

Turkey

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

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

1.1 ANTIMICROBIAL RESISTANCE (AMR)

1.1.1 AMR surveillance, detection, and reporting

1.1.1a

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

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

Current Year Score: 0

There is no evidence that Turkey as of yet has a specific national plan for the surveillance, detection and reporting of priority AMR pathogens. Instead, it has a national antimicrobial surveillance system to monitor AMR (ulusal antimikrobiyal direnç sürveyans sistemi--UAMDSS) run by the Ministry of Health, as well as a national plan on rationalising the use of antibiotics. The UAMDSS surveillance system, set up in 2011, had 118 laboratories in its network as of late 2017. [1, 2]

The Ministry of Agriculture and Forestry reported in March 2020 that it was cooperating with the health ministry and other government entities as well as with the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) on developing a costing structure for an Antimicrobial Resistance Prevention Strategic Action Plan for Turkey, to run until 2023. [3] The plan has been in development since 2017. The Ministry of Health earlier adopted a Rational Drug Use National Action Plan, running during the years 2014-2017, which focused on rationalizing the use of antibiotics. [4]

The WHO's Library of National Action Plans shows no current AMR plan for Turkey. [5]

[1] Republic of Turkey Ministry of Health.2020. National Antimicrobial Resistance Surveillance System (Ulusal Antimikrobiyal Direnç Sürveyans Sistemi). [<https://hsgm.saglik.gov.tr/uumdss>] Accessed August 2020

[2] World Health Organization (WHO). 13 November 2017. "Turkey takes strong action to reduce antibiotic consumption and resistance". [<http://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-resistance/news/news/2017/11/turkey-takes-strong-action-to-reduce-antibiotic-consumption-and-resistance>] Accessed August 2020

[3] Republic of Turkey Ministry of Agriculture and Forestry. March 9 2020. "Antimicrobial Resistance Prevention Strategic Action Plan Prioritization and Costing Tool Development Workshop (Antimikrobiyal Direnç önleme Stratejik Eylem Planı önceliklendirilme ve Maliyetlendirme Aracı Geliştirilmesi Çalıştayı)."

[<https://www.tarimorman.gov.tr/GKGM/Haber/274/Antimikrobiyal-Direnc-Onleme-Stratejik-Eylem-Plani-Onceliklendirilme-Ve-Maliyetlendirme-Araci-Gelistirilmesii-Calistayi>]

[4] Republic of Turkey Ministry of Health. "Rational Drug Use National Action Plan 2014-2017".

[<http://www.akilciilac.gov.tr/wp-content/uploads/2014/11/Rational-Drug-Use-National-Action-Plan.pdf>] Accessed August 2020

[5] World Health Organization (WHO). Library of National Action Plans. [<https://www.who.int/antimicrobial-resistance/national-action-plans/library/en/>] Accessed February 2019.

[6] Joint Programming Initiative on Antimicrobial Resistance (JPIAMR). "National AMR Plans and Research Programs Library."

[<https://www.jpiamr.eu/activities/alignment-actions/alignment-plan/>] Accessed August 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

Turkey has a national laboratory system which tests for some but not all AMR pathogens. While evidence suggests that the system is able to test for *E. coli*, *K. pneumoniae*, *S. aureus*, and *S. pneumoniae*, it does not show that surveillance testing for *Salmonella* spp., *Shigella* spp, *N. gonorrhoeae* and *Mycobacterium tuberculosis* are mandatory inclusions in the national surveillance system. But there are indications that such testing is being planned.

The National Antimicrobial Resistance Surveillance System (Ulusal Antimikrobiyal Direnç Surveyans Sistemi--UAMDSS) was set up within the Refik Saydam National Hygiene Center (affiliated with the Ministry of Health) in 2011. Its latest published annual report, for 2016, indicates that its scope of surveillance encompasses *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Enterococcus faecium* / *faecalis* and *Acinetobacter* isolates, isolated from clinical samples of blood and cerebrospinal fluid (CSF). [1]

Under the UAMDSS, there are three national AMR-related surveillance networks in Turkey; one for antimicrobial resistance, one for antibiotic consumption, and one for hospital infections. Participating laboratories (numbering 105 in 2015, 57 being public hospitals) are pre-screened and then subject to capacity and performance evaluations. The WHO's WHONET software program is used to analyse data, and methodology is shared with the CAESAR and EARS-NET surveillance networks. Turkey is planning comprehensive AMR reporting by including: Antimicrobial Resistance, *Salmonella* *Shigella* Resistance, Tuberculosis Drug Resistance, Antiviral Resistance Data (HIV, HCV, HBV Drug Resistance), and Sexually Transmitted Diseases Drug Resistance (including *Gonococcus*). [2]

[1] Republic of Turkey Ministry of Health. National Antimicrobial Resistance Surveillance System (UAMDSS). UAMDSS Annual Reports (UAMDSS Yıllık Raporlar). [<https://hsgm.saglik.gov.tr/tr/uamdss>] Accessed August 2020

[2] Hüsnüye Simsek. 6-8 October 2016. "Status of Antibiotic Resistance in Turkey (Türkiye'de Antibiyotik Direncinin Durumu)". PowerPoint presentation. Republic of Turkey Ministry of Health. Turkish Department of Public Health. PowerPoint presentation. [<https://www.klimik.org.tr/wp-content/uploads/2016/10/T%C3%BCrkiyede-Antibiyotik-Direnci-H%C3%BCsniye-%C5%9E%C4%B0M%C5%9EEK.pdf>] Accessed August 2020

1.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is no evidence that Turkey's government conducts surveillance and detection of antimicrobial residues in natural media. The Ministry of Health does run a surveillance system on AMR called the UAMDSS, and has a national plan on rationalising the use of antibiotics (Rational Drug Use National Action Plan of 2014-2017). Neither the ministry's website nor the texts of these plans indicate a policy involving such surveillance. [1, 2]

A recent study by TEPAV, a Turkish think-tank, on AMR policy in the country makes no reference to Turkey conducting

detection or surveillance activities in the natural environment. [3] Similarly, a 2017 presentation on Turkey's AMR surveillance system (UAMDSS), made by an official of the Ministry of Health, makes no mention of AMR surveillance being conducted on soil samples and the like. [4] Neither the Ministry of Agriculture and Forestry (which has a policy on combating antimicrobial resistance) nor the Ministry of Environment and Urban Planning (which evidence suggests does not) indicate on their websites that they conduct such surveillance. [6, 7]

Finally, no evidence of a national AMR action plan--one that conducts such surveillance, or otherwise--is found in the WHO Library of National Action Plans. [5]

[1] Republic of Turkey Ministry of Health. National Antimicrobial Resistance Surveillance System (UAMDSS). UAMDSS Annual Reports (UAMDSS Yıllık Raporlar). [<https://hsgm.saglik.gov.tr/tr/uamdss>] Accessed August 2020

[2] Republic of Turkey Ministry of Health. "Rational Drug Use National Action Plan 2014-2017". [<http://www.akilciilac.gov.tr/wp-content/uploads/2014/11/Rational-Drug-Use-National-Action-Plan.pdf>] Accessed August 2020

[3] Economic Policy Research Foundation of Turkey (TEPAV). Undated, probably 2017. "Antimicrobial Resistance: Economic Evaluation and Recommendations in Turkey (Türkiye'de Antimikrobiyal Direnç: Ekonomik Değerlendirme ve öneriler)". [http://www.tepav.org.tr/upload/files/1504774735-1.Turkiye___de_Antimikrobiyal_Direnc___Ekonomik_Degerlendirme_ve_Oneriler.pdf] Accessed August 2020

[4] Hüsniye Simsek. 5-8 April 2017. "Antimicrobial Resistance Global Perspective and Turkey: National Antimicrobial Resistance Surveillance (UAMDS) Data (Antimikrobiyal Dirence Global Bakış ve Türkiye Ulusal Antimikrobiyal Direnç Sürveyans (UAMDS) Verileri)". Turkey Ministry of Health (T.C. Sağlık Bakanlığı). Turkish Department of Public Health. PowerPoint presentation. [<https://www.klimik.org.tr/wp-content/uploads/2017/05/Ulusal-Antimikrobiyal-Diren%C3%A7-S%C3%BCrveyans-UAMDS-Verileri-H%C3%BCsniye-%C5%9Em%C5%9Fek.pdf>] Accessed August 2020

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

[6] Republic of Turkey Ministry of Agriculture and Forestry. 2019. "Communication in Combating Antimicrobial Resistance (Antimikrobiyal Dirençle Mücadelede İletişim)". [https://www.tarimorman.gov.tr/GKGM/Belgeler/Uretici_Bilgi_Kosesi/Brosurler/Antimikrobiyal_Direncl_Mucedeledde_Iletisim.pdf] Accessed October 2020

[7] Republic of Turkey Ministry of Environment and Urban Planning. 2020. Website. [<https://csb.gov.tr/>] Accessed October 2020

1.1.2 Antimicrobial control

1.1.2a

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

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

Current Year Score: 2

Turkey has national legislation in place requiring prescriptions for antibiotic use for humans. Effective April 1 2016, Turkey's Ministry of Health forbade the sale without prescription of all antibiotics except those applied topically. As of January 1 2017, the prohibition has applied to the latter category as well. Antibiotics may now be obtained only through a prescription issued at hospitals or by private physicians. [1,2] There is little evidence of gaps in enforcement of the prescription regime for antibiotic use in Turkey; on the contrary, evidence points to a sophisticated system of controls being applied in Turkey, such as inspections of dispensing pharmacies, carried out by provincial health directorates in line with complaints received. [3]

- [1] Ayse GüLER. April 1 2016. "Sale of antibiotics with prescription now! (Antibiyotik satışı artık reçete ile)". Yeniduzen. [http://www.yeniduzen.com/antibiyotik-satisi-artik-recete-ile-63159h.htm] Accessed August 2020
- [2] Republic of Turkey Social Security Institute (SGK). 2016. "Antibiotics (Antibiyotikler)". [http://www.sgk.gov.tr/wps/portal/sgk/tr/saglik/erasmus_projesi/antibiyotikler] Accessed August 2020
- [3] Ankara Chamber of Pharmacists (Ankara Eczacı Odası). March 5 2019. "Controls on Sales of Antibiotics without Prescription (Reçetesiz Antibiyotik Satışı Denetimleri)." [http://www.aeo.org.tr/(X[1]S(5q3xd5loztx0xdfq3kusnpg3))/DuyuruModulu/Duyurular/Details/43728] Accessed October 2020

1.1.2b

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

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

Current Year Score: 2

Turkey has since 2013 required prescriptions for all veterinary medications. This order, published in the Official Gazette No. 28525 dated January 11 2013, derives from a protocol signed between the Turkish Veterinary Medical Association and the then-Ministry of Agriculture and Livestock. [1, 2] The requirement facilitates the monitoring and auditing of prescription issuance, and improves the traceability of veterinary drugs used in the country. [1] Available evidence does not indicate gaps in enforcement; Turkey has a sophisticated veterinary prescription control system, overseen and enforced by the Ministry of Agriculture and Forestry, which mandates strict compliance by veterinary physicians and pharmacists. [3]

- [1] Medimagazin. May 20 2013. "For veterinary drugs, compulsory prescriptions have started (Veteriner ilaçlarında reçete zorunluluğu başladı)." [https://www.medimagazin.com.tr/saglik-calisanlari/veteriner-hekim/tr-veteriner-ilaclarinda-recete-zorunluluğu-basladi-6-680-51607.html] Accessed August 2020
- [2] Republic of Turkey. Official Gazete (Resmi Gazete). 11 January 2013. "ON THE REGULATION ABOUT VETERINARY MEDICAL PRODUCTS (VETERINER TIBBİ ÜRÜNLER HAKKINDA YÖNETMELİKTE)." [http://www.resmigazete.gov.tr/eskiler/2013/01/20130111-1.htm] Accessed August 2020
- [3] Republic of Turkey. Ministry of Agriculture and Forestry. Undated, probably 2018. "VETERINARY DOCTOR E-PRESCRIPTION and DRUG TRACKING SYSTEM INSTRUCTION & APPLICATION GUIDE (VETERINER HEKİM E-REÇETE ve İLAÇ TAKIP SİSTEMİ TALİMATI & UYGULAMA KILAVUZU)." [https://www.tarimorman.gov.tr/GKGM/Belgeler/Mevzuat/Talimat/Veteriner_Hekim_E-Re%C3%A7ete_Talimati_ve_Uygulama_Kilavuzu.pdf] Accessed October 2020

1.2 ZOO NOTIC DISEASE

1.2.1 National planning for zoonotic diseases/pathogens

1.2.1a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey now has a dedicated plan on zoonoses, the Zoonotic Diseases Action Plan of Turkey 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023). The Action Plan has four general objectives: to raise awareness in society about zoonotic diseases and their prevention; to conduct risk analysis and predict threats related to zoonotic diseases; to develop zoonotic disease diagnostic laboratories across the country and ensure their effectiveness; and to monitor, evaluate and coordinate

treatment policy. The Action Plan focuses on the following diseases: brucellosis, anthrax, tularemia, Crimean Congo Hemorrhagic Fever, rabies, cystic echinococcosis, toxoplasmosis and other zoonotic infections, West Nile virus infection, Zika virus disease, Dengue virus infection, chikungunya fever, yellow fever, cutaneous leishmaniasis, visceral leishmaniasis, leptospirosis, hantavirus infections, Lyme disease and Q fever. [1, 2]

[1] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. Turkey Zoonotic Diseases Action Plan (Türkiye Zoonotik Hastalıklar Eylem Planı). [<https://hsgm.saglik.gov.tr/tr/haberler/t%C3%BCrkiye-zoonotik-hastal%C4%B1klar-eylem-plan%C4%B1.html>] Accessed August 2020

[2] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 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: 1

Turkey now has a dedicated plan on zoonoses, the Zoonotic Diseases Action Plan of Turkey 2019-2023 (month of publication unavailable), which includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. The official text of the Action Plan reveals that it has a significant risk identification and reduction component, and sets down four general objectives: 1) to raise awareness in society about zoonotic diseases and their prevention; 2) to conduct risk analysis and predict threats related to zoonotic diseases; 3) to develop zoonotic disease diagnostic laboratories across the country and ensure their effectiveness; and 4) to monitor, evaluate and coordinate treatment policy.

The second, risk-focused objective of the Action Plan has the following two-track operational structure: a. to evaluate outbreaks of zoonotic infections in the world and determine the potential corollary risks for Turkey, and b. to identify the national health system's requirements (i.e. shortcomings) with respect to organization, diagnosis, treatment and prevention strategies in the face of potential new zoonotic infections. [2]

The Action Plan focuses on the following diseases: brucellosis, anthrax, tularemia, Crimean Congo Hemorrhagic Fever, rabies, cystic echinococcosis, toxoplasmosis and other zoonotic infections, West Nile virus infection, Zika virus disease, Dengue virus infection, chikungunya fever, yellow fever, cutaneous leishmaniasis, visceral leishmaniasis, leptospirosis, hantavirus infections, Lyme disease and Q fever. The plan cites the extensive and ongoing role of government agencies, such as the Health Ministry's Department of Zoonotic and Vectoral Diseases, in identifying the key vectors for these and other zoonoses, such as by conducting field research and exercises. In that regard, the Action Plan prioritizes dealing with disease vectors arising from the raising, preparation, packaging, storage and distribution of animal-derived foods, although it accords nearly equivalent importance to another class of vector; human contact with domestic and wild animals, ranging from pets to mosquitos. [1, 2] For each disease, the plan describes a range of protection, control and eradication measures, which includes actions to reduce human contact with the disease-carrying agents.

The plan is monitored, evaluated and coordinated by the General Directorate of Zoonotic and Vector Diseases (Zoonotik ve Vektörel Hastalıkları Dairesi Başkanlığı), part of the Ministry of Health's General Directorate of Public Health. A yearly progress report will be issued. [2]

[1] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. Turkey Zoonotic Diseases Action Plan (Türkiye Zoonotik Hastalıklar Eylem Planı). [<https://hsgm.saglik.gov.tr/tr/haberler/t%C3%BCrkiye-zoonotik-hastal%C4%B1klar-eylem-plan%C4%B1.html>] Accessed August and October 2020 and April 2021 Text of the plan:

[2] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August and October 2020 and April 2021

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

Turkey now has a dedicated plan that accounts for the surveillance and control of multiple zoonotic pathogens of public health concern. This is the Zoonotic Diseases Action Plan of Turkey 2019-2023, which includes measures for risk identification and reduction for zoonotic disease spillover events from animals to humans. The official text of the Action Plan reveals that it has a significant surveillance and control component, and sets down four general objectives: to raise awareness in society about zoonotic diseases and their prevention; to conduct risk analysis and predict threats related to zoonotic diseases; to develop zoonotic disease diagnostic laboratories across the country and ensure their effectiveness; and to monitor, evaluate and coordinate treatment policy. The Action Plan focuses on the following diseases: brucellosis, anthrax, tularemia, Crimean Congo Hemorrhagic Fever, rabies, cystic echinococcosis, toxoplasmosis and other zoonotic infections, West Nile virus infection, Zika virus disease , Dengue virus infection, chikungunya fever, yellow fever, cutaneous leishmaniasis, visceral leishmaniasis, leptospirosis, hantavirus infections, lyme disease and Q fever. [1, 2]

The plan is monitored, evaluated and coordinated by the General Directorate of Zoonotic and Vector Diseases (Zoonotik ve Vektörel Hastalıkları Dairesi Başkanlığı), part of the Ministry of Health's General Directorate of Public Health. A yearly progress report will be issued. [2]

[1] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. Turkey Zoonotic Diseases Action Plan (Türkiye Zoonotik Hastalıklar Eylem Planı). [<https://hsgm.saglik.gov.tr/tr/haberler/t%C3%BCrkiye-zoonotik-hastal%C4%B1klar-eylem-plan%C4%B1.html>] Accessed August 2020

[2] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 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

Available evidence does not indicate that Turkey has had a specific government department dedicated to zoonotic disease that truly functions across ministries. Since adopting a specific action plan on zoonoses in 2019, Turkey has designated a specific entity to coordinate policy on zoonotic diseases; the General Directorate of Zoonotic and Vector Diseases (Zoonotik ve Vektörel Hastalıkları Dairesi Başkanlığı), part of the Ministry of Health's General Directorate of Public Health. The plan,

called the Zoonotic Diseases Action Plan of Turkey 2019-2023, accords this entity a monitoring, evaluating and coordinating role. The plan also lays out the specific duties and responsibilities of various institutions and organizations. One such task is for these various entities to prepare progress reports on their activities and send them to the Zoonotic and Vector Diseases Department every 6 months. A yearly progress report will be issued by the Department itself.

At a minimum, the plan involves the cooperation of the Ministry of Health, the Ministry of Agriculture and Forestry, the Ministry of Environment and Urbanization, and the ministries of local governments. In realizing its four goals, the plan mandates cooperation with other entities such as veterinary laboratories and academic departments. [2] However, it offers no details on such a cooperation mechanism and does not specify, for example, any arrangements for the sharing of funds, operational tasks or staff between entities. [2]

The plan sets down four general objectives: to raise awareness in society about zoonotic diseases and their prevention; to conduct risk analysis and predict threats related to zoonotic diseases; to develop zoonotic disease diagnostic laboratories across the country and ensure their effectiveness; and to monitor, evaluate and coordinate treatment policy. The Action Plan focuses on the following diseases: brucellosis, anthrax, tularemia, Crimean Congo Hemorrhagic Fever, rabies, cystic echinococcosis, toxoplasmosis and other zoonotic infections, West Nile virus infection, Zika virus disease, Dengue virus infection, chikungunya fever, yellow fever, cutaneous leishmaniasis, visceral leishmaniasis, leptospirosis, hantavirus infections, lyme disease and Q fever. [1, 2]

[1] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. Turkey Zoonotic Diseases Action Plan (Türkiye Zoonotik Hastalıklar Eylem Planı). [<https://hsgm.saglik.gov.tr/tr/haberler/t%C3%BCrkiye-zoonotik-hastal%C4%B1klar-eylem-plan%C4%B1.html>] Accessed August 2020

[2] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 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

Turkey has a national mechanism, known as HAYBIS, for owners of livestock to conduct and report on disease surveillance to a central government agency. The General Directorate of Food and Control at the Ministry of Agriculture and Forestry runs a policy line called Combating Animal Diseases (Hayvan Hastalıkları ile Mücadele) which, empowered by rules such as Law 5996 of 2010 on Veterinary Services, Plant Health, Food and Feed, operates a notification, monitoring and control system on animal diseases. It periodically issues a List of Notifiable Diseases (İhbari Mecburi Hastalıklar Listesi) for the attention of stakeholders, who range from owners of pets and livestock to veterinarians and food businesses.

Reporting is made initially to provincial directorates of the Ministry and then data analysis is overseen by the General Directorate through the electronic reporting system. [1, 2] To expedite the reporting process, in 2016 the General Directorate reported that it had unified its two main electronic reporting systems---the Sheep-Goat Registration System (Koyun-Keçi Kayıt Sistemi--KKKS) and the password-protected TURKVET veterinary reporting system--in one electronic portal, known as the Animal Information System (Hayvan Bilgi Sistemi--HAYBIS). [3, 4]

In its March 2017 PVS Evaluation Follow-Up Mission Report on Turkey, the World Organisation for Animal Health (OIE) noted that the authorities had set a goal to achieve 100% (cattle) and 95% (sheep and goats) electronic identification by 2017, but the OIE PVS Team was not able to determine how the goal was being monitored and how close to realisation it was. [5]

[1] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIĞI Gıda ve Kontrol Genel Müdürlüğü). 8 March 2018. "DISTRIBUTION PLACES (DAĞITIM YERLERİ)". [https://kms.kaysis.gov.tr/Home/Goster/141352?AspxAutoDetectCookieSupport=1] Accessed August 2020

[2] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIĞI. Gıda ve Kontrol Genel Müdürlüğü). 3 February 2016. "CIRCULAR 2016/02 (GENELGE 2016/02)". [http://tvhb.org.tr/duragan/d/dosya/genelgeler/HayHast_Muc_Kontrol_Genelge_2016-2.pdf] Accessed August 2020

[3] Republic of Turkey Ministry of Agriculture and Forestry. General Directorate of Food and Control. HAYBIS reporting system user portal. "Animal Information System (Hayvan Bilgi Sistemi)". [https://hbs.tarbil.gov.tr/] Accessed December 2018 and August 2020

[4] Republic of Turkey Ministry of Food, Agriculture and Livestock. July 7 2016. "Animal Registration Systems (Turkvet and KKKS) were united in a single system. (Hayvan Kayit Sistemleri (Türkvet ve KKKS) Tek Bir Sistemde Birleştirildi.)". [https://www.tarimorman.gov.tr/GKGM/Duyuru/205/Hayvan-Kayit-Sistemleri-_turkvet-Ve-Kkks_-Tek-Bir-Sistemde-Birlestirildi] Accessed August 2020

[5] Dr Barry Stemshorn (TL), Dr Nadège Leboucq, Dr Peter Fernández. March 2017. "OIE PVS Evaluation Follow-Up Mission Report TURKEY". World Organisation for Animal Health (OIE). [http://www.oie.int/solidarity/pvs-evaluations/pvs-follow-up-reports/] Accessed August 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

Available evidence does not indicate that Turkey has guidelines that safeguard the confidentiality of information generated through surveillance activities for animals (for owners). The national reporting mechanism, called the Animal Information System (Hayvan Bilgi Sistemi--HAYBIS), unifies the country's two main electronic reporting systems--the Sheep-Goat Registration System (Koyun-Keçi Kayıt Sistemi--KKKS) and the TURKVET veterinary reporting system--for owners of livestock to conduct and report on disease surveillance to provincial directorates of the Ministry. [3, 4] The resulting data is then overseen by the General Directorate through the system. [1, 2] While the use of the HAYBIS system is restricted to registered, authorised operators and access is via a password-protected electronic portal, there is no evidence of an underlying regulation or law guaranteeing the confidentiality of the data generated by the system. [3] In its March 2017 PVS Evaluation Follow-Up Mission Report on Turkey, the World Organisation for Animal Health (OIE) noted the ongoing development of the country's electronic veterinary surveillance and reporting systems, but did not comment on whether or not the resulting data are legally protected. [5]

Finally, it should be noted that the key Turkish regulation on animal disease reporting, the Regulation on Notifiable Animal Diseases and their Notification of January 2011, is based very closely on the corresponding EU regulation, Council Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community; neither of these acts explicitly require the reporting of the personal data of the data provider. [6, 7] Moreover, the main Turkish law on data

protection (the Law on the Protection of Personal Data No. 6698 dated April 7, 2016 (LPPD) is primarily based on EU Directive 95/46/EC. As with the EU law, the LPPD under certain conditions permits the processing of personal data without the consent of the data subject, such as when such processing is necessary for the legitimate interests of the data processor, provided that such legitimate interest is not negated by the rights or freedoms of the affected data subjects. [8]

[1] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIGI. Gıda ve Kontrol Genel Müdürlüğü). 8 March 2018. "DISTRIBUTION PLACES (DAGITIM YERLERINE)". [<https://kms.kaysis.gov.tr/Home/Goster/141352?AspxAutoDetectCookieSupport=1>] Accessed August 2020

[2] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIGI. Gıda ve Kontrol Genel Müdürlüğü). 3 February 2016. "CIRCULAR 2016/02 (GENELGE 2016/02)". [http://tvhb.org.tr/duragan/d/dosya/genelgeler/HayHast_Muc_Kontrol_Genelge_2016-2.pdf] Accessed August 2020

[3] Republic of Turkey Ministry of Agriculture and Forestry. General Directorate of Food and Control. HAYBIS reporting system user portal. "Animal Information System (Hayvan Bilgi Sistemi)". [<https://hbs.tarbil.gov.tr/>] Accessed December 2018 and August 2020

[4] Republic of Turkey Ministry of Food, Agriculture and Livestock. July 7 2016. "Animal Registration Systems (Turkvet and KKKS) were united in a single system. (Hayvan Kayit Sistemleri (Türkvet ve KKKS) Tek Bir Sistemde Birlestirildi)". [https://www.tarimorman.gov.tr/GKGM/Duyuru/205/Hayvan-Kayit-Sistemleri-_turkvet-Ve-Kkks_-_Tek-Bir-Sistemde-Birlestirildi] Accessed August 2020

[5] Dr Barry Stemshorn (TL), Dr Nadège Leboucq, Dr Peter Fernández. March 2017. "OIE PVS Evaluation Follow-Up Mission Report TURKEY". World Organisation for Animal Health (OIE). [<http://www.oie.int/solidarity/pvs-evaluations/pvs-follow-up-reports/>] Accessed August 2020

[6] Republic of Turkey. Official Gazette. January 22 2011. No 27823. "REGULATION ON NOTIFIABLE ANIMAL DISEASES AND THEIR NOTIFICATION (İHBARI MECBURI HAYVAN HASTALIKLARI VE BILDIRIMINE İLİŞKİN YÖNETMELİK)". [<https://www.resmigazete.gov.tr/eskiler/2011/01/20110122-4.htm>] Accessed October 2020

[7] Publications Office of the European Union. Eur-Lex. 2020. Document 31982L0894: "Council Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community." [<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31982L0894&from=EN>] Accessed October 2020

[8] DLA Piper. July 23 2019. DATA PROTECTION LAWS OF THE WORLD. "Turkey." [<https://www.dlapiperdataprotection.com/index.html?t=collection-and-processing&c=TR>] Accessed October 2020

1.2.2c

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey conducts routine surveillance of zoonotic disease in wildlife (e.g. wild animals, insects, other disease vectors, etc.). An example of such activity is the program of the Ministry of Agriculture and Forestry, launched in September 2019 with European Union support, to combat rabies caused by wildlife. Evidence of transmission of the disease is monitored in animals and humans, and through the program, a total of 27 million vaccinated feeds are being dropped from the air in wooded and rural areas of the country for a period of 3 years. The feeds are intended to be consumed by stray dogs and wild foxes. The program follows older national vaccination initiatives against rabies; 531,787 cats and dogs were vaccinated against this disease in 2018 alone. [1] Another activity is the malaria control program run by the Communicable Diseases Control Programs Branch of the Ministry of Health's Public Health Directorate. This program involves risk-weighted surveillance as well as prophylactic measures. [2] Furthermore, on the regulatory level, Turkey's new Zoonotic Diseases

Action Plan 2019-2023 supports the surveillance of diseases in wildlife, although the effect of the Action Plan on wildlife surveillance and data collection is yet to be seen. [3]

Earlier evidence indicated that quantitative data from zoonotic disease in wildlife in Turkey often has been lacking. According to the March 2017 OIE PVS Evaluation Follow-Up Mission Report on Turkey, the country needs to improve its veterinary strategy by "...addressing the need for information on the animal disease situation in wildlife." [4]

[1] Republic of Turkey. Ministry of Agriculture and Forestry. September 22 2019. "COMBATING WILDLIFE-SOURCED RABIES FROM THE AIR (YABAN HAYATI KAYNAKLI KUDUZA HAVADAN MÜDAHALE)." [https://www.tarimorman.gov.tr/Haber/4080/Yaban-Hayati-Kaynakli-Kuduza-Havadan-Mudahale] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. Public Health Agency of Turkey. February 2016. "CIRCULAR: Execution of Malaria Control Services (GENELGE: Sıtma Hastalığı İle Mücadele Hizmetlerinin Yürütülmesi)." [https://kms.kaysis.gov.tr/(X[1]S(5yglvjrfcuwxmyjt4oarzazu))/Home/Goster/128894?AspxAutoDetectCookieSupport=1] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 2020

[4] Dr Barry Stemshorn (TL), Dr Nadège Leboucq, Dr Peter Fernández. March 2017. "OIE PVS Evaluation Follow-Up Mission Report TURKEY". World Organisation for Animal Health (OIE).

[http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/20180307_final_OIE_PVS_FU_report_Turkey.pdf] Accessed August 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: 1

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: 22.12

2019

OIE WAHIS database

1.2.4b

Number of veterinary para-professionals per 100,000 people

Input number

Current Year Score: 2.03

2019

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

Available evidence does not indicate that Turkey's national plan on zoonotic disease, known as the Turkey Zoonotic Diseases Action Plan 2019-2023, specifically includes mechanisms for working with the private sector in controlling or responding to zoonoses. The text of the Action Plan makes only brief mention of the private sector and provides no discussion of the role of private-sector stakeholders in its execution. [1] Moreover, the national Department of Zoonotic and Vector Diseases, which is in charge of supervising the execution of the Action Plan, in its mission statement makes no mention of working with the private sector in controlling or responding to zoonoses. [2]

Other evidence from the formerly-titled Turkish Ministry of Food, Agriculture and Livestock does show that the public sector does cooperate at the micro level with the private sector on combating zoonoses, such as through interaction in the animal registry and identification system and by mandating animal owners and food companies to report on incidences of notifiable animal diseases. [3, 4]

In its March 2017 PVS Evaluation Follow-Up Mission Report on Turkey, the OIE recommended that the government strengthen legal provisions for the delegation of more functions to private-sector stakeholders, such as livestock producers in managing animal health. The report also quoted EU Veterinary Strategy reports as indicating that more input is needed in Turkey from the private sector in setting the national veterinary strategy." [5]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. Department of Zoonotic and Vector Diseases (Zoonotik ve Vektörel Hastalıklar Daire Başkanlığı). Website. [<https://hsgm.saglik.gov.tr/tr/zoonotikvektorel-anasayfa>] Accessed August 2020

[3] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIĞI Gıda ve Kontrol Genel Müdürlüğü). 8 March 2018. "DISTRIBUTION PLACES (DAĞITIM YERLERİ)". [<https://kms.kaysis.gov.tr/Home/Goster/141352?AspxAutoDetectCookieSupport=1>] Accessed August 2020

[4] REPUBLIC OF TURKEY MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK. General Directorate of Food and Control (T.C. GIDA, TARIM VE HAYVANCILIK BAKANLIĞI Gıda ve Kontrol Genel Müdürlüğü). 3 February 2016. "CIRCULAR 2016/02 (GENELGE 2016/02)". [<https://tvhb.org.tr/wp-content/uploads/2019/03/hayvan-hastaliklari-ile-mucadele-ve-hayvan>

hareketleri-kontrolu-genelgesi-2016-02.pdf] Accessed August and October 2020

[5] Dr Barry Stemshorn (TL), Dr Nadège Leboucq, Dr Peter Fernández. March 2017. "OIE PVS Evaluation Follow-Up Mission Report TURKEY". World Organisation for Animal Health (OIE).

[http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/20180307_final_OIE_PVS_FU_report_Turkey.pdf] Accessed August 2020

1.3 BIOSECURITY

1.3.1 Whole-of- government biosecurity systems

1.3.1a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Turkey keeps a record, updated within the last five years, of the facilities in which especially dangerous pathogens and toxins are stored or processed, including details on their inventories. Although Turkey has submitted 28 annual reports on Confidence Building Measures under the Biological Weapons Convention, these do not contain information on inventory management. [1] The most recent publicly available document dates from 2018, and it contains details about Turkey's laboratories. According to the form submissions Turkey has made in this document, it does not possess a biosafety level 4 (BSL4) facility, but does operate BSL3 and BSL2 facilities. Turkey also indicates that it does not operate national biological defence research and development programmes. [2]

Information from other sources on such facilities is sparse. According to a 2011 report by the National Academies Press on biosecurity challenges and high-containment biological laboratories, at that time Turkey had seven high-containment biological (high BSL) laboratories: four at the Ministry of Agriculture focused on animal diseases and vaccines; one at the Refik Saydam National Public Health Agency, focused on infectious disease surveillance and prevention, one at the Gulhane Medical Military Academy, focused on medical research, and one at the TUBITAK Marmara Research Centre for Genetic Engineering and Biotechnology Institute, concentrating on research. [3] These facilities were controlled by the Ministries of Health and of Agriculture and Forestry. [4] Neither of these ministries currently discusses inventory record keeping on the relevant parts of their respective websites. [5,6] Neither does the Ministry of Defence indicate that it addresses the management of especially dangerous pathogens.[7]

Another relevant entity, the Biosafety/Security Information Exchange Mechanism, is the officially designated web platform for the exchange of information on the issue, but its website provides very sparse information on its actual activities and does not discuss inventory record keeping. [8] Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate record-keeping on stocks of dangerous pathogens. The former by-law only mandates recording incidences of exposure to Group 3 Group 4 biological agents, and the latter only discusses record-keeping with regard to the traceability of GMO products used in commerce. [9]

[1] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[2] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-

Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[3] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLİNİK MİKROBİYOLOJİ LABORATUVARLARINDA BİYOGÜVENLİK)."

[https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyoguvencilikpdf.pdf?0] Accessed August 2020

[4] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[5] Republic of Turkey Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). "Legislation (Mevzuat)". [http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html] Accessed August 2020

[6] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)". [https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri] Accessed August 2020

[7] Republic of Turkey Ministry of Defense (Milli Savunma Bakanlığı). Website. [https://www.msb.gov.tr/en-US] Accessed August 2020

[8] Republic of Turkey. Turkey Biosafety Information Exchange Mechanism (Türkiye Biyogüvenlik Bilgi Degism Mekanizması). "ABOUT THE BOARD (KURUL HAKKINDA)". [http://tbbdm.gov.tr/Hakkimizda2.aspx] Accessed August 2020

[9] VERTIC. 2020. BWC Legislation Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/] Accessed August 2020

1.3.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Turkey has legislation 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. Turkey has submitted 28 annual reports on Confidence Building Measures under the Biological Weapons Convention, the most recent publicly available of which dates from 2018. According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. [1, 2] However, since there is no publicly available evidence of the legislation, it cannot be confirmed whether the documentation addresses requirements such as physical containment, operation practices, failure reporting systems and/or cybersecurity of facilities.

Aside from this source, references to the relevant procedures as mandated in publicly available Turkish laws and regulations are sparse. It is possible that much relevant legislation is classified. As related in a 2011 report by the National Academies Press on biosecurity challenges and high-containment biological (high BSL) laboratories, Turkey had no established legislation for such laboratories, and the current list of regulations, laws and circulars of the Ministry of Health's Inspection and Diagnostic Services Department—which is in charge of the nation's laboratories—does not show such legislation. [3, 4]

That said, the Ministry's 2012 guide on biosecurity in clinical microbiological laboratories—developed by the Gulhane Medical Military Academy, which houses one of the country's few high BSL facilities—does describe in some detail the procedures to be used to protect against exposure to dangerous biological agents. The guide does discuss biosecurity issues

per se, such as the agents used in bioterrorism. Chapter 32, Section 11 of the 2012 guide reads; "Necessary precautions are [to be] taken against the danger of misuse, destruction and theft of biological agents, samples, drugs, chemicals and patient information in the laboratory." However, the discussion does not reference any supporting legislation specific to biosecurity that would mandate these measures to be taken. [5] Moreover, neither the Ministry of Agriculture and Forests nor the Ministry of Defence indicates that they address the management of especially dangerous pathogens. [6, 7]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate record-keeping on stocks of dangerous pathogens. The former by-law only mandates recording incidences of exposure to Group 3 Group 4 biological agents, and the latter only discusses record-keeping with regard to the traceability of GMO products used in commerce. [8]

[1] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[2] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[3] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[4] Republic of Turkey Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[5] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLİNİK MİKROBİYOLOJİ LABORATUVARLARINDA BİYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyoguvanlikpdf.pdf?0>] Accessed August 2020

[6] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020

[7] Republic of Turkey Ministry of Defense (Milli Savunma Bakanlığı). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[8] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 2020

1.3.1c

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

Yes = 1, No = 0

Current Year Score: 0

There is no evidence that Turkey has an established agency responsible for the enforcement of biosecurity legislation and regulations. Until recently the country had a dedicated agency responsible for such enforcement, but with specific focus on controlling GMOs. This agency was called the Biosafety/Biosecurity Board (Biyogüvenlik Kurulu) and was set up by Law 5977 of 2010, which established and implemented a biosafety/biosecurity system with specific regard to prevent the potential risks from GMOs. [1] It was disbanded in August 2018, its duties assigned to the Ministry of Agriculture and Forestry. [2] Otherwise, now there is no single agency in charge of policy for non-GMO biosecurity/biosafety threats.

The Ministry of Health's national laboratory research system uses guidance for managing non-GMO biosafety/security issues, but without implications of an overarching policy. [3] This guidance—on biosecurity/biosafety in clinical microbiological

laboratories—was developed by the Gulhane Medical Military Academy, which houses one of the country's few high-BSL facilities, and does describe how to protect against exposure to dangerous biological agents. But it provides only cursory guidance on how to respond to specific biosecurity issues such as theft, deliberate misuse and bioterrorism, and does not cite underpinning legislation for this guidance. [4] Moreover, neither the Ministry of Agriculture and Forests nor the Ministry of Defence indicates that they address the management of especially dangerous pathogens. [5, 6]

Turkey has also submitted 28 annual reports on Confidence Building Measures under the Biological Weapons Convention; the most recent publicly available of these reports dates from 2018. [7, 8] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. However, Turkey does not indicate in this report if it has appointed a single agency to administer the relevant policies. [7, 8]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate the establishment of an agency to oversee biosecurity policy (as opposed to overseeing biosafety policy with regard to GMOs). [9]

[1] Republic of Turkey. Turkey Biosafety Information Exchange Mechanism (Türkiye Biyogüvenlik Bilgi Degisim Mekanizmasi). "The Biosafety/Security Board (Biyogüvenlik Kurulu)". [<http://tbbdm.gov.tr/Hakkimizda2.aspx>] Accessed August 2020

[2] Tarlasera. 10 August 2018. "No more Biosafety Board! (Artik Biyogüvenlik Kurulu yok!)." [<https://www.tarlasera.com/haber-11565-artik-biyogüvenlik-kurulu-yok!>] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanligi). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[4] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLINIK MIKROBIOLOJİ LABORATUVARLARINDA BIYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyogüvenlikpdf.pdf?0>] Accessed August 2020

[5] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020

[6] Republic of Turkey Ministry of Defense (Milli Savunma Bakanligi). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[9] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 2020 Other sources: Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15.

[10] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[11] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[12] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[13] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 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 insufficient evidence that Turkey has taken action to consolidate its inventories of especially dangerous pathogens (EDPs) and toxins into a minimum number of facilities. According to a 2011 report by the National Academies Press on biosecurity challenges and high-containment biological laboratories, at that time Turkey had seven high-containment biological (high-BSL) laboratories: four at the Ministry of Agriculture focused on animal diseases and vaccines; one at the Refik Saydam National Public Health Agency, focused on infectious disease surveillance and prevention; one at the Gülhane Medical Military Academy (now the Gülhane Training and Research Hospital), focused on medical research; and one at the TÜBİTAK Marmara Research Centre for Genetic Engineering and Biotechnology Institute, concentrating on research. [1] These facilities were controlled by the Ministries of Agriculture and Health, neither of which provide evidence of a consolidation exercise of EDPs and toxins. [2, 3] Moreover, the Ministry of Defense provides no evidence that it plays a role in safeguarding such materials. [4]

The Ministry of Health's 2012 guide on biosecurity in clinical microbiological laboratories does discuss biosecurity issues, such as protecting against the danger of misuse, destruction and theft of biological agents such as may be used in bioterrorism. But it does not specifically discuss the safeguarding of EDPs nor does it reference any supporting legislation on biosecurity that would mandate such measures. [5]

Similarly, there is no evidence of consolidation in the 28 annual reports on Confidence-Building Measures that Turkey has submitted under the Biological Weapons Convention (as of October 2020, the most recent publicly available of these dates from 2018; reports for 2019 and 2020 are online but not publicly accessible). [6,7] Turkey indicates that it no longer operates national biological defense research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but does operate BSL3 and BSL2 facilities. [6,7]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate the consolidation of EDPs and toxins. The former by-law only mandates recording incidences of exposure to Group 3 Group 4 biological agents, and the latter only discusses record-keeping with regard to the traceability of GMO products used in commerce. [8]

[1] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[3] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020

[4] Republic of Turkey Ministry of Defense (Milli Savunma Bakanlığı). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[5] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLINİK MIKROBİYOLOJİ LABORATUVARLARINDA BIYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyoguvencilik.pdf?0>] Accessed August 2020

[6] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [<https://bwc-ecbm.unog.ch/system/files/form->

pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[8] VERTIC. 2020. BWC Legislation Database. [https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/] Accessed August 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

Available evidence indicates that Turkey does have the capacity in-country to conduct Polymerase Chain Reaction (PCR)-based diagnostic testing for anthrax and/or Ebola, which would preclude culturing a live pathogen. The latest report published on August 25 2020 by the Ministry of Health on laboratory test codes for microbiology reference laboratories conducting analyses on infectious diseases lists several codes for PCR testing for anthrax as well as for Ebola. [1]

Moreover, a 2011 guide for in-service zoonotic disease training published by the Ministry's Department of Zoonotic Diseases (Zoonotik Hastaliklar Daire Baskanligi) describes the use of PCR testing for diagnosing anthrax. [2] Finally, a 2015 presentation by Klimik, the Ministry's Microbiology and Infectious Disease Society, on in-country laboratory testing for arboviruses including Ebola, mentions RT-PCR as a key diagnostic tool. [3]

[1] Republic of Turkey. Ministry of Health. Public Health Agency of Turkey. August 25 2020. "MICROBIOLOGY REFERENCE LABORATORIES AND BIOLOGICAL PRODUCTS DEPARTMENT: LIST OF CURRENT ANALYSES (MIKROBIYOLOJİ REFERANS LABORATUVARLARI VE BİYOLOJİK ÜRÜNLER DAİRE BAŞKANLIĞI: GÜNCEL ANALİZLER LİSTESİ)."

[https://hsgm.saglik.gov.tr/depo/kurumsal/plan-ve-faaliyetler/Guncel_Calisilan_Analizler_listesi.pdf] Accessed August 2020

[2] Republic of Turkey Ministry of Health, General Directorate of Basic Health Services (TEMEL SAĞLIK HİZMETLERİ GENEL MÜDÜRLÜĞÜ). DEPARTMENT OF ZOO NOTIC DISEASES (ZOO NOTİK HASTALIKLAR DAİRE BASKANLIĞI). 2011. "ZOO NOTIC DISEASES IN-SERVICE TRAINING MODULE (ZOO NOTİK HASTALIKLAR HİZMET İÇİ EĞİTİM MODÜLÜ)".

[https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/Zoonotik%20Hastaliklar%20Katilimci%20Kitabi.pdf] Accessed August 2020

[3] Dilek Ya?c? Çaylay?k. 28 March 2015. "Laboratory Diagnosis of Arboviral Infections in Turkey (Türkiye'de Arboviral Enfeksiyonların Laboratuvar Tanısı)". Ministry of Health PowerPoint presentation. [https://www.klimik.org.tr/wp-content/uploads/2015/06/T%C3%BCrkiye%E2%80%99de-Arboviral-%C4%B0nfeksiyonlar%C4%B1n-Laboratuvar-Tan%C4%B1s%C4%B1-Dilek-Ya%C4%9Fc%C4%B1-%C3%87a%C4%9Fay%C4%B1k.pdf] Accessed August 2020 Other sources:

Republic of Turkey Ministry of Health, General Directorate of Basic Health Services. 2014. "INCIDENT AND NOTIFICATION SYSTEM OF INFECTIOUS DISEASES: STANDARD DIAGNOSIS, SAFETY AND LABORATORY GUIDE (BULASICI HASTALIKLARIN İHBARI VE BİLDİRİM SİSTEMİ STANDART TANI, SÜRVEYANS VE LABORATUVAR REHBERİ)".

[https://dosyasb.saglik.gov.tr/Eklenti/1442,bhastaliktedavipdf.pdf?0] Accessed August 2020

1.3.2 Biosecurity training and practices

1.3.2a

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

Yes = 1 , No = 0

Current Year Score: 0

Evidence is lacking that Turkey requires biosecurity training, using a standardized, required approach, for personnel working in all types of facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The Turkish word for the term, *biyogüvenlik*, covers both biosafety and biosecurity, and in Turkey policymaking on the issue mostly relates to controlling the risk created by genetically modified organisms (GMOs). [1] Training as provided through its now-defunct Biosafety/Biosecurity Board (*Biyogüvenlik kurulu*) focused on such issues as controlling the risk of GMOs in local agriculture. [2]

That said, some very specific official guidance does exist for training personnel in biosecurity/biosafety issues in a context other than relating to GMOs. Its body of regulations and protocols, the Inspection and Diagnostic Services Department of Turkey's Ministry of Health, does have a regulatory guide on biosecurity/biosafety in clinical microbiology laboratories. [3] It was issued in 2012 by the state-run Gülhane Military Medical Academy, the oldest medical institution in the country. It divides microbiological risk into four levels and biosafety/security into primary and secondary prevention stages. It mandates safety/security-related training programmes for all lab personnel that will be exposed to biological materials. However, this guide does not really qualify as a biosecurity protocol per se; while it does briefly mention sabotage and bioterrorism--the latter in the context of handling biological agents used in terrorism--it does not specifically provide for preventing deliberate causative factors. [4]

Similarly, neither the Ministry of Agriculture and Forestry nor the Ministry of Defence provide readily available evidence that they address biosecurity training. [5, 6]

Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [7, 8] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. In the document Turkey does not, however, indicate its training methods for relevant personnel. [7, 8]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate training with regard to the handling of EDPs and toxins. [9]

[1] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[2] Republic of Turkey. Turkey Biosafety Information Exchange Mechanism (Türkiye Biyogüvenlik Bilgi Degitsm Mekanizmasi). "ABOUT THE BOARD (KURUL HAKKINDA)". [<http://tbbdm.gov.tr/Hakimizda2.aspx>] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Baskanligi). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[4] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLINIK MIKROBIOLOJİ LABORATUVARLARINDA BIYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyogüvenlikpdf.pdf?0>] Accessed August 2020

[5] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020

[6] Republic of Turkey Ministry of Defense (Milli Savunma Bakanligi). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[9] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 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

Available evidence does not indicate that in Turkey, 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 drug testing, background checks, and psychological or mental fitness checks. Evidence indicates that such biological materials may be found in Turkey only in biological high-containment biological (BSL) laboratories, which numbered seven as of 2011, and the official guide for such laboratories does not describe such mandatory tests for involved personnel. [1, 2]

This guide, on biosecurity/biosafety (biyogüvenlik) in clinical microbiology laboratories, was issued in 2012 by the state-run Gülhane Military Medical Academy (now the Gülhane Training and Research Hospital), the oldest medical institution in the country. It details procedures and materials to use in protecting personnel from biological risks but does not describe how to contend with the possibility of staff themselves being responsible for such risks. In its chapter on regulations for management and personnel, the guide only requires that new personnel submit a health report prepared by an approved health facility and screened for active pulmonary tuberculosis as well as colour-blindness. Existing personnel are subject to periodic health reviews relating to tuberculosis, hepatitis B, pregnancy, diabetes, hypertension and/or other chronic conditions as diagnosed by a physician. [2]

A scan of the legislation published by the Inspection and Diagnostic Services Department of Turkey's Ministry of Health does not indicate that this issue is addressed elsewhere in related Turkish regulations and protocols. [3] Similarly, neither the Ministry of Agriculture and Forestry nor the Ministry of Defence provide readily available evidence that they address biosecurity training. [4, 5]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [6, 7] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. In the document Turkey does not, however, indicate its policies for screening relevant personnel. [6, 7]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the laws adopted in

Turkey with regard to biosecurity (the By-Law on Biological Agents of 2004 and the Biosafety/Biosecurity Law of 2010) specifically mandate screening personnel charged with the handling of EDPs and toxins. [8]

- [1] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020
- [2] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLINIK MIKROBIOLOJİ LABORATUVARLARINDA BIYOGÜVENLİK). [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyoguvencilikpdf.pdf?0>] Accessed August 2020
- [3] Republic of Turkey. Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020
- [4] Republic of Turkey Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Degerlendirme Hizmetleri)." [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020
- [5] Republic of Turkey Ministry of Defense (Milli Savunma Bakanlığı). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020
- [6] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020
- [7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020
- [8] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 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

Turkey has publicly available national regulations on the safe and secure transport of infectious substances (Categories A and B). A regulation of the Ministry of Health was published in the Official Gazette on 25 September 2010 on transport of infectious substances and clinical samples. It governs the domestic transport and handling of Categories A and B substances according to International Air Transport Association (IATA) rules. [1] Evidence indicates that especially dangerous pathogens, toxins, or biological materials with pandemic potential may be found in Turkey only in biological high-containment biological (BSL) laboratories, which numbered seven as of 2011. [2]

The Ministry of Health's applicable official guide on biosecurity/biosafety (biyogüvenlik) in clinical microbiology laboratories , published by Turkey's oldest medical institution, the Gülhane Training and Research Hospital (formerly known as the Gülhane Military Medical Academy), contains a chapter devoted to the transport of Categories A and B infectious substances under IATA and United Nations standards. In this regard, this chapter of the guide is chiefly concerned with stipulating the methods for properly packing such substances for transport. [3]

Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [4] According to the form submissions Turkey has made in this

document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. In the document Turkey does not, however, indicate its policies for transporting infectious substances. It does indicate that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [5]

[1] Republic of Turkey Official Gazette (Resmî Gazete). No 27710, 25 September 2010. "REGULATION ON TRANSPORT OF INFECTIOUS SUBSTANCES AND INFECTIOUS DIAGNOSIS AND CLINICAL SAMPLES (ENFEKSIYÖZ MADDE İLE ENFEKSIYÖZ TANI VE KLİNİK ÖRNEĞİN TASIMA YÖNETMELİĞİ)". [<http://www.resmigazete.gov.tr/eskiler/2010/09/20100925-5.htm>] Accessed August 2020

[2] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[3] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLİNİK MIKROBİYOLOJİ LABORATUVARLARINDA BİYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyoguvencilikpdf.pdf?0>] Accessed August 2020

[4] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[5] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

1.3.5 Cross-border transfer and end-user screening

1.3.5a

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

Yes = 1 , No = 0

Current Year Score: 0

Although Turkey does have legislation in place on the safe and secure cross-border transport of especially dangerous pathogens, toxins and pathogens with pandemic potential, there is no evidence of guidance in place addressing end-user screening. [1]

The Ministry of Health and/or the Ministry of Agriculture, depending on the type of Category A or B substance being transported is responsible for the oversight of safe and secure cross-border transfer. The regulation of the Ministry of Health, published in the Official Gazette on 25 September 2010 on transport of infectious substances and clinical samples, generally governs the domestic transport and handling of infectious substances according to International Air Transport Association (IATA) rules, but states in Article 2, Section 2; "This Regulation shall apply to procedures other than those of category A, category B samples to be sent abroad or samples of nucleic acids of these examples, except [as] permission is obtained from the relevant authorities;..." indicating that it would apply to cross-border transfers if prior approval had been given by such authorities. [1]

Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [2] According to the form submissions Turkey has made in this

document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. In the document Turkey does not, however, indicate its policies for the cross-border transfer and end-user screening of such pathogens and substances. It does indicate that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [3]

Finally, the VERTIC database of legislation on biological weapons and materials does not show that the other laws adopted in Turkey that can be considered to pertain to transport and infectious substances (the By-Law on Biological Agents of 2004, the Biosafety/Biosecurity Law of 2010 and the Road Transport Law of 2003) specifically address the cross-border transport of such substances. [4]

[1] Republic of Turkey Official Gazette (Resmî Gazete). No 27710, 25 September 2010. "REGULATION ON TRANSPORT OF INFECTIOUS SUBSTANCES AND INFECTIOUS DIAGNOSIS AND CLINICAL SAMPLES (ENFEKSIYÖZ MADDE İLE ENFEKSIYÖZ TANI VE KLİNİK ÖRNEĞİN TASIMA YÖNETMELİĞİ)". [<http://www.resmigazete.gov.tr/eskiler/2010/09/20100925-5.htm>] Accessed August 2020

[2] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[3] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[4] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 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

Turkey has one law on biosafety that specifically addresses the prevention of accidents arising from the handling of harmful biological substances. [1, 2] This is the Bylaw of June 15 2013 on the Prevention of Exposure Risks to Biological Agents, which sets up a risk assessment framework to determine the potential risks to the health and safety of workers (Article 6), requires measures to reduce the risk of exposure to biological agents at work (Article 8), requires the reporting of accidents and incidents (eg exposure) to the Ministry of Health (Article 9), and stipulates rules on hygiene and protection (eg PPE requirements) to prevent contamination (Article 10), among other biosafety requirements. [2]

As shown in the VERTIC database of BWC legislation, certain other key laws in Turkey can be considered to be at least tangential to the issue of biosafety: the Bylaw of 25 September 2010 on Transport of Infectious Substances mandates adherence to international transport norms such as the IATA rules; the Bylaw of 20 May 2007 on Surveillance and Control of Infectious Diseases addresses information flow, such as during infectious disease outbreaks; and the Bylaw of 2005 on Control of Hazardous Wastes discusses the identification, storage, monitoring and disposal of such substances without specifically discussing pathogens and related toxins. [3] However, Law 5977 of 18 March 2010 is Turkey's specific

Biosafety/Security Law (Biyogüvenlik Kanunu), which established and implemented a biosafety system only to prevent potential risks from GMOs. [3, 4]

Some guidance on biosafety issues extending beyond GMOs has been issued, such as in 2012 by the state-owned Gülhane Military Medical Academy (now the Ankara Gülhane Training and Research Hospital), on biosafety/security in microbiology laboratories. [5]

Turkey is a signatory to the Cartagena Protocol on Biosafety, which entered into force in the country on 24 January 2004. [6] Otherwise, available evidence from the Ministries of Health and Agriculture does not indicate that there is a specific comprehensive law on biosafety that covers the accidental release of harmful biological substances other than GMOs. [7, 8]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. Turkey also indicates that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [9, 10]

[1] Hüseyin Avni ökte. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[2] Republic of Turkey Official Gazette (T.C. Resmî Gazete). 15 June 2013. "REGULATION ON THE PREVENTION OF THE RISKS OF EXPOSURE TO BIOLOGICAL EFFECTS (BIYOLOJİK ETKENLERE MARUZİYET RİSKLERİNİN ÖNLENMESİ HAKKINDA YÖNETMELİK)". [<http://www.resmigazete.gov.tr/eskiler/2013/06/20130615-3.htm>] Accessed August 2020

[3] VERTIC. BWC Legislation Database. "Turkey". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/t.php>] Accessed August 2020

[4] LawsTurkey. "5977 Law on Biosafety". [<http://www.lawsturkey.com/law/law-on-bio-safety-5977>] Accessed August 2020

[5] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLİNİK MİKROBİYOLOJİ LABORATUVARLARINDA BİYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyogüvenlikpdf.pdf?0>] Accessed December 2018

[6] Biosafety Clearing House (BCH). "Country Profile". <https://bch.cbd.int/about/countryprofile.shtml?country=tr>] Accessed August 2020

[6] Biosafety Clearing House (BCH). "Parties to the Cartagena Protocol and its Supplementary Protocol on Liability and Redress." [<https://bch.cbd.int/protocol/parties>] Accessed August 2020

[7] Republic of Turkey Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[8] Republic of Turkey Ministry of Agriculture and Forestry. "Legislation (Mevzuat)". [<https://www.tarimorman.gov.tr/Mevzuat>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[10] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 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 evidence that Turkey has at present at least one agency responsible for the enforcement of biosafety legislation and regulations. One of the country's laws, Bylaw of 15 June 2013 on the Prevention of Exposure Risks to Biological Agents, directly addresses general biosafety issues arising from the handling of dangerous biological agents. This bylaw directs the Minister of Labor and Social Security to execute its provisions. [1]

Other evidence indicates that other ministries play similarly responsible roles in biosafety enforcement, particularly the Ministry of Agriculture and Forestry. For example, a 2011 report by the National Academies Press on biosecurity challenges and high-containment biological laboratories indicates that at that time Turkey had seven high-containment biological (high BSL) laboratories, four under the control of the then-Ministry of Agriculture and Rural Affairs, and three under the Ministry of Health. [2]

Turkey's dedicated Biosafety Law, Law 5977 of 2010, established a biosafety/biosecurity system, although with specific regard to preventing the risks from GMOs. Under this law, an agency called the Biosafety/Biosecurity Board (Biyogüvenlik Kurulu) was established to implement this system. [3] However, it was disbanded in August 2018 and its duties were assigned to the Ministry of Agriculture and Forestry. [4]

[1] Republic of Turkey Official Gazette (T.C. Resmî Gazete). 15 June 2013. "REGULATION ON THE PREVENTION OF THE RISKS OF EXPOSURE TO BIOLOGICAL EFFECTS (B?YOLOJİK ETKENLERE MARUZ?YET R?SKLER?N?N ÖNLENMES? HAKKINDA YÖNETMELİK)". [<http://www.resmigazete.gov.tr/eskiler/2013/06/20130615-3.htm>] Accessed August 2020

[2] Hüseyin Avni ökte. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[3] VERTIC. 2020. BWC Legislation Database. [<https://www.vertic.org/programmes/biological-weapons-and-materials/bwc-legislation-database/t/>] Accessed August 2020

[4] Tarlasera. August 10 2018. "No more Biosafety Board! (Artik Biyogüvenlik Kurulu yok!)."

[<https://www.tarlasera.com/haber-11565-artik-biyogüvenlik-kurulu-yok!>] Accessed August 2020

1.4.2 Biosafety training and practices

1.4.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey requires biosafety training, using a standardized, required approach, for personnel working in facilities housing or working with especially dangerous pathogens, toxins, or biological materials with pandemic potential. The Turkish word for the term, biyogüvenlik, covers both biosafety and biosecurity, and in Turkey policymaking on the issue mostly relates to controlling the risk created by genetically modified organisms (GMOs). [1] Biosafety training as was provided through its now-defunct Biosafety Board focused on such issues as controlling the risk of GMOs in local agriculture. [2, 5]

That said, specific official guidance exists for training personnel in biosafety issues in a context other than relating to GMOs. In its body of regulations and protocols, the Inspection and Diagnostic Services Department of Turkey's Ministry of Health does have a regulatory guide on biosecurity/biosafety in clinical microbiology laboratories. [3] It was issued in 2012 by the state-run Gülhane Military Medical Academy (now the Gülhane Training and Research Hospital), the oldest medical institution in the country. It divides microbiological risk into four levels and biosafety/security into primary and secondary prevention stages. It mandates safety/security-related training programmes for all lab personnel that will be exposed to biological materials. The guide provides a framework for such training rather than stipulating specific procedures. [4] While the guide itself does not appear to have force of law, its principles are underpinned by the more than two dozen Turkish laws on occupational health and safety which it cites. [4] Two key laws in this regard are the Occupational Health and Safety Law No. 6331 of June 30 2012 and the Regulation on the Prevention of Risks of Exposure to Biological Factors of June 15 2013; both mandate that employees receive formal and regularized training on the use and handling of any hazardous materials that they may be involved with. [8, 9] Another official guide, issued in 2014 by the Ministry of Health's Department of Microbiology Reference Laboratories, requires the regularized training of personnel on biosafety/biosecurity risk appraisal and management. Laboratories are required to issue their own specific biosafety/biosecurity guides for their personnel. Training frameworks must incorporate the four thematic areas of planning, implementation, control and improvement. Otherwise, the guide gives the laboratories ample leeway to design their own training programs, so long as these programs follow the provisions contained in Turkey's numerous laws on occupational health and safety.[10]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [6] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. In the document, Turkey does not describes the training methods it uses for the enforcement of biosafety legislation and regulations. It does, however, indicate that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [7]

[1] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[2] Republic of Turkey. Turkey Biosafety Information Exchange Mechanism (Türkiye Biyogüvenlik Bilgi De?i?im Mekanizmas?). "Training (Egitim)". [<http://tbbdm.gov.tr/Egitim2.aspx>] Accessed August 2020

[3] Republic of Turkey Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Te?his Hizmetleri Dairesi Ba?kanl???). "Legislation (Mevzuat)". [<http://www.laboratuvar.saglik.gov.tr/TR,4369/mevzuat.html>] Accessed August 2020

[4] Gülhane Military Medical Academy (Gülhane Askeri Tip Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KL?N?K M?KROB?YOLOJ? LABORATUVARLARINDA B?YOGüVENL?K). [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyogüvenlikpdf.pdf?0>] August 2020

[5] Tarlasera. 10 August 2018. "No more Biosafety Board! (Art?k Biyogüvenlik Kurulu yok!)". [<https://www.tarlasera.com/haber-11565-artik-biyogüvenlik-kurulu-yok!>] Accessed August 2020

[6] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 2020

[8] Republic of Turkey. Official Gazette. June 30 2012. No. 28339. "Occupational Health and Safety Law (IŞ SAĞLIĞI VE GÜVENLİĞİ KANUNU)." [<https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf>] Accessed October 2020

[9] Republic of Turkey. Official Gazette. June 15 2013. "Regulation on the Prevention of Risks of Exposure to Biological Factors (Biyolojik Faktörlere Maruz Kalınma Risklerinin Önlenmesi Hakkında Yönetmelik)." [<https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6332.pdf>] Accessed October 2020

[10] Ministry of Health. "Regulation on the Prevention of Risks of Exposure to Biological Factors (Biyolojik Faktörlere Maruz Kalınma Risklerinin Önlenmesi Hakkında Yönetmelik)." [<https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6332.pdf>] Accessed October 2020

[9] Republic of Turkey. Official Gazette. June 15 2013. No. 28678. "REGULATION ON PREVENTION OF RISKS OF EXPOSURE TO BIOLOGICAL FACTORS (BIYOLOJIK ETKENLERE MARUZİYET RİSKLERİNİN ÖNLENMESİ HAKKINDA YÖNETMELİK."

[<https://www.resmigazete.gov.tr/eskiler/2013/06/20130615-3.htm>.] Accessed October 2020

[10] Republic of Turkey. Ministry of Health.General Directorate of Public Health. Department of Microbiology Reference Laboratories. 2014. "National Microbiology Standards LABORATORY SECURITY GUIDE (Ulusal Mikrobiyoloji Standartları LABORATUVAR GUVENLIGI REHBERI)."

{https://hsgm.saglik.gov.tr/depo/birimler/Mikrobiyoloji_Referans_Laboratuvarlari_ve_Biyolojik_Urunler_DB/rehberler/LaboratuvarGuvencilikRehberi.pdf} Accessed October 2020

1.5 DUAL-USE RESEARCH AND CULTURE OF RESPONSIBLE SCIENCE

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

1.5.1a

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

Yes = 1 , No = 0

Current Year Score: 0

Publicly available evidence does not indicate that Turkey has conducted an assessment to determine whether ongoing research is occurring on especially dangerous pathogens, toxins, pathogens with pandemic potential. Key government entities give no such indication. For example, the Ministry of Health's Inspection and Diagnostic Services Department, which is in charge of overseeing microbiology laboratories in the country, gives no indication of either conducting dual-use (çift kullanım) research or assessing whether it is being conducted. [1] Likewise, the agriculture and defence ministries provide no evidence of addressing this subject. [2, 3]

Some Turkish regulations address the topic of dual use materials, but not research per se. A 2012 regulation on managing chemical, biological, radiological and nuclear (CBRN) hazards mandates the Ministry of Foreign Affairs and Customs Authority to monitor and track dual-use materials in the areas under their authority, such as in import-export movements, by executing monitoring programs in conjunction with "relevant institutions, organizations and laboratories." [4] A 2007 regulation directs Turkey's Atomic Energy Agency (Türkiye Atom Enerjisi Kurumu--TEAK) to execute official policies on the export of nuclear dual-use research and technology. [5] Similarly, the VERTIC BWC Legislation Database lists a handful of laws that regulate and control industrial entities producing war materials and require notification on the application and export of dual-use goods, but they do not specifically address research on dangerous pathogens. [6] Otherwise, there is next to no publicly available evidence of dual-use research, or surveillance thereof, being conducted in Turkey.

A 2016 article by the Scientific and Technological Research Council of Turkey (TÜBİTAK) mentions the potential for conducting dual-use technology research, but only in the context of the aerospace industry. [7]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [8] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. While in the document Turkey does not mention its policy on dual-use research, it does indicate that it no longer operates national

biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [9]

[1] Republic of Turkey. Ministry of Health of Turkey. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). [<http://www.laboratuvar.saglik.gov.tr/>] Accessed August 2020

[2] Republic of Turkey. Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Değerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Değerlendirme-Hizmetleri>] Accessed August 2020

[3] Republic of Turkey. Ministry of Defense (Milli Savunma Bakanlığı). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[4] Republic of Turkey. Official Gazette (Resmî Gazete) No. 28281 May 3 2012. "REGULATION From the Prime Ministry (Disaster and Emergency Management Presidency): REGULATION ON CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR HAZARD DUTIES (YÖNETMELİK Başbakanlık (Afet ve Acil Durum Yönetimi Başkanlığı)'tan: KİMYASAL, BİYOLOJİK, RADYOLOJİK VE NÜKLEER TEHLİKELERE DAİR GÖREV YÖNETMELİĞİ)." [[https://www.resmigazete.gov.tr/eskiler/2012/05/20120503-3.htm#:~:text=MADDE%201%20%E2%80%93%20\[1\]%20Bu,tedbirlerin%20ald%C4%B1r%C4%B1lmas%C4%B1%20amac%C4%B1yla%20ilgili%20bakanl%C4%B1k%2C](https://www.resmigazete.gov.tr/eskiler/2012/05/20120503-3.htm#:~:text=MADDE%201%20%E2%80%93%20[1]%20Bu,tedbirlerin%20ald%C4%B1r%C4%B1lmas%C4%B1%20amac%C4%B1yla%20ilgili%20bakanl%C4%B1k%2C)] Accessed August 2020

[5] Republic of Turkey. Official Gazette (Resmî Gazete) No. 26642 13 September 2007. "From Atomic Energy Agency of Turkey: REGULATION ON THE PROVISION OF THE DOCUMENT THAT IS BASED ON IMPLEMENTATION OF NUCLEAR AND NUCLEAR DUAL-USE ITEMS (Türkiye Atom Enerjisi Kurumundan: NÜKLEER VE NÜKLEER ÇEFT KULLANIMLI EYALARIN HIRACATINDA ZNE ESAS OLACAK BELGENİN VERİLMESİNE İLİŞKİN YÖNETMELİK)".

[<http://www.resmigazete.gov.tr/eskiler/2007/09/20070913-2.htm>] Accessed August 2020

[6] VERTIC. BWC Legislation Database. "Turkey". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/t.php>] Accessed August 2020

[7] Scientific and Technological Research Council of Turkey (TÜBİTAK). 2016. "05/12 / 16--07: 40: Turkish Aerospace Workshop Ends (05/12/16--07:40: Türk Havacılık ve Uzay Çalistayı Sona Erdi)". [http://kurumu22.rssing.com/chan-34606378/all_p19.html] Accessed August 2020

[8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 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

Publicly available evidence does not indicate that Turkey has a national policy requiring oversight of dual-use research on especially dangerous pathogens, toxins, pathogens with pandemic potential. Key government entities give no such indication. For example, the Ministry of Health's Inspection and Diagnostic Services Department, which is in charge of overseeing microbiology laboratories in the country, gives no indication of either conducting dual-use (çift kullanım) research or assessing whether it is being conducted. [1] Likewise, the agriculture and defence ministries provide no evidence of addressing this subject. [2, 3]

Some Turkish regulations address the topic of dual use materials, but not research per se. A 2012 regulation on managing

chemical, biological, radiological and nuclear (CBRN) hazards mandates the Ministry of Foreign Affairs and Customs Authority to monitor and track dual-use materials in the areas under their authority, such as in import-export movements, by executing monitoring programs in conjunction with "relevant institutions, organizations and laboratories." [4] A 2007 regulation directs Turkey's Atomic Energy Agency (Türkiye Atom Enerjisi Kurumu--TEAK) to execute official policies on the export of nuclear dual-use research and technology. [5] Similarly, the VERTIC BWC Legislation Database lists a handful of laws that regulate and control industrial entities producing war materials and require notification on the application and export of dual-use goods, but they do not specifically address research on dangerous pathogens. [6] Otherwise, there is next to no publicly available evidence of dual-use research, or surveillance thereof, being conducted in Turkey.

A 2016 article by the Scientific and Technological Research Council of Turkey (TüBİTAK) mentions the potential for conducting dual-use technology research, but only in the context of the aerospace industry. [7]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [8] According to the form submissions Turkey has made in this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. While in the document Turkey does not mention its policy on dual-use research, it does indicate that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [9]

[1] Republic of Turkey. Ministry of Health of Turkey. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Baskanligi). [<http://www.laboratuvar.saglik.gov.tr/>] Accessed August 2020

[2] Republic of Turkey. Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk De?erlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020

[3] Republic of Turkey. Ministry of Defense (Milli Savunma Bakanligi). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020

[4] Republic of Turkey. Official Gazette (Resmî Gazete) No. 28281 May 3 2012. "REGULATION From the Prime Ministry (Disaster and Emergency Management Presidency): REGULATION ON CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR HAZARD DUTIES (YÖNETMELİK Başbakanlık (Afet ve Acil Durum Yönetimi Başkanlığı)'tan: KİMYASAL, BİYOLOJİK, RADYOLOJİK VE NÜKLEER TEHLİKELERE DAİR GÖREV YÖNETMELİĞİ)." [[%20Bu,tedbirlerin%20ald%C4%B1r%C4%B1lmas%C4%B1%20amac%C4%B1yla%20ilgili%20bakanl%C4%B1k%2C](https://www.resmigazete.gov.tr/eskiler/2012/05/20120503-3.htm#:~:text=MADDE%201%20%E2%80%93%20[1)] Accessed August 2020

[5] Republic of Turkey. Official Gazette (Resmî Gazete) No. 26642 13 September 2007. "From Atomic Energy Agency of Turkey: REGULATION ON THE PROVISION OF THE DOCUMENT THAT IS BASED ON IMPLEMENTATION OF NUCLEAR AND NUCLEAR DUAL-USE ITEMS (Türkiye Atom Enerjisi Kurumundan: NÜKLEER VE NÜKLEER Ç?FT KULLANIMLI E?YALARIN ?HRACATINDA ?ZNE ESAS OLACAK BELGEN?N VER?LMES?NE ?L??K?N YÖNETMEL?K)".

[6] VERTIC. BWC Legislation Database. "Turkey". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/t.php>] Accessed August 2020

[7] Scientific and Technological Research Council of Turkey (TüBİTAK). 2016. "05/12 / 16--07: 40: Turkish Aerospace Workshop Ends (05/12/16--07:40: Türk Havacılık ve Uzay Çalıştayı Sona Erdi)". [http://kurumu22.rssing.com/chan-34606378/all_p19.html] Accessed August 2020

[8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 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

Publicly available evidence does not indicate that Turkey has an agency responsible for oversight of research with especially dangerous pathogens, toxins, pathogens with pandemic potential and/or other dual-use research. Key government entities give no such indication. For example, the Ministry of Health's Inspection and Diagnostic Services Department, which is in charge of overseeing microbiology laboratories in the country, gives no indication of either conducting dual-use (çift kullanim) research or assessing whether it is being conducted. [1] Likewise, the agriculture and defence ministries provide no evidence of addressing this subject. [2, 3]

Some Turkish regulations address the topic of oversight of dual use materials, but not oversight of research per se. A 2012 regulation on managing chemical, biological, radiological and nuclear (CBRN) hazards mandates the Ministry of Foreign Affairs and Customs Authority to monitor and track dual-use materials in the areas under their authority, such as in import-export movements, by executing monitoring programs in conjunction with "relevant institutions, organizations and laboratories." [4] A 2007 regulation directs Turkey's Atomic Energy Agency (Türkiye Atom Enerjisi Kurumu--TEAK) to execute official policies on the export of nuclear dual-use research and technology. [5] Similarly, the VERTIC BWC Legislation Database lists a handful of laws that regulate and control industrial entities producing war materials and require notification on the application and export of dual-use goods, but they do not specifically address oversight of research on dangerous pathogens. [6] Otherwise, there is next to no publicly available evidence of dual-use research, or surveillance thereof, being conducted in Turkey.

A 2016 article by the Scientific and Technological Research Council of Turkey (TÜBİTAK) mentions the potential for conducting dual-use technology research, but only in the context of the aerospace industry. [7]

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[1] Republic of Turkey. Ministry of Health of Turkey. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Baskanligi). [http://www.laboratuvar.saglik.gov.tr/] Accessed August 2020

[2] Republic of Turkey. Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Değerlendirme Hizmetleri)". [https://www.tarimorman.gov.tr/Konular/Risk-Değerlendirme-Hizmetleri] Accessed August 2020

[3] Republic of Turkey. Ministry of Defense (Milli Savunma Bakanligi). Website. [https://www.msb.gov.tr/en-US] Accessed August 2020

[4] Republic of Turkey. Official Gazette (Resmî Gazete) No. 28281 May 3 2012. "REGULATION From the Prime Ministry

(Disaster and Emergency Management Presidency): REGULATION ON CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR HAZARD DUTIES (YÖNETMELİK Başbakanlık (Afet ve Acil Durum Yönetimi Başkanlığı)'tan: KİMYASAL, BİYOLOJİK, RADYOLOJİK VE NÜKLEER TEHLİKELERE DAİR GÖREV YÖNETMELİĞİ)." [[https://www.resmigazete.gov.tr/eskiler/2012/05/20120503-3.htm#:~:text=MADDE%201%20%E2%80%93%20\[1](https://www.resmigazete.gov.tr/eskiler/2012/05/20120503-3.htm#:~:text=MADDE%201%20%E2%80%93%20[1)

%20Bu,tedbirlerin%20ald%C4%B1r%C4%B1lmas%C4%B1%20amac%C4%B1yla%20ilgili%20bakanl%C4%B1k%2C] Accessed August 2020

[5] Republic of Turkey. Official Gazette (Resmî Gazete) No. 26642 13 September 2007. "From Atomic Energy Agency of Turkey: REGULATION ON THE PROVISION OF THE DOCUMENT THAT IS BASED ON IMPLEMENTATION OF NUCLEAR AND NUCLEAR DUAL-USE ITEMS (Türkiye Atom Enerjisi Kurumundan: NÜKLEER VE NÜKLEER Ç?FT KULLANIMLI E?YALARIN ?HRACATINDA ?ZNE ESAS OLACAK BELGEN?N VER?LMES?NE ?L??K?N YÖNETMEL?K)".

[<http://www.resmigazete.gov.tr/eskiler/2007/09/20070913-2.htm>] Accessed August 2020

[6] VERTIC. BWC Legislation Database. "Turkey". [<http://www.vertic.org/pages/homepage/programmes/national-implementation-measures/biological-weapons-and-materials/bwc-legislation-database/t.php>] Accessed August 2020

[7] Scientific and Technological Research Council of Turkey (TÜBİTAK). 2016. "05/12 / 16--07: 40: Turkish Aerospace Workshop Ends (05/12/16--07:40: Türk Havacılık ve Uzay Çalıştayı Sona Erdi)". [http://kurumu22.rssing.com/chan-34606378/all_p19.html] Accessed August 2020

[8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020

[9] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 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

Although Turkish legislation requires the assessment of synthesized DNA before it is placed on the market, the main law on the subject provides little specific guidance on the assessment process, such as the use of screening methods.

The Biosafety/Biosecurity Law of 2010 is the country's key piece of legislation that addresses synthesized DNA. It strictly controls the use of genetically modified organisms (GMOs) and requires all GMOs, including imports, to be rigorously tested before being approved for use in the country. The law also bans the domestic production of genetically modified plants and animals. Article 4 of the law states that "...each GMO or product thereof for which an application is submitted under the present Law, is separately subjected to a risk assessment and socio-economic evaluation based on scientific principles." [1] The law does not elaborate on the relevant methods to be used. [2]

Moreover, none of the key government entities relevant to the control of synthetic DNA--the Ministry of Transport, Ministry of Health, the Ministry of Defence and Ministry of Agriculture and Forestry--indicate that they regulate the assessment of synthesized DNA through screening methods. [3, 4, 5, 6]

Finally, Turkey has submitted 28 annual reports on Confidence-Building Measures under the Biological Weapons Convention; the most recent, publicly available of these reports dates to 2018. [7] According to the form submissions Turkey has made in

this document for Confidence-Building Measure "E", it has declared that it has adopted biosafety and biosecurity legislation, regulations and other measures against the development, production stockpiling, acquisition, retention, export and import of especially dangerous pathogens and toxins and their means of delivery as specified in Article I of the Convention. While in the document Turkey does not specifically mention its policy on synthesized DNA, it does indicate that it no longer operates national biological defence research and development programmes, that it does not possess a biosafety level 4 (BSL4) facility, but that it does operate BSL3 and BSL2 facilities. [8]

- [1] Republic of Turkey. Official Gazette (Resmî Gazete). 26 March 2010 No 27533. "BIOSAFETY/SECURITY LAW Law No. 5977 (B?YOGÜVENLİK KANUNU Kanun No. 5977)". [<http://www.resmigazete.gov.tr/eskiler/2010/03/20100326-7.htm>] Accessed August 2020 Text of the draft law in English: [https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Text%20of%20New%20Biosafety%20Law%20in%20English_Ankara_Turkey_3-23-2010.pdf] Accessed August 2020
- [2] Graham Brookes. 2012. "Economic impacts of the Biosafety Law and implementing regulations in Turkey on the Turkish importing and user sectors." [<https://www.pgeconomics.co.uk/pdf/Turkey.pdf>] Accessed August 2020
- [3] Republic of Turkey. Ministry of Transport and Infrastructure. Website. [<http://www.udhb.gov.tr/eng/anasayfa>] Accessed August 2020
- [4] Republic of Turkey. Ministry of Health. Inspection and Diagnostic Services Department (Tetkik ve Teshis Hizmetleri Dairesi Başkanlığı). [<http://www.laboratuvar.saglik.gov.tr/>] Accessed August 2020
- [5] Republic of Turkey. Ministry of Agriculture and Forestry. "Risk Assessment Services (Risk Değerlendirme Hizmetleri)". [<https://www.tarimorman.gov.tr/Konular/Risk-Degerlendirme-Hizmetleri>] Accessed August 2020
- [6] Republic of Turkey. Ministry of Defense (Milli Savunma Bakanlığı). Website. [<https://www.msb.gov.tr/en-US>] Accessed August 2020
- [7] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." [<https://bwc-ecbm.unog.ch/state/turkey>] Accessed August 2020
- [8] United Nations Office at Geneva (UNOG). Biological Weapons Convention Implementation Support Unit. "Confidence-Building Measures." "bwc_cbm_2018_turkey." [https://bwc-ecbm.unog.ch/system/files/form-pdf/bwc_cbm_2018_turkey.pdf] Accessed August 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

Turkey's national laboratory system has the capacity to conduct diagnostic tests for at least 5 of the 10 WHO-defined core tests. The diagnostic testing standards for 60 different infectious diseases are set by law, specifically by a Ministry of Health regulation issued in May 2007. The regulation specifies laboratory criteria for influenza, polio, HIV, mycobacterium tuberculosis, malaria, Salmonella Typhi among the others. [1]

The latest report published on August 25 2020 by the Ministry of Health on official test codes for laboratory tests on infectious diseases lists several codes for PCR testing for: 1) polymerase chain reaction (PCR) testing for Influenza virus (flu); 2) virus culture for poliovirus (polio); 3) ELISA, RT-PCR and serology for HIV; 4) microscopy and spoligotyping (PCR) for mycobacterium tuberculosis; 5) rapid diagnostic testing for plasmodium spp. (malaria); and 6) bacterial culture for Salmonella enteritidis serotype Typhi (typhoid). [2]

[1] Republic of Turkey. Official Gazette (Resmî Gazete) 30 May 2007 No: 26537, "REGULATION BY THE MINISTRY OF HEALTH: REGULATION FOR THE BASES OF SURVEILLANCE AND CONTROL OF INFECTIOUS DISEASES (YÖNETMELİK Sağlık Bakanligindan: BULASICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELIGI).

[<http://www.resmigazete.gov.tr/eskiler/2007/05/20070530-9.htm>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. Public Health Agency of Turkey. August 25 2020. "MICROBIOLOGY REFERENCE LABORATORIES AND BIOLOGICAL PRODUCTS DEPARTMENT: LIST OF CURRENT ANALYSES (MIKROBIOLOJİ REFERANS LABORATUVARLARI VE BİYOLOJİK ÜRÜNLER DAİRE BAŞKANLIĞI: GÜNCEL ANALİZLER LİSTESİ)."

[https://hsgm.saglik.gov.tr/depo/kurumsal/plan-ve-faaliyetler/Guncel_Calisilan_Analizler_listesi.pdf] Accessed August and October 2020

2.1.1b

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

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

Current Year Score: 1

Turkey has one national plan for conducting testing during a public health emergency, but there is insufficient evidence that it includes considerations for testing for novel pathogens, scaling capacity, and defining goals for testing. This plan was devised specifically to address the COVID-19 pandemic in 2020, yet it lays the groundwork for expanding testing and surveillance for future pandemics. Otherwise, existing plans for such emergencies focus on preemptive (training, capacity-building, surveillance) and reactive (response, notification, containment) strategies; evidence of specific plans for testing for novel pathogens and building testing capacity is sparse.

The outbreak of the COVID-19 coronavirus pandemic in March 2020 has led Turkey to adopt at least one plan that creates a framework for the expansion of testing and surveillance for this and future pandemics. This plan is the Turkey Covid-19 Emergency Health Project Stakeholder Engagement Plan, which the health ministry proposed in April 2020 and adopted in final form only in September of that year. One of its component goals is "Strengthening testing and surveillance systems and procurement of front-line equipment..." in relation to cases arising from the COVID-19 emergency." However, an accompanying goal aims at "Upgrading pandemic surveillance and response plans", in a manner to build capacity in preparedness--including the capacity for immediate testing--with an eye towards future pandemic events. To realise its goals, the plan draws upon the contributions of a wide variety of public- and private-sector stakeholders, including the general public, the central, provincial and municipal governments, academics, religious institutions, third-party vendors, NGOs, and medical and healthcare associations. [9, 10]

Otherwise, evidence does not show that the Turkish government has a comprehensive strategy in place on expanding testing capacity in pandemics. None of the Ministry of Health's key entities that lead national strategy on public health emergencies (on infectious disease, on emergency health services, and on microbiology reference laboratories), give indication of having a policy to conduct and expand testing of pathogens during such events. [2, 3, 7, 8]

In May 2020 the health ministry adopted a new Hospital Disaster and Emergency Plans Implementation Regulation, mandating all hospitals to have in place emergency plans and damage mitigation measures to autonomously provide health services within the first 72 hours of a public health disaster. The regulation does not discuss testing. [5] Another plan of the ministry, to address health emergencies (including infectious disease outbreaks) in the provinces, was withdrawn in 2017 before being implemented. [6]

Much of the day-to-day implementation of national policy on infectious diseases lies with the ministry's provincial health directorates. An example is that of Bursa Province, which fields units known as Communicable Disease Control Programs Units (Bulaşıcı Hastalık Kontrol Programları Birimleri). However, in spite of their front-line role, these units provide no direct evidence of testing for novel pathogens as a routine rather than as a contingency. [3] Similarly, the Ministry of Agriculture provides no evidence that it has a testing policy for human-borne pathogens. [4]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. Infectious Diseases Department. 2020. Website. [<https://hsgm.saglik.gov.tr/bulasicihastaliklar-anasayfa>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. 2020. Website. [<https://acilafet.saglik.gov.tr/>] Accessed August 2020

[3]

[3] Republic of Turkey. Ministry of Health. Bursa Province Health Directorate. 2020. "Communicable Disease Control Programs Unit." [https://bursaism.saglik.gov.tr/TR,92506/bulasici-hastalik-kontrol-programlari-birimi.html] Accessed August 2020

[4] Republic of Turkey. Ministry of Agriculture and Forestry. 2020. Website. [https://www.tarimorman.gov.tr/] Accessed August 2020

[5] Republic of Turkey. Official Gazette (Resmi Gazete). March 18 2020 No. 31072. "HOSPITAL DISASTER AND EMERGENCY PLANS (HAP) IMPLEMENTATION REGULATION (HASTANE AFET VE ACIL DURUM PLANLARI (HAP) UYGULAMA YÖNETMELİĞİ)." [https://www.resmigazete.gov.tr/eskiler/2020/03/20200318-2.htm] Accessed August 2020

[6] Umke.org. October 10 2017. "Provincial Health Disaster and Emergency Plan (İL-SAP) Implementation Directive Repealed (İL Sağlık Afet ve Acil Durum Planı (İL-SAP) Uygulama Yönergesi Yürürlükten Kaldırıldı)." [https://www.umke.org/saglik-bakanligi/il-saglik-afet-ve-acil-durum-planı-il-sap-uygulama-yonergesi-yururlukten-kaldirildi-h9599.html] Accessed August 2020

[7] Republic of Turkey. Ministry of Health.General Directorate of Public Health. Department of Microbiology Reference Laboratories and Biological Products. 2020. Webpage. [https://hsgm.saglik.gov.tr/tr/mikrobiyoloji-anasayfa] Accessed October 2020

[8] Republic of Turkey. Ministry of Health.General Directorate of Public Health. Department of Microbiology Reference Laboratories. 2014. "National Microbiology Standards LABORATORY SECURITY GUIDE (Ulusal Mikrobiyoloji Standartları LABORATUVAR GUVENLİĞİ REHBERİ)." [https://hsgm.saglik.gov.tr/depo/birimler/Mikrobiyoloji_Referans_Laboratuvarlari_ve_Biyolojik_Urunler_DB/rehberler/LaboratuvarGuvencilikRehberi.pdf] Accessed October 2020

[9] Republic of Turkey. Ministry of Health. April 8 2020. "TURKEY EMERGENCY COVID-19 HEALTH PROJECT Stakeholder Engagement Plan." [https://pydb.saglik.gov.tr/TR,75092/covid-19-saglikta-acil-durum-projesi-yedek.html] Accessed April 2021

[10] Republic of Turkey. Ministry of Health. September 2020. "FINAL STAKEHOLDER ENGAGEMENT PLAN TURKEY COVID-19 EMERGENCY HEALTH PROJECT 2020 (NİHAİ PAYDAŞ KATILIM PLANI TÜRKİYE COVID-19 SAĞLIKTA ACIL DURUM PROJESİ 2020)." [https://pydb.saglik.gov.tr/Eklenti/38688/0/covid19paydaskatilimplani1taslakpdf.pdf] Accessed April 2021

2.1.2 Laboratory quality systems

2.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey's National Public Health Reference Laboratory (Ulusal Halk Sağlığı Referans Laboratuvarı), part of the General Directorate of Public Health at the Ministry of Health, oversees several different microbiology reference laboratories operating under the EC 17025 accreditation scheme. The EC 17025 standard (updated in 2017) specifies the level and type of competence needed to carry out testing and/or calibrations, using standard methods, non-standard methods, and laboratory-developed methods. [1]

According to the 2019 annual report published by the General Directorate of Public Health's Planning and Coordination Unit as of that year, 18 of its microbiology reference laboratories around the country were accredited under EC 17025, including the overseeing authority, the National Public Health Reference Laboratory, itself. [2]

[1] International Organization for Standardization (ISO). "ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories". [<https://www.iso.org/standard/39883.html>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2018. "UNIT ANNUAL REPORT CONSUMER SAFETY AND PUBLIC HEALTH LABORATORIES OF TURKEY Planning and Coordination Unit (BIRIM FAALİYET RAPORU TÜKETİCİ GÜVENLİĞİ VE HALK SAĞLIĞI LABORATUVARLARI DAİRESİ BASKANLIĞI Planlama ve Koordinasyon Birimi." [https://hsgm.saglik.gov.tr/depo/birimler/tuketici-guvenligi-halk-sagligi-lab-db/TGHSLDB-2019_Faliyet_Raporu.pdf] Accessed August 2020 Other sources: Republic of Turkey. Ministry of Health. General Directorate of Public Health. Department of Consumer Safety and Public Health Laboratories. "Accredited Laboratories (Akredite Laboratuvarlar)." [<https://hsgm.saglik.gov.tr/tr/akredite-laboratuvarlar/liste>] Accessed August 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

There is evidence that the national laboratory that serves as a reference facility is subject to external quality assurance review (EQA). According to the WHO, Turkey's Public Health Institution participates both in CAESAR EQA and has a laboratory quality assessment system in place. [4]

According to the 2019 annual report published by the General Directorate of Public Health's Planning and Coordination Unit, at Turkey's Ministry of Health, 18 microbiology reference laboratories operating under it, including the National Public Health Reference Laboratory, are accredited under the EC 17025 calibration standard. However, the report does not mention if any of these are subject to EQA review. [1] The 2018 annual report does, however, indicate that in 2017 an External Quality Assessment Laboratory was established in Public Health Laboratory of Istanbul No. 1 in 2017, with initial focus on water chemistry analysis in Public Health Laboratories. Further applications of EQA testing are under development. [2]

Nevertheless, there is other evidence that the government's microbiology labs do undergo EQA such as when being the focus of other initiatives. For example, Turkey's National Antimicrobial Resistance Surveillance System (UAMDSS) conducts external quality assurance review of the microbiology labs each year, for which it publishes an annual report, most recently for 2016. [3]

[1] Ministry of Health of Turkey. General Directorate of Public Health. 2019. "UNIT ANNUAL REPORT CONSUMER SAFETY AND PUBLIC HEALTH LABORATORIES OF TURKEY Planning and Coordination Unit (BIRIM FAALİYET RAPORU TÜKETİCİ GÜVENLİĞİ VE HALK SAĞLIĞI LABORATUVARLARI DAİRESİ BASKANLIĞI Planlama ve Koordinasyon Birimi." [https://hsgm.saglik.gov.tr/depo/birimler/tuketici-guvenligi-halk-sagligi-lab-db/TGHSLDB-2019_Faliyet_Raporu.pdf] Accessed August 2020

[2] Ministry of Health of Turkey. General Directorate of Public Health. 2018. "UNIT ANNUAL REPORT CONSUMER SAFETY AND PUBLIC HEALTH LABORATORIES OF TURKEY Planning and Coordination Unit (BIRIM FAALİYET RAPORU TÜKETİCİ GÜVENLİĞİ VE HALK SAĞLIĞI LABORATUVARLARI DAİRESİ BASKANLIĞI Planlama ve Koordinasyon Birimi." [https://hsgm.saglik.gov.tr/depo/birimler/tuketici-guvenligi-halk-sagligi-lab-db/Yillik_Faaliyet_raporu/TGHSLDB-2018_OCAK-ARALIK_DONEMI_FAALİYET_RAPORU.pdf] Accessed August 2020

[3] Ministry of Health of Turkey. General Directorate of Public Health. 2020. National Antimicrobial Resistance Surveillance System (UAMDSS). "External Quality Assessment Reports (Dış Kalite Değerlendirme Raporları)." [<https://hsgm.saglik.gov.tr/tr/uamdss>] Accessed August 2020

[4] World Health Organization (WHO). "Central Asian and Eastern European Surveillance of Antimicrobial Resistance: Annual report 2019". [https://www.euro.who.int/__data/assets/pdf_file/0003/418863/53373-WHO-CAESAR-annual-report-

2019.pdf] Accessed August 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

Evidence is lacking of a standard specimen transport system used nationwide in Turkey by clinics, laboratories and the like. However, there does exist a general specimen transport protocol, governed by a 2010 regulation of the Ministry of Health on transport of Categories A and B infectious substances and clinical samples according to International Air Transport Association (IATA) rules. [1]

Evidence indicates that especially dangerous pathogens, toxins, or biological materials with pandemic potential may be found in Turkey only in biological high-containment biological (BSL) laboratories, which numbered seven as of 2011. [2] The applicable official guide, on biosecurity/biosafety (biyogüvenlik) in clinical microbiology laboratories, contains a chapter devoted to the transport of Categories A and B infectious substances under IATA and United Nations standards. In this regard, this chapter of the guide is chiefly concerned with stipulating the methods for properly packing such substances for transport. The authorization of the health and/or agriculture ministries is needed to transport substances in these categories. [3]

There is evidence that private couriers can be used in Turkey to transport such substances. One local company, called Transorient, operates a Clinical Research and Biological Material Logistics service that offers cold chain packaging and domestic and international transport of these materials. However, it is not clear how much of the country these courier services cover. [4] Finally, no evidence is found of the existence of a national specimen transport system via the websites of the health and agriculture ministries. [5, 6]

[1] Republic of Turkey Official Gazette (Resmî Gazete). No 27710, 25 September 2010. "REGULATION ON TRANSPORT OF INFECTIOUS SUBSTANCES AND INFECTIOUS DIAGNOSIS AND CLINICAL SAMPLES (ENFEKSIYÖZ MADDE İLE ENFEKSIYÖZ TANI VE KLİNİK ÖRNEĞİ TASIMA YÖNETMELİĞİ)". [<http://www.resmigazete.gov.tr/eskiler/2010/09/20100925-5.htm>] Accessed August 2020

[2] Hüseyin Avni ökten. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[3] Gülhane Military Medical Academy (Gülhane Askeri Tıp Akademisi). 2012. "BIOSECURITY/SAFETY IN CLINICAL MICROBIOLOGY LABORATORIES (KLİNİK MIKROBİYOLOJİ LABORATUVARLARINDA BIYOGÜVENLİK)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2645,mikrobiyolojilabbiyogüvenlikpdf.pdf?0>] Accessed August 2020

[4] Transorient. "Bio-Pharma Logistics (Biyofarma Lojistik)". [<http://transorient.com.tr/uluslarasi-tasimacilik/biofarma-lojistik/>] Accessed August and October 2020

[5] Republic of Turkey Ministry of Health. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

[6] Republic of Turkey Ministry of Agriculture and Forestry. Website. [<https://www.tarimorman.gov.tr/>] Accessed August 2020

2.2.2 Laboratory cooperation and coordination

2.2.2a

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

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

Current Year Score: 0

Available evidence does not indicate that Turkey has a publicly available stand-alone 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. However, there is evidence that the country's public health laboratory system at the national level is actively engaged in assessing the capacity of the nation's laboratories. A new plan on pandemic influenza specifically addresses the issue of health system capacity during pandemic outbreaks, but does not focus on laboratories.

The body in charge of laboratories in Turkey is the Department of Consumer Safety and Public Health Laboratories at the Ministry of Health's General Directorate of Public Health. Its mission statement indicates that it plays a role in monitoring the conditions of the nation's laboratories, but does not show that it is tasked with expanding capacity during a public health emergency. [1] Other evidence indicates that this entity is actively engaged in evaluating the capacity of the national laboratory system. For example, its 2018 annual report clearly discusses the strong and weak points of its laboratory capacity evaluation process (robust EQA procedures in the former case and frequent personnel turnover in the latter), but does not mention health emergencies as a factor in evaluation. [2]

By contrast, the General Directorate of Public Health's new Pandemic Influenza National Preparation Plan, published in 2019, clearly states that the intense sample flow in the later stages of recent influenza outbreaks in Turkey showed that "...the number and capacity of the influenza reference laboratories were insufficient" .. and that.."The necessity to increase their number and capacity has emerged." [3] The plan does not, however, provide a direct roadmap for how such capacity is to be realized.

Finally, the Ministry of Agriculture and Forestry provides no evidence of having a plan to expand lab capacity during an outbreak. [4]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. Department of Consumer Safety and Public Health Laboratories. "Department of Consumer Safety and Public Health Laboratories Job Description (Tüketici Güvenliği ve Halk Sağlığı Laboratuvarları Dairesi Başkanlığı Görev Tanımı)." [<https://hsgm.saglik.gov.tr/tr/tghslldb-baskanligimiz/tghslldb-gorev-tanimi.html>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2018. "UNIT ANNUAL REPORT CONSUMER SAFETY AND PUBLIC HEALTH LABORATORIES OF TURKEY Planning and Coordination Unit (BİRİM FAALİYET RAPORU TÜKETİCİ GÜVENLİĞİ VE HALK SAĞLIĞI LABORATUVARLARI DAİRESİ BASKANLIĞI Planlama ve Koordinasyon Birimi)." [https://hsgm.saglik.gov.tr/depo/birimler/tuketici-guvenligi-halk-sagligi-lab-db/TGHSLDB-2019_Faliyet_Raporu.pdf] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August 2020

[4] Republic of Turkey. Ministry of Agriculture and Forestry. Website. [<https://www.tarimorman.gov.tr/>] Accessed August 2020

2.3 REAL-TIME SURVEILLANCE AND REPORTING

2.3.1 Indicator and event-based surveillance and reporting systems

2.3.1a

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

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

Current Year Score: 1

There is evidence that Turkey conducts ongoing event-based surveillance and analysis for infectious disease, but it is not clear if the resulting data are being analysed on a daily basis.

Such surveillance is conducted by the Health Threats Early Warning and Response Department, part of the Ministry of Health's General Directorate of Public Health. Evidence indicates that the surveillance it conducts is both indicator- and event-based, as mandated by law. [3, 4] It states that it works to observe changes in the prevalence of a disease or health condition, to find clues about the cause of diseases, to study occurrence and distribution trends and patterns, changes in disease agents and hosts, and changes in health care provision. The department's surveillance/data-collection system follows a closed-loop model, beginning with observation of an event by the healthcare system, continuing with the transfer of data to the surveillance system for analysis and closing with the return of a policy recommendation to the healthcare system. [1,2]

Case-based data collection is also undertaken by this department, to fulfil its ultimate mandate of analyzing and warning about public health threats. Data are collected in a "timely" and "systematic" matter, defining such collection according to the different characteristics of target groups and data sources and collection methods. Data sources include mortality figures; death report forms, hospital records, morbidity data, notifiable diseases, laboratory data, hospital data, outpatient clinic data, outbreak reports, laboratory results, demographic and environmental data. The department provides no indication of how frequently it collects its data. [1,2]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2020. Health Threats Early Warning and Response Department (Sağlık Tehditleri Erken Uyarı ve Cevap Dairesi Başkanlığı).

Website.[<https://hsgm.saglik.gov.tr/tr/sagliktehditleri-anasayfa.html>] Accessed August and October 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2020. Health Threats Early Warning and Response Department (Sağlık Tehditleri Erken Uyarı ve Cevap Dairesi Başkanlığı). "Surveillance System". [https://hsgm.saglik.gov.tr/depo/birimler/Saglik_Tehditleri_Erken_Uyari_ve_Cevap_db/dokumanlar2/Surveyans_Gel_istirme_ve_Degerlendirme/Surveyans_06.02.2019_4.pdf] Accessed August and October 2020.

[3] Republic of Turkey. Official Gazette (Resmi Gazete). No. 26537 of May 30 2007. "INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES REGULATION (BULAŞICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİ)". [<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=11347&MevzuatTur=7&MevzuatTertip=5>] Accessed August 2020

[4] Republic of Turkey. Official Gazette (Resmi Gazete). No. 30764 of May 4 2019. "INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES: AMENDMENTS TO THE REGULATION (BULAŞICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİNDE DEĞİŞİKLİK YAPILMASINA)". [<https://www.resmigazete.gov.tr/eskiler/2019/05/20190504-1.htm>] Accessed August 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

According to the World Health Organization (WHO), Turkey has not reported a potential public health emergency of international concern (PHEIC) to the WHO within the past two years. [1] No evidence is found via the Ministry of Health website either. [2]

[1] World Health Organization (WHO). "Emergencies preparedness, response: Turkey".

[<https://www.who.int/csr/don/archive/country/tur/en/>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health of Turkey. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

2.3.2 Interoperable, interconnected, electronic real-time reporting systems

2.3.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey's government operates health-related electronic reporting surveillance systems at both the national and sub-national level. The reporting system for infectious diseases was set in 2005, identifying 51 of them as notifiable, with sentinel surveillance put into practice for some diseases. These 51 diseases are ranked in four groups according to virulence, from A to D; Group A diseases, such as anthrax, malaria and typhoid, are the most serious, and Group D diseases, such as Listeria, the least serious. Cases of Group A diseases must be notified by all healthcare institutions in the country, starting at the primary level. [1, 2, 6]

For Groups A and B infectious diseases, initial notification is supplied via two sources--one managed by family physicians (Aile Hekimligi Bilgi Sistemi--AHBS) and the other by the hospital network (Hastane Bilgi Yönetim Sistemleri--HBYS). These notification sources are integrated in Turkey's national electronic health information system, known as e-saglik.gov. [2] Data required by this system are "...automatically generated by the healthcare provider information systems..." [5]

Data on Group C infectious diseases are entered directly by HBYS; data on Group D diseases are entered directly by laboratories into a separate system. [2, 3, 6] There are other, parallel electronic systems, such as the National Hospital Infections Surveillance Network (Ulusal Sağlık Hizmeti İlişkili Enfeksiyonlar Sürveyans Ağı--USHIESA), a password-protected service to report hospital infections. [4]

[1] Sehnaz TUMAY, Aysegul GOZALAN, Umit OZDEMIRER, M.D. 2007. "The Notification System of Communicable Diseases in Turkey." Republic of Turkey. Ministry of Health PowerPoint presentation.

[https://www.vhpb.org/files/html/Meetings_and_publications/Presentations/ISTS21.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. National Health System (Ulusal Sağlık Sistemi). Electronic health system web portal. [<https://e-saglik.gov.tr/>] Accessed August 2020

[3] Mehtap Tatar, Salih Mollahaliloglu, Bayram Şahin, Sabahattin Aydın, Anna Maresso, Cristina Hernández-Quevedo. Turkey: Health system review". Health Systems in Transition. Vol. 13 No. 6 2011 " World Health Organization (WHO).

[http://www.euro.who.int/__data/assets/pdf_file/0006/158883/e96441.pdf] Accessed August 2020

- [4] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "NATIONAL HEALTH SERVICE-RELATED INFECTIONS SURVEYANCE NETWORK SUMMARY REPORT 2019 (ULUSALSAĞLIK HİZMETİ İLİŞKİLİ ENFEKSİYONLAR SÜRVEYANS AĞI ÖZET RAPORU 2019)." [https://hsgm.saglik.gov.tr/depo/birimler/Bulasici-hastaliklar-db/hastaliklar/SHIE/Raporlar/USHESA_Ozet_Raporu_2019.pdf] Accessed August 2020
- [5] A. Dogac, M. Yuksel, G. L. Erturkmen, Y. Kabak, T. Namli, M. H. Y?ld?z, Y. Ay, B. Ceyhan, ü. Hülür, H. öztürk and E. Atbakan. "Healthcare Information Technology Infrastructures in Turkey". Yearbook of Medical Informatics. 2014; 9[1] : 228-234. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4287091/>] Accessed August 2020
- [6] Republic of Turkey. Ministry of Health. 20 October 2016. "REGULATIONS ON INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES (BULASICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİ)". [<https://www.saglik.gov.tr/TR,10488/bulasici-hastaliklar-surveyans-ve-kontrol-esaslari-yonetmeligi.html>] Accessed August 2020 PowerPoint presentation: [<https://dosyaism.saglik.gov.tr/Eklenti/18896,bulasici-hastaliklarin-ihbar-ve--bildirim-sistemi-genel-v6pptx.pptx?0>]

2.3.2b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence to confirm that Turkey's electronic reporting surveillance system collects ongoing or real-time laboratory data. It is unclear if the part of Turkey's infectious-disease surveillance system controlled by laboratories is fully electronic, at the level of the provincial community health centers. Turkey's Ministry of Health does, however, run an early warning and response system for health threats, in which laboratories play a key data-collection and -processing role.

The reporting system for infectious diseases was set in 2005, identifying 51 of them as notifiable, with sentinel surveillance put into practice for some diseases. These 51 diseases are ranked in four groups according to virulence, from A to D; Group A diseases, such as anthrax, malaria and typhoid, are the most serious, and Group D diseases, such as Listeria, the least serious. Cases of Group A diseases must be notified by all healthcare institutions in the country, starting at the primary level. [1, 2, 6]

For Groups A and B infectious diseases, initial notification is supplied via two sources--one managed by family physicians (Aile Hekimliği Bilgi Sistemi--AHBS) and the other by the hospital network (Hastane Bilgi Yönetim Sistemleri--HBYS). These notification sources are integrated in Turkey's national electronic health information system, known as e-saglik.gov. [2] Data required by this system are "...automatically generated by the healthcare provider information systems..." [5] Data on C Group infectious diseases are entered directly by HBYS; data on Group D diseases are entered directly by laboratories into a separate system, in which data are collected by the provincial community health centers (toplum sagligi merkezleri--TSM), but it is not apparent that the laboratories use computers to report this diagnostic data to the TSM system. [2, 3, 6] There are also other, parallel electronic systems, such as the National Hospital Infections Surveillance Network (Ulusal Sağlık Hizmeti İlişkili Enfeksiyonlar Sürveyans Ağı--USHIESA), a password-protected service to report hospital infections. [4]

Turkey's legislation establishing the principals for an infectious-disease surveillance and control system (2007, as amended 2019) does not specifically mandate that data be collected in real time and/or processed electronically. The amended law does, however, include a definition of event-based surveillance and of a Health Threats Early Warning and Response Department. [7, 8] This department exists and is part of the Ministry of Health's General Directorate of Public Health. Evidence indicates that the surveillance it conducts is both indicator- and event-based. It states that it works to observe changes in the prevalence of a disease or health condition, to find clues about the cause of diseases, to study occurrence and distribution trends and patterns, changes in disease agents and hosts, and changes in health care provision. [9]

The department's surveillance/data-collection system follows a closed-loop model, beginning with observation of an event by the healthcare system, continuing with the transfer of data to the surveillance system for analysis and closing with the return of a policy recommendation to the healthcare system. [9] Case-based data collection is also undertaken by this department, to fulfil its ultimate mandate of analyzing and warning about public health threats. Data are collected in a "timely" and "systematic" matter, defining such collection according to the different characteristics of target groups and data sources and collection methods. Data sources include mortality figures; death report forms, hospital records, morbidity data, notifiable diseases, laboratory data, hospital data, outpatient clinic data, outbreak reports, laboratory results, demographic and environmental data. The department provides no indication of how frequently it collects its data. [9]

- [1] Sehnaz TUMAY, Aysegul GOZALAN, Umit OZDEMIRER, M.D. 2007. "The Notification System of Communicable Diseases in Turkey." Republic of Turkey. Ministry of Health PowerPoint presentation. [https://www.vhpb.org/files/html/Meetings_and_publications/Presentations/ISTS21.pdf] Accessed August 2020
- [2] Republic of Turkey. Ministry of Health. National Health System (Ulusal Saglik Sistemi). Electronic health system web portal. [<https://e-saglik.gov.tr/>] Accessed August 2020
- [3] Mehtap Tatar, Salih Mollahaliloglu, Bayram Sahin, Sabahattin Aydin, Anna Maresso, Cristina Hernández-Quevedo. Turkey: Health system review". Health Systems in Transition. Vol. 13 No. 6 2011 " World Health Organization (WHO). [http://www.euro.who.int/__data/assets/pdf_file/0006/158883/e96441.pdf] Accessed August 2020
- [4] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "NATIONAL HEALTH SERVICE-RELATED INFECTIONS SURVEILLANCE NETWORK SUMMARY REPORT 2019 (ULUSALSAĞLIK HİZMETİ İLİŞKİLİ ENFEKSİYONLAR SÜRVEYANS AĞI ÖZET RAPORU 2019)." [https://hsgm.saglik.gov.tr/depo/birimler/Bulasici-hastaliklar-db/hastaliklar/SHIE/Raporlar/USHESA_Ozet_Raporu_2019.pdf] Accessed August 2020
- [5] A. Dogac, M. Yuksel, G. L. Erturkmen, Y. Kabak, T. Namli, M. H. Yildiz, Y. Ay, B. Ceyhan, Ü. Hülür, H. Öztürk and E. Atbakan. "Healthcare Information Technology Infrastructures in Turkey". Yearbook of Medical Informatics. 2014; 9[1] : 228-234. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4287091/>] Accessed August 2020
- [6] Republic of Turkey. Ministry of Health. October 20 2016. "REGULATIONS ON INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES (BULASICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİ)". [<https://www.saglik.gov.tr/TR,10488/bulasici-hastaliklar-surveyans-ve-kontrol-esaslari-yonetmeligi.html>] Accessed August 2020 PowerPoint presentation: [<https://dosyaism.saglik.gov.tr/Eklenti/18896,bulasici-hastaliklarin-ihbar-ve--bildirim-sistemi-genel-v6pptx.pptx?0>]
- [7] Republic of Turkey. Official Gazette (Resmi Gazete). No. 26537 of May 30 2007. "INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES REGULATION (BULAŞICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİ)". [<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=11347&MevzuatTur=7&MevzuatTertip=5>] Accessed August 2020
- [8] Republic of Turkey. Official Gazette (Resmi Gazete). No. 30764 of May 4 2019. "INFECTIOUS DISEASES SURVEILLANCE AND CONTROL PRINCIPLES: AMENDMENTS TO THE REGULATION (BULAŞICI HASTALIKLAR SÜRVEYANS VE KONTROL ESASLARI YÖNETMELİĞİNDE DEĞİŞİKLİK YAPILMASINA)." [<https://www.resmigazete.gov.tr/eskiler/2019/05/20190504-1.htm>] Accessed August 2020
- [9] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2020. Health Threats Early Warning and Response Department (Sağlık Tehditleri Erken Uyarı ve Cevap Dairesi Başkanlığı). Website. [<https://hsgm.saglik.gov.tr/tr/sagliktehditleri-anasayfa.html>] Accessed August and October 2020 PowerPoint presentation on aforementioned department: [https://hsgm.saglik.gov.tr/depo/birimler/Saglik_Tehditleri_Erken_Uyari_ve_Cevap_db/dokumanlar2/Surveyans_Gelistirme_ve_Degerlendirme/Surveyans_06.02.2019_4.pdf] Accessed August and October 2020

2.4 SURVEILLANCE DATA ACCESSIBILITY AND TRANSPARENCY

2.4.1 Coverage and use of electronic health records

2.4.1a

Are electronic health records commonly in use?

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

Current Year Score: 2

Electronic health records are commonly in use in Turkey. The Ministry of Health stated that electronic health records were in use in 99% of Turkish hospitals already in 2015. [1] According to HIMSS Analytics, by 2020 173 hospitals in Turkey had reached Stage 6 of the Electronic Medical Record Adoption Model (EMRAM) and 3 had reached Stage 7. [2] Stage 7 is the highest stage of the EMRAM model, in which an advanced CDS (Clinical Decision Support) system is fully in place. [3]

[1] Ministry of Health of Turkey. 2015. "Electronic Medical Records in Turkey's Hospitals (Türkiye Hastanelerinde Elektronik Tıbbi Kayıt)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/2835,turkiye-hastanelerinde-elektronik-tibbi-kayitpdf.pdf?0>] Accessed August 2020

[2] HIMSS Analytics. 2020. "STAGE 6 & 7 ACHIEVEMENT." [<https://www.himssanalytics.org/europe/stage-6-7-achievement>] Accessed August 2020

[3] HIMSS Analytics. "ELECTRONIC MEDICAL RECORD ADOPTION MODEL". [<https://www.himssanalytics.org/europe/electronic-medical-record-adoption-model>] Accessed August 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 Turkey's national public health system has access to electronic health records of individuals in Turkey. A 2011 academic article noted that Turkey had established the National Health Information System of Turkey (NHIS-T) in 2009. NHIS-T is a nationwide infrastructure for sharing electronic health records (EHRs). Per the article, "by June 2010, 99% of the public hospitals and 71% of the private and university hospitals were connected to NHIS-T with daily feeds of their patients' EHRs." The article also notes that "NHIS-T has a centralized architecture rather than a distributed one. The main reason for this is that the system is being used not only for sharing the EHRs of patients, but also for running decision support systems on the collected data to provide input for the high level management in the [Ministry of Health]." [1]

The national public health system in Turkey is a universal system, run largely by the national Ministry of Health. The system has access to the electronic health records of individuals in the country, but use of this data is restricted by law. The Law on The Protection of Personal Data, No. 6698 dated 7 April 2016, amended 2017, known as the Kişisel Verilerin Korunması Kanunu (KVKK), stipulates how and why such data may be accessed (for providing health services, public health protection, preventive medicine, medical diagnosis, treatment and care services, planning of health services and calculation of costs), mandates the ministry to establish a system to provide access to the personal data collected, and also sets restrictions on such access by public health authorities and data operators. [2]

[1] Dogac, A. et al. 2011. "Electronic Health Record Interoperability as Realized in the Turkish Health Information System." [https://www.researchgate.net/publication/49658918_Electronic_Health_Record_Interoperability_as_Realized_in_Turkey's_National_Health_Information_System] Accessed August 2020

[2] Republic of Turkey. KVKK. Law on the Protection of Personal Data, No. 6698 dated 7 April 2016, amended 2017. [https://www.kvkk.gov.tr/SharedFolderServer/CMSFiles/aea97a33-089b-4e7d-85cb-694adb57bed3.pdf] Accessed August 2020

2.4.1c

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that data standards used in Turkey's health institutions comply with ISO standards. TUSSIDE, the Turkish Management Sciences Institute of TUSIAD, the Scientific and Technological Research Council of Turkey (the government's proprietary research agency) indicates that it works to evaluate several different quality standards used by health organizations in Turkey, which it lists as: ISO 9000 Quality Management System; ISO 14001 Environmental Management System; ISO 10002 Customer Satisfaction and Complaint Management System; and OHSAS 18001 Occupational Health and Safety Management System, among others. [1]

Individual healthcare institutions also provide evidence of using ISO standards. For example, the hospital quality management unit at Baskent University Hospital in Ankara indicates that "...Our hospital has established the Quality Management Unit in accordance with the Ministry of Health Service Quality standards and ISO 9001: 2015 Quality Management System Standards and continues its activities within the framework of the Ministry of Health Health Service Quality Standards (SHKS) and ISO 9001: 2015 Quality Management System Standards." [2]

[1] Republic of Turkey. Scientific and Technological Research Council of Turkey (TUSIAD). Turkish Management Sciences Institute (TUSSIDE). 2020. "Quality Standards in Health (Sağlıkta Kalite Standartları)." [https://tusside.tubitak.gov.tr/tr/kurumsal/arge-birimleri/Saglik-Ekonomisi-ve-Yonetimi/Saglikta-Kalite-Standartlari] Accessed August 2020

[2] Baskent University Hospital. 2020. "Hospital Quality Management Unit (Hastane Kalite Yönetim Birimi)." [https://ankara.baskenthastaneleri.com/tr/kalite-yonetimi/hastane-kalite-yonetim-birimi] Accessed August 2020

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

2.4.2a

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

Yes = 1 , No = 0

Current Year Score: 0

Although the Turkish government has a plan to establish mechanisms enabling government entities responsible for animal, human, and wildlife surveillance to share data, direct evidence is lacking that such mechanisms have already been established.

In 2019, Turkey adopted a new, dedicated plan on zoonoses, called the Zoonotic Diseases Action Plan of Turkey 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023). This Action Plan has four general objectives: to raise awareness in society about zoonotic diseases and their prevention; to conduct risk analysis and predict threats related to zoonotic diseases; to develop zoonotic disease diagnostic laboratories across the country and ensure their effectiveness; and to monitor, evaluate and coordinate treatment policy. The monitoring, evaluation and coordination of the Action Plan will be carried out by the Department of Zoonotic and Vector Diseases of the General Directorate of Public Health of the Ministry of Health, in close collaboration with the Ministry of Agriculture and Forestry. The Action Plan mandates cooperation and coordination between involved parties. Progress reports will be issued; on a 6-month basis by subcommittees, and on an annual basis by the aforementioned Department itself. [1, 2]

However, the new plan does not specify a mechanism for such cooperation and coordination, and it is unclear if such activity is already being undertaken. A scan of relevant official sources on the Internet does not reveal that any progress reports on the plan have as of yet (April 2021) been published. No evidence was found via the Ministry of Health. [3]

[1] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. Turkey Zoonotic Diseases Action Plan (Türkiye Zoonotik Hastalıklar Eylem Planı). [<https://hsgm.saglik.gov.tr/tr/haberler/t%C3%BCrkiye-zoonotik-hastal%C4%B1klar-eylem-plan%C4%B1.html>] Accessed August 2020 and April 2021

[2] Republic of Turkey Ministry of Health. General Directorate of Public Health. 2019. "Turkey Zoonotic Diseases Action Plan 2019-2023 (Türkiye Zoonotik Hastalıklar Eylem Planı 2019-2023)." [https://hsgm.saglik.gov.tr/depo/birimler/zoonotik-vektorel-hastaliklar-db/daire-baskanligi/eylem_plani/Zoonotik_Hastaliklar_Eylem_Pani.pdf] Accessed August 2020 and April 2021

[3] Republic of Turkey. Ministry of Health of Turkey. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

2.4.3 Transparency of surveillance data

2.4.3a

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Turkey makes de-identified health surveillance data on infectious disease outbreaks publicly available via reports (or other format) on government websites on a frequent basis. Turkey's government publishes very limited de-identified health surveillance data on disease incidence and prevalence on an annual basis. Specifically, the Ministry of Health's General Directorate of Information Systems publishes an annual Health Statistics Yearbook that provides tables with aggregate numbers and incidence ratios of local and imported cases for four infectious diseases; AIDS, Measles, Tuberculosis and Malaria. Data for six years are presented in the tables. [1]

There is no further evidence of publication of de-identified health surveillance data from other Turkish government sources. The website of the Refik Saydam Hygiene Centre --Turkey's national microbiological reference laboratory (<http://www.rshm.gov.tr/>), is inoperative, at least for the general public.

[1] Republic of Turkey, Ministry of Health. General Directorate of Information Systems. 2020. "HEALTH STATISTICS YEARBOOK 2018." [<https://dosyamerkez.saglik.gov.tr/Eklenti/36164,siy2018en2pdf.pdf?0>] Accessed August 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

Turkey's makes de-identified COVID-19 surveillance data available via daily and weekly reports on government websites. The Ministry of Health has a dedicated website, <https://covid19.saglik.gov.tr/>, which provides six key data points on COVID-19 in daily and weekly situation reports, in both Turkish and English. These data points are: total number of tests; total number of patients; total number of deaths; pneumonia rate in patients; number of seriously ill patients; and total number of recovered patients. [1]

[1] Republic of Turkey. Ministry of Health. DAILY CORONAVIRUS TABLE OF TURKEY. [<https://covid19.saglik.gov.tr/>] Accessed August 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

Turkey has legislation that safeguards the confidentiality of identifiable health information for individuals. The Law on the Protection of Personal Data, No. 6698 dated 7 April 2016, amended 2017, sets restrictions on the use of personal health data by third parties. For example, the law holds that processors of data in healthcare services are obligated to prevent both the unlawful processing of, and unlawful access to, personal data. Such data cannot be removed from the system or passed to third parties unlawfully. In turn, the data subject has the right to apply to the data controller to learn about how his or her personal health data has been used, as well as demand the deletion or destruction of said data. [1]

[1] Turkish Personal Data Protection Platform (Kisisel Verilerin Korunmasi Platformu--KVKK). "Turkish Personal Data Protection Law no. 6698." [<https://www.kisiselverilerinkorunmasi.org/kanunu-ingilizce-ceviri/#suclar-ve-kabahatler-cezalar>] Accessed August 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

Turkey's law safeguarding the confidentiality of identifiable health information for individuals does not specifically include mention of protections from cyber attacks. This law, the Law on The Protection of Personal Data, No. 6698 dated 7 April 2016, amended 2017, set restrictions on the use of personal health data by third parties. For example, the law holds that processors of data in healthcare services are obligated to prevent both the unlawful processing of, and unlawful access to,

personal data. Such data cannot be removed from the system or passed to third parties unlawfully. In turn, the data subject has the right to apply to the data controller to learn about how his or her personal health data have been used, as well as demand the deletion or destruction of said data. The law does not address cyberattacks, ransomware and related offenses. [1]

[1] Turkish Personal Data Protection Platform (Kisisel Verilerin Korunmasi Platformu--KVKK). "Turkish Personal Data Protection Law no. 6698." [https://www.kisiselverilerinkorunmasi.org/kanunu-ingilizce-ceviri/#suclar-ve-kabahatler-cezalar] Accessed August 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 insufficient evidence that Turkey has publicly committed to sharing surveillance data on one or more diseases during a public health emergency with other countries in the region. However, there is evidence of a commitment to share information on more general health-related issues.

As one of the States Parties of the World Health Organization (WHO), Turkey is obligated to report annually to the Health Assembly of the WHO on its implementation of, and compliance with, the International Health Regulations (IHR) of 2005. This mandate chiefly requires self-reporting on the status of the country's core capacities for healthcare preparedness, such as for addressing public health emergencies. [1]

The Ministry of Health does have bilateral cooperation agreements on health policy with a number of countries, but these agreements focus on issues such as attracting medical tourists to Turkey, and coordination on emergency planning is a relatively minor issue. [2]

Turkey's main emergency management agency, the AFAD, does promote cross-border cooperation with regional and international counterparts, but largely for information-gathering purposes. [3] Turkey, along with 10 other countries in the WHO European Region - Armenia, Belarus, Bosnia and Herzegovina, Georgia, Montenegro, North Macedonia, the Russian Federation, Serbia, Switzerland, and Ukraine - are members of the Central Asian and Eastern European Surveillance of Antimicrobial Resistance (CAESAR) network, part of the World Health Organization (WHO). The network serves as a hub for data sharing on antimicrobial resistant pathogens, but does not include provisions for data sharing during public health emergencies. [4]

Finally, no evidence of a public commitment to share surveillance data with other countries is found via the Ministry of Health website. [5]

[1] World Health Organization (WHO). 2019. "Action plan to improve public health preparedness and response in the WHO European Region 2018-2023." [https://www.euro.who.int/__data/assets/pdf_file/0009/393705/Action-Plan_EN_WHO_web_2.pdf] Accessed October 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed September and October 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of European Union and Foreign Relations (Avrupa Birliği ve Dış İlişkiler Genel Müdürlüğü). 30 July 2008. "research - cross-border health care and patient rights (araştırma - sınır ötesi sağlık hizmetleri ve hasta hakları). [https://disab.saglik.gov.tr/TR,3158/arama---sinir-otesi-saglik-hizmetleri-ve-hasta-haklari---ab-uzmani-inanc-sogut.html] Accessed September and October 2020

[4] World Health Organization (WHO). "Central Asian and Eastern European Surveillance of Antimicrobial Resistance: Annual report 2019". [https://www.euro.who.int/__data/assets/pdf_file/0003/418863/53373-WHO-CAESAR-annual-report-2019.pdf] Accessed August 2020

[5] Republic of Turkey. Ministry of Health of Turkey. Website. [https://www.saglik.gov.tr/] Accessed August 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: 1

Turkey has a national system in place to provide support at the sub-national level to support contact tracing in the event of an active public health emergency, through standardization and resource provision. Stipulated as an intervention in the Pandemic Influenza National Preparedness Plan of April 2019, contact tracing has been employed extensively during the COVID-19 coronavirus outbreak of 2020. The pandemic influenza plan of 2019 has been effectively adopted as the framework for COVID-19 response.

The policy on contact tracing for COVID-19 was published by the Ministry of Health in May 2020, in the form of guidance. The guidance states that COVID-19 outbreak management is performed in accordance with the latest Pandemic Influenza National Preparedness Plan (2019), with cross-sectoral cooperation under the coordination of the ministry, with input from subject-matter experts. Contact tracing is stipulated in the 2019 plan as a tool to be used dynamically during a staged response to such an emergency. [1, 2]

According to the COVID-19 guidance, contact tracing procedures are to be organized and executed at the sub-national level, by the provincial health directorates. Among the groups of individuals categorized as close contacts of a COVID-19-positive or -probable case are: students and teachers; hospital workers providing care; airplane passengers seated in close proximity; and people working or living in a shared environment. Healthcare workers are mandated to conduct so-called "filiation tracing" and contact monitoring according to the relevant official guidance algorithms. [1] The use of these tools may expand or contract according to how the need for intervention changes based on continuously updated data from the field. [2] Any necessary expansion of activity requiring additional resources would be funded according to law. The 2019 pandemic plan states that laws already provide for the immediate expansion of funds upon the declaration of a disaster, but even without such a declaration being made regulations are to be adopted to authorize additional financing to meet unexpected needs. [2]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. May 14 2020. "COVID-19 (SARS-CoV-2 INFECTION) (Study of Scientific Board): FOLLOW UP OF THE CONTACT, OUTBREAK MANAGEMENT, PATIENT MONITORING AT HOME AND CONTACT TRACING." [https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf] Accessed August and October 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August and October 2020

2.5.1b

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

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

Current Year Score: 1

Although there is evidence of health-services support for infected people and their contacts to self-isolate or quarantine as recommended, there is insufficient evidence of economic support. Turkey's universal healthcare system provides coverage for disease-positive and suspected individuals who are self-isolating during Covid-19 (applicable to all disease outbreaks), but the government's package of economic support specific to the COVID-19 outbreak is directed towards affected businesses rather than individuals.

On the healthcare front, the government has mandated both contact-tracing and isolation procedures as directed at the sub-national level by the provincial public health authorities. As related by the Ministry in its May 2020 COVID-19 infection-control and isolation guidance; "Probable / confirmed cases are admitted and treated in Pandemic Hospitals (Ministry of Health hospitals, State and Foundation University hospitals and private hospitals) in isolation. The treatment and follow-up process of the cases is conducted in Pandemic Hospitals or at home following the evaluation of the physician." [1] Further Ministry guidance states that "Patients, who have been hospitalized and managed to comply with the criteria for discharge, may complete their recovery periods at home. [2] Such patients are covered under the provisions that Turkey's universal healthcare system makes for follow-up care. [3]

On the economic front, in March 2020 the government allocated US\$15bn to support Turkish businesses negatively affected by the pandemic. The plan included relief measures such as tax cuts and tax payment deferrals for such businesses, state-sponsored trade credit insurance for small and medium-sized business (SMEs) as well as loans, quasi-guaranteed by the state, for both SMEs and and larger corporate entities. During the crisis, employers are not allowed to terminate employees without cause, and workers put on unpaid leave may apply for a short-term working allowance paid to them by the government's state unemployment insurance fund. This last benefit is, however, granted at the discretion of the employer. [4]

In September 2020 the Health Ministry adopted a new plan, the Turkey Covid-19 Emergency Health Project Stakeholder Engagement Plan, which aims to enlist the support of a wide range of stakeholders to strengthen the healthcare system's framework for addressing the COVID-19 emergency. One so-called "expectation" of the plan is to provide "ad-hoc financial support to low-income households with infected family member(s)", although evidence is lacking that a system to provide such support has been put into effect. [5]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. May 14 2020. "COVID-19 (SARS-CoV-2 INFECTION) (Study of Scientific Board): INFECTION CONTROL AND ISOLATION."

[[https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-](https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-19_Rehberi__Enfeksiyon_kontrol_ve_izolasyon_8.06.2020_eng.pdf)

19_Rehberi__Enfeksiyon_kontrol_ve_izolasyon_8.06.2020_eng.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. May 14 2020. "COVID-19 (SARS-CoV-2 INFECTION) (Study of Scientific Board): FOLLOW UP OF THE CONTACT, OUTBREAK MANAGEMENT, PATIENT MONITORING AT HOME AND CONTACT TRACING." [[https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-](https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf)

19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf] Accessed August 2020

[3] Burcu Özdeniz. 2011. "Turkish Healthcare: Overview of the Health System." ICU Management & Practice, ICU Volume 10 - Issue 4 - Winter 2010/2011. [[https://healthmanagement.org/c/icu/issuearticle/turkish-healthcare-overview-of-the-health-](https://healthmanagement.org/c/icu/issuearticle/turkish-healthcare-overview-of-the-health-system)

system] Accessed August 2020

[4] White & Case. June 9 2020. "COVID-19: Turkish Government Financial Assistance Measures." [<https://www.whitecase.com/publications/alert/covid-19-turkish-government-financial-assistance-measures>] Accessed August and October 2020

[5] Republic of Turkey. Ministry of Health. April 8 2020. "TURKEY EMERGENCY COVID-19 HEALTH PROJECT Stakeholder Engagement Plan." [<https://pydb.saglik.gov.tr/TR,75092/covid-19-saglikta-acil-durum-projesi-yedek.html>] Accessed April 2021

2.5.1c

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

Yes = 1 , No = 0

Current Year Score: 0

Available evidence does not indicate that Turkey makes de-identified data on contact tracing efforts for COVID-19 (including the percentage of new cases from identified contacts) available via daily reports (or other format) on government websites. Turkey's Ministry of Health does make de-identified COVID-19 surveillance data available via daily and weekly reports on a dedicated website, <https://covid19.saglik.gov.tr/>, which provides six key data points on COVID-19 in daily and weekly situation reports, in both Turkish and English. These data points are: total number of tests; total number of patients; total number of deaths; pneumonia rate in patients; number of seriously ill patients; and total number of recovered patients. There is no separate data point for the percentage of new cases from identified contacts. [1]

There is some evidence from the Turkish press, published in April 2020, that private-sector entrepreneurs in Turkey are working on contact-tracing application ('app') software for mobile phones, and have requested support from the Ministry of Health. [2] However, information about the progress of this venture is lacking. In any case, the Ministry of Health does have a policy on contact tracing for COVID-19, published in May 2020. [3]

[1] Republic of Turkey. Ministry of Health. DAILY CORONAVIRUS TABLE OF TURKEY. [<https://covid19.saglik.gov.tr/>] Accessed August 2020

[2] Mehmet Kara. April 9 2020. "'Contact tracing' software from Turkish entrepreneurs in the fight against Covid-19 (Türk girişimcilerden Kovid-19'la mücadelede 'temas takip' yazılımı)." Anadolu Agency. [<https://www.aa.com.tr/tr/bilim-teknoloji/turk-girisimcilerden-kovid-19la-mucadelede-temas-takip-yazilimi/1798190>] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. May 14 2020. "COVID-19 (SARS-CoV-2 INFECTION) (Study of Scientific Board): FOLLOW UP OF THE CONTACT, OUTBREAK MANAGEMENT, PATIENT MONITORING AT HOME AND CONTACT TRACING." [[https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-](https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf)

19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf] Accessed August 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: 1

There is evidence that Turkey 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 public health emergency, but only in response to an ongoing emergency.

The country does now have a policy on contact tracing for COVID-19; guidance on this specific subject was published by the Ministry of Health in May 2020. The guidance stipulates that contact follow-up procedures be organized and executed by the provincial health directorates. Among the groups of individuals categorized as close contacts of a COVID-19-positive or -probable case are: students and teachers; hospital workers providing care; airplane passengers seated in close proximity; and people working or living in a shared environment. [1] The guidance states that COVID-19 outbreak management is performed in accordance with the "Pandemic Influenza National Preparedness Plan" with cross-sectoral cooperation under the coordination of the Ministry of Health, and taking into account the suggestions by the Scientific Advisory Board. [1, 2]

Turkey's activation of its latest Pandemic Influenza National Preparedness Plan (2019) in response to the COVID-19 outbreak provides the government with an administrative and strategic framework for tackling this disease even though it is caused by a different type of virus. While the plan does not specifically mention border authorities, it does mandate coordination with the Ministry of Health on travel restrictions, refugee influxes, irregular migrants and other population movements at border entry and exit points. The plan's activation has triggered at least eight national legal acts, including the Regulation on Environmental Health Procedures to be Applied at International Entry Points (2013). The plan stipulates contact tracing as a tool to be used dynamically, but does not explicitly discuss how to handle suspected cases among international travelers. [4]

Turkey has introduced a new health declaration form to help prevent the spread of COVID-19. All individuals traveling to Turkey are now required to complete the Entrance Form before entering the country. The contact details and travel information provided can be used to more effectively track overseas visitors and minimize infection rates." [3]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. May 14 2020. "COVID-19 (SARS-CoV-2 INFECTION) (Study of Scientific Board): FOLLOW UP OF THE CONTACT, OUTBREAK MANAGEMENT, PATIENT MONITORING AT HOME AND CONTACT TRACING." [https://hsgm.saglik.gov.tr/depo/covid19/Ingilizce/Rehber/COVID-19_Rehberi__Temasli_takibi_evde_hasta_izlemi_ve_filyasyon_8.06.2020_eng.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August 2020

[3] Turkey Travel Health Certificate. "Travel Health Certificate Application". [https://www.travel-healthcertificate.com/turkey?utm_source=seo&utm_medium=affiliate&utm_campaign=333&utm_term=%5Bsubmityourformforentrytoturkey%5D&utm_content=%5Bform-for-entry-to-turkey-entrance-requirement%5D] Accessed June 2021

[4] Sertdemir, Ayşe. June 24 2020. "AN EVALUATION OF TURKEY'S PERFORMANCE IN FIGHTING CORONAVIRUS (TÜRKİYE'NİN KORONAVİRÜSLE MÜCADELE PERFORMANSI ÜZERİNE BİR DEĞERLENDİRME)." Journal of the Nazilli Faculty of Economics and Administrative Sciences, 2020, Vol 1, Issue 1, 15-26. [https://dergipark.org.tr/tr/download/article-file/1170030] Accessed

October 2020

2.6 EPIDEMIOLOGY WORKFORCE

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

2.6.1a

Does the country meet one of the following criteria?

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

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

Current Year Score: 1

According to TEPHINET, Turkey has a Field Epidemiology Training Program (FETP), nationally certified and founded in 2012 by the Ministry of Health's Public Health Institution of Turkey. Since its inception, a total of 26 individuals have graduated and been assigned to various health departments. It is offered in Turkey only, and the topics covered are Infectious, food-borne, and zoonotic diseases as well as disease surveillance, disease and emergency response, and research and evaluation. [1] The Ministry of Health gives no indication that it sponsors FETP training in other countries. [2]

[1] Tephinet. "Turkey Field Epidemiology Training Program". [<https://www.tephinet.org/training-programs/turkey-field-epidemiology-training-program>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. 2020. TURKEY FIELD EPIDEMIOLOGY PROGRAM (TÜRKIYE SAHA EPIDEMIOLOJISI PROGRAMI)."

[https://hsgm.saglik.gov.tr/depo/Duyurular/Turkiye_Saha_Epidemiyolojisi_Sertifikal_Egitim_Programina_2020_Donemi_Basvurulari_Baslamistir-rvn/TSESEP_basvuru_sartlar.pdf] Accessed October 2020

2.6.1b

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

Yes = 1 , No = 0

Current Year Score: 1

The available field epidemiology training program in Turkey covers animal health professionals since zoonotic diseases are one of the topics covered under the program. According to TEPHINET, Turkey has a Field Epidemiology Training Program (FETP), nationally certified and founded in 2012 by the Ministry of Health's Public Health Institution of Turkey. Since its inception, a total of 26 individuals have graduated and been assigned to various health departments. It is offered in Turkey only, and the topics covered are Infectious, food-borne, and zoonotic diseases as well as disease surveillance, disease and emergency response, and research and evaluation. [1]

[1] Tephinet. "Turkey Field Epidemiology Training Program". [<https://www.tephinet.org/training-programs/turkey-field-epidemiology-training-program>] Accessed August 2020

2.6.2 Epidemiology workforce capacity

2.6.2a

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

Yes = 1, No = 0

Current Year Score: 0

2020

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

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

3.1 EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

3.1.1 National public health emergency preparedness and response plan

3.1.1a

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

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

Current Year Score: 2

Turkey has a national disaster response plan, publicly available and issued in 2013 by the national disaster management presidency (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD), which addresses preparation and response to health emergencies such as epidemics. This plan, titled the Turkey Disaster Response Plan mandates the Ministry of Health to, among other tasks, prepare mobile and field hospitals and ready and equip them with emergency equipment, provide evacuation and quarantine isolation services if necessary, and provide psychosocial support training for all personnel and victims. It also indicates that in case of actual epidemics the main response plan will be supplemented by specific targeted plans. [1]

Otherwise, evidence does not point to a stand-alone plan (aside from the revised influenza pandemic plan) which addresses multiple communicable diseases with pandemic potential. [2] Various laws and regulations adopted over the years, such as a Ministry of Health disaster and emergency plan preparation guide for hospitals, also constitute a framework for a multi-layered response to health and other disasters, involving the national, provincial and local authorities. [3]

The Ministry of Health leads the health sector in national disaster management planning, mandating "...an all-hazard, whole-

health, multidisciplinary approach to risk reduction and crisis management. " [4] A key body at the ministry in directing this effort is the ministry's General Directorate of Emergency Health Services, which among other duties runs the continuously staffed health disaster coordination centre (Sağlık Afet Koordinasyon Merkezi--SAKOM). [5, 6]

[1] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)". [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August 2020

[3] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[4] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[5] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). August 6 2020. "SAKOM (SAKOM)". [http://www.acilafet.gov.tr/TR,4460/sakom.html] Accessed August 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

Turkey's national disaster response plan, issued in 2013 by AFAD, the national disaster management presidency, addresses epidemics. Publicly available evidence does not indicate that it has been updated since then. [1] But the health ministry's General Directorate of Emergency Health Services, the pivotal body to address this issue, is continuously active and runs SAKOM, the round-the-clock health disaster coordination center. [2] Among the recently adopted rules is a national-level guide published by the Ministry of Health in 2016 for health emergency preparation in hospitals. [3]

Otherwise, evidence does not point to the existence of a Ministry stand-alone plan (aside from the revised influenza pandemic plan of 2019) which addresses planning for multiple communicable diseases with pandemic potential. [4]

[1] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020

[2] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). August 6 2020. "SAKOM (SAKOM)". [http://www.acilafet.gov.tr/TR,4460/sakom.html] Accessed August 2020

[3] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)". [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August 2020

3.1.1c

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

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

Current Year Score: 0

Turkey has a national disaster response plan, issued in 2013 by the national disaster management presidency (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD), which addresses preparation and response to health emergencies such as epidemics. It indicates that in case of actual epidemics the main response plan will be supplemented by specific targeted plans. However, this plan makes no mention of paediatric and other vulnerable populations. [1] Otherwise, Turkey's policy for management of health emergencies is a framework composed of various laws and regulations rather than a stand-alone law. [2] Available evidence does not indicate that the rules contained within this framework make special considerations for paediatric and other vulnerable populations. For example, a national-level guide published in 2016 by the General Directorate of Emergency Health Services for health emergency preparation in hospitals makes only brief mention of such groups in the context of defining the parties responsible for their care. [3]

[1] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020

[2] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[3] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü).

February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

3.1.1d

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

Yes = 1 , No = 0

Current Year Score: 0

2020

WHO Strategic Partnership for IHR and Health Security (SPH)

3.1.2 Private sector involvement in response planning

3.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey has a specific mechanism for engaging with the private sector to assist with outbreak emergency preparedness and response. The health emergency management system integrates communication with private-sector actors such as NGOs

and disaster centres in universities such as earthquake research units and healthcare system vendors. [1, 2, 3] Co-operation mechanisms with NGOs are established under the Association Law (No. 2908) and they are under the legal supervision of the Ministry of the Interior. [1] A prominent NGO with close ties to the state is the Turkish Red Crescent Society. The Ministry of Health also has contractual arrangements with private-sector entities to obtain resources, such as ambulances or medicines, in disaster situations. [1]

A key example of cooperation between the public and private sectors in health emergency planning is the volunteer component of the national network of emergency-rescue teams known as UMKE (Ulusal Medikal Kurtarma Ekipleri) . UMKE team members can be drawn from the civilian population, but they must be trained by the Ministry and are responsible to it. Volunteers must pay for their own clothes and equipment. [4]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey."[http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Baskanligi--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (Türkiye Afet Müdahale Planı

(TAMP))".[https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020

[4] Ulusal Medikal Kurtarma Ekipleri (UMKE). 2020. Website. [<https://www.umke.org/ulusal-medikal-kurtarma-ekipleri-foto-galeri-kategori,28.html>] Accessed August 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

Available evidence indicates that Turkey has a stand-alone policy, plan and/or guidelines in place to implement non-pharmaceutical interventions (NPIs) during an epidemic or pandemic event involving one specific disease (COVID-19). Otherwise, Turkey does not have an overarching plan for epidemic diseases. A scan of legislation on the website of Turkey's General Directorate of Emergency Health Services (such as Turkey's Emergency Health Services Regulation of 2000) does not reveal a published plan or guide that addresses implementing NPIs. [1]

NPIs such as increased cleaning/disinfection of facilities and equipment, social distancing and contact tracing are clearly indicated in Turkey's action plans specific to pandemic influenza and to COVID-19, to be applied according to an algorithmic case-management protocol, led by the Ministry of Health, that determines the need for intervention based on continuously updated data from the field. [2, 3] Finally, Turkey's Disaster and Emergency Management Presidency (AFAD) gives no indication of having a plan to implement NPIs during the disasters it is tasked with responding to. [4]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). 2020. Website. [<https://acilafet.saglik.gov.tr/>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. "Covid-19 Guides." [<https://hsgm.saglik.gov.tr/en/covid-19-i-ngilizce-dokumanlar/rehberler.html>] Accessed August 2020

[4] Republic of Turkey. Disaster And Emergency Management Presidency (Afad). 2020. Website. [<https://en.afad.gov.tr/>] Accessed October 2020

3.2 EXERCISING RESPONSE PLANS

3.2.1 Activating response plans

3.2.1a

Does the country meet one of the following criteria?

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

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

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

Current Year Score: 1

Evidence indicates both that Turkey has activated a national emergency response plan for an infectious disease outbreak in the past year, but none that it has completed a national-level biological threat-focused exercise in the past year.

Turkey's government has mounted a comprehensive response to the COVID-19 coronavirus pandemic, relying on a firm administrative and regulatory foundation to do so. Paramount among Turkey's pre-existing administrative capabilities is its advanced public healthcare system, which has effective emergency response capability. Evidence indicates that Turkey's response to the outbreak was underpinned by activation of the latest iteration of the National Pandemic Influenza Preparedness Plan (2019), which provides an administrative and strategic framework for tackling influenza-like diseases. [4, 5] Under this framework, at least eight separate pieces of legislation have been activated, including the Public Health Law of 1930, the Communicable Diseases Surveillance and Control Principles Regulation of 2007, the Regulation on Environmental Health Procedures to be Applied at International Entry Points (2013), and the Circular on the Guide to Combating Contagious Diseases (2018). [5] Still other laws and acts empower the Health Ministry and its General Directorate of Emergency Health Services to respond, such as the Emergency Health Services Regulation (2000), the Hospital Disaster and Emergency Plans (HAP) Implementation Regulation (2015, as amended), and the Disaster and Emergency Response Services Regulation (2013). [1] With specific regard to COVID-19, the Ministry's General Directorate of Public Health has issued multiple directives for the public and private sectors; on monitoring (such as follow-up home care and contact tracing); infection control and isolation; and prophylactic measures (such as anti-cytokine therapies); among other initiatives. [2]

Finally, according to the World Health Organization (WHO), Turkey completed a simulation exercise with it, on July 22 2020, on nuclear accident response planning, not on infectious diseases. Details of the exercise are lacking in the public domain. [3]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). 2020. "Regulations (Yonetmelikler)." Website. [<https://acilafet.saglik.gov.tr/TR,4226/yonetmelikler.html>]

Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. "Covid-19 Guides."

[<https://hsqm.saglik.gov.tr/en/covid-19-i-ngilizce-dokumanlar/rehberler.html>] Accessed August 2020

[3] World Health Organization (WHO). Strategic Partnership for International Health Regulations (2005) and Health Security (SPH). 2020. "Simulation Exercise." [<https://extranet.who.int/sph/simulation-exercise>] Accessed August 2020

[4] TÜBİTAK. Turkey Covid-19 Web Portal (Covid-19 Türkiye Web Portalı). 2020. "Prevention and Treatment Methods (Korunma ve Tedavi Yöntemleri)." [<https://covid19.tubitak.gov.tr/korunma-tedavi-yontemleri>] Accessed October 2020

[5] Sertdemir, Ayşe. June 24 2020. "AN EVALUATION OF TURKEY'S PERFORMANCE IN FIGHTING CORONAVIRUS (TÜRKİYE'NİN KORONAVİRÜSLE MÜCADELE PERFORMANSI ÜZERİNE BİR DEĞERLENDİRME)." Journal of the Nazilli Faculty of Economics and Administrative Sciences, 2020, Vol 1, Issue 1, 15-26. [<https://dergipark.org.tr/tr/download/article-file/1170030>] Accessed October 2020

3.2.1b

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

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

Current Year Score: 0

Available evidence does not indicate that Turkey has in the past year published an official report or plan identifying 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. While there is evidence of initiatives being implemented to improve the country's emergency response capabilities, there is no evidence of a plan to improve capacity.

For example, the Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD) recently participated with the European Union in "Team-up", a cooperation venture that was part of the EU's Instrument for Pre-Accession Assistance (IPA) program. The project aimed to strengthen AFAD's institutional capacities at the central and local level. It ran for 24 months, ending in 2018, and cost around EUR3m, 90% funded by the EU and 10% by Turkey's Ministry for EU Affairs. Gap and needs analyses were part of the project's tasks. [1]

The Ministry of Health's General Directorate of Emergency Health Services conducts many activities with a training or preparatory focus but evidence is sparse that a gap analysis or best-practice exercise on infectious-disease response capability has been conducted in the past year. [2] Similarly, the country's Ministry of Agriculture and Forestry gives no evidence of having conducted such an activity over this time frame. [3] According to the World Health Organization (WHO), Turkey has not conducted an After Action review with it in the past year. [4] Turkey did, however, complete a simulation exercise with the WHO, on July 22 2020, on nuclear accident response planning. Details of the exercise are lacking in the public domain. [5]

There is little evidence that the Turkish government has as of yet analyzed its performance in combatting the COVID-19 coronavirus outbreak. Its strategy already has been evaluated by the academic community; a June 2020 paper published by a scholar at the Nazilli Faculty of Economics and Administrative Sciences at Adnan Menderes University summarized the government's policy but did not offer critiques or an analysis of gaps in performance. [6]

[1] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Undated. "EU - IPA Institutional Capacity (AB - IPA Kurumsal Kapasite)." [<https://www.afad.gov.tr/ab---ipa-kurumsal-kapasite>] Accessed

August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). Website. [<https://acilafet.saglik.gov.tr/>] Accessed August 2020

[3] Republic of Turkey. Ministry of Agriculture and Forestry. Website. [<https://www.tarimorman.gov.tr/GKGM/Sayfalar/EN/AnaSayfa.aspx>] Accessed August 2020

[4] World Health Organization (WHO). "After Action Review". [<https://extranet.who.int/sph/after-action-review>] Accessed August 2020

[5] World Health Organization (WHO). Strategic Partnership for International Health Regulations (2005) and Health Security (SPH). 2020. "Simulation Exercise." [<https://extranet.who.int/sph/simulation-exercise>] Accessed August and October 2020

[6] Sertdemir, Ayşe. June 24 2020. "AN EVALUATION OF TURKEY'S PERFORMANCE IN FIGHTING CORONAVIRUS (TÜRKİYE'NİN KORONAVİRÜSLE MÜCADELE PERFORMANSI ÜZERİNE BİR DEĞERLENDİRME)." Journal of the Nazilli Faculty of Economics and Administrative Sciences, 2020, Vol 1, Issue 1, 15-26. [<https://dergipark.org.tr/tr/download/article-file/1170030>] Accessed October 2020

3.2.2 Private sector engagement in exercises

3.2.2a

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

Yes = 1 , No = 0

Current Year Score: 0

Available evidence does not indicate that Turkey has in the past year undergone a national-level biological threat-focused exercise that has included private sector representatives. However, there is some evidence of a provincial-level initiative in this regard. According to a January 2020 new bulletin published by the Ministry of Health's General Directorate of Emergency Health Services, CBRN (Chemical, Biological, Radiological and Nuclear) training was given to hospital and UMKE (emergency health services volunteer corps) personnel located throughout the province by the UMKE Unit of the Şanlıurfa Provincial Health Directorate 112 Emergency Health Services Presidency (112 is the phone number for emergency health services in Turkey). [1]

According to the World Health Organization (WHO), Turkey has not conducted an After Action review with it in the past year. [2] Turkey did complete a simulation exercise with the WHO, on July 22 2020, but on nuclear accident response planning, not on infectious diseases. Details of the exercise are lacking in the public domain. [3]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). January 16 2020. "CBRN (Chemical, Biological, Radiological and Nuclear) Training in Şanlıurfa (Şanlıurfa'da KBRN (Kimyasal, Biyolojik, Radyolojik ve Nükleer) Eğitimi)." [<https://acilafet.saglik.gov.tr/TR,55589/sanliurfada-kbrn-kimyasal-biyolojik-radyolojik-ve-nukleer-egitimi.html>] Accessed August 2020

[2] World Health Organization (WHO). "After Action Review". [<https://extranet.who.int/sph/after-action-review>] Accessed August 2020

[3] World Health Organization (WHO). Strategic Partnership for International Health Regulations (2005) and Health Security (SPH). 2020. "Simulation Exercise." [<https://extranet.who.int/sph/simulation-exercise>] Accessed October 2020 Other sources: Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). January 16 2020. 'Emergency Health Education Project' Continues Without Slowing Down ('Acil Sağlık Eğitim Projesi' Hız Kesmeden Devam Ediyor)." Accessed August 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

Turkey has a round-the-clock Emergency Operations Center dedicated to health emergencies, as well as monitoring facilities in provincial and municipal locales that are part of the national disaster management system. The Ministry of Health's General Directorate of Emergency Health Services runs a dedicated Department of Disaster and Emergency Management, which among other duties runs a continuously staffed health disaster coordination centre called SAKOM (Saglik Afet Koordinasyon Merkezi). [1, 2]

SAKOM operates around the clock, and receives data on incidents and hospital-bed capacity from all linked provincial call centres. It coordinates with AFAD, the national disaster management presidency, as well as other entities such as the armed forces and the Turkish Armed Forces, the Turkish Red Crescent Society. [3] AFAD itself operates its Integrated Disaster Management System, which boasts 81 provincial branches across Turkey in addition to 11 search and rescue units. [4]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed August 2020

[2] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [<https://www.afad.gov.tr/>] Accessed August 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

Available evidence does not indicate that SAKOM, Turkey's Emergency Operations Centre for Health Emergencies, is required to conduct a drill at least once per year, nor is there evidence that drills are conducted on regular annual basis. SAKOM is continuously staffed and operates around the clock, but its published information does not state that it conducts a yearly drill of personnel. [1, 2] Similarly, AFAD, Turkey's emergency health directorate, does not indicate that it conducts a yearly drill for health emergencies. [2]

Evidence indicates that such drills or trainings as are conducted, occur at the provincial level. The latest published annual report of the Ministry of Health, for 2019, mentions SAKOM and AFAD but does not mention conducting a nationwide drill for health emergencies during this year. The report does state that, among other activities, during the year SAKOM engaged in monthly evaluation of its Incident Management System, sending results to its 81 provincial centers, and AFAD opened 83 first-aid training centers in the provinces, training nearly 6,000 personnel. In April, the health ministry assisted AFAD, the Ankara Provincial Disaster and Emergency Directorate, and the volunteer emergency-services organization UMKE in holding

an emergency-services training exercise. [3]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed August 2020

[2] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [<https://www.afad.gov.tr/>] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. "2019 Activity Report (2019 Faaliyet Raporu)."

[<https://dosyamerkez.saglik.gov.tr/Eklenti/36626,tc-saglik-bakanligi-faaliyet-raporu-2019pdf.pdf?0>] Accessed August 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

Publicly available evidence does not show that SAKOM, Turkey's dedicated EOC for health emergencies, 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. Available evidence on SAKOM is sparse, and published information on it does not state that it can conduct an actual or simulated emergency response within such a time framework. [1, 2] However, according to the World Health Organization (WHO), SAKOM has in the past organized the participation of medical volunteer teams in international operations, such as those related to earthquakes in Iran and Pakistan. [2] Similarly, AFAD, Turkey's emergency health directorate, does not indicate that it has specifically conducted such an exercise. However, it is engaged in an ongoing project to improve its capacity to respond to Chemical Biological, Radiological and Nuclear (CBRN) threats. [3]

Evidence indicates that such drills or trainings as are conducted, occur at the provincial level. The latest published annual report of the Ministry of Health, for 2019, mentions SAKOM and AFAD but does not mention conducting a nationwide drill for health emergencies during this year. The report does state that, among other activities, during the year SAKOM engaged in monthly evaluation of its Incident Management System, sending results to its 81 provincial centers, and AFAD opened 83 first-aid training centers in the provinces, training nearly 6,000 personnel. In April, the health ministry assisted AFAD, the Ankara Provincial Disaster and Emergency Directorate, and the volunteer emergency-services organization UMKE in holding an emergency-services training exercise. [3]

Turkey along with Malaysia is identified as the two leading countries in having made a formal commitment to the Global Health Security Agenda (GHSA)'s Emergency Operations Centers Action Package. The commitment is to ensure that within five years each country's EOC will adhere to minimum common standards, such as maintaining trained teams capable of responding within 120 minutes of a public health emergency. However, as of yet neither SAKOM nor its parent agency the General Directorate of Emergency Health Services provides evidence of engaging in training exercises specifically in order to achieve this target. [1]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed August and October 2020

- [2] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020
- [3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). "CBRN Capacity Development Project (KBRN Kapasite Geliştirme Projesi)." [https://www.afad.gov.tr/kbrn-kapasite-gelistirme-projesi] Accessed August 2020
- [4] Republic of Turkey. Ministry of Health. "2019 Activity Report (2019 Faaliyet Raporu)." [https://dosyamerkez.saglik.gov.tr/Eklenti/36626,tc-saglik-bakanligi-faaliyet-raporu-2019pdf.pdf?0] Accessed August 2020
- [5] Centers for Disease Control and Prevention. November 9 2017. "Global Health Security Agenda: GHSA Emergency Operations Centers Action Package (GHSA Action Package Respond-1)." [https://www.cdc.gov/globalhealth/security/actionpackages/emergency_operations_centers.htm] Accessed October 2020

3.4 LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

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

3.4.1a

Does the country meet one of the following criteria?

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

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

Current Year Score: 0

Public evidence does not indicate that public health and national security authorities in Turkey have either carried out an exercise to respond to a potential deliberate biological event, such as bioterrorism attack, or issued procedural guidelines or MOUs which the public can readily access. While response exercises are carried out annually at the subnational level, it is not obvious that these routinely take into account biological threats such as deliberate attacks. [1, 2, 3]

Neither of the two key entities responsible for policy and action on public health emergencies--the General Directorate of Emergency Health Services and the Disaster and Emergency Management Presidency (AFAD)--have readily available published documents detailing their respective strategies or operational exercises on this issue. Two key policy documents published by these entities (the national disaster and emergency plan for hospitals (HAP) and the national disaster response plan (TAMP), respectively) briefly mention the threat of terrorist attacks without elaborating on procedure. [2, 3]

AFAD does state that it is engaged in an ongoing project to improve its capacity to respond to Chemical Biological, Radiological and Nuclear (CBRN) threats. [4]

- [1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed December 2018
- [2] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

- [3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_Pi_ResmiG_20122013.pdf] Accessed August 2020
- [4] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). "CBRN Capacity Development Project (KBRN Kapasite Geliştirme Projesi)." [https://www.afad.gov.tr/kbrn-kapasite-gelistirme-projesi] Accessed August 2020

3.5 RISK COMMUNICATIONS

3.5.1 Public communication

3.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Turkey has a risk communication plan that outlines how messages will reach populations and sectors with different communications needs. Turkey currently has in force two national response plans that are available for use in a public health emergency; the first one, intended for the use of hospitals, is the "Hospital Disaster and Emergency Response Plan (HAP) Preparation Guide", published in 2016 by the General Directorate of Emergency Health Services. Only the hospital plan has a dedicated risk communications plan. Turkey's national public health emergency response plan for hospitals, the "Hospital Disaster and Emergency Response Plan (HAP) Preparation Guide", published in 2016 by the General Directorate of Emergency Health Services, does not outline how messages will reach populations and sectors with different communications needs (e.g. different languages, location within country, media reach, etc.). Standard Operating Procedure No. 9 of the HAP focuses on risk communication management, and details a myriad of rules on ensuring effective and sustainable information flows during public health crises. The HAP is particularly explicit in mandating communication protocols among key stakeholders in such events. For example, hospital facility managers are directed to maintain and back up communications systems such as pagers and radios and improvise such systems when and where needed. Incident management teams (olay yönetim ekipleri--OYE) in the field must communicate with the hospital's chief physician[s] responsible for emergency services to enable the latter to evaluate data and manage the evolving situation. OYE teams must also maintain communication with external stakeholders (fire brigade and police, municipality, subject matter experts, the general public, other hospitals) during the crisis. However, the HAP does not discuss how to address segments of the population with different communications needs. [1]

Similarly, Turkey's national disaster response plan (TAMP), issued in 2013 by AFAD, the national disaster management presidency, does not specifically address such groups. [2] Finally, independent of these plans neither the General Directorate of Emergency Health Services nor AFAD provide evidence of having such a communications policy. [3, 4]

[1] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI

(TAMP))".[https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020
 [3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. 2020. Website. [<https://acilafet.saglik.gov.tr/>] Accessed August 2020
 [4] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [<https://www.afad.gov.tr/>] Accessed August 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

Turkey has in place in one of the two national public health emergency response plans a section detailing a risk communication plan that is specifically intended for use during a public health emergency.

Turkey currently has in force two national response plans that are available for use in a public health emergency; the first one, intended for the use of hospitals, is the "Hospital Disaster and Emergency Response Plan (HAP) Preparation Guide", published in 2016 by the General Directorate of Emergency Health Services. The HAP contains a section detailing a risk communication plan that is specifically intended for use during a public health emergency: Standard Operation Procedure No: 9 of the plan is devoted to risk communication management, and details a myriad of rules on ensuring effective and sustainable information flows during public health crises. The plan is particularly explicit in mandating communication protocols among key stakeholders in such events. For example, hospital facility managers are directed to maintain and back up communications systems such as pagers and radios and improvise such systems when and where needed. Incident management teams (olay yönetim ekipleri--OYE) in the field must communicate with the hospital's chief physician[s] responsible for emergency services to enable the latter to evaluate data and manage the evolving situation. OYE teams must also maintain communication with external stakeholders (fire brigade and police, municipality, subject matter experts, the general public, other hospitals) during the crisis. [3]

By contrast, Turkey's national disaster response plan (TAMP), issued in 2013 by AFAD, the national disaster management presidency, makes no mention of a risk communication strategy that involves the active participation of well-identified outside stakeholders. [2]

[1] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed August 2020 Other sources: Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. 2020. Website. [<https://acilafet.saglik.gov.tr/>] Accessed August 2020 Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [<https://www.afad.gov.tr/>] Accessed August 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

Available evidence does not indicate that Turkey's risk communication arrangements 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.

Turkey has a huge, well-developed, and efficient public health sector, but there is no entity officially mandated to serve as the central hub of communication during such an emergency. The public health emergency-management policy is run by the Ministry of Health's General Directorate of Emergency Health Services, in concert with other public-sector stakeholders such as the Disaster and Emergency Management Presidency of Turkey (AFAD). First-line healthcare is administered by the provincial health and emergency-services authorities in coordination with the aforementioned central government bodies, together with other stakeholders in the public and private sectors. [1, 2, 3]

Turkey currently has in force two national response plans that are available for use in a public health emergency; the first one, intended for the use of hospitals, is the "Hospital Disaster and Emergency Response Plan (HAP) Preparation Guide", published in 2016 by the General Directorate of Emergency Health Services. The HAP contains a section detailing a risk communication plan that is specifically intended for use during a public health emergency: Standard Operation Procedure No: 9 of the plan details a myriad of rules on ensuring effective and sustainable information flows in such a way as to contribute directly to intervention management. Several rules discuss how best to assemble, report, store and analyse relevant data; others stipulate how to communicate with patients, the staff, the press and other health authorities. The plan also stipulates the involvement of external stakeholders (dis paydastlar). However, aside from a mention of a role for civil society groups in providing psychological support to victims, such stakeholders are not further defined in the plan. [4]

By contrast, Turkey's national disaster response plan (TAMP), issued in 2013 by AFAD, the national disaster management presidency, makes no mention of a risk communication strategy that involves the active participation of well-identified outside stakeholders. [5]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. 2020. Website. [https://acilafet.saglik.gov.tr/] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [https://www.afad.gov.tr/] Accessed August 2020

[4] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[5] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed August

2020

3.5.2 Public communication

3.5.2a

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

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

Current Year Score: 2

The public health system of Turkey regularly shares information on health concerns and in the past year 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. It utilizes both traditional and newer media platforms (radio, television, Internet websites and social media, electronic messaging, etc.) to inform the public about public health emergencies. Both the Ministry of Health and the AFAD (Disaster and Emergency Management Presidency) have dedicated emergency radio broadcasting networks, and each province has its own emergency network. [1, 2]

Key entities of the public health system use newer media platforms as well. For example, the Ministry of Health has a comprehensive website containing news feeds and updated bulletins. It provides a link to a separate website, <https://covid19.saglik.gov.tr/>, dedicated to providing real-time information on the COVID-19 coronavirus. [3, 4] In addition, the ministry has dedicated pages on popular social-media sites, including Facebook and Twitter (with around 1.8m followers on each). [5, 6] Among other topics, it provides updated information on these sites regarding active diseases. An example is a video on treating viral hepatitis, posted on the ministry's Facebook page on July 28 2020, on the occasion of World Hepatitis Day. [5]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Utility DXers Forum (UDXF). 2010. "DISASTER AND EMERGENCY NETWORKS IN TURKEY". [<http://www.udxf.nl/Turkish-Emergency-Nets.pdf>] Accessed August 2020

[3] Republic of Turkey. Ministry of Health. Website. [https://www.saglik.gov.tr/?_Dil=2] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. COVID-19 INFORMATION PAGE (COVID-19 BILGILENDIRME SAYFASI). Website. [<https://covid19.saglik.gov.tr/>] Accessed August 2020

[5] Facebook. July 28 2020. Republic of Turkey. Ministry of Health. "How is viral hepatitis treated? #WorldHepatitisDay (Viral hepatitler nasıl tedavi edilmektedir? #DünyaHepatitGünü)." [<https://www.facebook.com/saglikbakanligi/videos/vb.361974300504638/293854721826401/?type=2&theater>] Accessed August and October 2020

[6] Twitter. 2020. Republic of Turkey Ministry of Health. [<https://twitter.com/saglikbakanligi>] Accessed August 2020

[6] Twitter. 2020. Republic of Turkey Ministry of Health. [<https://twitter.com/saglikbakanligi>] Accessed August 2020

3.5.2b

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

No = 1, Yes = 0

Current Year Score: 1

There is insufficient evidence that senior leaders in Turkey (the president or ministers) have shared misinformation or disinformation on infectious diseases in the past two years. A review of international and local news sources regarding statements on public health made by Turkish public health officials does not reveal evidence of such actions, whether intentional or otherwise.

However, over this time period some key officials have had to refute allegations or make clarifications on health policy. Such officials have used the news media to counter allegations made against them regarding controversial topics. For example, on August 6 2020 Turkish Minister of Health Dr. Fahrettin Koca used social media (his account on Twitter) to refute allegations about his management of public health policy on COVID-19 in the country's hospitals. [1]

[1] Twitter. August 6 2020. Account of Dr. Fahrettin Koca, Minister of Health of Turkey. [https://twitter.com/drfehrettinkoca/status/1291270092068663298] Accessed August 2020 Other sources: Republic of Turkey. Ministry of Health. Website. [https://www.saglik.gov.tr/?_Dil=2] Accessed August 2020 Republic of Turkey. Ministry of Health. COVID-19 INFORMATION PAGE (COVID-19 BILGILENDIRME SAYFASI). Website. [https://covid19.saglik.gov.tr/] Accessed August 2020 Facebook. 2020. Republic of Turkey. Ministry of Health. [https://www.facebook.com/saglikbakanligi/] Accessed August 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: 73.98

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: 96.84

2019

International Telecommunication Union (ITU)

3.6.3 Female access to a mobile phone

3.6.3a

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

Input number

Current Year Score: 4.0

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: 4.0

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

Evidence indicates that in the past year, Turkey 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 general, Turkey's import and export regime makes use of restrictions and bans as a way of protecting local industries, including the production of some medical devices and pharmaceutical products. [1, 2] Fewer categories of exports are restricted. [2]

However, the outbreak of the COVID-19 coronavirus pandemic has led to new, targeted export restrictions. In March 2020, in order to safeguard domestic supplies of goods critical to public health, the government mandated that the export of certain medical supplies be subject to pre-approval by relevant government bodies, such as the Turkish Medicines and Medical Devices Agency (TITCK). This pre-approval process includes ventilators, IV cannulas, intensive care monitors and certain types of personal protective equipment (PPE). [4, 5] TITCK makes clear that the regulation in question, the "Communiqué on the Amendment of the Communiqué on Exporting Prohibited and Pre-Authorized Goods (Export: 96/31),"

published in the Official Gazette dated March 4 2020, was adopted in reaction to the COVID-19 outbreak. [4]

[1] Republic of Turkey. Ministry of Trade. "Imports (İthalat)." [https://www.ticaret.gov.tr/gumruk-islemleri/sikca-sorulan-sorular/ticari/ithalat] Accessed August 2020

[2] Republic of Turkey. Ministry of Trade. "Exports (İhracat)." [https://www.ticaret.gov.tr/gumruk-islemleri/sikca-sorulan-sorular/ticari/ihracat] Accessed August 2020

[3] Gun and Partners. April 6 2020. "Drugs in Turkey, Medical Devices and Health Products Area Highlights and Predictions." Lexology. [https://www.lexology.com/library/detail.aspx?g=59a5fbd7-52bc-4621-b492-311af1e60c72] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-titck). May 29 2020. "Announcement No.2020 / 11 on Products Subject to Pre-Authorization Pursuant to the "Communiqué on Exports Prohibited and Pre-Authorized Goods (Export: 96/31) (İhracatında Ve İthalatında "İhracı Yasak Ve ön İzne Bağlı Mallara İlişkin Tebliğ (İhracat: 96/31)" Uyarınca ön İzne Tabi ürünler Hakkında 2020/11 Sayılı Duyuru)."

[https://www.titck.gov.tr/duyuru/ihracatinda-ve-ithalatinda-ihraci-yasak-ve-on-izne-bagli-mallara-iliskin-teblig-ihracat-96-31-uyarinca-on-izne-tabi-urunler-hakkinda-2020-10-sayili-duyuru-02052020193534] Accessed August and October 2020

[5] KPMG. March 2020. "Measures Taken in Foreign Trade within the Scope of Coronavirus (Covid-19) (Koronavirüs(Covid-19) Kapsamında Dış Ticarete Alınan önlemler)." [https://assets.kpmg/content/dam/kpmg/tr/pdf/2020/03/covid-19-dis-ticarette-alinan-onlemler.pdf] Accessed August 2020

3.7.1b

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

Yes = 0 , No = 1

Current Year Score: 0

Available evidence indicates that in the past year Turkey has issued a restriction, without international/bilateral support, on the export/import of non-medical goods (e.g. food, textiles, etc) due to an infectious disease outbreak.

The outbreak of the COVID-19 coronavirus pandemic has led to new, targeted restrictions on medical exports, as well as some restrictions on imports of a more general nature, starting in March 2020. In particular, goods originating in Central Asia that have passed through Iran, where the epidemic is widespread, are diverted to Georgia and Azerbaijan rather than be allowed into Turkey directly. [1] Other restrictions on the entry of foreign goods, such as at the Iran and Iraq borders, are not specifically on the goods themselves, but rather on freight workers such as truck drivers and container handlers. Goods are to be allowed entry only after "contactless trade" has been conducted, through such measures as the contactless change of containers, trailers and drivers, over the borders. In addition, with some exceptions, the entry of exotic animals from all countries for whatever purpose, invertebrates, amphibians, dogs, cats, ornamental fish, reptiles, rodents, domestic rabbits and all birds, into Turkey has been suspended. [1]

[1] KPMG. March 2020. "Measures Taken in Foreign Trade within the Scope of Coronavirus (Covid-19) (Koronavirüs(Covid-19) Kapsamında Dış Ticarete Alınan önlemler)." [https://assets.kpmg/content/dam/kpmg/tr/pdf/2020/03/covid-19-dis-ticarette-alinan-onlemler.pdf] Accessed August 2020

3.7.2 Travel restrictions

3.7.2a

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

Yes = 0 , No = 1

Current Year Score: 0

Available evidence indicates that in the past year Turkey has implemented a ban, without international/bilateral support, on travelers arriving from a specific country or countries due to an infectious disease outbreak.

The outbreak of the COVID-19 coronavirus pandemic led the government on March 27 2020 to unilaterally restrict the entry of persons into Turkey, banning all international flights and severely limiting domestic travel. The government kept Turkey's land border with Greece, Bulgaria, Iran, and Iraq closed to prevent further spread of the virus. [1] Most but not all of these restrictions were lifted in July. [2, 3]

Entry restrictions also apply on the entry of freight workers such as truck drivers and container handlers moving goods across the Turkish border, particularly with Iraq and Iran. In addition, for the time being, only Iranian or third country citizens are allowed to exit from Turkish customs directly into Iran; these persons are not permitted to re-enter Turkey directly. [2]

[1] GardaWorld. March 28 2020. "Turkey: All international flights suspended due to COVID-19 March 27 /update 10." [https://www.garda.com/crisis24/news-alerts/327236/turkey-all-international-flights-suspended-due-to-covid-19-march-27-update-10]

[2] TRT World. June 16 2020. "Turkey lifts restrictions on international, domestic travel." [https://www.trtworld.com/turkey/turkey-lifts-restrictions-on-international-domestic-travel-37331] Accessed August 2020

[3] KPMG. March 2020. "Measures Taken in Foreign Trade within the Scope of Coronavirus (Covid-19) (Koronavirüs(Covid-19) Kapsamında Dış Ticarete Alınan önlemler)." [https://assets.kpmg/content/dam/kpmg/tr/pdf/2020/03/covid-19-dis-ticarete-alinan-onlemler.pdf] Accessed August 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: 184.92

2017

WHO; national sources

4.1.1b

Nurses and midwives per 100,000 people

Input number

Current Year Score: 271.07

2017

WHO; national sources

4.1.1c

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

Yes = 1 , No = 0

Current Year Score: 0

Although Turkey has public workforce strategies in place to identify fields where there is an insufficient workforce and strategies to address these shortcomings, they either do not address the healthcare sector or have not been updated in the last five years. One key strategy (recently updated), runs from 2019 to 2023 and is implemented by the Turkish Employment Agency (Türkiye İş Kurumu--ISKUR), part of the Ministry of Family, Labour and Social Services. It does not specifically address the healthcare sector. [1]

Another plan does address the health sector workforce: called Health Workforce Goals and Health Education 2023 (2023 YILI Sağlık İş Gücü Hedefleri ve Sağlık Eğitimi), the plan was published in 2014 and it addresses Turkey's health sector goals and employee training strategy to the year 2023, the 100th anniversary of the founding of the Republic of Turkey. It aims to provide a balance between labour supply and need and support high-quality training to achieve that end. However, available evidence does not indicate that it has been updated in the last five years. [2]

Similarly, Turkey's National Employment Strategy (Ulusal İstihdam Stratejisi--UIS) addresses the health sector workforce. Among other recommendations, it notes insufficiencies in staffing, particularly in the number of nurses (far below the OECD average), and recommends substantial increases in the number of healthcare and medical personnel in Turkey. However, the strategy was issued in 2014--over five years ago.

No further evidence is found via the Ministries of Health, Labor or Education. [3, 4, 5]

[1] Turkish Employment Agency (Türkiye İş Kurumu--ISKUR). STRATEGIC PLAN (2019-2023) (STRATEJİK PLAN (2019-2023))"<https://media.iskur.gov.tr/33334/2019-2023-donemi-stratejik-plani.pdf>] Accessed August 2020

[2] Ministry of Health of Turkey. 2014. "Health Workforce Goals and Health Education 2023 (2023 YILI Sağlık İş Gücü Hedefleri ve Sağlık Eğitimi)". [https://dosyamerkez.saglik.gov.tr/Eklenti/2912,2023saglikegitimibaski-webpdf.pdf?0&_tag1=F5D3B4615C9B33C44FD202329148FB0FA3778B85] Accessed August 2020

[3] Republic of Turkey. National Employment Strategy (Ulusal Istihdam Stratejisi--UIS). Undated. Monitoring Assessment Report. "Health Sector (Sağlık Sektörü)." [http://www.uis.gov.tr/media/1201/uis_izleme_degerlendirme_raporu178-195.pdf] August 2020

[4] Republic of Turkey. Ministry of Health. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

[5] Republic of Turkey. Ministry of Labor. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

[6] Republic of Turkey. Ministry of Education. Website. [<https://www.saglik.gov.tr/>] Accessed August 2020

4.1.2 Facilities capacity

4.1.2a

Hospital beds per 100,000 people

Input number

Current Year Score: 285

2018

WHO/World Bank; national sources

4.1.2b

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

Yes = 1 , No = 0

Current Year Score: 1

There is real but sparse evidence that Turkey has patient isolation units (for biological threats) at least in some of the country's hospitals.

Most readily available evidence points to the existence of biocontainment units in Turkey only in laboratories. [1] A scholarly article published in November 2018 by members of the European Network for Highly Infectious Diseases (EuroNHID) Working Group researched the availability of patient isolation facilities in countries of the Mediterranean Basin and found no data on the existence of such facilities in Turkey. [2]

However, a May 2019 article in the national newspaper Sabah noted that a "negative pressure isolation room" had opened for tuberculosis patients in the Behçet Uz Pediatric Diseases and Surgery Training and Research Hospital, located in Izmir. The article stated that the room is the first of its kind in the Aegean Region, and is "...one of the few [such] rooms in Turkey." [3]

since the outbreak of COVID-19, some hospitals in Turkey indicate that they host such facilities. For example, the website of Kadikoy Hospital in Istanbul states that measures taken in the face of the outbreak include the preparation of isolation rooms for possible COVID-19-positive patients prior to referral, if necessary, a to more specialized treatment center. [4]

[1] Hüseyin Avni öktem. 2011. "E6. COUNTRY OVERVIEW FOR TURKEY: BIOSECURITY LAWS AND REGULATIONS IN TURKEY". in "Biosecurity Challenges of the Global Expansion of High-Containment Biological Laboratories." National Academies Press (US); 2011 Dec 15. [https://www.ncbi.nlm.nih.gov/books/NBK196149/#_appe6_] Accessed August 2020

[2] F.M.Fusco, P.Brouqui, G.Ippolito. 2018 "Highly infectious diseases in the Mediterranean Sea area: Inventory of isolation

capabilities and recommendations for appropriate isolation". *New Microbes and New Infections* Volume 26, Supplement 1, November 2018, Pages S65-S73. [<https://www.sciencedirect.com/science/article/pii/S2052297518300738>] Accessed August 2020

[3] Sabah. May 30 2019. "Negative pressure isolation room opened in Izmir (Izmir'de negatif basınçlı izolasyon odası açıldı)." [<https://www.sabah.com.tr/egeli/2019/05/30/izmirde-negatif-basincli-izolasyon-odasi-acildi>] Accessed August 2020

[4] Kadikoy Hospital. 2020. "Measures taken in our hospital for the COVID-19 outbreak (Hastanemizde COVID-19 salgını için alınan önlemler)." [<https://kadikoyhastanesi.com/hastanemizde-covid-19-salgini-icin-alinan-onlemler/>] Accessed August 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 publicly available evidence that Turkey has demonstrated capacity to expand isolation capacity in response to an infectious disease outbreak in the past two years.

Turkey's activation of its latest Pandemic Influenza National Preparedness Plan (2019) in response to the COVID-19 outbreak provides the government with an administrative and strategic framework for tackling this disease even though it is caused by a different type of virus. The 2019 plan specifically discusses isolation as a tool of infection control. [1] Additionally, in response to COVID-19, the Turkish government issued numerous rules on the isolation and quarantine of probable and confirmed cases of the disease, requiring such affected individuals to undergo isolation of 14 days as well as treatment. Home isolation and monitoring is required for cases who are under 50 years of age, have mild clinical factors and no risk factors; hospital isolation and treatment is mandated for severe and critical cases. Confirmed cases needing intensive care are kept in isolation chambers in 2nd or 3rd degree intensive care units at designated 'pandemic hospitals'. [2] However, no details are provided on expanding isolation capacity.

In September 2020 the health ministry adopted a new plan, the Turkey Covid-19 Emergency Health Project Stakeholder Engagement Plan, which aims to enlist the support of a wide range of stakeholders to strengthen the healthcare system's framework for addressing the COVID-19 emergency and future pandemic events. The plan acknowledges that several groups, including workers and people in quarantine/isolation centers and their families & relatives, may be impacted by its implementation. Otherwise, it does not directly discuss building the capacity of isolation facilities. [3] No other evidence was found via the Ministry of Health. [4]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed April 2021

[2] Irshad A. Shaikhi, Toker Erguder, Berk Geroglu, Çetin Dikmen, Tufan Nayir, Batyr Berdyklychev. January 12 2021. "Policy responses for Turkey." WHO Regional Office for Europe and European Observatory on Health Systems and Policies. COVID-19 Health System Response Monitor.

[<https://www.covid19healthsystem.org/countries/turkey/livinghit.aspx?Section=1.3%20Isolation%20and%20quarantine&Type=Section>] Accessed April 2021

[3] Republic of Turkey. Ministry of Health. April 8 2020. "TURKEY EMERGENCY COVID-19 HEALTH PROJECT Stakeholder

Engagement Plan." [<https://pydb.saglik.gov.tr/TR,75092/covid-19-saglikta-acil-durum-projesi-yedek.html>] Accessed April 2021

[4] Republic of Turkey. Ministry of Health of Turkey. Website. [<https://www.saglik.gov.tr/>] Accessed August 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

Turkey has a national procurement protocol in place which can be utilized by the Ministries of Health and Agriculture for the acquisition of laboratory needs (such as equipment, reagents and media) as well as medical supplies (e.g. equipment, PPE) for routine needs. The protocol is regulated by the Public Procurement Law (Kamu İhale Kanunu), which dates from 2002 and is administered by the Public Procurement Authority (Kamu İhale Kurumu).

Chapter 2, Section I of the Law specifies the methods of procurement; tenders and direct procurement. Tenders may be effected through methods known as Open, Restricted and Negotiated procedures (which all relate to the qualifications of the contracting party), while direct procurement as specified in Article 22 of the Law provides ten methods of direct procurement within restricted parameters. [1, 3] This law stipulates that a contracting party may use a system, operated by the Public Procurement Authority and known as the Electronic Public Procurement Platform, free of charge under the terms of the aforementioned Open Procedure. [1] This platform is known as EKAP (Elektronik Kamu Alımları Platformu), and is accessible to registered users only. [2]

[1] Republic of Turkey. Public Procurement Authority (Kamu İhale Kurumu). 2012. "Public Procurement Law"

[http://www2.ihale.gov.tr/english/4734_English.pdf] Accessed August 2020

[2] Electronic Public Procurement Platform (Elektronik Kamu Alımları Platformu). 2020. Website.

[<https://ekap.kik.gov.tr/EKAP/Default.aspx?ReturnUrl=%2fEKAP%2f>] Accessed August 2020

[3] The Law Reviews. July 2016. "The Government Procurement Review - Edition 4: TURKEY".

[<https://thelawreviews.co.uk/edition/the-government-procurement-review-edition-4/1136579/turkey>] Accessed August 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

Turkey's public health system maintains a stockpile of medical supplies (e.g. equipment, PPE) and medical countermeasures (MCM) (i.e. vaccines, therapeutics and diagnostics) for national use during a public health emergency.

According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical supplies and MCM at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. It maintains warehouses throughout the country that store buffer and emergency stocks for a week. As the WHO indicates, these stocks include "antibiotics, chemical antidotes, antitoxins, life-support medications, equipment for intravenous administration, airway maintenance supplies, and medical and surgical items." Supplies are procured annually and distributed on a weekly basis. [1]

More recent evidence is found in key national plans; the 2016 Hospital Disaster and Emergency Plan and the 2013 Disaster Response Plan, which indicate that formal structures and protocols exist for the procurement of critical supplies and MCM for hospitals and in the field for use during health emergencies. [2, 3]

In addition, a government-sponsored market network exists for the trading and procurement of supplies, although not exclusively for use in emergencies. The Ministry of Health runs a Health Market Supply Sharing Platform, which has online catalogues for registered medicines and so-called "medical consumables" as well as a mechanism for trading these products--and even surplus biomedical assets and fixtures--in a market structure. [4] Turkey has an advanced medical device supply industry and the main industry association TUMDEF liaises closely with the government and the private sector on procurement. [5] The government's central procurement agency is the Public Procurement Authority, which liaises on compliance issues with the Medicines and Medical Devices Agency (TITCK) at the health ministry. [6, 8] However, none of these procurement-oriented agencies provide explicit evidence of operating a emergency-stockpiling system.

Finally, Turkish legislation empowers and mandates the Ministry of Health's General Directorate of Emergency Health Services to "...carry out planning, procurement, distribution and storage activities for communication, medicine, medical and technical materials that will be needed in the provision of health services for disasters and emergencies." [7]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pi_ResmiG_20122013.pdf] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. 2020. Health Market Supply Sharing Platform (Saglik Market Tadarik Paylasma Platformu). (https://sbu2.saglik.gov.tr/Tpp/Pages/Default.aspx) Accessed August 2020

[5] Federation of Medical Device Manufacturers and Suppliers (TUMDEF). Website. [http://www.tumdef.org/?lg=tr] Accessed August 2020

[6] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu--TITCK). 2020. Website. [https://www.titck.gov.tr/] Accessed August 2020

[7] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. December 12 2019. "Directives (Yonergeler)." [https://acilafet.saglik.gov.tr/TR,4328/yonergeler.html] Accessed August 2020

[8] Republic of Turkey. Public Procurement Authority (Kamu İhale Kurumu). Website. 2020. [<https://www.ihale.gov.tr/>] Accessed October 2020

4.2.2b

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

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

Current Year Score: 1

Turkey's public health system maintains a stockpile of laboratory supplies (e.g. reagents, media) for national use during a public health emergency but there is no further evidence provided of what is included.

According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical supplies and equipment at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. It maintains warehouses throughout the country that store buffer and emergency stocks for a week. As the WHO indicates, "[t]he Ministry of Health is responsible for the regular provision of pharmaceuticals and medical and laboratory supplies to its hospitals; the provision of resupplies to national and subnational health facilities in the event of an emergency is also possible. The Ministry has warehouses at the national level and in each province that house buffer and emergency stocks for a week." Supplies are procured annually and distributed on a weekly basis. [1] No further details are provided on what is included.

More recent evidence is found in key national plans; the 2016 Hospital Disaster and Emergency Plan and the 2013 Disaster Response Plan, which indicate that formal structures and protocols exist for the procurement of critical supplies for hospitals and in the field for use during health emergencies. [2, 3]

Finally, Turkish legislation empowers and mandates the Ministry of Health's General Directorate of Emergency Health Services to "...carry out planning, procurement, distribution and storage activities for communication, medicine, medical and technical materials that will be needed in the provision of health services for disasters and emergencies." [4]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020

[3] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. December 12 2019. "Directives (Yönergeler)". [<https://acilafet.saglik.gov.tr/TR,4328/yonergeler.html>] Accessed August 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

While there is evidence that Turkey conducts reviews of the national stockpile of medicines, supplies and the like to ensure the supply is sufficient for a public health emergency, evidence is lacking with regard to the frequency of such reviews.

Turkey's public health system maintains a stockpile of medical supplies and medical countermeasures for national use during a public health emergency. According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical supplies and MCM at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. It maintains warehouses throughout the country that store buffer and emergency stocks for a week. As the WHO indicates, these stocks include "antibiotics, chemical antidotes, antitoxins, life-support medications, equipment for intravenous administration, airway maintenance supplies, and medical and surgical items." Supplies are procured annually and distributed on a weekly basis. [1]

An agency of the Ministry of Health, the Department of Supply Planning, Stock and Logistics Management, on a continuous basis manages stocks of medicines, medical consumables, surgical instruments and laboratory materials used by the national system of public hospitals. Among other activities it manages stock movements, analyzes trends in stock purchasing and consumption, and conducts on-site evaluations. However, it does not provide detail on the frequency of such activities. [2]

Other evidence for the management of stocks is found in key national plans; the 2016 Hospital Disaster (HAP) and Emergency Plan and the 2013 Disaster Response Plan (TAMP), which indicate that formal structures and protocols exist for the procurement of critical supplies and MCM for hospitals and in the field for use during health emergencies. [3, 4]

Finally, Turkish legislation empowers and mandates the Ministry of Health's General Directorate of Emergency Health Services to "...carry out planning, procurement, distribution and storage activities for communication, medicine, medical and technical materials that will be needed in the provision of health services for disasters and emergencies." [5]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Hospitals. Department of Supply Planning, Stock and Logistics Management. 2021. Website. <https://khgmstokyonetimidb.saglik.gov.tr/> Accessed April 2021

[3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed August 2020

[4] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pi_ResmiG_20122013.pdf] Accessed August 2020

[5] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. December 12 2019. "Directives

(Yonergeler)." [<https://acilafet.saglik.gov.tr/TR,4328/yonergeler.html>] Accessed August 2020

4.2.3 Manufacturing and procurement for emergencies

4.2.3a

Does the country meet one of the following criteria?

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

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

Current Year Score: 0

Although there is evidence of flexible procurement systems, there is insufficient evidence of specific agreements or mechanisms to procure medical supplies (e.g. equipment, PPE) and medical countermeasures (MCMs) (i.e. vaccines, therapeutics and diagnostics) for national use during a public health emergency; similarly, there is little evidence of a plan to leverage domestic manufacturing capacity to produce such supplies.

Turkey has a very complex and advanced medical-supplies industry, involving all aspects of the business ranging from product quality and needs assessment, sourcing, production and procurement, to pricing, production, distribution and disbursement. These functions are governed by a system grounded in a corpus of Turkish legislation made up of dozens of laws, regulations, directives, guides, etc., rather than in one or two stand-alone acts. [1, 2, 6, 7]

The public sector in Turkey purchases supplies through agencies such as the State Supply Office (Devlet Malzeme Ofisi-- DMO), an affiliate organization of the Ministry of Treasury and Finance. The DMO applies three procurement methods (stock, catalogue and miscellaneous-upon-buyer-demand), and operates according to a host of laws and regulations governing such functions as purchase scheduling and price management. It also operates an electronic purchase and sales portal for its customers and suppliers. [8] A key, related agency, with responsibility for procurement compliance, is the Turkish Medicines and Medical Devices Agency (TITCK), part of the Ministry of Health. [1] The Ministry of Health also runs a Health Market Supply Sharing Platform, which has online catalogues for registered medicines and so-called "medical consumables" as well as a mechanism for trading these products and even surplus biomedical assets and fixtures. [6]

With regard to procurement during health emergencies, the relevant laws on procurement aim to ensure flexibility in supply chains. For example, these laws empower and mandate the Ministry of Health's General Directorate of Emergency Health Services to "...carry out planning, procurement, distribution and storage activities for communication, medicine, medical and technical materials that will be needed in the provision of health services for disasters and emergencies." [1, 2] Flexibility of procurement is also mandated by Turkey's two key national plans on health emergencies; the 2016 Hospital Disaster and Emergency Plan (HAP) and the 2013 Turkey Disaster Response Plan (TAMP), which indicate that formal structures and protocols exist for the procurement of critical supplies for hospitals and in the field for use during health emergencies. [4, 5]

According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical and laboratory supplies and equipment at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. [3]

- [1] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu -TITCK). 2020. "Legislation (Mevzuat)." [<https://www.titck.gov.tr/mevzuat>] Accessed August and October 2020
- [2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. "Legislation (Mevzuat)." [<https://acilafet.saglik.gov.tr/TR,4223/mevzuat.html>] Accessed August and October 2020
- [3] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020
- [4] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020
- [5] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed August 2020
- [6] Republic of Turkey. Ministry of Health. 2020. Health Market Supply Sharing Platform (Sağlık Market Tadarik Paylaşma Platformu). (<https://sbu2.saglik.gov.tr/Tpp/Pages/Default.aspx>) Accessed August 2020
- [7] Federation of Medical Device Manufacturers and Suppliers (TUMDEF). Website. [<http://www.tumdef.org/?lg=tr>] Accessed August 2020
- [8] Republic of Turkey. State Supply Office. 2020. Website. [<https://www.dmo.gov.tr/Eng>] Accessed October 2020 Other sources: Daily Sabah. February 18 2020. "Turkish industries push limits to meet demand amid virus outbreak." [<https://www.dailysabah.com/business/2020/02/18/turkish-industries-push-limits-to-meet-demand-amid-virus-outbreak>] Accessed August 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

Although there is evidence of flexible procurement systems, there is insufficient evidence of specific agreements or mechanisms to procure laboratory supplies (e.g. reagents, media) for national use during a public health emergency; similarly, there is little evidence of a plan to leverage domestic manufacturing capacity to produce such supplies.

Turkey has a very complex and advanced medical- and laboratory-supplies industry, involving all aspects of the business ranging from product quality and needs assessment, sourcing, production and procurement, to pricing, production, distribution and disbursement. These functions are governed by a system grounded in a corpus of Turkish legislation made up of dozens of laws, regulations, directives, guides, etc., rather than in one or two stand-alone acts. [1, 2, 6, 7]

The public sector in Turkey purchases supplies through agencies such as the State Supply Office (Devlet Malzeme Ofisi--DMO), an affiliate organization of the Ministry of Treasury and Finance. The DMO applies three procurement methods (stock, catalogue and miscellaneous-upon-buyer-demand), and operates according to a host of laws and regulations governing such functions as purchase scheduling and price management. It also operates an electronic purchase and sales portal for its customers and suppliers. [8] A key, related agency, with responsibility for procurement compliance, is the

Turkish Medicines and Medical Devices Agency (TITCK), part of the Ministry of Health. [1] The Ministry of Health also runs a Health Market Supply Sharing Platform, which has online catalogues for registered medicines and so-called "medical consumables" as well as a mechanism for trading these products and even surplus biomedical assets and fixtures. [6]

With regard to procurement during health emergencies, the relevant laws on procurement aim to ensure flexibility in supply chains. For example, these laws empower and mandate the Ministry of Health's General Directorate of Emergency Health Services to "...carry out planning, procurement, distribution and storage activities for communication, medicine, medical and technical materials that will be needed in the provision of health services for disasters and emergencies." [1, 2] Flexibility of procurement is also mandated by Turkey's two key national plans on health emergencies; the 2016 Hospital Disaster and Emergency Plan (HAP) and the 2013 Turkey Disaster Response Plan (TAMP), which indicate that formal structures and protocols exist for the procurement of critical medical and laboratory supplies for hospitals and in the field for use during health emergencies. [4, 5]

According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical and laboratory supplies and equipment at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. [3]

[1] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu - TITCK). 2020. "Legislation (Mevzuat)." [<https://www.titck.gov.tr/mevzuat>] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. "Legislation (Mevzuat)." [<https://acilafet.saglik.gov.tr/TR,4223/mevzuat.html>] Accessed August 2020

[3] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020

[5] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed August 2020

[6] Republic of Turkey. Ministry of Health. 2020. Health Market Supply Sharing Platform (Sağlık Market Tadarik Paylasma Platformu). [<https://sbu2.saglik.gov.tr/Tpp/Pages/Default.aspx>] Accessed August 2020

[7] Federation of Medical Device Manufacturers and Suppliers (TUMDEF). Website. [<http://www.tumdef.org/?lg=tr>] Accessed August 2020

[8] Republic of Turkey. State Supply Office. 2020. Website. [<https://www.dmo.gov.tr/Eng>] Accessed October 2020 Other sources: Daily Sabah. February 18 2020. "Turkish industries push limits to meet demand amid virus outbreak." [<https://www.dailysabah.com/business/2020/02/18/turkish-industries-push-limits-to-meet-demand-amid-virus-outbreak>] Accessed August 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: 1

Turkey has guidelines in place both for dispensing and distributing medical countermeasures for national use during a public health emergency (i.e. antibiotics, vaccines, therapeutics and diagnostics). For example, Turkey's Hospital Disaster and Emergency Plan (HAP) of 2016 contains a formal protocol on the dispensing as well as procurement of critical medical supplies in hospitals during public health emergencies. The protocol identifies and defines the roles of the relevant responsible parties, from pharmacy personnel to logistics managers and others. [1] Similarly, the Turkey Disaster Response Plan (TAMP) of 2013 stipulates systems for dispensing and distributing such materials under these situations. [2]

According to the World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness, the Disaster and Emergency Management Presidency of Turkey (AFAD) is responsible for conducting risk assessments and then organizing strategic reserves of essential medical supplies and equipment for distribution at the national and subnational levels. The Ministry of Health is responsible for providing such supplies to national and subnational health facilities in normal times and in emergencies. It maintains warehouses throughout the country that store buffer and emergency stocks for a week. As the WHO indicates, these stocks include "antibiotics, chemical antidotes, antitoxins, life-support medications, equipment for intravenous administration, airway maintenance supplies, and medical and surgical items." Supplies are procured annually and distributed on a weekly basis. [3]

Turkey has a large and sophisticated medical device supply industry, which, with respect to distribution and dispensing, is underpinned by a wealth of legislation that focuses on ensuring supply chain flexibility. The Ministry of Health is the main actor in the industry, working mainly through two of its agencies--the Turkish Medicines and Medical Devices Agency (TITCK) and the General Directorate of Emergency Health Services--both of which are governed by this legislation. [4, 5] The Ministry also runs a Health Market Supply Sharing Platform to encourage efficiencies in supply through market forces.

Finally, the Turkish Federation of Medical Device Manufacturers and Suppliers (TUMDEF) liaises with public- and private-sector stakeholders to promote the efficiency of the market for these supplies--in normal times and during emergencies. [6]

[1] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed August 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed August 2020

[3] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed August 2020 [1] Republic of

Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu--TITCK). 2020. "Legislation (Mevzuat)." [https://www.titck.gov.tr/mevzuat] Accessed August 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. "Legislation (Mevzuat)." [https://acilafet.saglik.gov.tr/TR,4223/mevzuat.html] Accessed August 2020

[5] Republic of Turkey. Ministry of Health. 2020. Health Market Supply Sharing Platform (Saglik Market Tadarik Paylasma Platformu). (https://sbu2.saglik.gov.tr/Tpp/Pages/Default.aspx) Accessed August 2020

[6] Federation of Medical Device Manufacturers and Suppliers (TUMDEF). Website. [http://www.tumdef.org/?lg=tr] Accessed August 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

Available evidence does not indicate that Turkey has a stand-alone, overarching plan to receive healthcare personnel from other countries to respond to a public health emergency. As the World Health Organization (WHO) relates in its 2010 assessment of Turkey's health systems' crisis preparedness, the country's health sector has a well-developed surge capacity adequate for dealing with public health emergencies. "Dispatching patients to other countries is not considered necessary; any cross-border collaboration would be decided by [the Disaster and Emergency Management Presidency of Turkey (AFAD)] or the Ministry of Foreign Affairs." [1]

Turkey's two key plans on public health emergencies, the Hospital Disaster and Emergency Plan (HAP) of 2016 and the Turkey Disaster Response Plan (TAMP) of 2013 do not contain provisions for receiving healthcare personnel from other countries. [2, 3]

The Ministry of Health does have bilateral cooperation agreements on health policy with a number of countries, but these agreements focus on issues such as attracting medical tourists to Turkey, and coordination on emergency planning is a relatively minor issue. [2] AFAD does promote cross-border cooperation with regional and international counterparts, but largely for information-gathering purposes. [4]

Similarly, Turkey's Ministry of Defence does not indicate that it has such a protocol. [5]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI

(TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of European Union and Foreign Relations (Avrupa Birliği ve Dis

liskiler Genel Müdürlüğü). 30 July 2008. "research - cross-border health care and patient rights (arastırma - sınır ötesi sağlık hizmetleri ve hasta hakları). [<https://disab.saglik.gov.tr/TR,3158/arastirma---sinir-otesi-saglik-hizmetleri-ve-hasta-haklari---ab-uzmani-inanc-sogut.html>] Accessed September 2020

[5] Republic of Turkey. Ministry of Defense. Website. [<https://www.msb.gov.tr/>] Accessed September 2020

4.4 HEALTHCARE ACCESS

4.4.1 Access to healthcare

4.4.1a

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

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

Current Year Score: 2

2020

World Policy Analysis Center

4.4.1b

Access to skilled birth attendants (% of population)

Input number

Current Year Score: 97.4

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: 205.25

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

Available evidence does not indicate that Turkey's government has a policy that prioritizes health care services to healthcare workers who become sick as a result of responding to a public health emergency. The World Health Organization's (WHO) 2010 assessment of Turkey's health systems' crisis preparedness does not mention such a protocol, and neither do the texts of Turkey's two key plans on public health emergencies--the Ministry of Health's Hospital Disaster and Emergency Plan (HAP) of 2016 and the Disaster and Emergency Management Presidency (AFAD)'s Turkey Disaster Response Plan (TAMP) of 2013. [1, 2, 3]

[1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI

(TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed September 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 Turkey has a robust system in place for public health officials and healthcare workers to communicate during a public health emergency. As the World Health Organization (WHO) relates in its October 2010 assessment of Turkey's health systems' crisis preparedness, the country's institutional framework has considerable mechanisms for coordination and partnership. [1] This is reflected in Turkey's two key plans on such emergencies--the

Ministry of Health's Hospital Disaster and Emergency Plan (HAP) of 2016 and the Disaster and Emergency Management Presidency (AFAD)'s Turkey Disaster Response Plan (TAMP) of 2013. Both these plans mandate constant communication between health crisis stakeholders. [2, 3]

For example, AFAD entrusts operational coordination in emergency and disaster situations to its Health and Disaster Coordination Centre (Saglik Afet Koordinasyon Merkezi--SAKOM). [4] SAKOM operates a round-the-clock health disaster coordination center, receiving data on incidents (such as interventions by rescue teams) and hospital-bed capacity from all linked provincial emergency ("112") call centers. It coordinates with a number of related entities, such as crisis coordination centers in other ministries, the national armed forces, and the Turkish Red Crescent society. [1] SAKOM also cooperates with UMKE, the national volunteer emergency management corps. [1]

The 2016 HAP plan devotes an entire operating protocol (No. 9) to risk communication management, and is particularly explicit in mandating communication protocols among key stakeholders in public health emergencies. For example, hospital facility managers are directed to maintain and back up communications systems such as pagers and radios and improvise systems when and where needed. Incident management teams (olay yonetim ekipleri--OYE) in the field must communicate with the hospital's chief physician[s] responsible for emergency services to enable the latter to evaluate and manage the evolving situation. OYE teams must also maintain communication with external stakeholders (fire brigade and police, municipality, subject matter experts, the general public, other hospitals) during the crisis. Workers also have a protocol in the HAP on how to liaise with the relevant branch of SAKOM in the affected province--as well as with other actors such as crisis coordination centers and private-sector vendors--during such events. [3]

1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey."[http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI

(TAMP))".[https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed

September 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed September 2020

4.5.1b

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

Yes = 1 , No = 0

Current Year Score: 0

There is insufficient evidence that Turkey has a robust system in place for public health officials and healthcare workers to communicate during a public health emergency. Hence, there is no evidence that it includes both the private and public sectors.

As the World Health Organization (WHO) relates in its October 2010 assessment of Turkey's health systems' crisis preparedness, the country's institutional framework has considerable mechanisms for coordination and partnership. [1] This

is reflected in Turkey's two key plans on such emergencies--the Ministry of Health's Hospital Disaster and Emergency Plan (HAP) of 2016 and the Disaster and Emergency Management Presidency (AFAD)'s Turkey Disaster Response Plan (TAMP) of 2013. Both these plans mandate constant communication between health crisis stakeholders. [2, 3]

For example, AFAD entrusts operational coordination in emergency and disaster situations to its Health and Disaster Coordination Centre (Saglik Afet Koordinasyon Merkezi--SAKOM). [4] SAKOM operates a round-the-clock health disaster coordination center, receiving data on incidents (such as interventions by rescue teams) and hospital-bed capacity from all linked provincial emergency ("112") call centers. It coordinates with a number of related entities, such as crisis coordination centers in other ministries, the national armed forces, and the Turkish Red Crescent society. [1] SAKOM also cooperates with UMKE, the national volunteer emergency management corps. [1]

The 2016 HAP plan devotes an entire operating protocol (No. 9) to risk communication management, and is particularly explicit in mandating communication protocols among key stakeholders in public health emergencies. For example, hospital facility managers are directed to maintain and back up communications systems such as pagers and radios and improvise systems when and where needed. Incident management teams (olay yonetim ekipleri--OYE) in the field must communicate with the hospital's chief physician[s] responsible for emergency services to enable the latter to evaluate and manage the evolving situation. OYE teams must also maintain communication with external stakeholders (fire brigade and police, municipality, subject matter experts, the general public, other hospitals) during the crisis. Workers also have a protocol in the HAP on how to liaise with the relevant branch of SAKOM in the affected province--as well as with other actors such as crisis coordination centers and private-sector vendors--during such events. [3]

1] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness:

Turkey."[http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[2] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013.

"TURKEY DISASTER RESPONSE PLAN (TAMP) (Türkiye Afet Müdahale Planı

(TAMP))".[https://www.afad.gov.tr/kurumlar/afad.gov.tr/2419/files/Afet_Mud_Pl_ResmiG_20122013.pdf] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [<https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0>] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services (Acil Saglik Hizmetleri Genel Müdürlüğü). June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed September 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 that the national public health system in Turkey monitors for and tracks the number of healthcare-associated (HCAI) infections that take place in healthcare facilities.

The Ministry of Health runs a National Health-Service-Associated Infections Surveillance Network (Ulusal Sağlık Hizmeti İlişkili Enfeksiyonlar Sürveyansı Ağı --USHIESA). As of 2018, a total of 908 health institutions in Turkey were registered with USHIESA and 897 of them enter data. The scope and completeness of data entry vary widely, especially within regard to surgical-site infections surveillance. In 2017, the Network published a National Health Service-Associated Infections Surveillance Guide for the use of health institutions, which has led to the updating of surveillance standards. Collected surveillance data are analyzed and reported annually at the national level. [1]

[1] Republic of Turkey. Ministry of Health. General Directorate of Public Health. Undated. "National Health Service-Associated Infections Surveillance Network (USHIESA) (Ulusal Sağlık Hizmeti İlişkili Enfeksiyonlar Sürveyansı Ağı (USHIESA)." [https://hsgm.saglik.gov.tr/tr/bulasici-hastaliklar/shie/shie-liste/shie.html] Accessed September 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

Turkey has a national requirement for ethical review by a competent authority before a clinical trial may begin. This authority is the Clinical Trials Department (Etik Kurul) of the Turkish Medicines and Medical Devices Agency (TITCK). While Turkey long has had clinical trial legislation, more recent regulations aim to harmonise Turkey's legislation on clinical research with that of the European Union. [1]

As a result, Turkish regulations now are completely in line with EC Directives (EC 2001/20 and EC 2005/28). [1] Only after obtaining approval from an authorized ethics committee may the TITCK grant permission for conducting a clinical trial in Turkey. [1, 2] Its Clinical Trials Department has a phase evaluation unit, bioequivalence/ bioavailability evaluation unit, and a post-marketing surveillance evaluation unit. [1]

[1] Hilal Ilbars. "Clinical Trials in Turkey (Türkiye'de Klinik Araştırmalar)". Turkish Journal of Haematology. 2013 Jun; 30

[2] : 111-114. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878463/] Accessed September 2020

[2] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu -TITCK). 2020. "Clinical Trials (Klinik Araştırmalar)." [https://www.titck.gov.tr/faaliyetalanlari/ilac/klinik-arastirmalar] Accessed September 2020

4.7.1b

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

Yes = 1 , No = 0

Current Year Score: 0

Although available evidence indicates that Turkey has an expedited process for approving clinical trials for highly prioritised products, it is not clear that this process applies for unregistered medical countermeasures to treat ongoing pandemics. The competent authority, the Clinical Trials Department of the Turkish Medicines and Medical Devices Agency (TITCK) may grant permission for conducting a clinical trial only after obtaining approval from an authorised ethics committee. [1, 2]

The TITCK normally subjects applications for new products to a time-consuming good manufacturing practices (GMP) accreditation process, and an exception to this process is made only for life-saving and critical products classed as highly prioritized products, in which case the GMP accreditation process may be conducted in parallel to the review process. [1, 2]

According to TITCK regulations, "...the overall approval target timeline is 210 calendar days, 180 calendar days for a prioritized accelerated review and 150 calendar days for highly prioritized products. However, "prioritized accelerated" and "highly prioritized" are not defined in the regulation." [3] Finally, the TITCK does not indicate on its website if it has a policy to approve clinical trials for unregistered medical countermeasures to treat ongoing pandemics. [2]

[1] Hilal Ilbars. "Clinical Trials in Turkey (Türkiye'de Klinik Araştırmalar)". Turkish Journal of Haematology. 2013 Jun; 30

[2] : 111-114. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878463/>] Accessed September 2020

[2] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu -TITCK). 2020. "Clinical Trials (Klinik Araştırmalar)." [<https://www.titck.gov.tr/faaliyetalanlari/ilac/klinik-arastirmalar>] Accessed September 2020

[3] Emel Mashaki Ceyhan, Hakki Gürsöz, Ali Alkan, Hacer Coşkun, Oguzhan Koyuncu, and Stuart Walker. 25 January 2018. "The Turkish Medicines and Medical Devices Agency: Comparison of Its Registration Process with Australia, Canada, Saudi Arabia, and Singapore". Frontiers in Pharmacology. 2018; 9: 9. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5789679/>] Accessed September 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

Turkey has a government agency responsible for approving new medical products for use in humans. This agency is the Turkish Medicines and Medical Devices Agency (TITCK), part of the Ministry of Health. [1, 2] It is not clear from the evidence that the TITCK specifically approves medical countermeasures for use in public health emergencies, but it is likely to do so as it bears responsibility for approving all medicines and medical devices to be used in the country. [3, 4] The TITCK's purview includes diagnostics, therapeutics, vaccines, and the like. [3, 4, 5]

[1] Hilal Ilbars. "Clinical Trials in Turkey (Türkiye'de Klinik Araştırmalar)". Turkish Journal of Haematology. 2013 Jun; 30

[2] : 111-114. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878463/>] Accessed September 2020

[2] Emel Mashaki Ceyhan, Hakki Gürsöz, Ali Alkan, Hacer Coşkun, Oguzhan Koyuncu, and Stuart Walker. 25 January 2018. "The Turkish Medicines and Medical Devices Agency: Comparison of Its Registration Process with Australia, Canada, Saudi Arabia, and Singapore". Frontiers in Pharmacology. 2018; 9: 9. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5789679/>] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "Clinical Trials (Klinik Araştırmalar)." [<https://www.titck.gov.tr/faaliyetalanlari/ilac/klinik-arastirmalar>] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "Medical Device Clinical Investigations (Tıbbi Cihazda Klinik Araştırmalar)." [<https://www.titck.gov.tr/faaliyetalanlari/tibbicihaz/55>] Accessed September 2020

[5] Ministry of Health of Turkey. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "List of Licensed Products (Rusatli Urunler Listesi)". [<https://www.titck.gov.tr/dinamikmodul/85>] Accessed September 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

There is evidence of an expedited process for approving medical countermeasures for human use during public health emergencies. Turkey's Medicines and Medical Devices Agency (TITCK) has an expedited process available only for life-saving and critical products categorized as highly prioritized products. Although not expressly stated as such, this process almost certainly extends to medical countermeasures for human use during public health emergencies, as the TITCK bears responsibility for approving all medicines and medical devices to be used in the country. While a description of a specific process for expediting same during an emergency is lacking in relevant academic sources as well as on TITCK webpages, [1, 2, 3, 4] it should be noted that the TITCK's purview includes diagnostics, therapeutics, vaccines, and the like. [5]

[1] Hilal İlbars. "Clinical Trials in Turkey (Türkiye'de Klinik Araştırmalar)". Turkish Journal of Haematology. 2013 Jun; 30

[2] : 111-114. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3878463/>] Accessed September 2020

[2] Emel Mashaki Ceyhan, Hakki Gürsöz, Ali Alkan, Hacer Coşkun, Oguzhan Koyuncu, and Stuart Walker. 25 January 2018. "The Turkish Medicines and Medical Devices Agency: Comparison of Its Registration Process with Australia, Canada, Saudi Arabia, and Singapore". Frontiers in Pharmacology. 2018; 9: 9. [<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5789679/>] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "Clinical Trials (Klinik Araştırmalar)." [<https://www.titck.gov.tr/faaliyetalanlari/ilac/klinik-arastirmalar>] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "Medical Device Clinical Investigations (Tıbbi Cihazda Klinik Araştırmalar)." [<https://www.titck.gov.tr/faaliyetalanlari/tibbicihaz/55>] Accessed September 2020

[5] Ministry of Health of Turkey. Turkish Medicines and Medical Devices Agency (Türkiye İlaç ve Tıbbi Cihaz Kurumu-TITCK). 2020. "List of Licensed Products (Rusatli Urunler Listesi)". [<https://www.titck.gov.tr/dinamikmodul/85>] Accessed September 2020

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

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

5.1.1 Official IHR reporting

5.1.1a

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

Yes = 1 , No = 0

Current Year Score: 1

2020

World Health Organization

5.1.2 Integration of health into disaster risk reduction

5.1.2a

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

Yes = 1 , No = 0

Current Year Score: 1

Turkey has a national plan for epidemics and pandemics that incorporates risk-reduction elements. Although it is not a dedicated, stand-alone plan for dealing with health emergencies, the Turkey Disaster Response Plan (TAMP) of 2013, prepared by AFAD, the national disaster and emergency management presidency, has a risk-reduction component and addresses epidemics. Specifically, the TAMP mandates the Ministry of Health to, among other tasks, take prophylactic measures against environmental or water-borne risk vectors for epidemics, fight epidemic disease and provide evacuation and quarantine isolation services if necessary. [1] A parallel plan, the Ministry of Health's Hospital Disaster and Emergency Plan (HAP) of 2016, mandates hospitals to engage in continuous risk-assessment and -reduction measures--even including assessments of the condition of their physical facilities--to reduce their operational vulnerabilities in case of a public health disaster. To that end, it requires that hospitals to have their own disaster risk-management systems in place, that can be applied over three different stages of an epidemic or pandemic: prevention, mitigation and preparation; intervention; and rehabilitation and improvement. The resulting system must be of sufficient quality to enable a hospital to administer speedy, appropriate and effective intervention for the first 72 hours of an outbreak without any assistance from outside facilities. [2]

The latest national Disaster Risk Reduction Plan of Turkey (Türkiye Afet Risk Azaltma Planı--TARAP) is distinct from the Ministry of Health's pandemic risk-reduction plans and is operated by AFAD. It was supposed to be issued by the end of 2018, although evidence indicates it has not yet been published. [5] A parallel plan developed by AFAD and known as the Provincial Disaster Risk Plan (İl Afet Risk Planı--IRAP) aims to guide planning and identify risks at the front-line, or provincial, level. The IRAP was introduced in August 2020 but as with the TARAP it is not yet clear when it will be published or enter into

force. [6]

[1] Disaster and Emergency Management Presidency of Turkey (AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed September 2020

[2] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed September and October 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)". [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed September 2020

[4] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[5] Disaster and Emergency Management Presidency of Turkey (AFAD). Undated. "Turkey Disaster Risk Reduction Plan (TARAP) (Türkiye Afet Risk Azaltma Planı (TARAP))". [https://www.afad.gov.tr/turkiye-afet-risk-azaltma-planı-tarap] Accessed September 2020

[6] Disaster and Emergency Management Presidency of Turkey (AFAD). August 21 2020. "Turkey's First 'Provincial Disaster Risk Plan' Introduced to the public (Türkiye'nin İlk 'İl Afet Risk Planı' Kamuoyuna Tanıtıldı)". [https://afad.gov.tr/turkiyenin-ilk-il-afet-risk-planı-kamuoyuna-tanitildi] Accessed September 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: 0

Available evidence does not indicate that Turkey has fully operative cross-border agreements, protocols, or MOUs with neighboring countries, or as part of a regional group, with regards to public health emergencies. It does, however, communicate with regional and international entities on issues relating to such emergencies. [1] One key example--although not exclusively related to health--is the agreement to form the Joint Hellenic Turkish Standby Disaster Response Unit, which was concluded with Turkey's neighbour Greece, entering into force in 2002. The agreement also discusses scientific cooperation as well as operational issues such as joint training activities and the cross-border import and export of means and equipment from the borders. But there is insufficient evidence that it permits closer forms of cross-border bilateral cooperation--such as the exchange of medical personnel--during public health emergencies. [4]

Turkey also participates in CAESAR, the Central Asian and Eastern European Surveillance of Antimicrobial Resistance system, although this network is not exclusively concerned with health emergencies. [1] On the international level, Turkey is a State Party to the International Health Regulations (IHR) and has adopted The Hyogo Framework for Action 2005-2015 on mitigating disaster risk. [2]

In health emergencies, Turkey's Disaster and Emergency Management Authority, known as AFAD, coordinates with the national Health and Disaster Coordination Centre (SAKOM). Aside from its internal activities, SAKOM organizes the participation of medical volunteer teams in international operations. [2]

Turkey's response to the ongoing Syrian refugee crisis (delivering medical supplies, training local health care personnel, and immunizing children) is coordinated by the WHO, in partnership with the International Organization for Migration (IOM), the United Nations population fund (UNFPA), the Office of the United Nations High Commissioner for Refugees (UNHCR), UNICEF, the Ministry of Health, the Ministry of Family and Social Policy and other NGO partners. [3]

[1] World Health Organization (WHO). 2020. "Central Asian and Eastern European Surveillance of Antimicrobial Resistance: Annual report 2019." [https://www.euro.who.int/__data/assets/pdf_file/0003/418863/53373-WHO-CAESAR-annual-report-2019.pdf] Accessed September 2020

[2] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey." [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[3] World Health Organization (WHO). 2019. "Health emergency response to the crisis in the Syrian Arab Republic Annual Report 2018 (2019)." [https://www.euro.who.int/en/countries/turkey/publications/health-emergency-response-to-the-crisis-in-the-syrian-arab-republic-annual-report-2018-2019] Accessed September 2020

[4] Republic of Greece. General Secretariat for Civil Protection. "Bilateral Agreements and Cooperation Protocols in Force." [https://www.civilprotection.gr/en/bilateral-agreements-and-cooperation-protocols-force] Accessed September 2020

5.2.1b

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

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

Current Year Score: 0

There is insufficient evidence that Turkey has cross-border agreements that address response to animal health emergencies.

There is evidence of agreements (such as one between Serbia and Turkey) which permit reciprocal banning of the cross-border shipment of animals susceptible to an animal disease that has broken out. [1, 6] Similarly, Turkey has an arrangement with the European Union (EU) on animal health protection, but it does not mention emergencies. As a candidate for accession to the EU, Turkey has concluded many regulatory agreements with that body. In regard to animal health, Turkey is obligated to implement and enforce Chapter 12 of the EU Acquis on Food Safety, Veterinary and Phytosanitary Policy. [2]

In recent years, the EU's Instrument for Pre-Accession Assistance (IPA II) has targeted support for Turkey's agriculture and rural development, food safety, veterinary and phytosanitary policy and fisheries, such as in control and prevention of Lumpy Skin Disease (LSD), in controlling wildlife rabies, in managing fisheries, and in raising the awareness of the country's agrofood sector in terms of EU environmental and hygienic standards. However, the EU regards Turkey's commitment as inadequate. The EU's 2015 IPA II policy paper on Turkey notes that the animal health situation in Turkey is very critical, and several diseases listed by the OIE are endemic. Capacities to control animal diseases are limited, and "...Turkey's large borders create a major supplementary risk in the animal health area which needs to be tackled in close cooperation with neighbouring countries and international organisations." [3]

Finally, neither the Ministry of Health nor AFAD, the emergency management agency, indicate the existence of cross-border

agreements on animal health. [3, 4]

[1] Turkey Ministry of Agriculture and Forestry. Bilateral Relations. "Agreements in Animal Health and Veterinary Medicine". [https://www.tarimorman.gov.tr/Konular/EU-And-Foreign-Relations/Bilateral-Relations] Accessed September 2020

[2] Turkey Ministry of Agriculture and Forestry. DIRECTORATE GENERAL FOR EUROPEAN UNION AND FOREIGN RELATIONS. "Chapter 12- Food Safety, Veterinary and Phytosanitary". [https://www.tarimorman.gov.tr/ABDGM/Menu/30/Chapter-12-Food-Safety-Veterinary-And-Phytosanitary] Accessed September 2020

[3] European Commission. INSTRUMENT FOR PRE-ACCESSION ASSISTANCE (IPA II) 2014-2020. "TURKEY Agriculture and rural development, food safety, veterinary and phytosanitary policy and fisheries Action Document 2015".

[https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/turkey/ipa/2015/ipa2015-038-405.8-support_for_chapters_11-12-13.pdf] Accessed September 2020

[4] Ministry of Health of Turkey. Website. [https://www.saglik.gov.tr/] Accessed September 2020

[5] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Website. [https://www.afad.gov.tr/] Accessed September 2020

[6] Food and Agriculture Organization of the United Nations (FAO). FAOLEX Database. 2019. "Agreement between the Government of the Republic of Turkey and the Government of the Republic of Serbia on cooperation in the field of veterinary[sic]." [http://extwprlegs1.fao.org/docs/pdf/bi-187868.pdf] Accessed October 2020

5.3 INTERNATIONAL COMMITMENTS

5.3.1 Participation in international agreements

5.3.1a

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

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

Current Year Score: 2

2021

Biological Weapons Convention

5.3.1b

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

Yes = 1, No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1c

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

Yes = 1, No = 0

Current Year Score: 1

2021

Biological Weapons Convention

5.3.1d

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

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

Current Year Score: 4

2021

Biological Weapons Convention

5.3.2 Voluntary memberships

5.3.2a

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

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

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

Current Year Score: 1

2021

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

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

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

5.4.1a

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

5.4.1b

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

Yes = 1 , No = 0

Current Year Score: 0

2021

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

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

5.4.2a

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

Yes = 1 , No = 0

Current Year Score: 1

2021

OIE PVS assessments

5.4.2b

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

Yes = 1 , No = 0

Current Year Score: 0

2021

OIE PVS assessments

5.5 FINANCING

5.5.1 National financing for epidemic preparedness

5.5.1a

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

Yes = 1 , No = 0

Current Year Score: 1

There is evidence that Turkey has allocated national funds to improve capacity to address epidemic threats within the past three years. The budget of the Ministry of Health, drawn annually from the central government budget, allocates funds to a great number of different programs, but because so much of the ministry's strategy is forward-looking and based on predictive and preemptive planning, considerable funding will almost inevitably be allocated towards improving capacity to addressing contingencies such as epidemic and pandemic threats.

For example, Turkey's three key plans on public health emergencies all take budgeting for emergencies into account. Most importantly, the Pandemic Influenza National Preparation Plan, issued in 2019 by the General Directorate of Emergency Health Services, places acute emphasis on allocating a budget for all elements necessary to prepare in the pre-pandemic period (medicines, vaccines, protective equipment, medical supplies, support services, etc.). In particular, the provincial health authorities are mandated to plan and allocate their pre-pandemic budgets in consultation with the health ministry's Strategy Development Directorate. A key tool mandated for such preemptive planning is risk group needs assessment, which is undertaken at the provincial level for each risk group (the elderly and infirm, pregnant women, people with comorbidities such as diabetes, etc.). [3]

The Hospital Disaster and Emergency Response Plan (HAP) Preparation Guide", issued in 2016 by the General Directorate of Emergency Health Services, provides a protocol for grading the level of preparation and capacity of hospitals with regard to addressing health emergencies. One key performance criterion is whether a hospital has an emergency budget or access mechanism to emergency funds, and if so, if adequate funds can be allocated for a crisis lasting 72 hours or more. [2]

Turkey's national disaster response plan (TAMP), issued in 2013 by AFAD, the national disaster management presidency, AFAD, requires local administrations to allocate, monitor and account for the use of their own budgets in disaster and emergency situations. [1]

In November 2018, the Ministry of Health noted that its budget allocation from the central government stood at TL37.9bn for the year, and would rise to TL48.8 in 2019; intervention in 2,185 cases of infectious disease was helped by the ministry's Early Warning Response System. [4]

[1] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). 2013. "TURKEY DISASTER RESPONSE PLAN (TAMP) (TÜRKİYE AFET MÜDAHALE PLANI (TAMP))". [https://www.afad.gov.tr/upload/Node/2419/files/Afet_Mud_PI_ResmiG_20122013.pdf] Accessed September 2020

[2] Ministry of Health of Turkey. General Directorate of Emergency Health Services (Acil Sağlık Hizmetleri Genel Müdürlüğü). February 2016. "HOSPITAL DISASTER AND EMERGENCY PLAN (HAP) PREPARATION GUIDE (HASTANE AFET VE ACIL DURUM PLANI (HAP) HAZIRLAMA KILAVUZU)". [https://dosyamerkez.saglik.gov.tr/Eklenti/11394,hap-hazirlama-kilavuzupdf.pdf?0] Accessed September 2020

[3] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed September and October 2020

[4] Republic of Turkey. Ministry of Health. November 14 2018. "Ministry of Health 2019 Budget Accepted in Parliament (Sağlık Bakanlığı 2019 Bütçesi TBMM'de Kabul Edildi)." [<https://www.saglik.gov.tr/TR,50291/saglik-bakanligi-2019-butcesi-tbmmde-kabul-edildi.html>] Accessed September 2020

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

5.5.2a

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

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

Current Year Score: 0

2021

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

5.5.2b

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

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

Current Year Score: 0

2021

OIE PVS assessments

5.5.3 Financing for emergency response

5.5.3a

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

Yes = 1 , No = 0

Current Year Score: 1

Although Turkey is not eligible for multilateral funding in pandemic emergencies, it nevertheless has contingency-funding mechanisms of its own, and the national government has partnered with the European Union in this regard. As a mid-income nation, Turkey does not meet the criteria to access IDA support from the World Bank, and therefore would generally

not be eligible to secure funds from the World Bank's Pandemic Financing Facility (PDF). [1, 2] The Ministry of Health has no set budget for risk reduction and crisis preparedness, such funds are set on an ad hoc basis each year.

National funds are allocated for Turkey's Disaster and Emergency Management Authority, known as the AFAD, annually; provinces receive lump sums from the national budget which are then allocated accordingly. In health emergencies, AFAD supplies emergency funds, as needed, to the national Health and Disaster Coordination Centre (SAKOM). [3, 4, 5]

Recently, the Turkish Ministry of Treasury and Finance partnered with the European Union on a 24-month project, ending in October 2018, jointly providing EUR2.74m to AFAD to strengthen its institutional capacity. [6]

[1] World Bank. IDA. "Borrowing Countries". [<http://ida.worldbank.org/about/borrowing-countries>] Accessed September 2020

[2] World Bank. November 1 2019. "Pandemic Emergency Financing Facility: Frequently Asked Questions". [<http://www.worldbank.org/en/topic/pandemics/brief/pandemic-emergency-facility-frequently-asked-questions>] Accessed September 2020

[3] World Health Organization (WHO). October 2010. "Assessment of health systems' crisis preparedness: Turkey". [http://www.euro.who.int/__data/assets/pdf_file/0005/141557/e94988.pdf] Accessed September 2020

[4] Republic of Turkey. Disaster and Emergency Management Authority (AFAD). Website. [<https://www.afad.gov.tr/>] Accessed September 2020

[5] Republic of Turkey. Ministry of Health. General Directorate of Emergency Health Services. June 10 2020. "SAKOM (SAKOM)". [<http://www.acilafet.gov.tr/TR,4460/sakom.html>] Accessed September 2020

[6] Disaster and Emergency Management Presidency of Turkey (Afet ve Acil Durum Yönetimi Başkanlığı--AFAD). Undated. "EU - IPA Institutional Capacity (AB - IPA Kurumsal Kapasite)". [<https://www.afad.gov.tr/ab---ipa-kurumsal-kapasite>] Accessed September 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

Available evidence does not indicate that senior leaders in Turkey have in the past three years made a public commitment either to support other countries to improve their capacity to address epidemic threats by providing financing or support, or to improve Turkey's own capacity in this regard. There is, however, evidence of support for emergency relief.

Over 2020, officials of the Turkish government--including Vice President Fuat Oktay, Foreign Minister Mevlüt Çavuşoğlu and several Turkish ambassadors--have been cited as announcing Turkey's contribution of various forms of medical aid to other countries (numbering over 80 as of mid-May, including Libya, Tunisia and Uganda) in response to the global outbreak of the COVID-19 coronavirus pandemic. [1] But this is not evidence of a public commitment to fund capacity-building measures in foreign countries.

Similarly, the Turkish government routinely funds a myriad improvements to its healthcare and disaster management systems without disclosure of details in the form of public announcements or news by senior officials. For example, one of the many goals of the Ministry of Health's 2019-2023 Strategic Plan is Goal H4.4., "To minimize the disease burden caused by infectious diseases"; this goal is allocated TL15.5bn (US\$1.86bn) over the four years of the plan. A sub goal is to strengthen the warning and notification system for infectious diseases and enhance the capacity for executing control-related programs, with specific regard to vectoral and zoonotic diseases. there is no evidence of public announcements of these goals being made by senior leaders. [2]

Otherwise, neither the WHO nor Turkey's ministries of health and foreign affairs indicate that the Turkish authorities have within the last three years publicly stated a commitment to expand financing to address the threat of epidemics. [3, 4, 5]

[1] Daily Sabah. May 15 2020. "Turkey delivers medical aid to 80 countries amid pandemic."

[<https://www.dailysabah.com/politics/diplomacy/turkey-delivers-medical-aid-to-80-countries-amid-pandemic>] Accessed October 2020

[2] Republic of Turkey. Ministry of Health. 2018. "2019-2023 Strategic Plan (2019-2023 Stratejik Planı)."

[<https://stratejikplan.saglik.gov.tr/files/TC-Saglik-Bakanligi-2019-2023-Stratejik-Plan.pdf>] Accessed October 2020

[3] World Health Organization (WHO). Countries. "Turkey". [<https://www.who.int/countries/tur/en/>] Accessed September 2020

[4] Republic of Turkey. Ministry of Health. Website. [<https://sgb.saglik.gov.tr/>] Accessed September 2020

[5] Republic of Turkey. Ministry of Foreign Affairs. Website. [<https://www.mfa.gov.tr/>] Accessed September 2020

5.5.4b

Is there evidence that the country has, in the past three years, either:

- Provided other countries with financing or technical support to improve capacity to address epidemic threats?
- Requested financing or technical support from donors to improve the country's domestic capacity to address epidemic threats?

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

Current Year Score: 1

There is some evidence that Turkey has in the past three years both provided other countries with financing or technical support to improve capacity to address epidemic threats, and requested financing or technical support from donors to improve the country's domestic capacity to address these threats.

The Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker indicates that over the 2014-2020 period Turkey has committed US\$1.5m to the UN Ebola Response Multi-Partner Trust Fund (MPTF) and has disbursed US\$1.5m to the United Nations Multi-Partner Trust Fund for unspecified purposes. By contrast, over this period it has received US\$685.11m (disbursed) out of a total US\$1.54bn committed by outside donors; the largest share of disbursed funds (US\$259.05m) was provided by the European Union for emergency response operations. There is evidence of funds allocated toward capacity improvements, such as a project to strengthen healthworkforce capacity funded by the United Nations Population Fund and another focused on restructuring the health sector, funded by the International Bank for Reconstruction and Development. [1]

Otherwise, neither the WHO nor Turkey's ministries of health and foreign affairs indicate that the Turkish authorities have within the last three years publicly stated a commitment to expand financing to address the threat of epidemics. [2,3, 4] However, the Turkish press has reported on several occasions during 2020 that the Turkish government has sent various

forms of medical aid to other countries (numbering over 80 as of mid-May, including Libya, Tunisia and Uganda) in response to the global outbreak of the COVID-19 coronavirus pandemic. [5]

[1] Georgetown University. Georgetown Infectious Disease Atlas (GIDA) Global Health Security Tracker. Turkey.

[https://tracking.ghscosting.org/231/recipient] Accessed September 2020

[2] World Health Organization (WHO). Countries. "Turkey". [https://www.who.int/countries/tur/en/] Accessed September 2020

[3] Republic of Turkey Ministry of Health. Website. [https://sgb.saglik.gov.tr/] Accessed September 2020

[4] Republic of Turkey Ministry of Foreign Affairs. Website. [https://www.mfa.gov.tr/] Accessed September 2020

[5] Daily Sabah. May 15 2020. "Turkey delivers medical aid to 80 countries amid pandemic."

[https://www.dailysabah.com/politics/diplomacy/turkey-delivers-medical-aid-to-80-countries-amid-pandemic] Accessed October 2020

5.5.4c

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

Yes = 1 , No = 0

Current Year Score: 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 insufficient evidence indicates that Turkey has a publicly available policy for sharing genetic data, epidemiological data, clinical specimens, and/or isolated specimens (biological materials) with international organizations and/or other countries that goes beyond influenza.

Turkey is one of 11 countries in the WHO European Region participating in CAESAR, the network of Central Asian and Eastern European Surveillance of Antimicrobial Resistance, and as such it collects and sends data on AMR to the rest of the network. Evidence is sparse that this process consists of anything other than data developed as the result of testing samples. However, there is evidence that the antimicrobial susceptibility testing (AST) standards supported by CAESAR include an analysis of the genetic basis of resistance mechanisms. [4]

Neither the Ministry of Health nor the Ministry of Agriculture and Forests provides readily available evidence of having a policy to share clinical specimen data with international organizations and other countries. [2, 3]

[1] World Health Organization (WHO). "Central Asian and Eastern European Surveillance of Antimicrobial Resistance: Annual report 2019". [https://www.euro.who.int/__data/assets/pdf_file/0003/418863/53373-WHO-CAESAR-annual-report-2019.pdf] Accessed September 2020

[2] Ministry of Health of Turkey. Website. [<https://www.saglik.gov.tr/>] Accessed September 2020

[3] Ministry of Agriculture and Forestry of Turkey. Website. [<https://www.tarimorman.gov.tr/>] Accessed September 2020

[4] World Health Organization (WHO). 2019. "Central Asian and Eastern European Surveillance of Antimicrobial Resistance: CAESAR Manual." [https://www.euro.who.int/__data/assets/pdf_file/0006/418479/WHO-CAESAR-Manual-2019.pdf]

Accessed October 2020 Other sources: Clinical Research Association of Turkey (Klinik Arastirmalar Dernegi). 10 February 2017. "The opinion of the Association of Clinical Investigations on sending samples abroad (Klinik Arastirmalar Derneginin Yurtdisina numune gonderimi hakkindaki görüsü)". [<http://www.klinikarastirmalar.org/Detail/1315/klinik-arastirmalar-derneginin-yurtdisina-numune-gonderimi-hakkindaki-gorusu>] Accessed September 2020

5.6.1b

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

Yes = 0, No = 1

Current Year Score: 1

There is no public evidence that Turkey has not shared samples in accordance with the PIP framework in the past two years. That said, according to the WHO's Pandemic Influenza Preparedness (PIP) Framework, Turkey last received samples from foreign labs in June 2013 and October 2014. There is no indication that Turkey has sent samples to labs through the WHO PIP website. [1]

Turkey's new Pandemic Influenza National Preparation Plan (2019) discusses samples and related protocols in some detail, without discussing the sharing of such samples with organizations abroad. All the reference laboratories it considers in the text are located within Turkey. [2]

[1] World Health Organization. Influenza Virus Traceability Mechanism. [<https://extranet.who.int/ivtm/>] Accessed September 2020

[2] Republic of Turkey. Ministry of Health. General Directorate of Public Health. 2019. "PANDEMIC INFLUENZA NATIONAL PREPARATION PLAN (PANDEMIK INFLUENZA ULUSAL HAZIRLIK PLANI)." [https://grip.gov.tr/depo/saglik-calisanlari/ulusal_pandemi_plani.pdf] Accessed September 2020

5.6.1c

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

Yes = 0, No = 1

Current Year Score: 1

There is no public evidence that Turkey has not shared pandemic pathogen samples during an outbreak in the past two years. According to the WHO, Turkey's last notification of a pathogen-related outbreak was in October 2014, regarding a

laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV). The WHO does not indicate that Turkey failed to share samples for this outbreak or any other pandemic pathogen sample. [1] There is similarly no evidence of lack of sharing via media reports.

Similarly, there is no public evidence that Turkey has not shared samples of the COVID-19 coronavirus outbreak on its territory.

[1] World Health Organization (WHO). "Emergencies preparedness, response: Turkey".
[<https://www.who.int/csr/don/archive/country/tur/en/>] Accessed September 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: 40

2020

Transparency International

6.1.1f

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.1g

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

Input number

Current Year Score: 1

2020

Economist Intelligence

6.1.2 Orderly transfers of power

6.1.2a

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

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

Current Year Score: 1

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: 2

2021

Economist Intelligence

6.1.4b

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

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

Current Year Score: 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: 1

2021

Economist Intelligence

6.1.5 Armed conflict

6.1.5a

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

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

Current Year Score: 2

2021

Economist Intelligence

6.1.6 Government territorial control

6.1.6a

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

Yes = 1, No = 0

Current Year Score: 1

2021

Economist Intelligence

6.1.7 International tensions

6.1.7a

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

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

Current Year Score: 0

2021

Economist Intelligence

6.2 SOCIO-ECONOMIC RESILIENCE

6.2.1 Literacy

6.2.1a

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

Input number

Current Year Score: 96.15

2017

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: 0.7

2018

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

6.2.3 Social inclusion

6.2.3a

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

Input number

Current Year Score: 0

2018

World Bank; Economist Impact

6.2.3b

Share of employment in the informal sector

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

Current Year Score: 1

According to Turkey's Social Security Institute, in 2019 the share of employment in the informal sector was 34.52% of total general employment. The sector with the highest rate of informal employment was agriculture, with 86.62% of workers being unregistered. [1]

[1] Republic of Turkey. Social Security Institute (Sosyal Güvenlik Kurumu). 2020. "Informal Employment Rate (Kayitdisi Istihdam Orani)." [http://www.sgk.gov.tr/wps/portal/sgk/tr/calisan/kayitdisi_istihdam/kayitdisi_istihdam_oranlari] Accessed September 2020

6.2.3c

Coverage of social insurance programs (% of population)

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

Current Year Score: 2

2016, or latest available

World Bank; Economist Impact calculations

6.2.4 Public confidence in government

6.2.4a

Level of confidence in public institutions

Input number

Current Year Score: 2

2021

Economist Intelligence Democracy Index

6.2.5 Local media and reporting

6.2.5a

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

Input number

Current Year Score: 0

2021

Economist Intelligence Democracy Index

6.2.6 Inequality

6.2.6a

Gini coefficient

Scored 0-1, where 0=best

Current Year Score: 0.42

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: 4

2021

Economist Intelligence

6.3.3 Adequacy of power network

6.3.3a

What is the risk that power shortages could be disruptive?

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

Current Year Score: 2

2021

Economist Intelligence

6.4 ENVIRONMENTAL RISKS

6.4.1 Urbanization

6.4.1a

Urban population (% of total population)

Input number

Current Year Score: 75.63

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: 1.32

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: 2

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: 77.44

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: 436.8

2019

WHO

6.5.1c

Population ages 65 and above (% of total population)

Input number

Current Year Score: 8.73

2019

World Bank

6.5.1d

Prevalence of current tobacco use (% of adults)

Input number

Current Year Score: 29.3

2018

World Bank

6.5.1e

Prevalence of obesity among adults

Input number

Current Year Score: 32.1

2016

WHO

6.5.2 Access to potable water and sanitation

6.5.2a

Percentage of homes with access to at least basic water infrastructure

Input number

Current Year Score: 98.88

2017

UNICEF; Economist Impact

6.5.2b

Percentage of homes with access to at least basic sanitation facilities

Input number

Current Year Score: 97.3

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: 905.98

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