a state that is party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. According to the reports for 2019 and 2020, "no active programs of research directly related to the Biological and Toxin Weapons Convention exist in Republic of Serbia" [6,7]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia and Verification Research, Training, and Information Centre (VERTIC) Database do not provide evidence of oversight of dual research [8,9].

[1] National Parliament. 2013. "Law on Export and Import of Goods with Dual-Purpose (Zakon o uvozu i izvozu robe dvostruke namene, Sl. gl. RS, br. 95/2013 i 77/2019)". [http://www.carina.rs/lat/Zakoni%20latinicaa/ZAKON%20O%20IZVOZU%20I%20UVOZU%20RDN,%20Sl.%20glasnik%20RS%2095-2013.pdf]. Accessed 23 July 2020.
[2] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Education and Science. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020.
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[8] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[9] Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.

1.5.2 Screening guidance for providers of genetic material

1.5.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence of a national legislation or policy addressing the screening of synthesised DNA (deoxyribonucleic acid) before it is sold. The Ministries of Agriculture, Defense, Health, Science, and Transport have not issued regulation, policy, or other guidelines regarding the sale of synthesized DNA [1,2,3,4,5]. A list of microbiological tests that are performed by the Serbian Institute for Public Health does not contain screening of synthesised DNA before it is sold [6]. As a state that is party to the United Nations (UN) Biological Weapons Convention, Serbia is required to submit Confidence Building Measures reports. The reports for 2019 and 2020 do not refer to the screening of synthesised DNA before it is sold [7,8]. Furthermore, the Verification Research, Training, and Information Centre (VERTIC) Database does not provide evidence of legislation and/or regulation requiring the screening of synthesized DNA against lists of known pathogens and toxins before it is sold [9].

[1] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Education and Science. [http://www.mpn.gov.rs/]. Accessed 23 July 2020
[5] Ministry of Construction, Transport and Infrastructure. [https://www.mgsi.gov.rs/]. Accessed 23 July 2020.
[6] United Nations Office at Geneva (UNOG). 2020. "Confidence Building Measures Report for 2020". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2020_serbia.pdf]. Accessed 23 July 2020
[7] United Nations Office at Geneva (UNOG). 2019. "Confidence Building Measures Report for 2019". [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2019_serbia.pdf]. Accessed 23 July 2020.
[8] World Health Organization (WHO). 2018. "Joint external evaluation of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[9] The Verification Research, Training, and Information Centre (VERTIC) Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/s/]. Accessed 23 July 2020.

1.6 IMMUNIZATION

1.6.1 Vaccination rates

1.6.1a

Immunization rate (measles/MCV2)

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

Current Year Score: 1

2019

World Health Organization

1.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

2020

OIE WAHIS database

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

2.1 LABORATORY SYSTEMS STRENGTH AND QUALITY

2.1.1 Laboratory testing for detection of priority diseases

2.1.1a

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

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

Current Year Score: 2

The laboratory system in Serbia has the capacity to conduct diagnostic tests for at least five of the ten core testst defined by the World Health Organization (WHO). The Institute for Public Health of Vojvodina and the Institute for Blood Transfusion have the capacity to conduct serology testing for HIV [1,2]. The Torlak Institute of Virology, Vaccines, and Sera has the capacity for testing virus cultures for poliovirus (polio) [3]. The "Guide for ambulant treatment of patients from resistant tuberculosis" shows that Serbia has the capacity for microscopy for mycobacterium tuberculosis (tuberculosis/TB) [4]. Based on a PhD Thesis, "Detection and Characterisation of Salmonella Enteritidis and Salmonella Typhimurium from the Food Chain," it can be concluded that Serbia has the capacity for testing bacterial culture for Salmonella enteritidis serotype Typhi (typhoid) [5]. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, core diagnostic tests for the analysis of human specimens in Serbia are defined according to European Union (EU) recommendations. Among others, the following core tests are conducted: isolation and serotyping of Salmonella ssp. (including S. Typhi); isolation, direct examination, and molecular identification of Mycobacterium tuberculosis; PCR for influenza virus; culture for poliovirus; serology for HIV; rapid diagnostic test and direct examination of peripheral blood for Plasmodium spp. [6]. Furthermore, the Ministry of Health and Institute for Public Health Dr Milan Jovanovic Batut do not have information about the four country-specific tests [7,8].

[1] Institute for Public Health of Vojvodina. 2007. "HIV and Health Workers". [http://izjzv.org.rs/dokumenta_obrasci/Krvno%20prenosive%20infekcije/HIV_infekcija_i_zdravstveni_radnici.pdf]. Accessed 23 July 2020.
[2] Republika. "State Does not have the Money for Expensive Tests". [https://www.republika.rs/vesti/drustvo/31460/drzava-nema-para-skupe-testove-hiv]. Accessed 23 July 2020.
[3] Torlak Institute of Virology, Vaccines, and Sera. "Reference Laboratories". [http://www.torlakinstitut.com/sr/pages/details/35/35/Nacionalna+laboratorija+za+poliomijelitis+i+enteroviruse]. Accessed 23 July 2020.
[4] Ministry of Health. 2011. "Guide for Ambulant Treatment of Patients from Resistant Tuberculosis". [http://www.batut.org.rs/download/izdvajamo/tuberkuloza/Prirucnik%20za%20ambulantno%20lecenje%20MDR%20TB.pdf]. Accessed 23 July 2020.

[5] Dmitric M. "Detection and Characterization of Salmonella Enteritidis and Salmonella Typhimurium from the Food Chain". [https://uvidok.rcub.bg.ac.rs/bitstream/handle/123456789/3065/Doktorat.pdf?sequence=1&isAllowed=y]. Accessed 23 July 2020.
[6] World Health Organization (WHO). "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[7] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[8] Institute for Public Health. Dr Milan Jovanovic Batut. [http://www.batut.org.rs/]. Accessed 23 July 2020.

2.1.1b

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

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

Current Year Score: 0

There is no evidence that Serbia has 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. Websites of the Ministries of Health, Agriculture, Defense, and Serbian Institute for Public Health ("Dr. Milan Jovanovic Batut") do not have a reference to 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. Moreover, these websites do not have information regarding a COVID-19 specific testing strategy [1, 2, 3, 4, 5]. In addition, the 2016 Law on Protection of Population from Infectious Diseases, the 2016 Law on Public Health, the 2018 Strategy on Public Health and the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia published in 2018 do not have a reference to 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. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia published in 2018, National Plan of Readiness and Response of the Health System in Crisis and Emergency Situations is in the process of being officially adopted [6, 7, 8].

[1] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[4] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/]. Accessed 23 July 2020.
[5] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[6] National Parliament. 2016. "Law on Public Health (Zakon o javnom zdravlju, Sl. gl. RS, br. "Sl. glasnik RS", br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_javnom_zdravlju.html]. Accessed 23 July 2020.
[7] Ministry of Health. 2018. "Strategy on Public Health in Republic of Serbia 2018-2026 (Strategija javnog zdravlja u Republici Srbiji 2018-2016)". [https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/strategija/2018/61/1/reg]. Accessed 23 July 2020.
[8] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July

2020.

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to determine whether Serbia has a national laboratory that serves as a reference facility and is accredited. The Torlak Institute of Virology, Vaccines and Sera, which is the reference facility for poliovirus (polio), is accredited for the standard ISO 13485:2003, which is issued for development, production and marketing of dry bacterial substrates; and ISO 14001:2015 which is issued for production of medicines, medical devices, dietary products and provision of diagnostic services, however this is unrelated to its testing capabilities. [1,2] The websites of the Ministry of Health and Ministry of Agriculture do not have further information about the national laboratory that serves as a reference facility and is accredited. [3,4] According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, "for the majority of core tests, national reference laboratories (NRLs) exist and regular external quality assurance (EQA) is carried out", but the JEE does not provide information on which laboratories conduct which of these tests. It does note, however, that "nine laboratories of the human public health sector have been accredited according to ISO 17025 and ISO 15189". [5]

[1] Torlak Institute of Virology, Vaccines and Sera. "ISO 13485:2003 Certificate". [http://www.torlakinstitut.com/upload/fck/File/Sertifikati/ISO13485SIQ.jpg]. Accessed 23 July 2020.
[2] Torlak Institute of Virology, Vaccines and Sera. "ISO 14001:2015 Certificate". [http://www.torlakinstitut.com/upload/fck/File/sertifikat%20ISO%2014001%20-%202015%20izdat%202018.jpg]. Accessed 23 July 2020.
[3] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organisation (WHO). "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

Existing evidence suggests that laboratories that serve as reference facilities are subject to external quality assurance review in Serbia. For certain laboratories, such as the Torlak Institute of Virology, Vaccines, and Sera, which is the reference facility for poliovirus (polio), it can be confirmed that the Institute is ISO accredited and subject to external quality assurance review by SGS Societe Generale de Surveillance Switzerland and Slovenska Akreditacija from Slovenia [1,2]. The websites of the Ministries of Health and Agriculture do not have further information about the national or regional laboratory that serves as a reference facility accredited and their external quality assurance review [3,4]. Based on the available reports related to external quality assessment, such as the "Seventh External Quality Assessment Scheme for Salmonella Typing", issued by the European Centre for Disease Prevention and Control, and the External Quality Assurance System of the World Health

Organisation (WHO) Global Foodborne Infections Network, it can be confirmed that Serbian laboratories were subject of external quality assessments [5,6]. According to the Joint External Evaluation (JEE) of the International Health Requirements (IHR) core capacities of the Republic of Serbia, "for the majority of core tests, national reference laboratories (NRLs) exist and regular external quality assurance (EQA) is carried out," but the JEE does not provide information on which laboratories conduct which of these tests [7].

[1] Torlak Institute of Virology, Vaccines and Sera. "ISO 13485:2003 Certificate". [http://www.torlakinstitut.com/upload/fck/File/Sertifikati/ISO13485SIQ.jpg]. Accessed 23 July 2020.
[2] Torlak Institute of Virology, Vaccines and Sera. "ISO 14001:2015 Certificate". [http://www.torlakinstitut.com/upload/fck/File/sertifikat%20ISO%2014001%20-%202015%20izdat%202018.jpg]. Accessed 23 July 2020.
[3] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] European Centre for Disease Control and Prevention. 2016. "Seventh External Quality Assessment Scheme for Salmonella Typing". [https://www.ssi.dk/-/media/arkiv/dk/sygdomme-beredskab-og-forskning/sygdomsovervaagning/ecdc-rapporter/eqa-7-salmonella.pdf?la=da]. Accessed 23 July 2020.
[6] World Health Organization (WHO). "External Quality Assurance System of the WHO Global Foodborne Infections Network". [https://www.food.dtu.dk/english/-/media/Institutter/Foedevareinstituttet/Publikationer/Pub-2016/Rapport-The-External-Quality-Assurance-System-of-the-WHO-Global-Foodborne-Infections-Network-2015-pd.ashx?la=da&hash=746B23FCD994560410613E5A7ACEC53E2FF4D685]. Accessed 23 July 2020.
[7] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.2 LABORATORY SUPPLY CHAINS

2.2.1 Specimen referral and transport system

2.2.1a

Is there a nationwide specimen transport system?

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Serbia has a nationwide specimen transport system in place. Although there is evidence of a system, there is insufficient evidence that it is nationwide. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, "a system is in place to transport specimens to a national laboratory from intermediate levels or districts" [1]. However, the JEE scores Serbia as a 3 on the JEE for D.1.2, indicating that a "system is in place to transport specimens to national laboratories from 50%-80% of intermediate level/districts within the country for advanced diagnostics, indicating that this system is not nationwide" [1,2]. Furthermore, there are instructions for collecting and sending samples available on the websites of the Dr Milan Jovanovic Batut Institute for Public Health and the Veterinary Directorate [3,4]. A few private courier companies undertake transportation of biological samples from research centres to central laboratories [5].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

[2] World Health Organization (WHO). "Joint External Evaluation Tool". [https://apps.who.int/iris/bitstream/handle/10665/204368/9789241510172_eng.pdf?sequence=1]. Accessed 23 July 2020.
[3] Dr Milan Jovanovic Batut Institute for Public Health. "Instructions for Collecting and Sending Samples". [http://www.batut.org.rs/index.php?category_id=69]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry and Water Management. Veterinary Directorate. "Instructions on How to Perform Veterinary Sanitary Examination, Collecting, and Sending Samples and Laboratory Tests for Classical Plague of Wild Boars (Uputstvo o na?inu vršenja veterinarsko sanitarnog pregleda, uzimanja i slanja uzoraka i laboratorijskih ispitivanja na klasi?nu kugu svinja kod divljih svinja)". [http://www.vet.minpolj.gov.rs/legislativa/instrukcije/Monitoring_divlje_svinje_KKS.pdf]. Accessed 23 July 2020.
[5] ASV doo Beograd. "Transportation of Biological Samples". [http://www.asvbeograd.com/transport-bioloskih-uzoraka.html]. Accessed 23 July 2020.

2.2.2 Laboratory cooperation and coordination

2.2.2a

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

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

Current Year Score: 0

Serbia does not have a plan in place to rapidly authorize or license laboratories to supplement the capacity of the national public health laboratory system to scale-up testing during an outbreak. The Law on Protection of Population from Infectious Diseases, Law on Public Healht, Strategy on Public Health and the Joint external evaluation of the International Health Regulations (IHR) core capacities of the Republic of Serbia do not have information about 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 [1, 2, 3, 4]. Furthermore, the websites of the Ministries of Health, Agriculture, Defense and Serbian Institute for Public Health "Dr. Milan Jovanovic Batut" do not have a reference to 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 [5, 6, 7, 8].

[1] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] National Parliament. 2016. "Law on Public Health (Zakon o javnom zdravlju, Sl. gl. RS, br. "Sl. glasnik RS", br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_javnom_zdravlju.html]. Accessed 23 July 2020.
[3] Ministry of Health. 2018. "Strategy on Public Health in Republic of Serbia 2018-2026 (Strategija javnog zdravlja u Republici Srbiji 2018-2016)". [https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/strategija/2018/61/1/reg]. Accessed 23 July 2020.
[4] World Health Organization (WHO). 2018. "Joint external evaluation of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[7] Ministry of Defense. [http://www.mod.gov.rs/]. Accessed 23 July 2020.
[8] Serbian Institute for Public Health. "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/]. Accessed 23 July 2020.

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

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

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

Current Year Score: 0

There is no evidence that Serbia conducts ongoing event-based surveillance and analysis for infectious disease. The websites of the Ministries of Health, Agriculture, and Interior, and the Dr Milan Jovanovic Batut Institute for Public Health do not have information about ongoing event-based surveillance and analysis for infectious disease [1,2,3,4]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, "some event-based surveillance elements are in place including media monitoring and activities to favour community-based rumour-detection. Intermediate level institutes of public health are required by law to investigate, validate and report with the highest available detail to the national level unusual events. Upon receiving such notification legally-defined information flows and response actions are in place." However, the JEE notes that such events are received passively by the national level and no active event-based surveillance system with clear objectives, procedures, and outputs is in place [5].

[1] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Interior. Department for Sector for Analytics, Telecommunication and Information Technologies. "Responsibilities". [http://www.mup.gov.rs/wps/portal/sr/sektori/Sektor%20za%20vanredne%20situacije/!ut/p/z1/hc5BCsIwFATQs4gHyM-Pxp9lpDGFtqRaxTabkFUJaBUtnl8prgR1dgNvYJhnLfNDfKQ-jukyxNOrd14GjgpzYaF0Bjegucv2B1OtwQh2nAB8iQbm_-39RJyqJLeABS2Ag5baEiwJqcZPYKVB0NuVygpDgnJ4gx8fmvst7JowL-M4sOu5hVT3sydno3ww/?1dmy&urile=wcm%3apath%3a%2Fpublic_latin%2FPocetna%2FSektori%2FSektor%2Bza%2Banalitiku%252C%2Btelekomunikacione%2Bi%2Binformacione%2Btehnologije%2F]. Accessed 23 July 2020.
[4] Institute for Public Health "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/index.php]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no publicly available evidence that the country reported a potential public health emergency of international concern (PHEIC) to the World Health Organizations (WHO) within the last two years. Websites of the WHO disease outbreak and country pages as well as of the Ministry of Health and National Institute for Public Health do not have information that Serbia reported a PHEIC to the WHO [1, 2, 3, 4, 5, 6]. Serbia reported its first case of COVID-19 to the WHO on March 6, 2020

after the WHO had declared COVID-19 to be a PHEIC on January 30, 2020 [7, 8].

[1] World Health Organization (WHO). Health Emergency Dashboard. Serbia. [https://extranet.who.int/publicemergency]. Accessed 8 March 2021.
[2] World Health Organization (WHO). Serbia. [https://www.euro.who.int/en/countries/serbia]. Accessed 08 March 2021.
[3] World Health Organization (WHO). 2020. "Emergencies Preparedness, Response: 2020". [https://www.who.int/csr/don/archive/year/2020/en/]. Accessed 7 April 2021.
[4] World Health Organisation (WHO). 2019. "Emergencies Preparedness, Response: 2019". [https://www.who.int/csr/don/archive/year/2019/en/]. Accessed 7 April 2021.
[5] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 8 March 2021.
[6] Institute for Public Health. "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/]. Accessed 8 March 2021.
[7] Garda World. March 6, 2020. "Serbia: First COVID-19 Case Confirmed March 6". [https://www.garda.com/crisis24/news-alerts/320311/serbia-first-covid-19-case-confirmed-march-6]. Accessed 7 April 2021.
[8] World Health Organizsation (WHO). 27 April 2020. "Archived: WHO Timeline - COVID-19". [https://www.who.int/news/item/27-04-2020-who-timeline---covid-19]. Accessed 7 April 2021.

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

Does the government operate an electronic reporting surveillance system at both the national and the sub-national level?
Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that the Government of Serbia operates an electronic reporting surveillance system at both the national and sub-national levels. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, although Serbia was early to establish laboratories in the twentieth century, it is lagging behind in adopting technological advances of the twenty-first century, such as centralized databases and electronic reporting of surveillance and laboratory results [1]. The JEE also notes that "the human health sector lacks an electronic data management system for surveillance." On the website of the Ministry of Health, there is information about the Integrated Health Information System (IZIS) operated in Serbia. IZIS is a central electronic system in which all medical and health data of patients; data of health workers and associates; data of health institutions, medical interventions, and services performed in health institutions; and data of electronic instructions and electronic recipes are stored and processed. All health interventions and all services performed in health institutions are recorded in IZIS. The system is integrated with existing systems used in the Ministry of Health and in state-owned healthcare institutions [2]. The use of electronic health records ensures monitoring of patient's movement through the health system [3]. In order to ensure an electronic reporting surveillance system of COVID-19, Ministry of Health has introduced information system for these purposes [4]. The Dr Milan Jovanovic Batut Institute for Public Health and the Institute for Public Health of Vojvodina do not have information about an electronic reporting surveillance system at both the national and sub-national levels [5, 6].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[2] Ministry of Health. Integrated Health Information System. [https://www.mojdoktor.gov.rs/about]. Accessed 23 July 2020.
[3] Ernst and Young. 2016. "Possible Directions for Increasing the Efficiency of the Healthcare System in the Republic of Serbia". [https://www.amcham.rs/upload/HC%20Studija_SPRSKI_FINALNA%20VERZIJA.pdf] Accessed 23 July 2020.
[4] Ministry of Health. COVID-19 Statistics. [https://covid19.data.gov.rs/]. Accessed 23 July 2020.

[5] Dr Milan Jovanovic Batut Institute for Public Health. [http://www.batut.org.rs/]. Accessed 23 July 2020.
[6] Institute for Public Health of Vojvodina. [http://www.izjzv.org.rs/]. Accessed 23 July 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 no evidence that the Government of Serbia operates an electronic reporting surveillance system at both the national and sub-national levels. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, although Serbia was early to establish laboratories in the twentieth century, it is lagging behind in adopting technological advances of the twenty-first century, such as centralized databases and electronic reporting of surveillance and laboratory results [1]. The JEE also notes that "the human health sector lacks an electronic data management system for surveillance". On the website of the Ministry of Health, there is information about the Integrated Health Information System (IZIS) operated in Serbia. IZIS is a central electronic system in which all medical and health data of patients; data of health workers and associates; data of health institutions, medical interventions, and services performed in health institutions; and data of electronic instructions and electronic recipes are stored and processed. All health interventions and all services performed in health institutions are recorded in IZIS. The system is integrated with existing systems used in the Ministry of Health and in state-owned healthcare institutions [2]. The use of electronic health records ensures monitoring of patient's movement through the health system [3]. The Dr Milan Jovanovic Batut Institute for Public Health and the Institute for Public Health of Vojvodina do not have information about an electronic reporting surveillance system at both the national and sub-national levels [4,5].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[2] Ministry of Health. Integrated Health Information System. [https://www.mojdoktor.gov.rs/about]. Accessed 23 July 2020.
[3] Ernst and Young. 2016. "Possible directions for increasing the efficiency of the healthcare system in the Republic of Serbia". [https://www.amcham.rs/upload/HC%20Studija_SPRSKI_FINALNA%20VERZIJA.pdf]. Accessed 23 July 2020.
[4] Dr Milan Jovanovic Batut Institute for Public Health. [http://www.batut.org.rs/]. Accessed 23 July 2020.
[5] Institute for Public Health of Vojvodina. [http://www.izjzv.org.rs/]. Accessed 23 July 2020.

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

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

Current Year Score: 1

There is insufficient evidence that electronic health records (EHRs) are in common use in Serbia, but there is evidence that they are used. According to a 2016 report, "Possible directions for increasing the efficiency of the healthcare system in the Republic of Serbia", from among 346 health institutions in the public sector, over 200 have electronic records, which is less

than 75% of medical facilities [1]. As of 2017 Serbia operates the Integrated Health Information System (IZIS), a central electronic system in which all medical and health data of patients, data of health workers and associates, data of health institutions, medical interventions and services performed in health institutions, and data of electronic instructions and electronic prescriptions are stored and processed [2]. Health records are integrated into the IZIS [3]. However, there is no evidence on how many facilities use the IZIS. The World Health Organisation (WHO) "Atlas of eHealth country profiles" notes that electronic health records are not used in primary, secondary, or tertiary care facilities [4]. According to the WHO 2018 country report, "Better noncommunicable disease outcomes: challenges and opportunities for health systems," an electronic data recording system at primary health centres is in place, but the system (with unified standard software) is not yet fully established nationwide. It creates the opportunity to have joint e-records for patients in place of the current separate patient cards in each PHC department. Even though the patients' records are collected electronically, the reporting is still done in paper form [5].

[1] Ernst and Young. 2016. "Possible Directions for Increasing the Efficiency of the Healthcare System in the Republic of Serbia". [https://www.amcham.rs/upload/HC%20Studija_SPRSKI_FINALNA%20VERZIJA.pdf]. Accessed 23 July 2020.
[2] Ministry of Health. Integrated Health Information System. [https://www.mojdoktor.gov.rs/about]. Accessed 23 July 2020
[3] Paragraf. "Law on Health Insurance". [https://www.paragraf.rs/dnevne-vesti/030317/030317-vest13.html]. Accessed 23 July 2020.
[4] World Health Organization (WHO). "Atlas of eHealth Country Profiles: The Use of eHealth in Support of Universal Health Coverage".
[https://apps.who.int/iris/bitstream/handle/10665/204523/9789241565219_eng.pdf;jsessionid=F84EB6E18FF63594BADB91EE2B287D13?sequence=1]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Better Noncommunicable Disease Outcomes: Challenges and Opportunities for Health Systems". [https://www.euro.who.int/__data/assets/pdf_file/0008/367487/hss-ncds-ser-eng.pdf?ua=1]. Accessed 23 July 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

There is evidence that the national public health system has access to electronic health records of individuals in Serbia. According to a 2016 report, "Possible directions for increasing the efficiency of the healthcare system in the Republic of Serbia," more than 200 of 346 health institutions in the public sector have electronic health records (EHRs) [1]. Serbia operates the Integrated Health Information System (IZIS), a central electronic system in which all medical and health data of patients, data of health workers and associates, data of health institutions, medical interventions and services performed in health institutions, and data of electronic instructions and electronic prescriptions are stored and processed. An integrated health information system ensures the unity of health data and a unique information and communication infrastructure for the management of data collections and data transfer. All health interventions and all services performed in health institutions are recorded in IZIS. The system is integrated with existing systems used by the Ministry of Health and in state-owned health care institutions. The IZIS provides access to health information to all participants in the health system, including the Ministry of Health, in accordance with their rights, roles and responsibilities [2].

[1] Ernst and Young. 2016. "Possible Directions for Increasing the Efficiency of the Healthcare System in the Republic of Serbia". [https://www.amcham.rs/upload/HC%20Studija_SPRSKI_FINALNA%20VERZIJA.pdf]. Accessed 23 July 2020.
[2] Ministry of Health. Integrated Health Information System. [https://www.mojdoktor.gov.rs/about]. Accessed 23 July 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

Serbia has data standards for its electronic health records (EHRs) data. According to a 2016 report "Possible directions for increasing the efficiency of the healthcare system in the Republic of Serbia," from among 346 health institutions in the publci sector in Serbia, over 200 have EHRs [1]. Serbia operates the Integrated Health Information System (IZIS), a central electronic system in which all medical and health data of patients, data of health workers and associates, data of health institutions, medical interventions and services performed in health institutions, and data of electronic instructions and electronic recipes are stored and processed [2]. According to a joint presentation by the Ministry of Health and the Consortium of Telekom Serbia and Dynamic Information Systems that implemented IZIS, the system was developed in line with the following standards: ISO 27001 (an information security standard), HIPAA (standards to protect individuals' electronic personal health information), and FedRAMP (this provides a standardised approach to security assessment, authorization, and continuous monitoring for cloud products and services) [3].

[1] Ernst and Young. 2016. "Possible Directions for Increasing the Efficiency of the Healthcare System in the Republic of Serbia". [https://www.amcham.rs/upload/HC%20Studija_SPRSKI_FINALNA%20VERZIJA.pdf]. Accessed 23 July 2020.
[2] Ministry of Health. Integrated Health Information System. [https://www.mojdoktor.gov.rs/about]. Accessed 23 July 2020.
[3] Ministry of Health and Consortium: Telekom Serbia and Dynamic Information Systems. "Presentation of the Integrated Health Information System".
[http://www.kombeg.org.rs/Slike/UdrInformatike/2016/april/Prezentacija%20IZIS%2018%20april%202016.pdf]. Accessed 23 July 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 an established mechanism at the relevant ministries responsible for animal, human and wildlife surveillance to share data (such as through mosquito surveillance, brucellosis surveillance, etc.). Articles 8–14 of the Ordinance on Surveillance and Causes of Zoonoses regulate co-operation between laboratories, public health institutes, and sanitary and veterinary authorities. Article 12 mandates that the Institute for Public Health must submit quarterly data on registered zoonoses, causes of zoonoses, and epidemiological examination to the Veterinary Directorate [1]. Article 7 of the Law on the Protection of the Population from Infectious Diseases envisages that epidemiological surveillance shall be co-ordinated by public health institutes, in co-operation with healthcare institutions, private practice and other legal entities that perform healthcare activity. Article 25 defines the obligation of an institute for public health and any veterinary organisation to exchange data in case of zoonoses. According to the same article, the Institute for Public Health, in co-operation with the Veterinary Directorate, produces a unique annual report on the trends of infectious diseases from the group of zoonoses, in accordance with the recommendations of the World Health Organization (WHO) and the World Organization for Animal Health (OIE), alongside sources of infection, causes, and the resistance of zoonotic infectious diseases to antimicrobial drugs. This article also states that the minister of health, in consultation with the minister of agriculture, defines the method of data exchange

and reporting requirements, but the document that states those requirements is not publicly available on the websites of the ministries of health or agriculture [2,3,4]. In addition, according to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, "an inter-institutional agreement on data exchange between the main institutions in charge of human and animal health surveillance is in the process of being approved. This should favour a more formalised interaction between the two sectors in the field of zoonotic disease surveillance." [5].

[1] Ministry of Health and Ministry of Agriculture, Forestry, and Water Management. 2017. "Ordinance on surveillance of zoonoses and causes of zoonoses (Pravilnik o na?inu pra?enja zoonoza i uzro?nika zoonoza, Sl. gl. RS, br. 76/17)". [http://www.vet.minpolj.gov.rs/legislativa/pravilnici/Pravilnik%20o%20zoonozama.pdf]. Accessed 23 July 2020.
[2] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[3] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Agriculture, Forestry and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia makes de-identified health surveillance data on disease outbreaks publicly available via reports (or other format) on government websites with regular frequency. There is evidence of more singular instances of data sharing. According to Article 30 of the Law on Protection of Population from Infectious Diseases, the Dr Milan Jovanovic Batut Institute for Public Health submits monthly and, if necessary, weekly information on countries in which there is an epidemic, as well as listing the risk of illness from infectious diseases that can be brought into the country and informing the Ministry of Health, in order to trigger health surveillance measures at border crossings [1]. During 2018, the Dr Milan Jovanovic Batut Institute published monthly reports about cases of Western Nile fever. In the same year, 415 cases of Western Nile fever were registered, with 36 deaths potentially associated with the fever. During 2019 in the territory of the Republic of Serbia, there were 27 cases of Western Nile fever, with 1 fatal outcome that may be associated with the fever of the Western Nile [2, 3]. The Government has introduced electronic data base which is publicly available and presents latest data and information related to COVID-19 [4]. The Ministry of Health has a link on its webpage devoted to COVID-19 where regular information is provided [5].

[1] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Institute for Public Health "Dr. Milan Jovanovic Batut". 2018. "Information About the Actual Epidemiological Situation in the Republic of Serbia Related to the Fever of the Western Nile in 2018". [http://www.batut.org.rs/index.php?content=1742]. Accessed 07 January 2019.
[3] Institute for Public Health. "Dr. Milan Jovanovic Batut". 2019. "Information about the Actual Epidemiological Situation in

the Republic of Serbia Related to the Fever of the Western Nile in 2018". [http://www.batut.org.rs/index.php?content=1914]. Accessed 23 July 2020.
[4] Ministry of Health. COVID-19. [https://covid19.rs/homepage-english/]. Accessed 23 July 2020.
[5] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 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

Serbia makes de-identified health surveillance data on COVID-19 publicly available via daily reports (or other format) on the specialised COVID-19 government website. These reports are available on the website of the Institute for Public Health, as well as the government's dedicated COVID-19 website [1, 2, 3]. These reports provide the latest information related to COVID-19, such as the number of tested people, number of confirmed cases in last 24 hours, deaths in the last 24 hours, and the number of hospitalized patients on ventilator.

[1] Ministry of Health. COVID-19. [https://covid19.rs/homepage-english/]. Accessed 23 July 2020.
[2] Ministry of Health. COVID-19. Institute for Public Health—Reports. [https://covid19.rs/eng-instituteforpublichealth-updates/]. Accessed 23 July 2020.
[3] Institute for Public Health. "Dr. Milan Jovanovic Batut". "Information on COVID-19". [http://www.batut.org.rs/index.php?category_id=201]. Accessed 23 July 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

There is a legal framework that safeguards the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities. According to Article 54 of the Law on Health Protection, the confidentiality of data from medical documentation of patients is guaranteed. The same article mandates that the health institution, private practice, and other legal entities shall be obliged to protect the medical records of patients from unauthorised access, copying, and abuse [1]. One of the basic principles of the Law on Health Documentation and Records in the Field of Health Protection is protection of personal data [2].

[1] National Parliament. 2019. "Law on Health Protection (Zakon o zdravstvenoj zaštiti, Sl. gl. RS, br. 25/2019)". [https://www.paragraf.rs/propisi/zakon_o_zdravstvenoj_zastiti.html]. Accessed 23 July 2020.
[2] National Parliament. 2014. "Law on Health Documentation and Records in the Field of Health Protection (Zakon o zdravstvenoj dokumentaciji i evidencijama u oblasti zdravstva (Sl. glasnik RS", br. 123/2014, 106/2015, 105/2017 i 25/2019 - dr. zakon)". [https://www.paragraf.rs/propisi/zakon-o-zdravstvenoj-dokumentaciji-i-evidencijama-u-oblasti-zdravstva.html]. Accessed 23 July 2020.

2.4.4b

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

Yes = 1 , No = 0

Current Year Score: 0

The legal framework that safeguards the confidentiality of identifiable health information for individuals, such as that generated through health surveillance activities, does not include protections from cyber attacks. The secrecy of data and protection of patient's privacy is regulated by the Law on Health Protection. This law does not mention any protections from cyber attacks [1]. There is a Law on the Protection of Personal Data, but this also contains no references to protections from cyber attacks [2]. The websites of the Ministry of Health and the Serbian Institute of Public Health do not provide any further evidence in this regard [3,4].

[1] National Parliament. 2019. "Law on Health Protection (Zakon o zdravstvenoj zaštiti, Sl. gl. RS, br. 25/2019)". [https://www.paragraf.rs/propisi/zakon_o_zdravstvenoj_zastiti.html]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on the Personal Data Protection (Zakon o zaštiti podataka o li?nosti, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_podataka_o_licnosti.html]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Institute for Public Health "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/index.php]. Accessed 23 July 2020.

2.4.5 International data sharing

2.4.5a

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

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

Current Year Score: 0

There is no evidence that the Government of Serbia has made a commitment via any policy document or legislation to share surveillance data for one or more diseases during a public health emergency with other countries in the region. The 2011 National Strategy for Protection and Rescue in case of Emergency Situations defines as one objective, "improved regional and international co-ordination and operational co-operation by monitoring the situation, information exchange and joint training of rescue units." The strategy includes public health emergencies, but it does not refer to surveillance data [1]. Article 11 of the 2018 Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations envisages that "reducing the risk of disasters, among other things, means: establishing precise procedures for the exchange of information and experience of relevance to risk reduction and for the effective provision and receipt of international operational and humanitarian assistance in order to eliminate the consequences of disasters and initial regeneration of the affected areas." The Law includes public health emergencies, but it does not refer to surveillance data [2].

Article 2 of the 2016 Law on Protection of Population from Infectious Diseases defines a serious cross-border threat to health as "a life-threatening or otherwise serious health threat of a biological, chemical, ecological or unknown origin that is spreading or implies a significant risk of cross-border spread and which may require co-ordinated international response in order to ensure a high level of protection of the health of the population." The same article prescribes that epidemiological surveillance represents "a continuous systematic collection of data on infectious diseases, antimicrobial resistance, the

effects of measures for their prevention and suppression, processing, analysis and interpretation of collected data, informing the expert and other public." According to Article 7 of the Law, the Institute for Public Health consolidates, analyzes and interprets data obtained by epidemiological surveillance on the territory of the Republic of Serbia and exchanges them with other countries, the World Health Organization (WHO) and other international organizations [3].

The Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia published in 2018 and the website of the Ministry of Health do not have information about sharing surveillance data during a public health emergency with other countries in the region. [4,5]

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[4] World Health Organisation (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[5] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 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 that Serbia has a national system in place to provide support at the sub-national level (e.g., training, metrics standardization, and/or financial resources) to conduct contact tracing in the event of a public health emergency. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities and the websites of the Ministry of Health and Institute of Public Health of Serbia do not have information about a national system in place to provide support at the sub-national level (e.g., training, metrics standardization, and/or financial resources) to expand contact tracing in the event of a public health emergency. Although activities in the field of public health in Serbia are performed by the Institute of Public Health of Serbia "Dr Milan Jovanovic Batut," together with a network of three institutes (Novi Sad, Nis, and Kragujevac), and 20 institutes of public health, there is no information of such support systems on their website [1, 2, 3]. One of the special measures to protect the population from infectious diseases are defined in Articles 17 and 18 of the Law on

Protection of Population from Infectious Diseases is early detection of sources, reservoirs, and routes of transmission. However, there are no specific legal provisions for how to provide support at the sub-national level (e.g., training, metrics standardization, and/or financial resources) to expand contact tracing in the event of a public health emergency [4].

[1] Institute of Public Health of Serbia "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[2] World Health Organisation (WHO). 2018. "Joint External Evaluation (JEE) of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[3] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.

2.5.1b

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

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

Current Year Score: 2

Serbia 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. One of the special measures to protect the population from infectious diseases are, defined in the Article 17 of the 2016 Law on Protection of Population from Infectious Diseases is health surveillance and quarantine. According to Article 31 of the Law, employees who are subject to a quarantine measure are entitled to appropriate compensation for the time spent in quarantine, in accordance with the law. According to the same article, the health supervision over the persons in quarantine is performed by the competent institute or institute for public health, as well as the medical team that is in quarantine, and the security is performed by the administrative body in charge of internal affairs [1]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia published in 2018. In addition, the websites of the Ministry of Health, Ministry of Economy and Institute for Public Health do not have information about wraparound services [2, 3, 4].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Economy. [https://privreda.gov.rs/]. Accessed 23 July 2020.
[4] Institute of Public Health of Serbia "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

Serbia does not 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. Government's COVID-19 website provides latest information related to COVID-19 in Serbia [1]. The Institute for Public Health provides daily reports related to COVID-19 situation. These reports are available on the website of the Institute, as well as COVID-19 website [2, 3]. However, these sources do not make de-identified data on contact tracing.

[1] Ministry of Health. COVID-19. [https://covid19.rs/homepage-english/]. Accessed 23 July 2020.
[2] Ministry of Health. COVID-19. Institute for Public Health - Reports. [https://covid19.rs/eng-instituteforpublichealth-updates/]. Accessed 23 July 2020.
[3] Institute for Public Health "Dr. Milan Jovanovic Batut". "Information on COVID-19". [http://www.batut.org.rs/index.php?category_id=201]. Accessed 23 July 2020.

2.5.2 Point of entry management

2.5.2a

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

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

Current Year Score: 0

There is no evidence that Serbia has a joint plan or cooperative agreement between the public health system and border control authorities to identify suspected and potential cases in international travelers and trace and quarantine their contacts in the event of an active or future public health emergency. The 2011 National Strategy for Protection and Rescue in case of Emergency Situations, the 2018 Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations, and the 2016 Law on Protection of Population from Infectious Diseases do not have a reference related to cooperation 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 (the current COVID-19 pandemic or future public health emergencies) [1,2,3]. According to the Joint External Evaluation of the International Health Regulations (IHR) core capacities of the Republic of Serbia, Airport Nikola Tesla Belgrade has in place standard operating procedures (SOPs) for the handling of potentially infected passengers and arrangements for their transportation and treatment through agreements with the competent state authorities. These SOPs are part of the generic plan for all emergencies at the airport [4]. Furthermore, the websites of the Ministry of Health and Ministry of Interior provide information on presenting negative COVID-19 tests and quarantining if not tested in Serbia but do not have further information about this issue in general, partiuclarly about SOPs on coordination at border crossings and ports of entry [5, 6].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)".

[http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html] Accessed 23 July 2020.
[4] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Interior. [http://www.mup.gov.rs/wps/portal/sr/]. Accessed 23 July 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 applied epidemiology training program (such as field epidemiology training programmes; FETPs) are available or that Serbia is providing resources to send citizens to another country to participate in such programs. Based on a review of different training programs provided or organized by the Dr Milan Jovanovic Batut Institute for Public Health, the Institute for Public Health of Vojvodina, the Torlak Institute of Virology, Vaccines and Sera, and the Ministry of Health, there is no evidence that an applied epidemiology training programme is available in Serbia or that resources are provided by the government to send citizens abroad to participate in such programs [1,2,3,4]. Serbia is not on the list of countries that have participated in training programs provided by the US Centres for Disease Control and Prevention (CDC) and TEPHINET [5]. Based on available information from the annual budget for 2019 and 2020, there is no evidence that resources are provided by the government to send citizens to another country to participate in applied epidemiology training programs. Further, some training is organized abroad (for example, EpiSouth and EpiSouth Plus), but there is no evidence that Serbian citizens are being funded to attend them [6,7]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, all epidemiologists receive specialised training on outbreak preparedness and response on a regular basis. However, there are no references to FETPs [8].

[1] Serbian Institute for Public Health "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.

[2] Institute for Public Health of Vojvodina. "Education". [http://izjzv.org.rs/?lng=lat&cir=0&link=3-20]. Accessed 23 July 2020.
[3] Institute of Virology, Vaccines and Sera “Torlak”. [http://www.torlakinstitut.com/]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Epidemiology and Public Health Interventions Network (TEPHINET). "Programmes". [http://tephinet.org/programs]. Accessed 23 July 2020.
[6] Network for the Control of Public Health Threats in the Mediterranean Region and South East Europe (EpiSouth). "Events". [http://www.episouthnetwork.org/content/events]. Accessed 23 July 2020.
[7] Network for the Control of Public Health Threats in the Mediterranean Region and South East Europe (EpiSouth). "The EpiSouth Project". [http://www.episouthnetwork.org/content/episouth-project]. Accessed 23 July 2020.
[8] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of available field epidemiology training programs (FETPs) explicitly inclusive of animal health professionals, or of a specific animal health field epidemiology training program (such as FETPV). Based on a review of different training programs provided or organized by the Dr Milan Jovanovic Batut Institute for Public Health, the Institute for Public Health of Vojvodina, the Torlak Institute of Virology, Vaccines, and Sera, and the Ministry of Health, there is no evidence that an applied epidemiology training program (such as an FETP) is available in Serbia or that resources are provided by the government to send citizens abroad to participate in applied epidemiology training programs [1,2,3,4]. According to the Joint External Evaluation (JEE) of the Internaitonal Health Regulations (IHR) core capacities of the Republic of Serbia, all epidemiologists receive specialized training on outbreak preparedness and response on a regular basis. However, there are no references to animal health professionals [5].

[1] Serbian Institute for Public Health "Dr. Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=20]. Accessed 23 July 2020.
[2] Institute for Public Health of Vojvodina. "Education". [http://izjzv.org.rs/?lng=lat&cir=0&link=3-20]. Accessed 23 July 2020.
[3] Institute of Virology, Vaccines and Sera “Torlak”. [http://www.torlakinstitut.com/]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

2.6.2 Epidemiology workforce capacity

2.6.2a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 2

Serbia has a national public health emergency response plan in place that is publicly available and addresses planning for multiple communicable diseases with pandemic potential. Public health emergency response is part of the National Strategy for Protection and Rescue in case of Emergency Situations. This document is a framework for planning the actions of all protection and rescue participants in catastrophes and major accidents, including public health emergencies (Heading 1.1 of the document includes epidemics of infectious diseases). According to the strategy, "in the case of an infectious disease epidemic, at the initiative of the Ministry of Health, operational teams are established for: health system activities, planning and co-ordination, communication, as well as situation monitoring and evaluation" [1].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in Case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.

3.1.1b

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

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

Current Year Score: 0

Public health emergency response is part of the National Strategy for Protection and Rescue in case of Emergency Situations, which has not been updated in the past three years (or since 2011). This document is a framework for planning the actions of all protection and rescue participants in catastrophes and major accidents, including public health emergencies (Heading 1.1 of the document includes epidemics of infectious diseases). According to the strategy, "in the case of an infectious disease

epidemic, at the initiative of the Ministry of Health, operational teams are established for: health system activities, planning and co-ordination, communication, as well as situation monitoring and evaluation" [1]. Furthermore, the websites of the Minsitries of Health and Interior do not have additional information regarding strategic frameworks related to public health emergency response [2,3].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Interior. [http://www.mup.gov.rs/wps/portal/sr/]. Accessed 23 July 2020.

3.1.1c

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

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

Current Year Score: 1

Serbia's public health emergency response plan includes considerations for paediatric and other vulnerable populations. Public health emergency response is part of the National Strategy for Protection and Rescue in case of Emergency Situations. This document is a framework for planning the actions of all protection and rescue participants in catastrophes and major accidents, including public health emergencies (Heading 1.1 of the document includes infectious disease epidemics). According to the strategy, "in the case of an epidemics of infectious disease, at the initiative of the Ministry of Health, joint bodies, operational teams are established for health system activities, planning and co-ordination, communication, as well as situation monitoring and evaluation." Within strategic area 3 of the strategy, it is stated that "special attention will be paid to the training of all subjects of the integrated protection and rescue system, so that the staff can provide appropriate assistance and protection of children, the elderly and persons with disabilities in situations of risk, natural and other disasters" [1].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in Case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. Although Article 3 of the Law on Protection of Population from Infectious Diseases includes the private sector in the list of relevant stakeholders involved in implementation of the law, and Article 11 of the Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations calls for partnership with the private sector, there is no evidence of a specific mechanism for doing so [1,2]. In addition, according to the National Strategy for Protection and Rescue in case of Emergency Situations, lack of co-operation with non-governmental organizations (NGOs) and the private sector has been identified as one of the weaknesses of the protection and rescue system [3]. Furthermore, there is no information about a specific mechanism for engaging with the private sector to assist with emergency preparedness response on the website of the Ministry of Health [4]. According to the Joint External Evaluation (JEE) of International Health Regulations (IHR) core capacities of the Republic of Serbia, under the section related to risk communication, formal and informal communication and co-ordination mechanisms exist, but with limited engagement of partners and stakeholders (such as healthcare workers, civil society organisations, the private sector, and other non-state actors), which particularly impacts subnational emergency response efforts to disease outbreaks, including West Nile virus [5].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 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: 1

There is publicly available evidence that Serbia has a policy, plan, and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic, for one disease—COVID-19. Law on Protection of Population from Infectious Diseases, Law on Reducing Risks from Catastrophies and Management, and National Strategy for Protection and Rescue in case of Emergency Situations do not have reference to NPIs [1, 2, 3]. The websites of the Ministry of Health and Institute for Public Health do not have information about NPIs [4, 5]. However, NPIs are available for COVID-19 on the special website of the Ministry of Health dedicated to COVID-19. These NPIs include maintaining social distancing, reducing contacts outside of housholds, washing hands for at least 20 seconds and/or using sanitizers with 70% or more alcohol, avoiding hugging and kissing or other personal greetings, using a face mask, spending time in well-ventilated rooms, and notifying relevant authorities in case of suspected cases [6].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)".
[https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)".
[http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Institute for Public Heatlh of Serbia. "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=65]. Accessed 23 July 2020.
[6] Ministry of Health. COVID-19. [https://covid19.rs/homepage-english/]. Accessed 23 July 2020.

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?
- Is there evidence that the country has activated their national emergency response plan for an infectious disease outbreak in the past year?
- Is there evidence that the country has completed a national-level biological threat-focused exercise (either with WHO or separately) in the past year?

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

Current Year Score: 1

There is evidence that Serbia has activated their national emergency response plan for an infectious disease outbreak in the past year but no evidence that the country has completed a national-level biological threat-focused exercise (either with the World Health Organization (WHO) or separately) in the past year.

Serbia declared a state of emergency for th outbreak of COVID-19 during 2020 under Article 200(1) of the Serbian Constitution when the state is considered to be in existential danger [1, 2]. However, Serbia has a " Law on Decreasing the Risk from Catastrophe and Managing Emergency Situations" of 2018, which was not activated in the past year to respond to the pandemic [2, 3, 4]. On 16 March 2020 due to the COVID-19 situation, a decision was made to declare a state of emergency throughout the Republic of Serbia. On the same day, the Government issued a decision on measures during the state of emergency (e.g., schools are closed, people aged over 65 have to be in their homes, etc.) [1].

Furthermore, there is no publicly available information on the websites of the Ministry of Health, Institue for Public Health "Dr Milan Jovanovic Batut," and Department for Emergency Situations of the Ministry of Interior about a national-level biological threat-focused exercise [5, 6, 7]. According to media, in 2018, Serbian public health and national security authorities carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack) [8]. The WHO's Simulation Exercise web page does not list Serbia as one of the countries for which information is provided in the International Health Regulations (IHR) or Simulation Exercises [9].

[1] Government of Republic of Serbia. 2020. "State of Emergency Declared Throughout Serbia". [https://www.srbija.gov.rs/vest/en/151398/state-of-emergency-declared-throughout-serbia.php]. Accessed 23 July 2020.
[2] Verfassungsblog. 12 May 2020. "Serbia and Covid-19: State of Emergency in a State in Disarray". [https://verfassungsblog.de/serbia-and-covid-19-state-of-emergency-in-a-state-in-disarray/]. Accessed 8 April 2021.
[3] Republic of Serbia, Ministry of Interior, Sector for Emergency Management. "Enhancing Local Level Disaster Resilience in Serbia". [https://www.preventionweb.net/files/18408_ivanbarastheserbiannetworkofcities.pdf]. Accessed 8 April 2021.
[4] Paragraf. 2018. " Law on Decreasing the Risk from Catastrophe and Managing Emergency Situations". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 8 April 2021.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] Institute for Public Heatlh of Serbia "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=65]. Accessed 23 July 2020.
[7] Ministry of Interior. Department for Emergency Situations. [http://prezentacije.mup.gov.rs/svs/HTML/delatnost.html]. Accessed 23 July 2020.
[8] National Television of Serbia. 2018. "Civil-Military Exercise 'Balkan Response 2018' in Krusevac" [https://www.rts.rs/page/stories/sr/story/125/drustvo/3149624/civilno-vojna-vezba-balkanski-odgovor-2018-u-krusevcu.html]. Accessed 23 July 2020.
[9] World Health Organization (WHO). "Simulation Exercise". [https://extranet.who.int/sph/simulation-exercise?region=202&country=275]. Accessed 8 April 2021.

3.2.1b

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

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

Current Year Score: 0

There is no publicly available evidence that in the last year Serbia has undergone an exercise to identify a list of gaps and best practices through either an after- action review (post-emergency response) or a biological threat-focused International Health Regulations (IHR) exercise with the World Health Organization (WHO). The WHO After Action Review page and WHO country office page do not contain any information on exercises involving Serbia [1,2]. However, in October 2018, Serbia was

one of 12 countries that participated in a two-day polio outbreak simulation exercise that was organized by the WHO and the European Centre for Disease Prevention and Control (ECDC). The simulation was based on a real event and allowed countries to review and update their national plans for responding to such an event in a poliovirus essential facility [3]. The website of the Ministry of Health does not provide information about identification of gaps and best practices in response (either through an infectious disease response or a biological-threat focused exercise) and development of a plan to improve response capabilities [4].

[1] World Health Organization (WHO). "After Action Review." [https://extranet.who.int/sph/after-action-review]. Accessed 23 July 2020.
[2] World Health Organization (WHO). Serbia. [https://www.euro.who.int/en/countries/serbia]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 1 November 2018. "Simulated Poliovirus Containment Breach Helps Countries Increase Biorisk Safety and Security". [http://www.euro.who.int/en/countries/sweden/news/news/2018/11/simulated-poliovirus-containment-breach-helps-countries-increase-biorisk-safety-and-security]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia, in the past year, has undergone a national-level biological threat-focused exercise that has included private sector representatives. According to information available on the World Health Organization (WHO) Strategic Partnership Portal, Serbia did not, in the past year, undergo a national-level biological threat-focused exercise that has included private sector representatives [1]. There is no publically available information on the websites of the Ministry of Health, Ministry of Agriculture, and Dr Milan Jovanovic Batut Institue for Public Health [2, 3, 4]. On the website of the Ministry of Interior, it has been identified that such an exercise was organized in 2015 [5].

[1] World Health Organization (WHO). "Strategic Partnerships Portal". [https://extranet.who.int/sph/country/1288]. Accessed 23 July 2020.
[2] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[4] Institute for Public Heatlh of Serbia "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=65]. Accessed 23 July 2020.
[5] Ministry of Interior. Cooperation with UN and European Commission. [http://mup.rs/wps/portal/sr/sektori/smsepp/saradnja%20sa%20ujedinjenim%20nacijama%20evropskom%20komisijom/!ut/p/z0/nY9LT8MwEIT_ihHqjchO2uZxLFBSQaMiCqLkEm0SUzaPdbCdivLrSXncEAIOK81KM7vz8ZRveEqwwy1YVATNsD-kfuZ6kbcYx2K5mnsXYuauzm_v5slpvAz42ujsZp0dL8ESv-Tp4F5Fie_GwrsKJ7PBnYipuF6PRbyYHM55OjlLtjztwD45SI-Kb1wIZCFl6PhC5s4kDyInL_PICUPhB1CIKIqmhyhWz8_pjKeFIitfLN90fd5gkRV7jc0gRqJThbQEIwG17WVD6l3hjpSxOBK_evQB8QPy9xAGNJRUATPA-kqWSJUkbBlBgRW0wOROq87UqmXDoMFKtX-EMrK2SuOXYK_AWllWPYFWJfXss0LPTpjsGbKuAUINQ5Eh8p96XR3fhzbcj5vt0RsmwBkX/]. Accessed 23 July 2020.

3.3 EMERGENCY RESPONSE OPERATION

3.3.1 Emergency response operation

3.3.1a

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

Yes = 1 , No = 0

Current Year Score: 1

The Department for Emergency Situations of the Ministry of Interior is the Emergency Response Centre (EOC) of Serbia. This Department performs normative, administrative, organizational, technical, preventive, educational, informative and other activities for overcoming emergency situations such as fires, natural disasters, technical and technological accidents, the effects of dangerous substances, and other conditions [1]. According to Article 29 of the Law on Emergency Situations, the Department for Emergency Situations of the Ministry of Interior co-ordinates the functioning of the civil protection system, including health emergencies [2]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, Serbia has demonstrated its ability to co-ordinate response to emergency situations in the past through the successful handling of large disasters, like floods in 2014. A "Protection and Rescue System," which is part of the National Security System, is activated when an emergency is declared. All administrative levels down to the municipal level are involved through a structure of headquarters for co-ordination at each level. Members of the national-level headquarters include ministers in the fields of public administration and local government, defense, health, agriculture, water management and forestry, labor and social policy, environmental protection, foreign affairs, telecommunications, construction, mining, energy, information, finance, trade, and services. In addition, national agencies in meteorology, seismology, and hydrology are involved along with public enterprises and private companies of relevance for rescue operations. In the public health sector, a co-ordination operation and communication centre has been established, operating continuously, which includes response teams that are similarly continuously available. Similarly, a national crisis centre has been established in the Veterinary Directorate, which is continuously available during emergencies [3].

[1] Ministry of Interior. Department for Emergency Situations. "Responsibilities". [http://prezentacije.mup.gov.rs/svs/HTML/delatnost.html]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

3.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that the Department for Emergency Situations of the Ministry of Interior, the Emergency Response Centre (EOC) of Serbia, conducts a drill at least once per year or that it is required to do so. According to Article 7 of the

Ordinance on Training, Teaching Plans, and Curricula and Norms of Teaching and Training Equipment for Training of Civil Protection Members, the training of civil protection personnel is planned in five-year cycles. Training of specialised civil protection units is planned for every year [1]. According to the Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations, specialized civil protection units are engaged in carrying out the most complex tasks and requiring maintenance of enhanced operational and functional capabilities and can be established by the Ministry of Interior or local governments [2]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, published in 2018, notes that simulation exercises are not conducted regularly at all levels. Exercises are not planned as part of a structured program to test national capabilities with involvement of subnational levels [3]. The website of the Ministry of Interior does not have information about the requirement for the EOC to conduct a drill at least once per year [4].

[1] Ministry of Interior. 2013. "Ordinance on Training, Teaching Plans and Curricula and Norms of Teaching and Training Equipment for Training of Civil Protection Members (Pravilnik o obu?avanju, nastavnim planovima i normativima nastavnih sredstava i opreme za obu?avanje pripadnika civilne zaštite, br. 8/2013-80)". [http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/ministarstva/pravilnik/2013/8/7/reg]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[4] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

3.3.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no public evidence to show that Serbia's Emergency Response Centre (EOC) can conduct, or has conducted within the past year, a co-ordinated emergency response or emergency response exercise activated within 120 minutes of the identification of a public health emergency/scenario. The Department for Emergency Situations of the Ministry of Interior is the EOC of Serbia. Based on the websites of the Ministry of Interior and Ministry of Health, the World Health Organization (WHO), and media outlets, there is no public evidence to suggest this [1,2,3]. According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia, the absence of an adopted emergency preparedness and response plan in the health service prevents the national EOC from being fully activated within two hours of receiving an alert that requires such activation [4].

[1] Ministry of Interior. Department for Emergency Situations. [http://prezentacije.mup.gov.rs/svs/Propagandne%20kampanje.html]. Accessed 23 July 2020.
[2] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2019. "Calendar of Activites". [https://extranet.who.int/sph/calendar/2019?1&type=All&field_region_tid=All&country_tid=300]. Accessed 23 July 2020.
[4] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".

[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

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

Current Year Score: 0

There is insufficient evidence but according to media, in 2018 Serbian public health and national security authorities carried out an exercise to respond to a potential deliberate biological event (i.e., bioterrorism attack). Apart from Serbia, representatives of six European countries and Organization for the Prohibition of Chemical Weapons, also participated [1]. However, there are no publicly available standard operating procedures, guidelines, memorandums of understanding (MOUs), or other agreements between the public health and security authorities to respond to a potential deliberate biological event (i.e., bioterrorism attack). Evidence in this regard is not publicly available on the websites of the Ministry of Interior and Ministry of Health [2, 3]. The ABC Journal of Emergency Medicine has issued an article entitled "Health and Security Challenges of the 21st Century—Bioterrorism" in which it has been mentioned that "in Serbia in the upcoming period it is necessary to intensify efforts on improvement of biological security and biological safety in laboratories and hospitals. Of course, the prerequisite for all of these is the development and strengthening of a national strategy for protection and treatment in the event of a crisis situation caused by a biological accident or a bioterrorism act. In this regard, it is necessary to integrate existing capacities of the Ministry of Defence, the Ministry of Interior, and other relevant authorities" [4]. The Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia does not have a reference related to an exercise to respond to a potential deliberate biological event and standard operating procedures, guidelines, MOUs or other agreements in such cases [5].

[1] National Television of Serbia. 2018. "Civil-military exercise 'Balkan Response 2018' in Krusevac" [https://www.rts.rs/page/stories/sr/story/125/drustvo/3149624/civilno-vojna-vezba-balkanski-odgovor-2018-u-krusevcu.html]. Accessed 23 July 2020.
[2] Ministry of Interior. Department for Emergency Situations. "Legislation". [http://prezentacije.mup.gov.rs/svs/HTML/zakonska%20regulativa.html]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] ABC Journal of Emergency Medicine. 2016. "Health and Security Challenges of the 21st Century - Bioterrorism". [https://scindeks-clanci.ceon.rs/data/pdf/1451-1053/2016/1451-10531601008R.pdf]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 1

In Serbia, relevant legislation outline how messages will reach populations and sectors with different communication needs (e.g., different languages, location within country, media reach, etc.). Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations regulates, among other things, emergency management, civil protection, early warning, alerting, international cooperation, inspection supervision etc. Public health emergency is included in this Law as one of possible natural disasters. Article 98 of the Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations envisage that "Broadcasting and television stations shall, at the request of the Ministry, take measures for the urgent transfer of relevant information from the interests of protection and rescue. Mobile telephony operators shall, at the request of the Ministry, provide free transmission of notices of interest for protection and rescue to telephone subscribers." In addition, Article 96 of the Law envisages that the public alert system consists of appropriate acoustic sources (sirens) [1].

[1] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 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

Serbia has in place, in relevant strategies and legislation, a section detailing a risk communication plan that is specifically intended for use during a public health emergency. The National Strategy for Protection and Rescue in case of Emergency Situations has a small section on epidemics of infectious diseases, according to which, in the event of an infectious disease epidemic, the Ministry of Health will establish operational teams for health system activities, planning and co-ordination, and communication, monitoring, and assessment of the situation, although a specific risk communication plan is not outlined [1]. However, according to Serbia's Joint External Evaluation (JEE), "communications is included in the Law on Emergency Situations, and a National Strategy for Protection and Rescue in Emergencies defines obligations and procedures of various entities in the system of early warning and response to public health threats. During designation of a national emergency, public communications are regulated through the Emergency Management Sector as well as the Department of Media and Communications at the Cabinet of the Ministry of Interior (MoI). The health sector has action and response plans that include

communications to respond to disease outbreaks and natural and other health emergencies, for the territory under its jurisdiction" [2].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[2] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR Core Capacities of the Republic of Serbia". [https://extranet.who.int/sph/sites/default/files/jeeta/WHO-WHE-CPI-2019.36-eng.pdf]. Accessed 23 July 2020.

3.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that 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. The Law on Protection of Population from Infectious Diseases, Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations, National Strategy for Protection, and Rescue in case of Emergency Situations, as well as the websites of the Ministry of Health and Institute for Public Health do not contain information about a specific position within the government to serve as the primary spokesperson to the public during a public health emergency [1,2,3,4,5]. During the COVID-19 outbreak, members of the Crisis Team have been responsible for communication with the public [6].

[1] National Parliament. 2016. " Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016 i 68/2020)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophies and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2011. "National Strategy for Protection and Rescue in Case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/] Accessed 23 July 2020.
[5] Institute for Public Heatlh of Serbia. "Dr Milan Jovanovic Batut". [http://www.batut.org.rs/index.php?category_id=65]. Accessed 23 July 2020
[6] RTS. 2020."Press Conference of the Crisis Team". [https://www.rts.rs/page/stories/sr/%D0%9A%D0%BE%D1%80%D0%BE%D0%BD%D0%B0%D0%B2%D0%B8%D1%80%D1%83%D1%81/story/3134/koronavirus-u-srbiji/3889248/krizni-stab-koronavirus-konferencija.html]. Accessed 23 July 2020.

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 1

There is evidence that the 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, but mainly during an active emergency. On the website of the "Dr. Milan Jovanovic Batut" Institute for Public Health, there is evidence that the public health system has actively shared messages to inform the public about ongoing public health concerns [1]. Active sharing of messages concerning COVID-19 is ensured through the specialized COVID-19 government website. Apart from the latest statistical data, the website also provides recommendations about preventive measures (e.g., avoid close contact with people with symptoms of a respiratory infection (fever, sneezing, cough, runny nose, difficulty breathing or other), even inside your home; keep the recommended distance of at least one meter between yourself and others; use a face mask to cover your mouth and nose when staying indoors, etc.) [2]. Neither the Ministry of Health or the Dr Milan Jovanovic Batut Institute for Public Health have social media pages. There is no evidence on the websites of the Ministry of Health and Institute for Public Health that the public health system has actively shared messages via online media platforms to inform the public about dispel rumors, misinformation, or disinformation [1, 3].

[1] "Dr. Milan Jovanovic Batut" Institute for Public Health. "Current Events—Infectious Diseases." [http://www.batut.org.rs/index.php?category_id=187] Accessed 23 July 2020.
[2] Ministry of Health. COVID-19. [https://covid19.rs/]. Accessed 23 July 2020.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 0

There is evidence that senior leaders (president or ministers) have shared misinformation or disinformation on infectious diseases (in the past two years). According to media, President of Serbia, visited the Department of Hematooncology of the Institute for the Protection of Maternal and Child Health during the flu season without wearing a protective mask [1]. In general terms, only during 2019, a minimum of 945 fake news items have been identified on the front pages of tabloids. However, there is no evidence that these fake news were related to misinformation or disinformation on infectious diseases [2]. However, during the COVID-19 outbreak, senior leaders were sharing misinformation and disinformation on COVID-19. The President of Serbia, Aleksandar Vucic, said, "Where you put alcohol, the coronavirus does not grow. I have now found myself an additional reason to drink one glass a day." Minister of Health, Zlatibor Loncar, said, "There is no reason to panic, the coronavirus is much weaker than the usual seasonal flu" [3,4].

[1] The British Broadcasting Corporation (BBC). 2019. "Vucic on a Hospital Visit: Who Can do Without a Mask During the Flu Season". [https://www.bbc.com/serbian/lat/svet-47303333]. Accessed 23 July 2020.
[2] Danas. 2020. "Screaming: At Least 945 Fake News on the Front Pages of Tabloids in 2019". [https://www.danas.rs/drustvo/raskrikavanje-najmanje-945-laznih-vesti-na-naslovnim-stranama-tabloida-u-2019/]. Accessed 23 July 2020.
[3] Danas. 2020. "Irresponsible Statements to Cheer the Public". [https://www.danas.rs/drustvo/neodgovorne-izjave-za-uveseljavanje-javnosti//]. Accessed 23 July 2020.
[4] Direktno. 2020. "Vucic 26.02: Virus is a Joke! Vucic 14.03: Many Will Die!". [https://direktno.rs/korona/259151/vucic-26-02-virus-smejurija-vucic-14-03-umrece-mnogi-video.html]. Accessed 23 July 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: 77.42

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: 96.37

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: 6.0

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: 10.0

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

There is evidence that Serbia has 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 in the past year. The World Trade Organization's (WHO) "COVID-19: Measures affecting trade in goods" list confirms that Serbia issued "Temporary export ban on medicines (for use in humans) (effective April 15, 2020, for 30 days) (HS 2844; 3002; 3003; 3004), due to the COVID-19 pandemic." Although this was lifted on April 24, 2020, there was a "temporary export ban on certain products (e.g., soaps, certain sanitary products, disinfectants, personal protective products) (HS Chapters 22; 28; 34; 38; 39; 40; 48; 62; 63; 90; 96), due to the COVID-19 pandemic. On May 1, 2020, exports of protective medical protective equipment to the European Union (EU) (HS 3926.00.00; 4015.90.00; 6210.10.92; 6307.90.98; 9004.90.10) exempted" Effective 13 April 2020, for 30 days. Certain products that were excluded from the ban were baby wipes (HS 3401. 11.00.00), toilet bowl cleaners, tabs for automatic dish washing and windscreen cleaners (HS 3402.90.90.00), masks wholly made of woven textile fabrics (HS 6307.90.98.00). The export ban was lifted on May 7, 2020 [1].

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

3.7.1b

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

Yes = 0 , No = 1

Current Year Score: 0

There is evidence that Serbia has issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g., food, textiles, etc) due to the outbreak of an infectious disease. The World Trade Organization's "COVID-19: Measures affecting trade in goods" list confirms that Serbia issued "Temporary export ban on certain products (e.g.,

sunflower oil, seed and crude oil, sugar beet molasses) due to the COVID-19 pandemic (maize export quota of 400,000 tonnes) (HS 1206.00.99; 1512.11.91; 1703.90.00; 1005.90.00)," which was effective April 13, 2020 for 30 days and lifted on 7 May 2020 [1].

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

3.7.2 Travel restrictions

3.7.2a

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

Yes = 0 , No = 1

Current Year Score: 1

In the past year, there is no evidence that Serbia has not implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak. On the websites of the Ministry of Health, Ministry of Foreign Affairs, Ministry of Interior, as well as Air Serbia, there is no information about such restrictions [1, 2, 3, 4]. In addition, the World Health Organization's (WHO) Disease Outbreak News and World Organization for Animal Health (OIE) Weekly disease information do not have a reference releted to a restriction on either the movement of people or the export/import of goods from another country, stating that was due to the risk posed by an infectious disease outbreak [5, 6].

[1] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Foreign Affairs. [http://www.mfa.gov.rs/en/about-the-ministry/about-the-ministry]. Accessed 23 July 2020.
[3] Ministry of Interior. [http://www.mup.gov.rs/wps/portal/en]. Accessed 23 July 2020.
[4] Air Serbia. [https://www.airserbia.com/sr-RS/?gclid=EAIaIQobChMIwr-ctYPr3wIVKyrTCh2xmglBEAAYASAAEgKTbvD_BwE]. Accessed 23 July 2020.
[5] World Health Organisation (WHO). Diseases Outbreak per Country. [https://www.who.int/csr/don/archive/country/en/]. Accessed 23 July 2020.
[6] World Organization for Animal Health (OIE) World Animal Health Information. "Weekly Disease Information". [https://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI]. Accessed 23 July 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: 311.31

2016

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 608.55

2016

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

Serbia does not have a public workforce strategy in place that has been updated in the past five years to identify fields where there is an insufficient workforce and provide strategies to address these shortcomings. Serbia's National Employment Strategy was adopted in 2011 (it covers the period lasting until 2020). The Strategy does not identify fields where there is an insufficient workforce, but it says that "potential and available human capital will be reduced, and the continuation of the process of demographic aging of the population will increase the direct pressure on important social protection systems, especially on the pension and health fund" [1]. Other relevant institutions, such as the National Employment Service and Ministry of Health, do not have any documents with identification of fields where there is an insufficient workforce or strategies to address such shortcomings [2,3]. However, according to recent media reports, thousands of nurses are leaving Serbia, and the health system may become severely strained if no solution is found [4]. The Government has stopped the program called "Triple Win" that was ensuring departure of nurses and technicians from Serbia to Germany. It has been also

anounced that the Government of Serbia will formally terminate the agreement with Germany according to which vacancies for jobs of medical workers from Serbia to that country were announced [5].

[1] Ministry of Labour, Employment, Veterans' and Social Affairs. "National Employment Strategy for Period 2011-2020 (Nacionalna strategija zapošljavanja za period 2011-2020)". [http://www.nsz.gov.rs/live/digitalAssets/0/302_nacionalna_strategija_zaposljavanja_2011-2020.pdf]. Accessed 23 July 2020.
[2] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] National Employment Service. "Documents". [http://www.nsz.gov.rs/live/dokumenti]. Accessed 23 July 2020.
[4] Mondo. 2019. "Why are Nurses Still Leaving Serbia, Despite the Salary Increase?". [https://mondo.rs/Info/Drustvo/a1240250/Razlozi-odlaska-medicinskog-osoblja-iz-Srbije.html]. Accessed 23 July 2020.
[5] Danas. 2020. "Djordjevic: The Competition for the Departure of Nurses and Technicians to Germany has been Stopped". [https://www.danas.rs/ekonomija/djordjevic-stopiran-konkurs-za-odlazak-medicinskih-sestara-i-tehnicara-u-nemacku/]. Accessed 23 July 2020.

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 561

2017

WHO/World Bank; national sources

4.1.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has 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. The Clinic for Infectious and Tropical Diseases of the Clinical Centre of Serbia, as well as Clinics for Infectious Diseases of the regional clinical centres (e.g., Kragujevac, Nis) deal with the treatment of patients with infectious diseases or persons suspected of infectious disease. However, on the websites of these clinics there are no information about their capacity to isolate patients with highly communicable diseases in a biocontainment patient care unit and/or patient isolation room/unit [1, 2, 3]. The websites of the Ministry of Health, Joint External Evaluation (JEE) of International Health Regulations (IHR) core capacities of the Republic of Serbia, and other media do not have information about 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 [4, 5].

[1] Clinical Center of Serbia. Clinic for Infectious and Tropical Diseases. [http://www.kcs.ac.rs/index.php/??/klinike-2/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.
[2] Clinical Center of Kragujevac. Clinic for Infectious Diseases. [https://www.kc-kg.rs/organizacija/klinike/klinika-za-

infektivne-bolesti]. Accessed 23 July 2020.
[3] Clinical Center of Nis. Clinic for Infectious Diseases. [http://www.kcnis.rs/index.php/klinike-klinickog-centra-nis/internisticke-grane/klinika-za-infektivne-bolesti]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

4.1.2c

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

Current Year Score: 1

There is evidence that Serbia has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years. The Clinic for Infectious and Tropical Diseases of the Clinical Centre of Serbia, as well as Clinics for Infectious Diseases of the regional clinical centres (e.g., Kragujevac, Nis) deal with the treatment of patients with infectious diseases or persons suspected of infectious disease. However, on the websites of these clinics there is no information about their capacity to expand isolation capacities in response to an infectious disease [1, 2, 3]. Further, in December 2020, the construction of a new hospital for COVID-19 patients was completed with seven different departments and capacity of 930 beds, primarily comprising intensive care units as COVID-19 cases surges; however, the media report did not provide further information on whether isolation capacity would increase as a result [4]. The websites of the Ministry of Health, Joint External Evaluation of the International Health Regulations (IHR) core capacities of the Republic of Serbia and media do not contain information 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 [5, 6].

[1] Clinical Center of Serbia. Clinic for Infectious and Tropical Diseases. [http://www.kcs.ac.rs/index.php/??/klinike-2/klinika-za-infektivne-i-tropske-bolesti]. Accessed 23 July 2020.
[2] Clinical Center of Kragujevac. Clinic for Infectious Diseases. [https://www.kc-kg.rs/organizacija/klinike/klinika-za-infektivne-bolesti]. Accessed 23 July 2020.
[3] Clinical Center of Nis. Clinic for Infectious Diseases. [http://www.kcnis.rs/index.php/klinike-klinickog-centra-nis/internisticke-grane/klinika-za-infektivne-bolesti]. Accessed 23 July 2020.
[4] Balkans Aljazeera. December 2020. "Serbia: New COVID Hospital Opened, Today the First Patients". [https://balkans.aljazeera.net/news/balkan/2020/12/4/srbija-otvorena-nova-covid-bolnica-danas-prvi-pacijenti]. Accessed 08 March 2021.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] World Health Organisation (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.

4.2 SUPPLY CHAIN FOR HEALTH SYSTEM AND HEALTHCARE WORKERS

4.2.1 Routine health care and laboratory system supply

4.2.1a

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

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

Current Year Score: 2

In Serbia, there is a national procurement protocol in place that can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory needs (such as equipment, reagents, and media) and medical supplies (equipment, PPE) for routine needs. The public procurement system, including the acquisition of laboratory needs and medical supplies, is regulated by the Law on Public Procurement. The Regulation on Planning and Type of Goods and Services for Which Centralized Public Procurement is Carried Out further regulates the process of planning the needs of institutions and its public procurement [1,2]. Information about ongoing and finished public procurement procedures, including the acquisition of laboratory needs and medical supplies, are available on the websites of respective institutions (for example, the "Dr. Milan Jovanovic Batut" Institute for Public Health and Veterinary Directorate, which is part of the Ministry of Agriculture). On the website of the Fund for Health Insurance, there is a list of goods, including medical supplies, that is procured centrally [3,4, 5]. Government institutions use a centralized public procurement portal for procurement of their needs [6]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia does not have a reference related to a national procurement protocol. According to the report, the vaccination program is mandatory and includes a central procurement mechanism and a quality-controlled delivery system [7].

[1] National Parliament. 2019. "Law on Public Procurement (Zakon o javnim nabavkama, Sl. gl. RS, br. 91/2019)". [https://www.paragraf.rs/propisi/zakon_o_javnim_nabavkama.html]. Accessed 23 July 2020.
[2] Ministry of Health. 2019. "Regulation on Planning and Type of Goods and Services for Which Centralized Public Procurement is Carried Out (Uredba o planiranju i vrsti roba i usluga za koje se sprovode centralizovane javne nabavke, Sl. gl. RS, br. 34/2019, 64/2019, 17/2020 i 21/2020)". [https://www.paragraf.rs/propisi/uredba_o_planiranju_i_vrsti_roba_i_usluga_za_koje_se_sprovode_centralizovane_javne_nabavke.html]. Accessed 23 July 2020.
[3] "Dr. Milan Jovanovic Batut" Institute for Public Health. "Public Procurement Procedures". [http://www.batut.org.rs/index.php?category_id=146] Accessed 23 July 2020.
[4] Veterinary Directorate. "Public Procurements". [https://www.vet.minpolj.gov.rs/srb/javnenabavke]. Accessed 8 March 2021.
[5] Serbian Fund for Health Insurance. "Public Procurements Managed Centrally". [https://www.javnenabavke.rfzo.rs/index.php/spisakjavnihnabavki]. Accessed 23 July 2020.
[6] Public Procurement Portal. [http://portal.ujn.gov.rs/]. Accessed 23 July 2020.
[7] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 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

There is evidence that Serbia has a stockpile of medical supplies (e.g., medical countermeasures (MCMs), medicines, vaccines, medical equipment, personal protective equipment (PPE)) for national use during a public health emergency. According to the Joint External Evaluation of the International Health Regulations (IHR) core capacities of the Republic of Serbia, there are sustainable reserves of MCMs in Serbia: vaccines, medicines, PPE for medical and veterinary response measures. The Republic Directorate for Commodity Reserves manages these reserves and performs state administration affairs and professional tasks related to organization of the commodity reserve system [1]. The Ordinance on Immunization and Medicinal Protection does not Regulate a Stockpile of Medical Supplies [2]. The Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Personal Protection at Work prescribes the minimum requirements that the employer is obliged to meet in ensuring the application of preventive measures when using means and equipment for personal protection at work. However, the Ordinance does not have any provisions related to health emergency situations. [3] According to the Ordinance on Immunization and Medicinal Protection (2018), Serbia is preparing a three-year plan of needs for vaccines and other medicines to keep national reserves in line with recommendations of the World Health Organization (WHO) [4]. However, during the COVID-19 outbreak, it came obvious that Serbia does not have test kits. Test kits were received mainly as donation from other countries [5, 6]. Furthermore, the websites of the Ministry of Health, Institute for Public Health, Medicines and Medical Devices Agency, and the Institute of Virology, Vaccines, and Sera "Torlak" do not contain information about a stockpile of medical supplies [7, 8, 9, 10].

[1] World Health Organisation (WHO). 2018. "Joint external evaluation of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1] Accessed 23 July 2020.
[2] Ministry of Health. 2018. "Ordinance on immunization and medicinal protection (Pravilnik o imunizaciji i nacinu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html] Accessed 23 July 2020.
[3] Ministry of Health. 2018. "Ordinance on preventive measures for safe and healthy work when using means and equipment for personal protection at work (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri koriš?enju sredstava i opreme za li?nu zaštitu, Sl. gl. RS, br. br. 92/2008 i 101/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_koriscenju_sredstava_i_opreme_za_licnu_zastitu_na_radu.html]. Accessed 23 July 2020.
[4] Ministry of Health. 2018. "Ordinance on immunization and medicinal protection (Pravilnik o imunizaciji i na?inu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 23 July 2020.
[5] Government of Serbia. 2020. "China donates two coronavirus laboratories to Serbia". [https://www.srbija.gov.rs/vest/en/153617/china-donates-two-coronavirus-laboratories-to-serbia.php] Accessed 23 July 2020.
[6] EU Delegation to Serbia. 2020. "Testing for COVID-19 Now Available in Nis Thanks to EU Support". [http://europa.rs/testing-for-covid-19-now-available-in-nis-thanks-to-eu-support/?lang=en]. Accessed 23 July 2020.
[7] Ministry of Health. [http://www.zdravlje.gov.rs/] Accessed 23 July 2020.
[8] Institute for Public Health "Dr. Milan Jovanovic Batut". "Current Events—Infectious Diseases". [http://www.batut.org.rs/index.php?category_id=187]. Accessed 23 July 2020.

[9] Medicines and Medical Devices Agency. [https://www.alims.gov.rs/ciril/]. Accessed 23 July 2020.
[10] Institute of Virology, Vaccines, and Sera "Torlak". [http://www.torlakinstitut.com/]. Accessed 23 July 2020.

4.2.2b

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

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

Current Year Score: 0

There is no evidence that Serbia has a stockpile of laboratory supplies (e.g., reagents, media) for national use during a public health emergency. The Ordinance on Immunization and Medicinal Protection does not regulate a stockpile of laboratory supplies for national use during a public health emergency [1]. The Ordinance on Preventive Measures for Safe and Healthy Work when Using Means and Equipment for Personal Protection at Work prescribes the minimum requirements that the employer is obliged to meet in ensuring the application of preventive measures when using means and equipment for personal protection at work. However, the Ordinance does not have any provisions related to health emergency situations [2]. According to the Joint External Evaluation (JEE)of the International Health Regulations (IHR) core capacities of the Republic of Serbia, there are sustainable reserves of medical countermeasures (MCMs) in Serbia: vaccines, medicines, personal protective equipment (PPE) for medical and veterinary response measures. The Republic Directorate for Commodity Reserves manages these reserves and performs state administration affairs and professional tasks related to organization of the commodity reserve system [3]. The websites of the Ministry of Health and Institute for Public Health do not provide information regarding a stockpile of laboratory supplies for national use during a public health emergency [4, 5].

[1] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Protection (Pravilnik o imunizaciji i na?inu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 23 July 2020.
[2] Ministry of Health. 2018. "Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Personal Protection at Work (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri koriš?enju sredstava i opreme za li?nu zaštitu, Sl. gl. RS, br. br. 92/2008 i 101/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_koriscenju_sredstava_i_opreme_za_licnu_zastitu_na_radu.html]. Accessed 23 July 2020.
[3] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] "Dr. Milan Jovanovic Batut" Institute for Public Health "Current Events—Infectious Diseases". [http://www.batut.org.rs/index.php?category_id=187]. Accessed 23 July 2020.

4.2.2c

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

Yes = 1, No = 0

Current Year Score: 0

There is no evidence that Serbia conducts or requires an annual review of the national stockpile to ensure the supply is sufficient for a public health emergency. The Ordinance on Immunization and Medicinal Protection does not regulate a

stockpile of medical supplies [1]. According to the Ordinance on Immunisation and Medicinal Protection (2018), Serbia was preparing a three-year plan of needs for vaccines and other medicines to keep national reserves in line with recommendations of the World Health Organization (WHO) but no more recent information is available in this regard [2]. Furthermore, the websites of the Ministry of Health, Institute for Public Health, Medicines and Medical Devices Agency, and the Institute of Virology, Vaccines, and Sera "Torlak," and Joint External Evaluation (JEE) ofthe International Health Regulations (IHR) core capacities of the Republic of Serbia do not provide information about an annual review of the national stockpile to ensure that the supply is sufficient for a public health emergency [3, 4, 5, 6].

[1] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Pprotection (Pravilnik o imunizaciji i nacinu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 08 March 2021.
[2] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Protection". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 8 March 2021.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 8 March 2021.
[4] "Dr. Milan Jovanovic Batut" Institute for Public Health. Current Events—Infectious Diseases". [http://www.batut.org.rs/index.php?category_id=187]. Accessed 8 March 2021.
[5] Medicines and Medical Devices Agency. [https://www.alims.gov.rs/ciril/]. Accessed 8 March 2021.
[6] Institute of Virology, Vaccines, and Sera "Torlak". [http://www.torlakinstitut.com/]. Accessed 8 March 2021.
[7] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 8 March 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: 1

There is no evidence that Serbia has a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies (e.g., medical countermeasures (MCMs), medicines, vaccines, equipment, personal protective equipment (PPE)) for national use during a public health emergency. However, there is evidence that Serbia has a plan/mechanism to procure medical supplies (e.g., MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency.

According to Article 6 of the 2016 Law on Protection of Population from Infectious Diseases, at the proposal of the Minister of Health, the Government determines the need of the Republic of Serbia for the procurement of goods, services, and works in order to prevent and suppress this infectious disease [1]. The 2018 Ordinance on Immunization and Medicinal Protection does not regulate the production of medical supplies (e.g., MCMs, medicines, vaccines, equipment, PPE) for national use during a public health emergency [2]. Moreover, the 2018 Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Ppersonal Protection at Work prescribes the minimum requirements that the employer is obliged to meet in ensuring the application of preventive measures when using means and equipment for personal protection at work. However, the Ordinance does not have any provisions related to health emergency situations

[3]. The Institute “Torlak” is engaged in the production of vaccines, sera, and other immunobiological and diagnostic preparations. However, there is no information about a plan/agreement to leverage domestic manufacturing capacity to produce medical supplies on their website [4]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia published in 2018 and websites of the Ministry of Health and Institute for Public Health do not have information about these plans/mechanisms [5, 6, 7]. During the COVID-19 outbreak, the Government initiated the financing of innovative projects of the company whose goal is to suppress the effects of the pandemic caused by the coronavirus. These projects included production of equipment, PPE, etc. [8]. In addition, during the COVID-19 outbreak, the procurement of medical supplies was done in the form of donation from other countries or direct supply by the Government [9, 10, 11].
Serbia has been part of the European Union (EU) Joint Procurement Agreement for Medical Countermeasures, which ensures that member states have access to medical countermeasures from abroad if necessary when a serious cross-border threat to health is registered. The agreement aims to "secure more equitable access to specific medical countermeasures and improved security of supply" as well as balancing prices for EU member states. It is also designed to ensure acquisition of vaccines, antivirals, and medical countermeasures for serious cross-border threats to health [12].

[1] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 07 January 2019.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Protection (Pravilnik o imunizaciji i nacinu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)".
[https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 23 July 2020.
[3] Ministry of Health. 2018. "Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Personal Pprotection at Work (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri korišcenju sredstava i opreme za licnu zaštitu, Sl. gl. RS, br. br. 92/2008 i 101/2018)".
[https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_koriscenju_sredstava_i_opreme_za_licnu_zastitu_na_radu.html]. Accessed 23 July 2020.
[4] The Institute of Virology, Vaccines, and Sera “Torlak”.
[http://www.torlakinstitut.com/en/page/21/Background+Information]. Accessed 23 July 2020.
[5] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".
[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[6] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[7] "Dr. Milan Jovanovic Batut"Institute for Public Health. "Current Events—Infectious Diseases".
[http://www.batut.org.rs/index.php?category_id=187]. Accessed 23 July 2020.
[8] PC PRESS. 2020. "The Government of Serbia Supported 12 Solutions for Suppressing the Effect of the COVID-19 Pandemic". [https://pcpress.rs/vlada-srbije-podrzala-12-resenja-za-suzbijanje-efekta-pandemije-covid-19/]. Accessed 23 July 2020.
[9] Government of Serbia. 2020. "China Donates Two Coronavirus Laboratories to Serbia".
[https://www.srbija.gov.rs/vest/en/153617/china-donates-two-coronavirus-laboratories-to-serbia.php]. Accessed 23 July 2020.
[10] EU Delegation to Serbia. 2020. "Testing for COVID-19 Now Available in Nis Thanks to EU Support".
[http://europa.rs/testing-for-covid-19-now-available-in-nis-thanks-to-eu-support/?lang=en]. Accessed 23 July 2020.
[11] CINS. 2020. "Medical Equipment and RHIF: A Secret Conclusion of the Government and Invisible Procurement".
[https://www.cins.rs/medicinska-oprema-i-rfzo-tajni-zakljucak-vlade-i-nevidljive-nabavke/] Accessed 23 July 2020.
[12] European Commission. "Joint Procurement Of Medical Countermeasures".

[https://ec.europa.eu/health/preparedness_response/joint_procurement_en]. Accessed 3 September 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 that Serbia has a plan/agreement to leverage domestic manufacturing capacity to produce laboratory supplies (e.g., reagents, media) for national use during a public health emergency or a plan/mechanism to procure laboratory supplies (e.g., reagents, media) for national use during a public health emergency. According to Article 6 of the Law on Protection of Population from Infectious Diseases, at the proposal of the Minister of Health, the Government determines the need of the Republic of Serbia for the procurement of goods, services, and works in order to prevent and suppress this infectious disease [1]. The Ordinance on Immunization and Medicinal Protection does not regulate laboratory supplies for national use during a public health emergency [2]. Moreover, the Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Personal Protection at Work prescribes the minimum requirements that the employer is obliged to meet in ensuring the application of preventive measures when using means and equipment for personal protection at work. However, the Ordinance does not have any provisions related to health emergency situations [3]. The Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia and websites of the Ministry of Health and Institute for Public Health do not have information about these plans/mechanisms [4, 5, 6]. During the COVID-19 outbreak, the Government initiated financing of innovative projects of the company whose goal is to suppress the effects of the pandemic caused by the coronavirus. These projects included production of equipment, PPE, equipment used by laboratory workers, etc. [7]. In addition, during the COVID-19 outbreak, procurement of laboratory supplies was done in the form of donation from other countries or direct supply by the government [8, 9, 10].

[1] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 07 January 2019.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[2] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Protection (Pravilnik o imunizaciji i nacinu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)".
[https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 23 July 2020.
[3] Ministry of Health. 2018. "Ordinance on Preventive Measures for Safe and Healthy Work When Using Means and Equipment for Personal Protection at Work (Pravilnik o preventivnim merama za bezbedan i zdrav rad pri korišcenju sredstava i opreme za licnu zaštitu, Sl. gl. RS, br. br. 92/2008 i 101/2018)".
[https://www.paragraf.rs/propisi/pravilnik_o_preventivnim_merama_za_bezbedan_i_zdrav_rad_pri_koriscenju_sredstava_i_opreme_za_licnu_zastitu_na_radu.html]. Accessed 23 July 2020.
[4] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia".
[https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[5] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] "Dr. Milan Jovanovic Batut" Institute for Public Health. "Current Events—Infectious Diseases".
[http://www.batut.org.rs/index.php?category_id=187] Accessed 23 July 2020.

[7] PC PRESS. 2020. "The Government of Serbia supported 12 solutions for suppressing the effect of the COVID-19 pandemic". [https://pcpress.rs/vlada-srbije-podrzala-12-resenja-za-suzbijanje-efekta-pandemije-covid-19/]. Accessed 23 July 2020.
[8] Government of Serbia. 2020. "China Donates Two Coronavirus Laboratories to Serbia". [https://www.srbija.gov.rs/vest/en/153617/china-donates-two-coronavirus-laboratories-to-serbia.php]. Accessed 23 July 2020.
[9] EU Delegation to Serbia. 2020. "Testing for COVID-19 now Available in Nis Thanks to EU Support". [http://europa.rs/testing-for-covid-19-now-available-in-nis-thanks-to-eu-support/?lang=en]. Accessed 23 July 2020.
[10] CINS. 2020. "Medical Equipment and RHIF: A Secret Conclusion of the Government and Invisible Procurement". [https://www.cins.rs/medicinska-oprema-i-rfzo-tajni-zakljucak-vlade-i-nevidljive-nabavke/]. Accessed 23 July 2020.

4.3 MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

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

4.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has a plan, program, or guidelines in place for dispensing medical countermeasures (MCMs) for national use during a public health emergency. According to the Joint External Evaluation of the International Health Regulations (IHR) core capacities of the Republic of Serbia, there is no defined plan for sending and receiving medical countermeasures during public health emergencies [1]. According to the Ordinance on Immunisation and Medicinal Protection, Serbia is preparing a three-year plan of needs for vaccines and other medicines and is keeping national reserves in line with recommendations of the World Health Organization (WHO) [2]. Article 51 of the Law on Protection of Population from Infectious Diseases defines measures in case of emergency situations [3]. However, these documents, as with the websites of the Ministry of Health, the Agency for Medicines and Medical devices, and the Torlak Institute of Virology, Vaccines, and Sera do not refer directly to dispensing medical countermeasures for national use during a public health emergency [4,5].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation of IHR Core Capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 123 July 2020.
[2] Ministry of Health. 2018. "Ordinance on Immunization and Medicinal Protection (Pravilnik o imunizaciji i na?inu zaštite lekovima, Sl. gl. RS, br. 88/2017, 11/2018, 14/2018, 45/2018, 48/2018, 58/2018 i 104/2018)". [https://www.paragraf.rs/propisi/pravilnik_o_imunizaciji_i_nacinu_zastite_lekovima.html]. Accessed 23 July 2020.
[3] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 07 January 2019.
[3] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Agency for Medicines and Medical Devices. [https://www.alims.gov.rs/ciril/]. Accessed 23 July 2020.
[5] Torlak Institute of Virology, Vaccines, and Sera. [http://www.torlakinstitut.com/en/page/21/Background+Information].

Accessed 23 July 2020.

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

4.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence of a public plan in place to receive health personnel from other countries to respond to a public health emergency. The Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations regulates, among other things, emergency management, civil protection, early warning, alerting, international co-operation, inspection, and supervision. Public health emergencies are included in this law as a possible form of natural disaster. Articles 102–104 elaborate on what is considered as international co-operation and how it is implemented. Article 104 states that the procedure and conditions under which international assistance is received or sent is prescribed by the government. However, the law does not detail a plan to receive health personnel from other countries to respond to a public health emergency [1]. The websites of the Government of Serbia, the Ministry of Interior and the Ministry of Health contain no further evidence on this [2,3,4].

[1] National Parliament. 2018. "Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[2] Government of Serbia. "Documents". [https://www.srbija.gov.rs/dokumenti/2430]. Accessed 23 July 2020.
[3] Ministry of Interior. Department for Emergency Situations. "Legislation". [http://prezentacije.mup.gov.rs/svs/HTML/zakonska%20regulativa.html]. Accessed 23 July 2020.
[4] Ministry of Health. [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 3

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 98.4

2014

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: 577.09

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 evidence that the Government of Serbia 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. Based on a review of the National Strategy for Protection and Rescue in case of Emergency Situations, the Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations, the Law on Protection of Population from Infectious Diseases, the Law on Health Protection, and by-laws and Ordinances related to civil protection, as well as the websites of the Ministry of Interior and Ministry of Health, there are no references related to prioritisation of healthcare services to healthcare workers who become sick as a result of responding to a public health emergency [1,2,3,4,5,6].

[1] National Parliament. 2011. "National Strategy for Protection and Rescue in Case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[2] National Parliament. 2018. "Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[3] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[4] National Parliament. 2017. "Law on Health Protection (Zakon o zadravstvenoj zaštiti, Sl. gl. RS, br. br. 107/2005, 72/2009 - dr. zakon, 88/2010, 99/2010, 57/2011, 119/2012, 45/2013 - dr. zakon, 93/2014, 96/2015, 106/2015, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_zdravstvenoj_zastiti.html]. Accessed 23 July 2020.
[5] Ministry of Interior. Department for Emergency Situations. "Legislation". [http://prezentacije.mup.gov.rs/svs/HTML/zakonska%20regulativa.html]. Accessed 23 July 2020.
[6] Ministry of Health. Department for Emergency Situations. "Legislation". [http://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

4.5 COMMUNICATIONS WITH HEALTHCARE WORKERS DURING A PUBLIC HEALTH EMERGENCY

4.5.1 Communication with healthcare workers

4.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Serbia has a system in place for public health officials and healthcare workers to communicate during a public health emergency.

According to the Joint External Evaluation (JEE) of the International Health Regulations (IHR) core capacities of the Republic of Serbia published in 2018, government laws, regulations, and procedures exist that define the obligations and procedures of various entities in the system of early warning and response to public health threats. Communications are included in the Law on Emergency Situations, and a National Strategy for Protection and Rescue in Emergencies defines obligations and procedures of various entities in the system of early warning and response to public health threats. The health sector has action and response plans that include communications to respond to disease outbreaks and natural and other health emergencies for the territory under its jurisdiction. In addition, the JEE notes that "formal and informal communication and co-ordination mechanisms exist but with limited partner and stakeholder engagement (such as health care workers, civil society organizations, private sector, and other non-state actors), which particularly impacts subnational emergency response efforts to disease outbreaks, including the West Nile virus. A communication capacity mapping of all relevant stakeholders must be considered and a working group convened to update roles and responsibilities, joint action plans, share resources, and test standard operating procedures (SOPs) for risk communication preparedness, readiness, and response" [1]. However, there is no explicit evidence of a two-way communication system between public health officials and

healthcare workers.

According to the 2011 National Strategy for Protection and Rescue in case of Emergency Situations, in case of a public health emergency Ministry of Health established a joint bodies and operational team for different purposes, including communication [2].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[2] National Parliament. 2011. "National Strategy for Protection and Rescue in Case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 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 no evidence that plans for public health officials and healthcare workers to communicate during a public health emergency incorporate the private sector. According to the Joint External Evaluation (JEE) of International Health Regulations (IHR) core capacities of the Republic of Serbia, published in 2018, formal and informal communication and co-ordination mechanisms exist, but with limited engagement of partners and stakeholders (such as healthcare workers, civil society organizations, private sector, and other non-state actors), which particularly impacts subnational emergency response efforts to disease outbreaks, including the West Nile virus [1]. Moreover, no evidence of private sector participation is found based on a review of the 2011 National Strategy for Protection and Rescue in case of Emergency Situations, the 2018 Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations, 2016, the Law on Protection of Population from Infectious Diseases, 2017, the Law on Health Protection, by-laws, and Ordinances related to civil protection, and the websites of the Ministry of Interior and Ministry of Health [2,3,4,5,6,7].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[2] National Parliament. 2011. "National Strategy for Protection and Rescue in case of Emergency Situations (Nacionalnu strategiju zaštite i spasavanja u vanrednim situacijama, Sl. gl. RS, br. 86/2011)". [http://arhiva.mup.gov.rs/cms_lat/sadrzaj.nsf/Nacionalna_strategija_zastite_i_spasavanja_u_vanrednim_situacijama_lat.pdf] . Accessed 23 July 2020.
[3] National Parliament. 2018. "Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[4] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)". [https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[5] National Parliament. 2017. "Law on Health Protection (Zakon o zadravstvenoj zaštiti, Sl. gl. RS, br. br. 107/2005, 72/2009 -

dr. zakon, 88/2010, 99/2010, 57/2011, 119/2012, 45/2013 - dr. zakon, 93/2014, 96/2015, 106/2015, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_zdravstvenoj_zastiti.html]. Accessed 23 July 2020.
[6] Ministry of Interior. Department for Emergency Situations. "Legislation". [http://prezentacije.mup.gov.rs/svs/HTML/zakonska%20regulativa.html]. Accessed 23 July 2020.
[7] Ministry of Health. Department for Emergency Situations. "Legislation". [http://www.zdravlje.gov.rs/]. Accessed 23 July 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

There is evidence of the national public health system monitoring for and tracking the number of healthcare-associated infections (HCAIs) that take place in healthcare facilities. According to the Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia, published in 2018, surveillance of hospital infections at the national level was initiated in 2001 and national prevalence studies have been conducted [1]. The 2013 Ordinance on Early Detection and Prevention of Hospital Inspections prescribes measures to prevent the occurrence and secure early detection and suppression of hospital infections [2]. In November 2017, the Fourth National Study of the Prevalence of Hospital Infections and Antibiotic Consumption began in all hospitals in Serbia, organised by the Ministry of Health in co-operation with the Expert Commission for the Control of Hospital Infections, the "Dr. Milan Jovanovic Batut" Institute for Public Health, and a network of public health institutes. The study was conducted to assess the frequency of hospital infections, their causative agents, and the consumption of antibiotics as well as to plan further activities toward their prevention [3]. Information regarding the number of HCAIs that take place in healthcare facilities is available on the website of the Ministry of Health through summary of the above-mentioned study (Fourth National Study of the Prevalence of Hospital Infections and Antibiotic Consumption) [4].

[1] World Health Organization (WHO). 2018. "Joint External Evaluation (JEE) of IHR core capacities of the Republic of Serbia". [https://apps.who.int/iris/bitstream/handle/10665/311186/WHO-WHE-CPI-2019.36-eng.pdf?sequence=1]. Accessed 23 July 2020.
[2] Ministry of Health. 2013. "Ordinance on Prevention, Early Detection and Prevention of Hospital Inspections (Pravilnik o spre?avanju, ranom otkrivanju i suzbijanju bolni?kih infekcija, Sl. gl. RS, br. 101/2013)". [http://demo.paragraf.rs/demo/combined/Old/t/t2013_11/t11_0196.htm]. Accessed 23 July 2020.
[3] Institute for Public Health of Vojvodina. Preparation of the Fourth National Study of the Prevalence of Hospital Infections and Antibiotic Consumption. [http://izjzv.org.rs/?lng=&cir=&link=3-15-562]. Accessed 23 July 2020.
[4] Ministry of Health. The Third National Study of the Prevalence of Hospital Infections and Antibiotic Consumption. [http://www.zdravlje.gov.rs/downloads/2011/Oktobar/Oktobar2011NacionalnaStudijaPrevalencijeBolnickihInfekcijaProfdrLjiljanaMarkovicDenic.pdf]. Accessed 23 July 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

There is a national requirement for ethical review before beginning a clinical trial. Section 4 of the Law on Medicines and Medical Devices in section 4 regulates clinical trials. Articles 73 and 74 mandate ethical review from an Ethic Committee before a clinical trial begins. According to Article 3, the Agency for Medicines and Medical Devices is responsible for issuing licenses for conducting clinical trials of medicines and medicinal products as well as deciding on amending or supplementing the license on the implementation of a trial, making decisions regarding the notification of a clinical trial, and conducting control of the implementation of the trial [1].

[1] National Parliament. 2017. "Law on Medicines and Medical Devices (Zakon o lekovima i medicinskim sredstvima, Sl. gl. RS, br. 30/2010, 107/2012, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_lekovima_i_medicinskim_sredstvima.html]. Accessed 23 July 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: 1

In Serbia, there is evidence that the government may be able to implement an expedited approval process for clinical trials during public health emergencies. According to Article 206 of the Law on Medicines and Medical Devices, in the event of an epidemic or an epizootic, as well as in other emergency situations, in order to prevent the occurrence of severe consequences for the health of the population or animals, the Government may outline different procedures and conditions for approving clinical trials, approving and licensing medicines, and other related approvals [1]. No further information on this procedure is available either through the Law or through the websites of the Ministry of Health and Ministry of Education, Science, and Technological Development [2, 3].

[1] National Parliament. 2017. "Law on Medicines and Medical Devices (Zakon o lekovima i medicinskim sredstvima, Sl. gl. RS, br. 30/2010, 107/2012, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_lekovima_i_medicinskim_sredstvima.html]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Education, Science, and Technological Development. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.

4.7.2 Regulatory process for approving medical countermeasures

4.7.2a

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

Yes = 1 , No = 0

Current Year Score: 1

There is a government agency responsible for approving new medical countermeasures for humans. The Medicines and Medical Devices Agency was founded by the Law on Medicines and Medical Devices [1]. The agency is in charge of issuing marketing authorization for medicinal products and medical devices; performing laboratory quality control of medicinal products and medical devices; issuing authorization for clinical trials of medicinal products and medical devices, and controlling the conduct of clinical trials; monitoring adverse reactions of medicinal products and medical devices; issuing certificates on compliance with guidelines on Good Manufacturing Practice, Good Laboratory Practice, and Good Clinical Practice in clinical trials of medicinal products and medical devices; authorizing the import of non-registered medicinal products and medical devices for the treatment of a particular patient or group of patients and medicinal products and medical devices for scientific research; classification of medicinal products and medical devices; collecting and processing statistical data on trade and consumption of medicinal products and medical devices; providing information and promotion of rational use of medicinal products and medical devices; integration into international networks of information on medicinal products and medical devices; and integration into international agencies and associations [2].

[1] National Parliament. 2017. "Law on Medicines and Medical Devices (Zakon o lekovima i medicinskim sredstvima, Sl. gl. RS, br. 30/2010, 107/2012, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_lekovima_i_medicinskim_sredstvima.html]. Accessed 23 July 2020.
[2] Medicines and Medical Devices Agency of Serbia. "Function and Activities". [https://www.alims.gov.rs/eng/about-agency/function-and-activities/]. Accessed 23 July 2020.

4.7.2b

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

Yes = 1 , No = 0

Current Year Score: 1

In Serbia, there is evidence that the government may be able to implement an expedited approval process for medical countermeasures during public health emergencies. According to Article 206 of the Law on Medicines and Medical Devices, in the event of an epidemic or an epizootic, as well as in other emergency situations, in order to prevent the occurrence of severe consequences for the health of the population or animals, the Government may outline different procedures and conditions for approving and licensing medicines, approving clinical trials and other related approvals [1]. No further information on this procedure is available either through the Law or through the websites of the Ministry of Health and Ministry of Education, Science, and Technological Development [2, 3].

[1] National Parliament. 2017. "Law on Medicines and Medical Devices (Zakon o lekovima i medicinskim sredstvima, Sl. gl. RS, br. 30/2010, 107/2012, 113/2017 - dr. zakon i 105/2017)". [https://www.paragraf.rs/propisi/zakon_o_lekovima_i_medicinskim_sredstvima.html]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 07 January 2019.
[3] Ministry of Education, Science, and Technological Development. [http://www.mpn.gov.rs/]. Accessed 23 July 2020.

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Serbia has a national risk reduction strategy that integrates pandemics, or a standalone national disaster risk reduction strategy for pandemics. Serbia has a Plan of Activities Before and During Flu Pandemic, which details planning and co-ordination; monitoring and assessment; prevention and suppression; and activities in the health system and communication in pre-pandemic period, pandemic preparedness period, pandemic period and its finishing. But this document refers to the flu pandemic only [1]. The websites of the Ministry of Health and Ministry of Interior do not have further information regarding a national risk reduction strategy [2,3].

[1] Ministry of Health. 2005. "Plan of Activities Before and During Flu Pandemic (Plan aktivnosti pre i u toku pandemije gripa)". [http://www.zdravlje.gov.rs/downloads/Zakoni/Pandemija%20Gripa/Plan%20Aktivnosti%20Pre%20I%20U%20Toku%20Pandemije%20Gripa.pdf]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Interior. [http://www.mup.gov.rs/wps/portal/sr/]. Accessed 23 July 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

Serbia has cross-border agreements with neighboring countries with regard to public health emergencies and there is no evidence of gaps in implementation. Apart from European Union (EU) Member States, Serbia—in addition to Iceland, Montenegro, Norway, Bosnia and Herzegovina, North Macedonia, and Turkey—can benefit from the EU Civil Protection Mechanism. The Mechanism was set up to enable co-ordinated assistance from the participating states to victims of natural and man-made disasters in Europe and elsewhere, including public health emergencies. EU's Civil Protection Mechanism was activated by Serbia to help cope with refugee influx and COVID-19 [1,2,3]. In addition, Serbia has signed bilateral agreements in the field of emergency situations and disasters with Bosnia and Herzegovina and Montenegro [4]. However, in the agreements that are publicly available, such as agreements with Bosnia and Herzegovina, public health emergencies are not explicitly mentioned, although other types of disasters (such as earthquakes and radiological hazards) are included [5].

[1] European Commission. "EU Civil Protection Mechanism". [http://ec.europa.eu/echo/what/civil-protection/mechanism_en]. Accessed 23 July 2020.
[2] Delegation of the European Union to the Republic of Serbia."EU's Civil Protection Mechanism Activated by Serbia to Help Cope with Refugee Influx". [http://europa.rs/eus-civil-protection-mechanism-activated-by-serbia-to-help-cope-with-refugee-influx/?lang=en]. Accessed 23 July 2020.
[3] Delegation of the European Union to the Republic of Serbia."First Ever Delivery of the New EU RescEU Stockpile of Medical Equipment to Serbia: 10,000 High Quality Masks". [http://europa.rs/first-ever-delivery-of-the-new-eu-resceu-stockpile-of-medical-equipment-to-serbia-10000-high-quality-masks/?lang=en]. Accessed 23 July 2020.
[3] Vademecum—Civil Protection. "Serbia—Country profile". [http://ipacivilprotection.eu/serbia.html]. Accessed 23 July 2020.
[4] National Parliament. 2010. "The Law Confirming Agreement between the Government of Serbia and the Council of the Ministries of Bosnia and Herzegovina on Co-operation in Protection from Natural and Other Disasters (Zakon o potvrdjivanju sporazuma izmedju Vlade Republike Srbije i Saveta ministara Bosne i Hercegovine o saradnji u zaštiti od prirodnih i drugih katastrofa)". [http://www.parlament.gov.rs/upload/archive/files/lat/pdf/predlozi_zakona/3509-17%20-%20Lat..pdf]. Accessed 23 July 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

Serbia has cross-border agreements with neighboring countries, or as part of a regional group, with regard to animal health emergencies, and there is no evidence of gaps in implementation. In 2010, Serbia signed the International Agreement on Co-

operation in Relation to Veterinary with Bosnia and Herzegovina, which includes activities related to animal health emergencies. The primary goal of this initiative is more effective control and prevention of infectious diseases in people and animals, both in the territory of the signatory and in the whole region. The envisaged co-operation activities include bilateral exchange of reports on the status of infectious animal diseases, and continuous exchange of reports on any eventual occurrence of infectious diseases, in particular zoonosis [1]. In addition, Serbia has signed bilateral agreements within the field of emergency situations and disasters with Bosnia and Herzegovina and Montenegro [2]. One of the agreements that is publicly available, the "Agreement between Government of Serbia and Government of Montenegro on Veterinary Affairs" also includes cooperation between the states in issues related to animal health emergencies. The agreement envisages that two sides will, within 24 hours, inform other side on the occurrence of contagious animal diseases in accordance with the method of reporting the occurrence of a disease prescribed by the World Organization for Animal Health (OIE). Moreover, the two sides will provide mutual assistance in the production and procurement of the necessary means for the suppression of diseases and the treatment of animals [3,4]. There is no evidence of gaps in implementation on the website of the Ministry of Agriculture [5].

[1] Parliament of Serbia. 2010. "Agreement on Co-operation in Relation to Veterinary Between Bosnia and Herzegovina and the Republic of Serbia (Zakon o potvrdjivanju sporazuma izmedju vlade Republike Srbije i Savjeta ministara Bosne i Hercegovine o veterinarskoj saradnji, ("Sl. glasnik RS - Me?unarodni ugovori", br. 1/2011)". [http://demo.paragraf.rs/demo/combined/Old/t/t2011_04/t04_0079.htm]. Accessed 23 July 2020.
[2] Vademecum—Civil Protection. "Serbia—Country profile". [http://ipacivilprotection.eu/serbia.html]. Accessed23 July 2020.
[3] National Parliament. 2010. "The Law Confirming Agreement Between the Government of Serbia and the Council of the Ministries of Bosnia and Herzegovina on Co-operation in Protection from Natural and Other Disasters (Zakon o potvrdjivanju sporazuma izmedju Vlade Republike Srbije i Saveta ministara Bosne i Hercegovine o saradnji u zaštiti od prirodnih i drugih katastrofa)". [http://www.parlament.gov.rs/upload/archive/files/lat/pdf/predlozi_zakona/3509-17%20-%20Lat..pdf]. Accessed 23 July 2020.
[4] Government of Montenegro. 2012. "Agreement Between Government of Serbia and Government of Montenegro on Veterinary Affairs (Sprazum izmedju Vlade Republike Srbije i Vlade Crne Gore u oblasti veterine)". [http://www.gov.me/ResourceManager/FileDownload.aspx?rid=116181&rType=2&file=10_87_08_11_2012.pdf&alphabet=cyr]. Accessed 07 January 2021.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 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: 0

2021

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

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

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

5.4.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2021

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

5.4.1b

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

Yes = 1 , No = 0

Current Year Score: 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 clear evidence that Serbia has allocated national funds to improve capacity to address epidemic threats within the past three years. In the national budget of Serbia, there are funds allocated to improve capacity to address emergency situations. However, there is no information that these allocations include also epidemic threats [1, 2, 3]. There is no further information about allocated national funds to improve capacity to address epidemic threats within the past three years on the websites of the Ministry of Health, Ministry of Agriculture and Institute for Public Health [4, 5, 6].

[1] Ministry of Finance. 2018. "Law on Budget for 2019 (Zakon o budžetu za 2019. godinu)". [https://www.mfin.gov.rs/UserFiles/File/zakoni/2018/Zakon%20o%20budzetu%20za%202019%20godinu.pdf]. Accessed 23 July 2020.
[2] Ministry of Finance. 2017. "Law on Budget for 2018 (Zakon o budžetu za 2018. godinu)". [https://mfin.gov.rs/UserFiles/File/zakoni/2017/Zakon%20o%20budzetu%202018.pdf]. Accessed 23 July 2020.
[3] Ministry of Finance. 2016. "Law on Budget for 2017 (Zakon o budžetu za 2017. godinu)". [http://www.parlament.gov.rs/upload/documents/3081-16.pdf]. Accessed 23 July 2020.
[4] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[5] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[6] "Dr Milan Jovanovic Batut" Institute for Public Health. [http://www.batut.org.rs/index.php?category_id=143]. Accessed 23 July 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 that Serbia has special emergency public financing mechanism or funds that the country can access in the face of a public health emergency. According to the Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations, planning of funds related to emergency situations is ensured through regular planning of the state budget, including the budgets of the Autonomous Province of Vojvodina and local self-governments [1]. The national budget for 2019 has allocation for the Budgetary Fund for Emergency Situations. However, there is no additional information to confirm that these funds are also allocated for public health emergencies as one form of the emergency situations [2]. The websites of the Ministry of Health and Ministry of Interior do not have additional information about special emergency public financing mechanisms or funds that the country can access in the face of a public health emergency [3, 4]. Serbia is not eligible for the Pandemic Emergency Financing Facility financed by the World Bank [5].

[1] National Parliament. 2018. "Law on Reducing Risks from Catastrophes and Management in case of Emergency Situations (Zakon o smanjenju rizika od katastrofa i upravljanju vanrednim situacijama, Sl. gl. RS, br. 87/2018)". [https://www.paragraf.rs/propisi/zakon-o-smanjenju-rizika-od-katastrofa-i-upravljanju-vanrednim-situacijama.html]. Accessed 23 July 2020.
[2] Ministry of Finance. 2018. "Law on Budget for 2019 (Zakon o budžetu za 2019. godinu)". [https://www.mfin.gov.rs/UserFiles/File/zakoni/2018/Zakon%20o%20budzetu%20za%202019%20godinu.pdf]. Accessed 23 July 2020.
[3] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Interior. [http://www.mup.gov.rs/wps/portal/sr/]. Accessed 23 July 2020.
[5] World Bank. "Pandemic Emergency Financing Facility". [http://www.worldbank.org/en/topic/pandemics/brief/pandemic-

emergency-financing-facility]. Accessed 23 July 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 insufficient evidence that senior leaders (president or ministers) in Serbia have made a public commitment either to support other countries to improve capacity to address epidemic threats by providing financing or support in the past three years, or to improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity during the same period. However, there is evidence of support for response efforts. Based on a review of media outlets, Serbian President Aleksandar Vucic said on April 25, 2020 that medical supplies sent by Belgrade to Italy, due to the COVID-19 pandemic, were a way for Serbia to thank Italy for assisting and supporting the country earlier [1]. The president also anounced supply of respirators and other equipment in order to fight COVID-19 [2]. Before the COVID-19 pandemic, there is no evidence that senior leaders (president or ministers) in Serbia have made a public commitment either to support other countries to improve capacity to address epidemic threats by providing financing or support in the past three years, or to improve its own domestic capacity to address epidemic threats by expanding financing or requesting support to improve capacity during the same period. Based on a review of media outlets, no evidence in this regard can be found on the websites of the Ministry of Health and Ministry of Foreign Affairs, as well as the World Health Organization (WHO), and the United Nations (UN) in Serbia. [3, 4, 5, 6].

[1] EURACTIV. 2020. "Vucic: 'Italy has Always Offered Open Support to Serbia on its Path to the EU". [https://www.euractiv.com/section/all/short_news/vucic-italy-has-always-offered-open-support-to-serbia-on-its-path-to-the-eu/]. Accessed 23 July 2020.
[2] BLIC. 2020. "Vu?i?: The Work on the Procurement of Respirators and Equipment is Coming to an End". [https://www.blic.rs/vesti/politika/vucic-rad-na-nabavci-respiratora-i-opreme-privodi-se-kraju/r338v7m]. Accessed 23 July 2020.
[3] Ministry of Health. "List of Completed Projects". [https://www.zdravlje.gov.rs/#aktuelno]. Accessed 23 July 2020.
[4] Ministry of Foreign Affairs. [http://www.mfa.gov.rs/sr/index.php]. Accessed 23 July 2020.
[5] World Health Organization. "Serbia". [http://www.euro.who.int/en/countries/serbia]. Accessed 23 July 2020.
[6] United Nations Country Team in Serbia. "Press Centre". [https://serbia.un.org/en]. Accessed23 July 2020.

5.5.4b

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

Current Year Score: 1

There is evidence that Serbia has either invested finances (from donors or the national budget) or provided technical support either to support other countries to improve capacity to address epidemic threats in the past three years or improve its own domestic capacity to address epidemic threats to improve capacity in the same period. There is evidence via the Global Health Security Funding Tracker that Serbia has committed 2.3 million USD to WHO and Coalition for Epidemic Preparedness Innovations. In addition, there is evidence via the Global Health Security Funding Tracker that Serbia has invested donor finance to improve domestic capacity to address epidemic threats. The tracker notes that Serbia has received funding from multiple donors in the amount of 192.57 million USD to enhance its capacity on global security preparedness [1]. Furthermore, in March 2020, the European Commission offered Serbia a 93 million euro package to fight COVID-19 [2]. Serbia received bilateral support for immediate medical aid: Hungary has sent 200,000 masks and 10,000 protective suits. The USA announced that it would send 6,000 coronavirus test kits. Serbia received a donation from Turkey containing various medical devices, including 100,000 protective masks, 2,000 protective suits, and 1,500 COVID-19 tests. China has supported Serbia with a donation for the construction of two coronavirus laboratories, which will run 3,000 tests a day. Serbia received medical aid from Russia, which was transported by 11 airplanes [3]. There is no further public evidence of investments through the national budget to improve capacity in Serbia or in other countries, based on a review of media outlets, information on the websites of the Ministry of Health and Ministry of Foreign Affairs [4, 5, 6].

[1] Global Health Security Costing. "Funding Tracker". [https://tracking.ghscosting.org/details/1044/recipient]. Accessed 23 July 2020.
[2] EU Delegation to Serbia. 2020. Global Health Security Costing. "EU Partnership with Serbia: EU Best Partner and Biggest Donor for 20 Years and in the Front Line against COVID-19". [https://europa.rs/eu-partnership-with-serbia-eu-best-partner-and-biggest-donor-for-20-years-and-in-the-front-line-against-covid-19/?lang=en]. Accessed 23 July 2020.
[3] Organization for Economic Co-operation and Development (OECD). 2020. "The COVID-19 Crisis in Serbia". [https://www.oecd.org/south-east-europe/COVID-19-Crisis-in-Serbia.pdf]. Accessed 23 July 2020.
[4] Ministry of Finance. 2018. "Law on Budget for 2019 (Zakon o budžetu za 2019. godinu)". [https://www.mfin.gov.rs/UserFiles/File/zakoni/2018/Zakon%20o%20budzetu%20za%202019%20godinu.pdf]. Accessed 23 July 2020.
[5] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[6] Ministry of Foreign Affairs. [http://www.mfa.gov.rs/sr/index.php]. Accessed 23 July 2020.

5.5.4c

Is there evidence that the country has fulfilled its full contribution to the WHO within the past two years?
Yes = 1 , No = 0

Current Year Score: 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 of 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. According to Article 7 of the Law on Protection of Population from Infectious Diseases, the Institute for Public Health collects, analyzes, and interprets data obtained through epidemiological surveillance in the territory of the Republic of Serbia and exchanges them with other countries, the World Health Organization (WHO), and other international bodies. Epidemiological surveillance is carried out on infectious diseases, infections related to health protection and antimicrobial resistance (AMR), in accordance with the case definition, the recommendations of the European Centre for Disease Prevention and Control (ECDC) and the WHO. In addition, according to Article 12 of the Law, the Institute for Public Health exchanges information with the WHO in the event of an emergency that causes a public health risk [1]. The websites of the Ministry of Health, Ministry of Agriculture, and Ministry of Science do not have information about a 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 [2, 3, 4].

[1] National Parliament. 2016. "Law on Protection of Population from Infectious Diseases (Zakon o zaštiti stanovništva od zaraznih bolesti, Sl. gl. RS, br. 15/2016)".
[https://www.paragraf.rs/propisi/zakon_o_zastiti_stanovnistva_od_zaraznih_bolesti.html]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] Ministry of Agriculture, Forestry, and Water Management. [http://www.minpolj.gov.rs/]. Accessed 23 July 2020.
[4] Ministry of Education, Science and Technological Development. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.

5.6.1b

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

Yes = 0 , No = 1

Current Year Score: 1

Based on the review of the websites of the World Health Organization (WHO), Ministry of Health and Institute for Public Health, there is no public evidence that Serbia has not shared samples in accordance with the Pandemic Influenza Preparedness (PIP) framework in the past two years [1, 2, 3].

[1] World Health Organization (WHO). [https://extranet.who.int/sph/influenza-plan]. Accessed 23 July 2020.
[2] Ministry of Health. [https://www.zdravlje.gov.rs/]. Accessed 23 July 2020.
[3] "Dr Milan Jovanovic Batut" Institute for Public Health. [http://www.batut.org.rs/index.php?lang=2]. Accessed 23 July 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

Based on information from the World Health Organization (WHO), there is no evidence that Serbia has not shared pandemic pathogen samples during an outbreak in the past two years [1].

[1] World Health Organization. [http://www.who.int]. Accessed 23 July 2020.

Category 6: Overall risk environment and vulnerability to biological threats

6.1 POLITICAL AND SECURITY RISK

6.1.1 Government effectiveness

6.1.1a

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

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1b

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1c

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

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1d

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1e

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

Input number

Current Year Score: 38

2020

Transparency International

6.1.1f

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

Input number

Current Year Score: 2

2020

Economist Intelligence

6.1.1g

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

Input number

Current Year Score: 3

2020

Economist Intelligence

6.1.2 Orderly transfers of power

6.1.2a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.1.3 Risk of social unrest

6.1.3a

What is the risk of disruptive social unrest?

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

Current Year Score: 1

2021

Economist Intelligence

6.1.4 Illicit activities by non-state actors

6.1.4a

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

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

Current Year Score: 3

2021

Economist Intelligence

6.1.4b

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

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

Current Year Score: 1

2020

UN Office of Drugs and Crime (UNODC)

6.1.4c

How high is the risk of organized criminal activity to the government or businesses in the country?

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

Current Year Score: 2

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 3

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

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

Yes = 1, No = 0

Current Year Score: 0

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

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

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

Current Year Score: 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: 98.84

2016

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

6.2.2 Gender equality

6.2.2a

United Nations Development Programme (UNDP) Gender Inequality Index score

Input number

Current Year Score: 0.84

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: 3.3

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

In Serbia, approximately 552,000 working-age people were informally employed in the third quarter of 2019, and the informal employment rate is 18.8%. Informal employment is particularly pronounced in agriculture, which accounts for over 64% of all informally employed people [1]. According to the World Bank data, the share of employment in the informal sector in 2019 was 13% [2].

[1] Ministry of Finance. 2020. "Economic Reform Programme 2020-2022". [https://www.mfin.gov.rs/wp-content/uploads/2019/10/ERP-2020-2022-eng.pdf]. Accessed 23 July 2020.
[2] World Bank. "Informal Employment". [https://data.worldbank.org/indicator/SL.ISV.IFRM.ZS]. Accessed 23 July 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: 1

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

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

Input number

Current Year Score: 1

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.36

Latest available.

World Bank; Economist Impact calculations

6.3 INFRASTRUCTURE ADEQUACY

6.3.1 Adequacy of road network

6.3.1a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.3.2 Adequacy of airports

6.3.2a

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

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

Current Year Score: 3

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

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

Current Year Score: 3

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 56.26

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: 0.68

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: 1

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: 75.89

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: 600.8

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 18.74

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 40.6

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 21.5

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: 85.52

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 97.57

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: 881.41

2018

WHO Global Health Expenditure database

6.5.4 Trust in medical and health advice

6.5.4a

Trust medical and health advice from the government

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

Current Year Score: 1

2018

Wellcome Trust Global Monitor 2018

6.5.4b

Trust medical and health advice from medical workers

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

Current Year Score: 2

2018

Wellcome Trust Global Monitor 2018