

Health emergencies in Europe:

Making sure every country is ready



© World Health Organization 2019 All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters. All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

Design and layout: Djordje Novakovic

Acknowledgements

The advocacy package for the investment case for health emergency preparedness and response, including this brochure, was developed on behalf of the WHO Regional Office for Europe by Ben Duncan for Alert Not Alarmed Enterprises (www.alert-not-alarmed.com/risk-communication/). The project manager in the WHO Regional Office for Europe was Cristiana Salvi. The package development has benefited from interviews with WHO Health Emergencies Programme colleagues and WHO Representatives in the Country Offices of priority countries and territories in Europe. Particular thanks are due to Leen Meulenbergs, WHO Representative to the European Union, and to Dorit Nitzan, Coordinator, Health Emergency Programme of the WHO Regional Office for Europe.

Abbreviations

AAR	After Action Reviews
ECDC	European Centre for Disease Prevention and Control
EMT	Emergency Medical Team
ERC	Emergency risk communication
FETP	Field Epidemiology Training Programme
GDP	Gross domestic product
GISRS	Global Influenza Surveillance and Response
GOARN	Global Outbreak Alert and Response Network
IHR	International Health Regulations
IMS	Incident Management System
JADE	Joint Assessment and Detection of Events
NFP	National Focal Point
NGO	Nongovernmental organization
PIP	Pandemic Influenza Preparedness
RHC	Refugee Health Training Centres
SDG	Sustainable Development Goals
SIMEX	Simulation exercise
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
WHE	WHO Health Emergencies
WHO	World Health Organization Programme

Contents

Acknowledgements	4
Abbreviations	5
Foreword.....	8
Preface.....	9
Introduction	10
Why invest in emergency preparedness?.....	13
Investment that makes economic sense	14
Investment that achieves health and development goals while protecting lives.....	16
Investment that fulfils countries' commitments under the IHR	18
Emergency preparedness and universal health coverage: Two sides of the same coin in a people-centred health system	21
Hazards and preparedness	22
What are the key health emergency risks in the WHO European Region?	22
High-risk, high-impact priority countries.....	26
WHO European Region countries.....	27
Where are the opportunities to strengthen preparedness?	28
Not only emergency preparedness: A Programme designed around the health emergency management cycle	35
Working in partnership to prepare for and respond to health emergencies.....	42

WHO Action Plan to improve public health preparedness and response in the WHO European Region	44
Stories from the Region and the field	47
Helping Syrians in Syria and Turkey	47
Ukraine's humanitarian crisis.....	49
Measles in Europe: A graded emergency	50
Pre-deploying emergency medical supplies	52
Testing emergency capacities.....	53
Operational partners: Strengthening health emergency response in Europe – and globally	55
Preparing for an international mass gathering	57
Scaling up capacity-building for Emergency risk communication.....	59
Training programmes for “disease detectives”: Better Labs for Better Health	60
Working with countries to prepare for the next pandemic	62

Foreword

This is an exciting time to pull out all our energy, passion and commitment and make a difference in people's lives: I believe that this is what we are doing at the WHO Health Emergencies (WHE) Programme in the European Region.

The renewed Programme has made a reality of WHO's vision for the next 5 years for integrating the health emergency cycle – prevent, prepare, respond, recover – into health system pillars. In this way, preparing for emergencies will guide resilience in health care and public health services, and emergencies will pose opportunities to build back better.

The only way to achieve this is to expand our scope to engage all sectors, levels and areas of work in this full emergency cycle towards the ultimate goal of development; as if it were a web of clasped hands that leaves no one behind.

Health emergencies are the sharpest mirror of societal inequities. The most vulnerable people are the last to be engaged in prevention and preparedness, and they are the first to be neglected in response and recovery. The most vulnerable are likely to be those who are left behind.

Unless every country focuses its attention on these very people – the poor, the marginalized, the stigmatized, the mothers and children, the elderly, the refugees, the disabled, the chronically ill – there will be no universal health coverage. None of the health-related Sustainable Development Goal will be achieved.

Let's say it out loud: all impacts of emergencies are man-made. Not preventing and preparing for emergencies make the consequences on people's lives and livelihoods tragic. Let's also look at our opportunities: we are the ones who can change this pattern, working hand-in-hand when we still have time, before the next emergency hits.

This means acting now. This means preparing each and every country to ensure their resilience. Eventually, this means protecting everyone from health emergencies with an equity lens, until the last person reaches their full potential.

Dr Dorit Nitzan

Coordinator, Health Emergencies Programme

Preface

This is not just another brochure. This brochure contains information, evidence; it tells stories. But more than anything, it is a call to action; a call to invest politically and financially in preparedness to contribute to protecting 1 billion more people from health emergencies.

Pursuing action is at the core of all communication and advocacy. By providing a striking figure, making a strong case, giving voice to a vulnerable person, we want to achieve a concrete outcome in our target audience: we want our target audience to do something. There is a defining moment when the listener will take their decision to act following all received information, and that is when the costs and benefits of that decision will be finally assessed.

The content of this brochure does not leave the reader with any other option than taking the decision to invest in emergency preparedness: it makes economic sense; it is key to achieving health and development goals; and it fulfils countries' commitments under the International Health Regulations. It tells us that the European Region is prone to a number of health hazards and that many emergencies hit it in the last century. It reminds us that another pandemic will come, and only those that are ready will overcome it.

This brochure is part of a toolbox for WHO Country Offices to encourage ministers of health to act; for ministers of health to engage their governments to act; and for governments to persuade donors and the international community to act.

As such, this brochure is accompanied by an advocacy strategy including a matrix of actors and interventions; and by a map of messages addressing the audiences mentioned. The advocacy package is completed by tools for each of the WHO Health Emergencies (WHE) Programme priority countries to make the investment case at national level, based on specific contexts and needs.

It has taken lot of effort to complete this project, and I wish to thank all those who contributed to and supported it. In anticipation, I extend my gratitude to the regional leaders, country leaders and experts who will champion this project to translate these words in life-saving actions.

Cristiana Salvi

Programme Manager External Relations

Introduction

Every continent is vulnerable to emergencies. Europe is no exception. In a typical year, Europe suffers economic losses of € 10 billion from disasters and emergencies,¹ which result in hundreds of people dying or becoming severely ill. Every year, the WHO Regional Office for Europe receives more than 20 000 warnings of potential health threats; 2 000 of these require the Organization to conduct formal assessments and about 50 of these threats, or one every week, need a response.

During the 20th century, countries across the European Region were devastated by man-made and natural disasters, including:

- epidemics and pandemics
- earthquakes, floods and landslides
- chemical and radionuclear contamination
- war and conflict.

Europe's 21st century emergencies are even more complex and demanding due to growing global trends. They hit the Region with a wide range of hazards, such as: measles epidemics; outbreaks of vector-borne diseases, particularly in countries in southern, central and eastern parts of the Region; outbreaks of foodborne diseases and growing antimicrobial resistance; floods, heatwaves, forest fires and other extreme events due to climate change; earthquakes, and other natural disasters – possibly combined with chemical or nuclear contamination; and conflicts and terrorist attacks.

¹ Estimate quoted in EFDRR. High-Level Dialogue Communiqué from 2017. European Forum for Disaster Risk Reduction, Istanbul, 26–28 March 2017. Geneva: European Forum for Disaster Risk Reduction; 2017. (https://www.preventionweb.net/files/52533_2017efdrhlcommuniquefinal.pdf, accessed 23 August 2019).

The European Region is part of a highly interconnected world. An emergency in one country often impacts many of its neighbours. Diseases can spread at the speed of an aeroplane, and people fleeing emergencies often cross international frontiers in search of help. Striking examples of emergencies in other parts of the world which have had repercussions in Europe are the outbreaks of the Ebola and Zika viruses, and the Syrian humanitarian crisis.

All disasters and emergencies have one thing in common. They threaten people's health, disrupt communities and impose high economic costs. A second thing all emergencies have in common is their impact can be greatly reduced by investing in preparedness. That is why WHO is working with countries in the European Region to strengthen their capacities to prevent, prepare for, respond to and recover from all types of health emergencies.



Outbreak investigation team collecting information from a survivor of an unknown disease during a simulation exercise at a training in effective field response to outbreaks and health emergencies, 9-15 July 2017, Lisbon. Photo credit: @WHO/Alex Ruswelt

The case for investment

Why invest in emergency preparedness?

1
BOX

A world at risk²

In the first annual report on global preparedness for health emergencies, the Global Preparedness Monitoring Board (GPMB), an independent monitoring and advocacy body, urges political action to prepare for and mitigate the effects of global health emergencies. With global trends heightening the risk of disease emergence and spread, action cannot be postponed any longer. As of today, the world is not prepared to address a highly lethal widespread global pandemic that will dramatically impact lives and economies.

“Leaders at all levels hold the key. It is their responsibility to prioritize preparedness with a whole-of-society approach that ensures all are involved and all are protected”, write in the report’s foreword the two co-chairs of the GPMB: H.E. Dr Gro Harlem Brundtland, former Prime Minister of Norway and former WHO Director-General, and Mr Elhadj As Sy, Secretary-General of the International Federation of Red Cross and Red Crescent Societies.

They conclude: “The GPMB will advocate at the highest levels so that continued, sustained commitments – political, financial and social – are high on the political agenda and we will increase accountability for follow-through. The world is at risk. But, collectively, we already have the tools to save ourselves and our economies”.

2 Global Preparedness Monitoring Board. A World at Risk: Annual Report on Global Preparedness for Health Emergencies. Geneva: World Health Organization; 2019 (https://apps.who.int/gpmb/annual_report.html, accessed 30 September 2019).

Investment that makes economic sense

Many health emergencies are partly or fully preventable. Where they are not, harm can often be reduced through preparedness, early detection and rapid response.

The total global investment required over the coming 5 years to effectively prevent, prepare for, detect, respond to and recover from health emergencies has been estimated at US\$ 28.9 billion. Success will be measured against WHO's goal of better protecting at least 1 billion more people from health emergencies – making us all safer – and providing life-saving health services to 100 million vulnerable people. This investment will save between 1.5 million lives and provide estimated economic gains of US\$ 240 billion.

The return on investment is US\$ 8.30 for every US\$ 1 provided – a more than eightfold return.³ The investment pays back in multiple ways:

- it saves people, society and the economy from the next emergency
- it strengthens the health system
- it helps to meet several Sustainable Development Goals (SDGs)
- it contributes to global efforts to protect 1 billion more people worldwide.

³ Extract from WHO. A Healthier Humanity: The WHO Investment Case for 2019–2023, pp. 24–28. Geneva: World Health Organization; 2018. (<https://apps.who.int/iris/bitstream/handle/10665/274710/WHO-DGO-CRM-18.2-eng.pdf>, accessed 23 August 2019).

The Sendai Framework for Disaster Risk Reduction, endorsed by the UN General Assembly in 2015, recommends a shift in spending from crisis response to emergency prevention and preparedness. This encourages UN Agencies and donors to take a proactive approach to emergencies. As well as helping countries respond to emergencies when they happen, countries should also help prevent emergencies and prepare for them. WHO can help countries assess their emergency risks and vulnerabilities, to identify the strategic investments required for each country's prevention, preparedness and response capacity. As detailed above, these investments produce huge economic benefits, as well as huge health gains.



WHO experts visiting one of 45 temporary shelters for the displaced people due to severe flooding in Serbia, May 2014. Photo credit: @WHO

Investment that achieves health and development goals while protecting lives

WHO's strategic vision for the world's health in 2019–2023 is:

- 1 billion more people benefit from universal health coverage (UHC)
- 1 billion people better protected from health emergencies
- 1 billion more people enjoying better health and well-being.

This “triple billion” target is set out in WHO's General Programme of Work for 2019–2023. All three parts of the target are mutually reinforcing; there is a particularly strong link between universal health coverage and emergency preparedness, considered as two sides of the same coin. These targets strengthen each other and are central to achieving the UN's SDGs for 2030.⁵

Expanding access to universal health coverage is a key target (3.8) of SDG 3: “Ensure healthy lives and promote well-being for all at all ages”. The health emergency preparedness and response core capacities identified under the International Health Regulations (IHR) need to be embedded in, and supported by, a properly financed health system. The importance of these capacities to achieving SDG 3 is acknowledged in target 3.D. “Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks”. The indicator for meeting SDG target 3.D is “IHR capacity and health emergency preparedness”.

4 Seventy-first World Health Assembly; 13th General Programme of Work 2019–2023, May 2018. (<https://www.who.int/about/what-we-do/gpw-thirteen-consultation/en/>, accessed 23 August 2019).

5 United Nations, Sustainable Development Goals. (<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>, accessed 23 August 2019).

2 BOX

Investing in health emergency preparedness is key to achieving the SDGs

Investing in health emergency preparedness and response is key to achieving SDG 3 “Ensuring healthy lives and promoting the well-being at all ages is essential to sustainable development”. It is particularly relevant to target 3.D, which deals with strengthening health emergency capacity, and targets 3.1 (maternal mortality); 3.2 (infant mortality); 3.8 (universal health coverage) and 3.9 (deaths from chemical contamination).

Investment in health emergency capacity also plays an important role in achieving other SDG goals such as: eliminating poverty and hunger (SDG 1, SDG 2); gender equality (SDG 5); decent work and economic growth (SDG 8); reduced inequalities (SDG 10); Climate Change (SDG 13); and Peace, justice and strong institutions (SDG 16).



Investment that fulfils countries' commitments under the IHR

Beyond achieving the SDGs, countries have a legal obligation under the IHR to build and maintain their preparedness and response capacities. The IHR provide an international legal framework for countries worldwide to protect people from health emergencies; all WHO Member States have signed this treaty.

3
BOX

The International Health Regulations: A framework to protect people from health emergencies

Since 2007, the IHR have made a difference to the way the world prepares for and responds to emergencies. The IHR (2005) is a central mechanism within the WHE Programme to guide countries towards achieving common approaches and capacities to detect, assess and respond to health threats. The IHR (2005) is a legally binding treaty signed by all WHO Member States. What it commits them to is:

1. Sharing information with WHO, and each other, about all hazards – disease outbreaks and other health threats (e.g. chemical or nuclear contamination) – that could spread across international borders.
2. Developing and maintaining the core capacities needed to prepare for, detect and respond to disease outbreaks, and other health threats (see Box 4).
3. Reporting annually on their implementation of the IHR.

IHR has already strengthened international cooperation and country capacities to deal with health emergencies. Nonetheless, many Member States in the European Region, and indeed around the world, have scope to further strengthen their IHR **core capacities**. Countries have indicated this to WHO in their mandatory annual self-assessment reports on their IHR core capacities and also during voluntary external reviews. WHO and Member States must continue, and indeed accelerate, their work to implement IHR through transparent and mutually accountable processes.

For more information about the IHR see:
https://www.who.int/topics/international_health_regulations/en/

For information on IHR implementation see:
<https://extranet.who.int/sph/ihr-monitoring-evaluation>



Health workers in hazmat suits, running with stretcher, carrying out chemical contamination / attack training drills in Gaziantep. Photo credit: @WHO/Laura Sheahan

IHR core capacities

1. Legislation and financing
2. IHR coordination and National IHR Focal Point functions
3. Zoonotic events and the human–animal interface
4. Food safety
5. Laboratory
6. Surveillance
7. Human resources
8. National Health Emergency Framework
9. Health service provision
10. Risk communication
11. Points of entry
12. Chemical events
13. Radiation emergencies

Emergency preparedness and universal health coverage: Two sides of the same coin in a people-centred health system



“Universal health coverage and health emergencies are two sides of the same coin”



Dr Tedros Adhanom Ghebreyesus
Director-General of the World Health Organization

Universal health coverage and health emergency capacity, or emergency preparedness, are two sides of the same coin in a people-centred health system. When countries strengthen their emergency preparedness and response capacities, they also strengthen their health system’s ability to provide universal health coverage. In the same way, when countries strengthen their health systems, they strengthen their capacity to be prepared for and respond to emergencies. True universal health coverage means people can access quality, affordable, safe and culturally sensitive life-saving services when they need them most – including when they have been hit by an emergency.

Countries that are well prepared see fewer deaths and suffer less disruption when an emergency happens. Investment in preparedness pays a dividend in terms of lives saved and illnesses avoided. But it also pays a dividend in terms of a timely, more efficient emergency response. This leads to swifter recovery, less economic impact and a lower overall cost for the health system.

Hazards and preparedness

What are the key health emergency risks in the WHO European Region?

If there is good capacity everywhere to detect, assess and respond to hazards then the impact of many emergencies – such as disease outbreaks or chemical contamination events – can be minimized. If the incident is stopped early, it might not threaten other communities, or other countries, and might never become an emergency.

Health emergencies are most likely to happen in countries or communities that have **high exposure** to potential hazards but a **limited capacity** to respond to them. WHO and its Member States need to make sure all parts of the European Region have the right capacities, in the right places, to match the hazards they face.

Emergencies have a strong domino effect on countries and regions. Even places that are a long way from the initial impact can be affected. The Syrian crisis, the outbreaks of Ebola in Africa and Zika in the Americas, all had repercussions for Europe. However, Europe is also affected by **its own** emergencies (Box 5 and Table 1).



Floods in Serbia 2014. Photo credit: @WHO/Novakovic Djordje

5 BOX

Key hazards faced by Member States in the European Region⁶

- Epidemics and pandemics (e.g. the next influenza pandemic (Box 7); epidemics of vaccine-preventable diseases, such as measles, mumps, rubella and pertussis in communities with low vaccine coverage, outbreaks of West Nile virus, Dengue fever, Zika virus and Crimean-Congo haemorrhagic fever in regions with mosquitos or ticks).
- Emerging and re-emerging zoonotic diseases, such as anthrax, brucellosis and plague, and imported diseases, such as Middle Eastern respiratory syndrome.
- Foodborne disease outbreaks, such as outbreaks of Salmonella, Listeria and E. Coli; the development of new antibiotic-resistant strains of existing bacteria.
- Geological hazards, such as earthquakes, mass movements and volcanic eruptions.
- Hydro-metrological hazards such as floods, avalanches, heatwaves, extreme cold and wild fires.
- Human-induced technological hazards, such as industrial accidents, chemical and radionuclear contamination.
- Human-induced societal hazards such as armed conflict, civil unrest and terrorism.

Emergency hazards are often interlinked. For example, heavy rainfall can lead to floods. Floods can lead to drinking-water being polluted by sewage, which can lead to outbreaks of waterborne disease. Or, an earthquake may damage a chemical factory or a nuclear facility leading to chemical or nuclear contamination emergency.

⁶ Based on WHO. Emergency response framework, 2nd edn. Geneva: World Health Organization; 2017. (<https://apps.who.int/iris/bitstream/handle/10665/258604/9789241512299-eng.pdf;jsessionid=5115EDBE86BBC96A239A0EE04DBF3585?sequence=1>, accessed 23 August 2019).

1 Epidemics, outbreaks, disasters and conflicts

Date	Public health event	Hazard type ⁷	Location	Impact
1918	Influenza pandemic	Biological: Epidemics & pandemics (B2)	Worldwide	Over 50 million dead; widespread illness and severe social disruption
1957 and 1968	Influenza pandemics	Biological: Epidemics & pandemics (B2)	Worldwide	Between 1 and 4 million deaths in the 1957–58 pandemic and around 1 million deaths in the 1968–69 pandemic
1963	Skopje	Geological: earthquake (G1)	North Macedonia	1 070 dead, 3 000–4 000 injured and more than 200 000 made homeless
1976	Seveso disaster	Human-induced technological: industrial hazards (T1)	Italy	Thousands of people exposed to hazardous chemical (dioxin). An area near factory had to be evacuated, making 736 people homeless. Long-term health problems for many hundreds of people
1986	Chernobyl nuclear disaster	Human-induced technological: industrial hazards (T1)	Ukraine, with contamination across the Region	31 deaths within a month of the disaster, thousands of premature deaths from cancer over subsequent years. Large area made uninhabitable
1988	Spitak earthquake	Geological: earthquake (G1)	Armenia	25 000–50 000 dead, up to 130 000 injured
1990	Vrancea earthquake	Geological: earthquake (G1)	Romania, Bulgaria and Republic of Moldova	Romania: 14 dead, 362 injured Moldova: 4 dead, dozens injured Bulgaria: 1 person dead
1992	Gissar earthquake	Geological: earthquake (G1)	Tajikistan	274 dead, many injured
1990–1996	Diphtheria epidemic	Biological: Epidemics & pandemics (B2)	All of the countries of the former Soviet Republic	140 000 cases with 4 000 deaths
1999	Izmit earthquake	Geological: earthquake (G1)	Turkey	17 127 deaths and 500 000 made homeless
2000	Baku earthquake	Geological: earthquake (G1)	Azerbaijan	26 dead, 412 injured

7 Based on classification in WHO. Emergency Response Framework. Geneva: World Health Organization; 2017. (<https://apps.who.int/iris/bitstream/handle/10665/258604/9789241512299-eng.pdf?sequence=1>, accessed 23 August 2019).

2006	H5N1 Avian influenza outbreaks	Biological: Epidemics & pandemics (B2)	Turkey and Azerbaijan	4 deaths out of 21 cases (12 confirmed) in Turkey; and 22 cases, including 6 deaths in Azerbaijan. Health system and economic cost
2008	Nura earthquake	Geological: earthquake (G1)	Kyrgyzstan	75 dead, 150 injured
2009	Aquila earthquake	Geological: earthquake (G1)	Italy	309 dead, more than 1 500 injured and many made homeless
2009	H1N1 influenza A pandemic	Biological: Epidemics & pandemics (B2)	Worldwide	151 700–575 400 deaths, 8 millions of people infected
2010	Red toxic sludge: Ajka alumina plant accident	Human-induced technological: industrial hazards (T1)	Hungary	10 dead, 150 injured; 40 square kilometres of land contaminated
2011	Humanitarian crisis	Armed conflict (S1)	Originating in Syria; Turkey	As of end-2018, 3.6 million of Syrian refugees in Turkey, 3 million people in need of health care in northern Syria and 2.3 million internally displaced people
2011	Van earthquake	Geological: earthquake (G1)	Turkey	604 dead, 4 152 injured and over 8 000 made homeless
2011	E. coli	Biological: Foodborne outbreaks (B4)	Germany and multiple countries	44 dead, nearly 4 000 ill (750 with kidney failure). Hundreds of millions of euros of economic damage
2013	Humanitarian crisis	Civil unrest (S2)	Ukraine	As of 2018, 2.2 million of people are in need of essential health services
2014	Balkan Floods	Hydrological: Flood (H1)	Bosnia and Herzegovina, Croatia and Serbia	60 dead, 67 000 people displaced and 210 000 in need of assistance
2018	Measles epidemic	Biological: Epidemics & pandemics (B2)	Most countries in the European Region	Record number of over 82 000 children and adults infected with measles in 2018; resulting in 72 deaths and likelihood of further deaths in coming years

Sources: WHO. The WHO E-Atlas of Disaster Risk for the European Region. Volume 1. Exposure to Natural Hazards. Version 2.0. Copenhagen: WHO Regional Office for Europe; 2011. (<http://www.euro.who.int/en/health-topics/emergencies/disaster-preparedness-and-response/publications/2011/who-e-atlas-of-disaster-risk-for-the-european-region-the-volume-1-exposure-to-natural-hazards-version-2.0>, accessed 23 August 2019). Wikipedia list of earthquakes, plus individual country or event Wikipedia pages (e.g. on Skopje earthquake). (https://en.wikipedia.org/wiki/Lists_of_earthquakes). Also, (<https://earthquake-report.com>).

8 Dawood FS, Iuliano AD, Reed C et al. Estimated global mortality associated with the first 12 months of 2009 pandemic influenza A H1N1 virus circulation: a modelling study. *Lancet*.12(9):687–695. ([https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(12\)70121-4/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(12)70121-4/fulltext), accessed 23 August 2019).

High-risk, high-impact priority countries

WHO has identified **15 countries and territories** in the **European Region** where support for strengthening IHR core capacities should be a particular priority (Box 6). Each of them faces significant hazards, and each has vulnerabilities in their health systems that hinder their ability to respond to those hazards. This means health emergencies can have a high impact in these countries and territories. It also means they are the places in the Region where investment in IHR core capacities can produce the greatest return on investment.

6
BOX

Priority countries and territories in the European Region for IHR core capacity Strengthening

Based on countries' hazards mapping, vulnerability and health system maturity the following priority countries have been selected for priority interventions:

Member States:

Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, North Macedonia, Republic of Moldova, Serbia, Tajikistan, Turkey, Ukraine, Uzbekistan

Territory:

Kosovo⁹

⁹ All references to Kosovo in this document should be understood to be in the context of United Nations Security Council resolution 1244 (1999).

WHO European Region countries

Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan (Map 1).

1
MAP

WHO European Region



Note: This map is an approximation of actual country borders (image and disclaimer from <https://www.who.int/about/regions/euro/en/>).

Where are the opportunities to strengthen preparedness?

WHO is working with the ministries of health, and national and international partners in these countries and territories to strengthen their capacities and capabilities to prevent, prepare for, respond to and recover from health emergencies of any type. This work will bring benefits that are greater than just protecting health in the priority countries. They are also improving the health protection of the whole European Region, and indeed the world.

- In the European Region, WHO collects data on **vaccination coverage** by country. This allows WHO to identify geographical areas with low coverage that are at risk of outbreaks of vaccine-preventable diseases, such as measles, mumps, rubella and pertussis. Some countries provide data at the subnational level, but more are needed.
- In 2016, WHO produced an Interim Risk Assessment identifying countries and geographical areas in the European Region that could be at **risk from Zika virus**.¹⁰ This was based on a number of factors including maps produced by entomologists (insect experts) on the presence of mosquitos capable of transmitting Zika virus, and the location of travel hubs connected to Zika endemic countries in the Americas, Africa, Oceania and Asia. The Regional Office then provided technical support on areas ranging from laboratory diagnostics and clinical management of Zika to risk communication for a Zika outbreak. This helped the at-risk countries reinforce their preparedness.
- Mapping the **presence of mosquitos and ticks** can enable health authorities to identify areas at risk from vector-borne diseases already

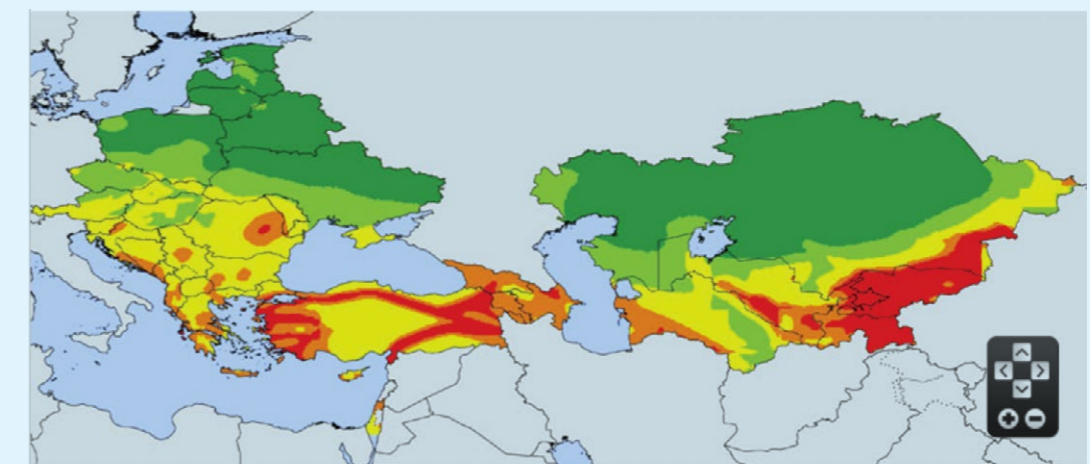
10 WHO. Zika Virus Technical Report: Interim Risk Assessment for the European Region. Copenhagen: WHO Regional Office for Europe; 2016. (http://www.euro.who.int/__data/assets/pdf_file/0003/309981/Zika-Virus-Technical-report.pdf?ua=1, accessed 23 August 2019).

present in the European Region, such as West Nile fever and Crimean-Congo haemorrhagic fever. Health authorities can then target measures to prevent or mitigate outbreaks in these areas.

- There are regions in Italy, Turkey, the Balkans, the Caucasus and central Asia at high risk of **earthquakes**. Seismologists have produced maps showing the highest-risk areas in these countries and regions (Map 2). This means civil defences and health authorities can pre-position equipment near these areas and prepare based on realistic scenarios. For example, hospitals near a high-risk earthquake zone need to be assessed for safety and can do emergency drills based on having to receive a surge of people injured in an earthquake.

2
MAP

European Region: Seismic hazard distribution map



Legend
Seismic hazard (PGA, m/s²)
(Modified from Giardini et al. 1999)

Very low (0 - 0.2)	High (2.4 - 4)
Low (0.2 - 0.8)	Very high (>4)
Medium (0.8 - 2.4)	No data

International boundaries
(United Nations, 2010)

Disputed areas

Disclaimer
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. All reasonable precautions have been taken by WHO to produce this map. However this map is being distributed without warranty of any kind, either express or implied regarding its content. The responsibility for its interpretation and use lies with the user. In no event shall the World Health Organization be liable for damages arising from its use.
© WHO 2010. All rights reserved.

Source: WHO. The WHO E-Atlas of Disaster Risk for the European Region. Volume 1. Exposure to Natural Hazards. Version 2.0. Copenhagen: WHO Regional Office for Europe; 2011. (<http://www.euro.who.int/en/health-topics/emergencies/disaster-preparedness-and-response/publications/2011/who-e-atlas-of-disaster-risk-for-the-european-region-the.-volume-1.-exposure-to-natural-hazards.-version-2.0>, accessed 23 August 2019).

- Experts can produce risk maps showing the areas at high, medium and low risk of **flooding** in the event of heavy rain or high tides (Map 3). These can identify key places to build or strengthen flood defences and provide public health advice. They also help planners stop construction of new houses in high-risk areas.

3
MAP

European Region: Flood hazard distribution map



Legend		International boundaries <small>(United Nations, 2010)</small>	
Flood hazard (index) <small>(World Health Organization, 2010)</small>			
Very low (0 - 122)	High (629 - 1073)		
Low (123 - 350)	Very high (1074 - 3764)		
Medium (351 - 628)	No data		

Disclaimer
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. All reasonable precautions have been taken by WHO to produce this map. However this map is being distributed without warranty of any kind, either express or implied regarding its content. The responsibility for its interpretation and use lies with the user. In no event shall the World Health Organization be liable for damages arising from its use.
© WHO 2010. All rights reserved.

Source: WHO. The WHO E-Atlas of Disaster Risk for the European Region. Volume 1. Exposure to Natural Hazards. Version 2.0. Copenhagen: WHO Regional Office for Europe; 2011. (<http://www.euro.who.int/en/health-topics/emergencies/disaster-preparedness-and-response/publications/2011/who-e-atlas-of-disaster-risk-for-the-european-region-the-volume-1-exposure-to-natural-hazards-version-2.0>, accessed 23 August 2019).

- The location of **nuclear facilities and chemical plants** is known to government authorities, and these facilities undergo regular safety controls to help prevent emergencies. Preparedness planners can analyse which towns and communities around them would be at highest risk if a radiation or chemical release occurred. Planners can then develop contingency plans to reduce the health and economic impact of such an event.
- The European Region is an international hub for travellers and has five of the world's 20 busiest airports through which pass 360 million travellers per year. Nevertheless, routine and emergency capacities at **points of entry** – airports, ports and ground-crossing – remain the lowest implemented on average across the Region. Points of entry are the first line of defence for preventing the international spread of disease and Member States should ensure that systems are in place to manage health risks.



Health workers in hazmat suits carrying out chemical contamination training in Gazientep, Turkey. Photo credit: @WHO/Laura Sheahen

Pandemic influenza: a threat that all countries need to prepare for

Influenza is a highly infectious respiratory virus. Annual epidemics of seasonal influenza cause up to 650 000 deaths globally;¹¹ up to 72 000 of these deaths occur in the WHO European Region, mainly in those at higher risk of severe disease including elderly persons, persons with chronic heart or lung diseases, children under the age of 5 years and pregnant women. A few times each century a new influenza virus emerges that no one in the world is immune to. This virus can cause severe illness among many millions of people on every continent. It is known as pandemic influenza.

The great influenza pandemic of 1918 killed more people in a few months than the First World War of 1914–1918. The final death toll worldwide is put in the region of 50 million or more.¹² The other two influenza pandemics of the 20th century (in 1957 and 1968) each killed upwards of one million people. The 2009 H1N1 influenza pandemic is estimated to have caused up to 575 000 deaths, not only among those at a higher risk of complications, but also in otherwise healthy individuals.

The US National Academy of Medicine has estimated the broad economic costs based on probabilities of mild, moderate and severe pandemics to be around US\$ 60 billion per year. Even the most conservative estimates suggest that a large pandemic could cut global GDP by 1 to 5%, which is comparable to threats such as climate change.¹³

Given the scale of threat, and the fact all countries are equally vulnerable, pandemic influenza preparedness should be a priority for all Member States. However, at the start of 2019 fewer than 1 in 3 countries in the European Region had revised their pandemic influenza plans since the 2009 pandemic. In addition, influenza vaccination uptake has been steadily declining in a number of countries, and access to influenza vaccines remains low in lower-resourced countries. Not only is this a concern for the protection of vulnerable groups against seasonal influenza, but it also affects the Region's pandemic preparedness as the production of pandemic vaccines is closely linked to seasonal vaccine use.

Strengthening influenza preparedness is a major public health opportunity in the European Region. Countries can prepare by revising and updating their pandemic influenza preparedness plans in line with the latest WHO guidance; and by increasing uptake of seasonal influenza vaccine in persons most in need.

11 Iuliano AD, Roguski KM, Chang HH, et al., Estimates of global seasonal influenza-associated respiratory mortality: a modelling study. *Lancet*.391(10127):1285–1300; 2018. ([https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)33293-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)33293-2/fulltext), accessed 23 August 2019).

12 Taubenberger JK, Morens DM. 1918 Influenza: the mother of all pandemics. *Emerg Infect Dis*.12:20; 2006. (<http://wwwnc.cdc.gov/eid/article/12/1/pdfs/05-0979.pdf>, accessed 23 August 2019). Note that "total deaths were estimated at approximately 50 million and were arguably as high as 100 million".

13 See p. 24 of WHO. *A Healthier Humanity: The WHO Investment Case for 2019–2023*. Geneva: World Health Organization; 2018. (<https://apps.who.int/iris/bitstream/handle/10665/274710/WHO-DGO-CRM-18.2-eng.pdf>, accessed 23 August 2019).

WHO Health Emergencies Programme:

Europe's platform to protect people from health emergencies

Not only emergency preparedness:
A Programme designed around the health emergency management cycle

1 FIGURE WHE: One Programme across the three levels of WHO



The WHO Health Emergencies (WHE) Programme provides the Organization's response to increasingly demanding crises. Mainstreamed across all levels of the Organization, it is geared to better protect people from health emergencies by establishing people-centred health systems which are prepared to detect, assess, communicate and respond to crises in a matter of hours.



Caption: WHO trainer at the cholera workshop in Gaziantep, Turkey. Photo credit: @WHO/Ganna Radysk



The health emergency management cycle defines the rhythm of the Programme. Its four phases – prevention, preparedness, response and recovery – are grounded in the requirements of the IHR and seamlessly complement each other to save lives. Here's how it works:

Prevention and control of infectious diseases – through vaccination, for example – help prevent outbreaks in the first place.

At the same time, countries need to develop, test and evaluate their national plans and strengthen their capacities to be **prepared** for the next emergency of any type. This is the essential precondition for effective response and includes, for example, assessing hospitals for safety and functionality, establishing a laboratory network of excellence, setting up systems for disease surveillance, and engaging communities to communicate risks.



A health worker prepares a polio vaccination for a baby during the 2015 campaign in Ukraine.
Photo credit: @WHO/Alex Shpigunov

During the **response**, life-saving health interventions and pre-positioned essential health packages are delivered in collaboration with health partners to ensure that affected populations have timely access to quality health services, leaving no one behind.

The **recovery** phase is the time to learn from experience and build back better; it is the opportunity to make health systems stronger for the future.

Putting countries at the centre

Each country is unique, so the WHE Programme tailors its support to each country's specific situation. This means looking at the key hazards the country faces, its vulnerability to emergencies and its health system's capacities to prevent, prepare and respond to emergencies. It also means that the WHE Programme staff know the country and invest in building strong local partnerships.

WHO's Global Programme of Work 2019–2023 (GPW13)¹⁴ emphasizes the need to put countries at the centre of WHO's work. It aims to focus WHO on delivering impact in countries and making measurable differences in the lives of the people we serve. This is how the Organization can meet the ambitious "triple billion" goal for health improvements set out in GPW13. A presence on the ground is particularly important to meet the GPW13 goal of 1 billion people better protected from health emergencies. Rapid and effective response is key to saving lives during health emergencies.

In order to provide rapid support to help countries achieve this, the WHE Programme needs to have structures, skills and people already on the ground when an outbreak or other emergency starts. In the European Region, the WHE Programme has based its experts in strategic subregional hubs and in country offices and is working with country-level partners on a daily basis.

¹⁴ Seventy-first World Health Assembly; 13th General Programme of Work 2019–2023, May 2018. (<https://www.who.int/about/what-we-do/gpw-thirteen-consultation/en/>, accessed 23 August 2019).

At a glance: The WHE Programme's work in the European Region

Mainstreamed across three levels

- The WHE Programme works seamlessly between a global team based in Geneva, a regional level team in Copenhagen and staff in strategic subregional hubs and Country Offices.
- The Regional Emergency Director leads the WHE Programme in the European Region.
- The host agreement for a new WHO Office for Humanitarian and Health Emergencies Preparedness in Istanbul, Turkey was co-signed by the WHO Regional Director and the Turkish Minister of Health.

WHE Programme structure in the WHO Regional Office for Europe

The WHE Programme structure revolves around the three outcomes in GPW13's Strategic Priority 2: "1 billion more people better protected from health emergencies".

1. **Country's prepared for health emergencies.** Making sure that every country is prepared for the next emergency of any type is at the core of the emergency management cycle. The WHE Programme takes care of advocating for and supporting implementation of IHR core capacities and monitoring at the country level. Capacity-building through technical support, training and simulation exercises is regularly conducted in areas including hospital safety, laboratory capacity, systems for disease surveillance and risk communication. Regular evaluation of progress takes place through mandatory and voluntary tools identifying strengths and weaknesses, which is needed to design a tailored National Action Plan that fully implements IHR capacities.

2. **Epidemics and pandemics prevented.** Infectious diseases can spread across vast distances at enormous speed and do not respect borders. WHE Programme experts support countries to prevent, detect, communicate and control diseases of epidemic potential, including vector-borne, zoonotic and foodborne diseases. This includes improving national strategies for prevention and control of outbreaks from infectious hazards, collaborating across sectors under the One Health approach; and upgrading surveillance, laboratory services – through the Better Labs for Better Health initiative – and clinical management. Responding effectively to the next pandemic influenza is a global priority, and the Programme works with countries to make their pandemic influenza plans fit-for-purpose.
3. **Health emergencies rapidly detected and responded to.** Early intelligence of, and response to, public health events are critical for timely intervention and mitigation of consequences. In the European Region in a typical year, WHE Programme WHE experts review more than 20 000 warnings of public health threats from different sources, communicate with IHR National Focal Points in countries and share information regionally and globally as needed. Of these warnings, 2 000 require the team to conduct formal assessments and about 50, or one every week, need a response. The WHE Programme uses WHO's Emergency Response Framework as an internal mechanism to grade emergencies and the Incident Management System to respond consistently across the three levels of the Organization. The humanitarian crises in Ukraine and in the Syrian Arab Republic, and the measles outbreaks are the graded emergencies that the Regional Office is currently responding to. The WHE Programme experts work closely with health partners to pre-position life-saving health interventions and essential health packages and to establish networks of experts to be rapidly deployed to save lives. This work bridges to recovery and rehabilitation, making health systems stronger when the next emergency hits.

Snapshot of technical support and guidance offered to countries

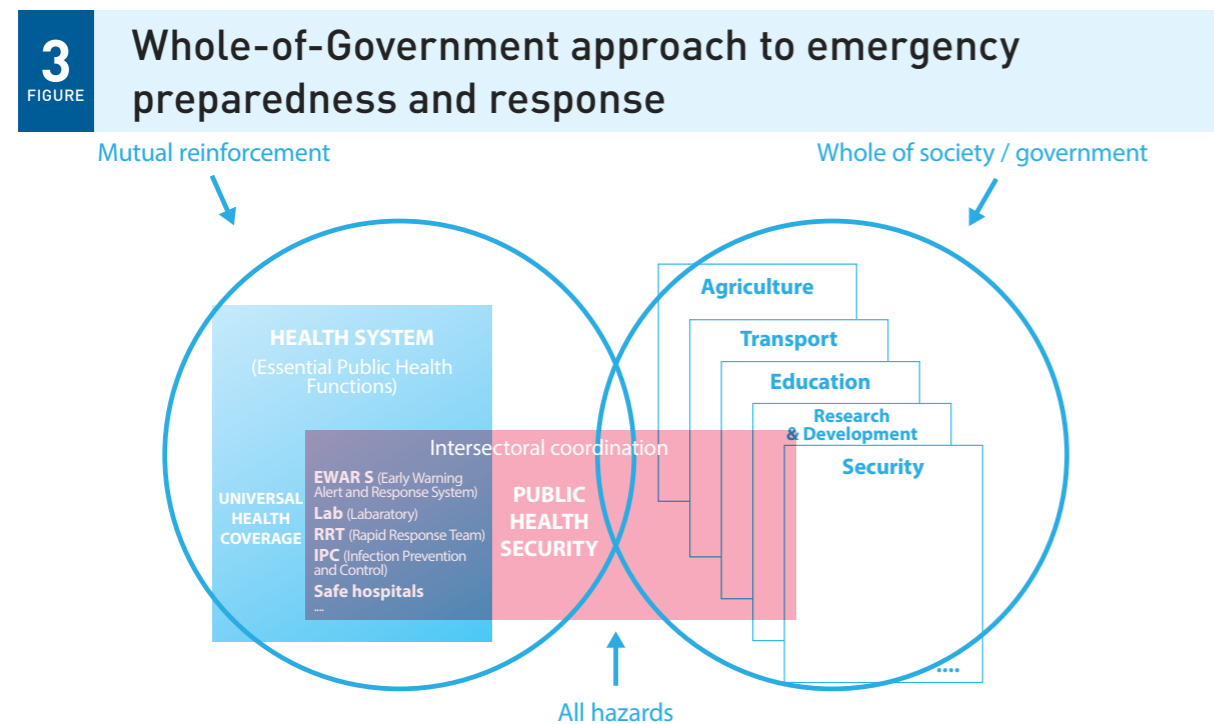
- Development of strategies, initiatives and preparedness plans, including National Action Plans for Health Emergency Preparedness.
- Training of experts in different capacities across health emergency responses.
- Assessment of hospital safety and functionality.
- Creation and maintenance of laboratory network of excellence.
- Establishment of disease surveillance systems.
- Communication of risks and engagement of communities.
- Simulation exercises (SIMEXs) to test plans and capacities.
- Training and support to After Action Reviews (AARs) of response to a public health event.
- Development and assessment of capacities at points of entry.
- Coordination of voluntary joint external evaluations of national IHR core capacities.



Laboratory worker in full hazmat suit and mask, working with laboratory samples, Republic of Moldova. Photo credit: @WHO

Working in partnership to prepare for and respond to health emergencies

Major epidemics and other emergencies disrupt lives and livelihoods across society. When a large number of people become sick, this can disrupt critical national infrastructure, such as the energy supply, food production and transport systems. Schools may need to be closed and public gatherings suspended. Security may need to be strengthened at international points – or, indeed, at medical facilities if hospitals and clinics run out of supplies (Fig 3).



The IHR cover all-hazard emergencies. Not only do these include infectious disease outbreaks – also covering diseases carried by mosquitos, food and water or transmitted via animals; but also natural and man-made disasters, chemical spills and radiation events, as well as conflicts.

This means that emergency planners and responders need to take a whole-of-government and whole-of-society approach to strengthening countries'



Two men in hazard suits spraying a victim during a training exercise in chemical emergencies.
Photo credit: @WHO

IHR core capacities and activating them when a crisis hits. The health sector needs to interact with, and coordinate with, other parts of government, such as agriculture, transport, civil defence, home affairs, economy and education. The public sector needs to engage with stakeholders in industry, civil society and communities. Countries need to engage with each other and with WHO.

WHO works with a broad range of partners in the European Region to support countries prepare and respond to emergencies. These include:

- **operational partners** who support WHO's operations in the field: Global Outbreak Alert and Response Network (GOARN), Emergency Medical Teams (EMTs), health cluster partners, stand-by partners and collaborating centres;
- **other partners:** UN Agencies within the cluster approach, the European Union and its agencies, particularly the European Centre for Disease Prevention and Control (ECDC), civil society and the media.

No single organization, no single sector and no single country can do it alone. Everybody needs to be on board for joint action, and all sectors and all parts of society, including communities, need to take responsibility to be part of the solution. This collective approach improves the effectiveness of the emergency response. It makes the response both more cost-efficient by avoiding duplication of effort, and more accountable as the approach requires clear definitions of role and responsibilities.

WHO Action Plan to improve public health preparedness and response in the WHO European Region

The WHE Programme in the European Region has tailored the global strategy into a European Action Plan. The 5-year European Action Plan to improve public health preparedness and response (2018–2023)¹⁵ binds countries with comparable levels of capacity and capability to avert or respond to emergencies. The approach of linking emergency preparedness with health systems strengthening and essential public health functions represents a real breakthrough on the way to universal health coverage.

The plan was agreed upon at the Regional Committee for Europe in September 2018. It is based on three pillars:

- **preparedness:** building, maintaining and strengthening IHR core capacities
- **response:** enhancing event management according to IHR requirements
- **monitoring and evaluation:** measuring progress and promoting accountability on IHR implementation.

The plan requires cooperation across sectors and across borders. WHO invites all governments, sectors, partners and people in the European Region to implement the Action Plan jointly, taking stock of collective expertise and know-how. This will support global efforts to prevent, prepare for, respond to and recover from all health emergencies, while contributing to protecting 1 billion

15 WHO. Action Plan to Improve Public Health Preparedness and Response in the WHO European Region 2018–2023. Copenhagen: WHO Regional Office for Europe; 2019. (http://www.euro.who.int/__data/assets/pdf_file/0009/393705/Action-Plan_EN_WHO_web_2.pdf?ua=1, accessed 23 August 2019).

more people worldwide. In short, implementing the Action Plan will move forward countries' work on the 2030 Agenda for Sustainable Development, which focuses on leaving no one behind.

The outcome summary of the ministerial consultation and high-level meeting held on 12–14 February 2019 in Istanbul, Turkey, gives the Regional Office a stronger mandate to coordinate action in acceleration of countries' political and financial commitment.¹⁶ More than 150 European ministers of health and high-level delegates gathered in Istanbul identified sustained investment, mutual learning and support, and regular monitoring of progress as critical to scale up health emergency preparedness and response in the WHO European Region.



A ministerial and high-level meeting of the WHO European Region, 12–14 February 2019, Istanbul, Turkey. Photo credit: @WHO

16 WHO. European countries commit to accelerate action to protect people from health emergencies together. Copenhagen: WHO Regional Office for Europe; 2019. (<http://www.euro.who.int/en/health-topics/emergencies/pages/news/news/2019/2/european-countries-commit-to-accelerate-action-to-protect-people-from-health-emergencies-together>, accessed 23 August 2019).

WHO Health Emergencies Programme in action:

Supporting emergency preparedness and response in Europe



Stories from the Region and the field

Helping Syrians in Syria and Turkey

Several years into the conflict in the Syrian Arab Republic, millions of people still need humanitarian assistance. Not only has the Syrian humanitarian crisis tragically affected Syria and its people, it has also had an enormous ripple effect on neighbouring countries, such as Turkey.

The WHO Regional Office for Europe has been supporting the response to this emergency from and in Turkey:

- In 2016, WHO Regional Office for Europe initiated the Refugee Health Programme (RHP), a flagship model programme that supports the Turkish Ministry of Health to provide access to health services to the over 3.6 million of Syrian refugees hosted by the country with similar standards as those for resident citizens.
- In 2013, WHO Regional Office for Europe established a field Office in Gaziantep, a Turkish city near the Syrian border, to work with partners across lines and borders within the whole-of-Syria response and deliver life-saving interventions under extreme conditions to people in need in northern Syria in line with UN Security Council Resolution 2393 (2017).

The staff in the WHO offices in Ankara and Gaziantep, Turkey have the experience, skills and dedication needed to conduct operations, with the support of the WHO Regional Office for Europe and WHO headquarters.

From **Ankara**, they have trained almost 2 000 Syrian health care workers in seven Refugee Health Training Centres (RHCs) to be able to work in one of the 178 RHCs throughout Turkey, and over half of them have already been hired by the Turkish Ministry of Health to provide health services for Syrian refugees.

These doctors, nurses and midwives have a new career and a new home; they have provided over 1 000 000 consultations to their fellow citizens in 2017–18, and have vaccinated over 75% Syrian children who are under 1 year of age.



Turkish doctor treating a Syrian refugee child. Photo credit: @WHO

From **Gaziantep**, they have coordinated partners to provide health care, medicines and supplies to over 1 million people, and deliver vaccinations against polio, measles, diphtheria and other diseases to hundreds of thousands children. They have trained health care workers, and prepared for outbreaks, such as cholera. As attacks on health care facilities impede the delivery of these health operations, WHO strongly condemns these attacks as obstructing people's right to access health and humanitarian support.

Ukraine's humanitarian crisis

The humanitarian crisis in Ukraine has affected 4.4 million people and has led to the displacement of 1.6 million people. Of those, over 3 million people needed humanitarian assistance.

After years of conflict, health care resources in conflict-affected areas of Ukraine are severely stretched and humanitarian funding is plummeting. At the same time, health facilities continue to be damaged by heavy shelling and health care staff fears being killed or having to leave their country. In the midst of Europe, the health of millions of Ukrainians is hampered by limited access to health facilities, services and medicines for both acute and chronic conditions, and by insufficient funding for humanitarian health interventions.

Since 2014, WHO has led and coordinated the health strand of the international humanitarian response in Ukraine. Working with local and international partners, WHO helps provide primary care services and essential medication on both sides of the contact line. It facilitates access to emergency and specialist care when needed, including provision of ambulances. WHO is one of the few organizations with access to all areas on both sides of the conflict line.



WHO representative talks to a displaced family in Krasnohorivka, a conflict-affected area of Ukraine. Photo credit: @WHO/Volodymyr Shuvayev

To give some idea of the scale of the **health emergency response in Ukraine**, in 2017–2018, WHO and partners supported around **2.5 million people in eastern Ukraine** with medical supplies. These included: supplies for primary and secondary care, supplies for complex surgical operations, safe deliveries, neonatal services and safe blood transfusions, and also treatments for a range of infectious and noncommunicable diseases.

WHO has identified some important opportunities to prevent future health emergencies in Ukraine. There is low vaccine coverage across the whole country, but particularly in the conflict areas. Support by WHO and partners to Ukraine's vaccination programme and its wider disease control capacities could prevent future epidemics of measles, mumps, rubella and get rid of the risk that polio might re-emerge in the country.

Measles in Europe: A graded emergency

The WHE Programme has scaled up its response to the measles outbreaks in the European Region, by measure including creating an operational platform to accelerate its support to affected countries. On 6 May 2019, WHO activated a Grade 2 emergency response to measles circulation in the European Region. This allows WHO to mobilize the needed human and financial resources to support the affected countries.

The decision followed an assessment of the measles situation in the Region. It was based on the growing number of children and adults affected by and dying from the disease, and the persistence of pockets of non-immunized or under-immunized individuals in many countries, fuelling the continuing spread of measles.

From 1 January 2018 to 30 May 2019, 49 of the 53 countries in the Region together reported over 160 000 measles cases and over 100 measles-related deaths. WHO had been supporting them over time to improve their immunization coverage and tackle disease spread. However, as measles continues to circulate across

countries, more needs to be done. Escalating the response enables WHO to raise political awareness and helps in strengthening European health systems in the longer term to avoid future outbreaks.



Mother with child at a measles clinic in Romania. Photo credit: @WHO/Malin Bring

Grading the measles emergency triggered the activation of WHO's Incident Management System (IMS), which provides a standardized yet flexible approach to managing WHO's response to the emergency. The IMS approach is internationally recognized as best practice for emergency management and WHO applies it regardless of the underlying hazard, or the scale or operational context of the emergency.

Pre-deploying emergency medical supplies

WHO Emergencies Programme has pre-positioned Interagency Emergency Health Kits¹⁷ in at-risk regions of Kyrgyzstan and Tajikistan. Both countries are mountainous and at risk of earthquakes, floods, avalanches and other natural disasters. Some high-risk regions are inaccessible by road for many months during the winter.

Pre-deploying these kits makes it much quicker and cheaper for health authorities to access medical supplies in an emergency. The alternative, of having to fly in equipment and medicine, is expensive, can be dangerous and leads to delays. Each kit provides medical supplies sufficient to treat 10 000 people for approximately 3 months.



WHO representative monitors the arrival of Interagency Emergency Health Kits before they are pre-deployed. Photo credit: WHO/Laura Sheahen

Testing emergency capacities

Emergency simulation exercises (SIMEXs) can test countries' emergency preparedness plans and systems in a controlled and safe way. They identify critical gaps and areas of preparedness that need to be strengthened. They also enable staff to learn and practice the roles they need to play in an emergency.



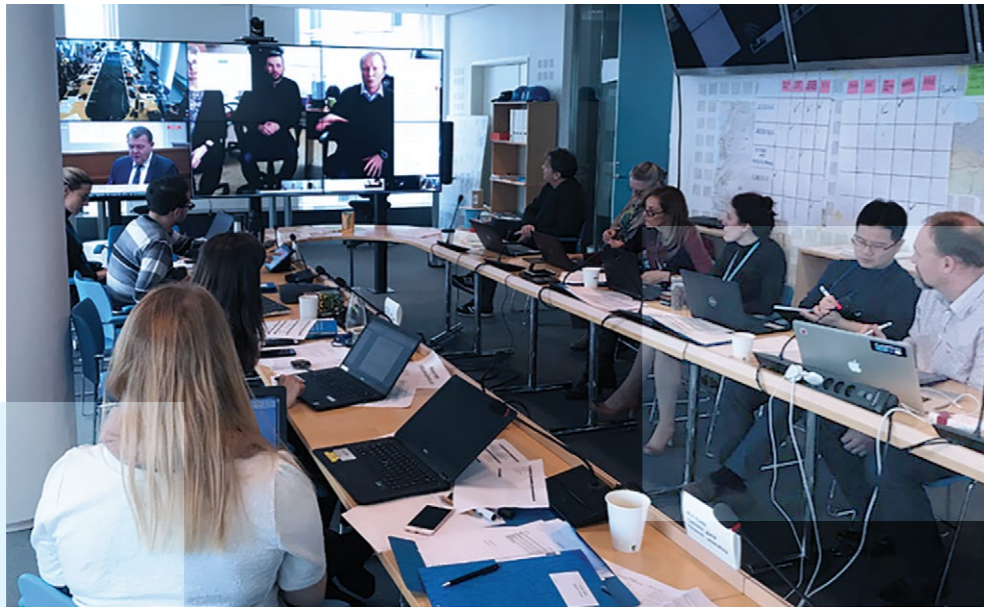
Health workers take part in a hospital drill SIMEX in Jalal Abad, Kyrgyzstan, 2018. Photo Credit: @WHO

WHO and its partners in the UN system have long experience of organizing SIMEXs, and helping countries draw conclusions from them. These exercises can range from table-top exercises, where key experts and decision-makers discuss how to respond to an emergency scenario, through to full-scale exercises. They can be purely national exercises, or they can be multi-country exercises.

¹⁷ For more about these kits, see WHO. Review of The Interagency Emergency Health Kit 2011. Geneva: World Health Organization; 2011. (<https://www.who.int/medicines/publications/emergencyhealthkit2011/en/>, accessed 3 September 2019).

In recent years, exercises organized by WHO Regional Office for Europe have included:

- a 27-country functional exercise known as a Joint Assessment and Detection of Events (JADE) to test communication between national IHR focal points and the WHO regional contact point for IHR.
- a 12-country command-post exercise on responding to events including a laboratory biosafety breach, and hospital-level preparedness drills.
- MULTI-agency field simulations of floods or earthquakes.
- 11 countries tested their social science intervention skills in a pandemic scenario.



27 National Focal Points (NFPs) participated in two 5-hour functional exercises JADE, Copenhagen, Denmark. Photo credit: @WHO

Operational partners: Strengthening health emergency response in Europe – and globally

Global Outbreak Alert and Response Network (GOARN)

WHO Regional Office for Europe, in partnership with the Global Outbreak Alert and Response Network (GOARN), has run multi-country intensive training courses to enable national public health experts to improve their emergency response skills.

GOARN is a network of technical institutions around the world that are prepared to respond to health emergencies. The international outbreak response is led by WHO through GOARN resources, and GOARN ensures that experts with the right technical skills are deployed where and when they are needed.

There are dozens of emergency events – mostly disease outbreaks – each year in the WHO European Region and hundreds worldwide. WHO mobilizes GOARN for the major outbreaks that threaten to overwhelm the capacity of local health authorities – or where there is a significant risk of international spread. For example, in recent years, GOARN was mobilized to respond to outbreaks of severe acute respiratory syndrome, avian and pandemic influenza, Ebola virus, Zika virus, Middle East respiratory syndrome coronavirus, cholera and yellow fever.



Health worker working with Ebola samples in a mobile tent laboratory. Taken during a mission to Guinea in 2014 in response to the Ebola outbreak. Photo credit: @WHO/Cristiana Salvi

European GOARN partners contribute to all the major response operations. Thousands of European experts have been deployed over the years, to protect affected populations and European citizens alike.

Emergency Medical Teams (EMT)

Launched in 2016, the WHO Emergency Medical Teams (EMT) initiative helps to improve the timeliness and quality of health services provided by national and international emergency responders. This initiative is aimed to enhance the capacity of national health systems to lead the activation and coordination of the health care response to the immediate aftermath of a sudden emergency, or outbreak.

EMTs play a critical role in national, regional and global response capacities. As national health systems increasingly adopt the EMT minimum standards and principles, and as the number of internationally classified teams gradually grows, governments can be assured of a predictable and timely response by self-sufficient teams with highly trained health personnel.



A WHO Representative observes the activities of one of the EMT-Initiative certified teams from the WHO European region participating in the EU Modex in 2018. Photo credit: @WHO

Since 2016, EMTs from several European health systems and nongovernmental organizations (NGOs) have been accredited as WHO-approved EMTs, while dozens more are working towards accreditation. These accredited teams are in high demand for deployment around the world to help countries hit by disasters such as earthquakes, floods or tsunamis. EMTs from the European Region are saving lives every year in countries around the world. They are also gaining skills and experience that can be used if and when disasters or epidemics hit Europe.

WHO Collaborating Centres (WHO/CC)

WHO Collaborating Centres (WHO/CC) are institutions such as research or public health institutes and parts of universities designated by WHO to implement jointly planned activities supporting the Organization's strategic priorities and programmes, at all levels. The initiative of utilizing existing institutions to support health-related activities is part of an official WHO policy enacted during the Second World Health Assembly in 1949.

Out of 837 global WHO/CC, 105 WHO/CC in the European Region have direct capabilities to assist the WHE Programme in fulfilling its mission to address the full emergency risk management cycle building country capacities in preventing, preparing for, responding to and recovering from the number of hazards which pose a threat to public health.

In addition to these 105 centres, 179 regional WHO/CC possess technical expertise in specific health areas (e.g. nutrition, migrant health, maternal and child health, etc.) that when needed, could be called upon to provide more tailored support to specific public health issues in emergency situations.

Preparing for an international mass gathering

Hosting a major international sporting or cultural event can raise a country's profile and boost tourism. However, when many thousands of people from across the world gather in one place, disease outbreaks are always a risk. As journalists, diplomats and VIPs from different countries attend such events, anything that goes wrong will be highly visible. An uncontrolled disease outbreak will damage the host country's reputation – as well as making visitors and host communities ill.



3rd World Nomad Games in Cholpon-Ata, Kyrgyzstan. Photo credit: @WHO/Almaz Zhumaliyev

In 2018, Kyrgyzstan hosted the 3rd World Nomad Games. Over 3 000 athletes from more than 80 countries competed at 37 different traditional nomadic sports. Thousands of international visitors came to watch. WHO Regional Office for Europe provided training and technical support to the health authorities and other ministries involved in the Games. They helped identify and assess health risks and the authorities were well prepared for them. As a result, the Kyrgyz authorities developed a preparedness Action Plan for the Games covering coordination, surveillance and response capacity. The Games were a sporting success with no outbreaks or emergencies to spoil the fun.

Scaling up capacity-building for Emergency Risk Communication

Emergency risk communication (ERC) is one of the core capacities that all countries must develop and implement under IHR. It is also a key component of preparedness in the Pandemic Influenza Preparedness (PIP) Framework.

ERC needs to be delivered throughout the prevention, preparedness, response and recovery phases of a health emergency. It empowers stakeholders and people to take informed decisions on how to protect themselves and their loved ones, and can be one of the most effective ways of saving lives. Indeed, in the initial stages of many emergencies, it may be the only intervention available to the authorities.



Emergency Risk Communication training in Moldova. Photo credit: @WHO

The WHE Programme in the European Region, with support from the German Federal Ministry of Health, launched a breakthrough package to scale up emergency risk communication capacity under IHR.

Phased in five-steps, the package encompasses the full emergency lifecycle and includes guidance, tools and resources to build and sustain capacity.

The package goes beyond training to support countries all the way through to the adoption of an Action Plan with a five-step approach:

1. Training, to build homogeneous capacity based on a country's priority hazards.
2. Capacity-mapping, to identify needs and gaps in view of strengthening in-country ERC.
3. Plan-writing to develop a multi-hazard ERC plan based on a WHO template.
4. Plan-testing through multisectoral simulation and table-top exercises.
5. Plan adoption to update the national ERC plan and integrate it into national preparedness and response plans.

Before its official launch in September 2018, the package was piloted in 13 countries of the Region: Armenia, Bosnia and Herzegovina, Estonia, Kyrgyzstan, Romania, Serbia, Slovakia, Slovenia, Sweden, Tajikistan, Turkey, Turkmenistan and Ukraine. It is now being rolled out across the Region.

Training programmes for “disease detectives”: Better Labs for Better Health

Being able to detect disease outbreaks is a specialized job. National health authorities need epidemiologists who can spot unusual patterns of illness. They also need skilled laboratory experts (microbiologists) who can identify which pathogen or toxin is causing the illness.

Better Labs for Better Health is WHO Regional Office for Europe's initiative that takes an intersectoral approach that to providing sustainable improvements to the quality of all laboratories that deal with health. It is based upon WHO's global vision of laboratory strengthening: namely that well-functioning, sustainable laboratory services, operating according to international principles of quality and safety, are essential for strong health systems – and crucial for improving public health.



Two trainee laboratory workers, taking samples and notes at the Research Institute of Influenza, Russian Federation. Photo credit: @ Kirill Sirotiyuk

Better Labs for Better Health was launched in 2012 in partnership with the WHO Collaborating Centre for Laboratory Strengthening at the Royal Tropical Institute, The Netherlands. It provides a platform for coordination with external partners and donors in laboratory strengthening, to ensure best use of scarce resources.

The science of investigating a disease outbreak – to identify what caused it and who is at risk next – is often called field epidemiology. Both the European Union and the United States support Field Epidemiology Training Programmes (FETPs) to ensure all countries have the skilled experts they need. These include the Turkish FETP (supported by the EU), the central Asian and south Caucasus FETPs (supported by the US) and the EU's MediPIET training programme for the countries of the western Balkans, south Mediterranean and Black Sea areas.

Working with countries to prepare for the next pandemic

The Global Influenza Strategy for 2019–2030 aims at protecting people in all countries from the threat of influenza. The goal of the strategy is to prevent seasonal influenza, control the spread of influenza from animals to humans, and prepare for the next influenza pandemic. Important to the strategy is the on-going success of the Pandemic Influenza Preparedness (PIP) Framework.

The first pandemic of the 21st century, the 2009 influenza A (H1N1) pandemic, illustrated the need by individual Member States for equitable access to vaccines, antivirals and other pandemic response supplies.



Virology lab in Netherlands used for research on insect-borne human and animal viral infectious diseases, vaccine development, and baculovirus functional genomics. Photo credit: @Jelke Fros

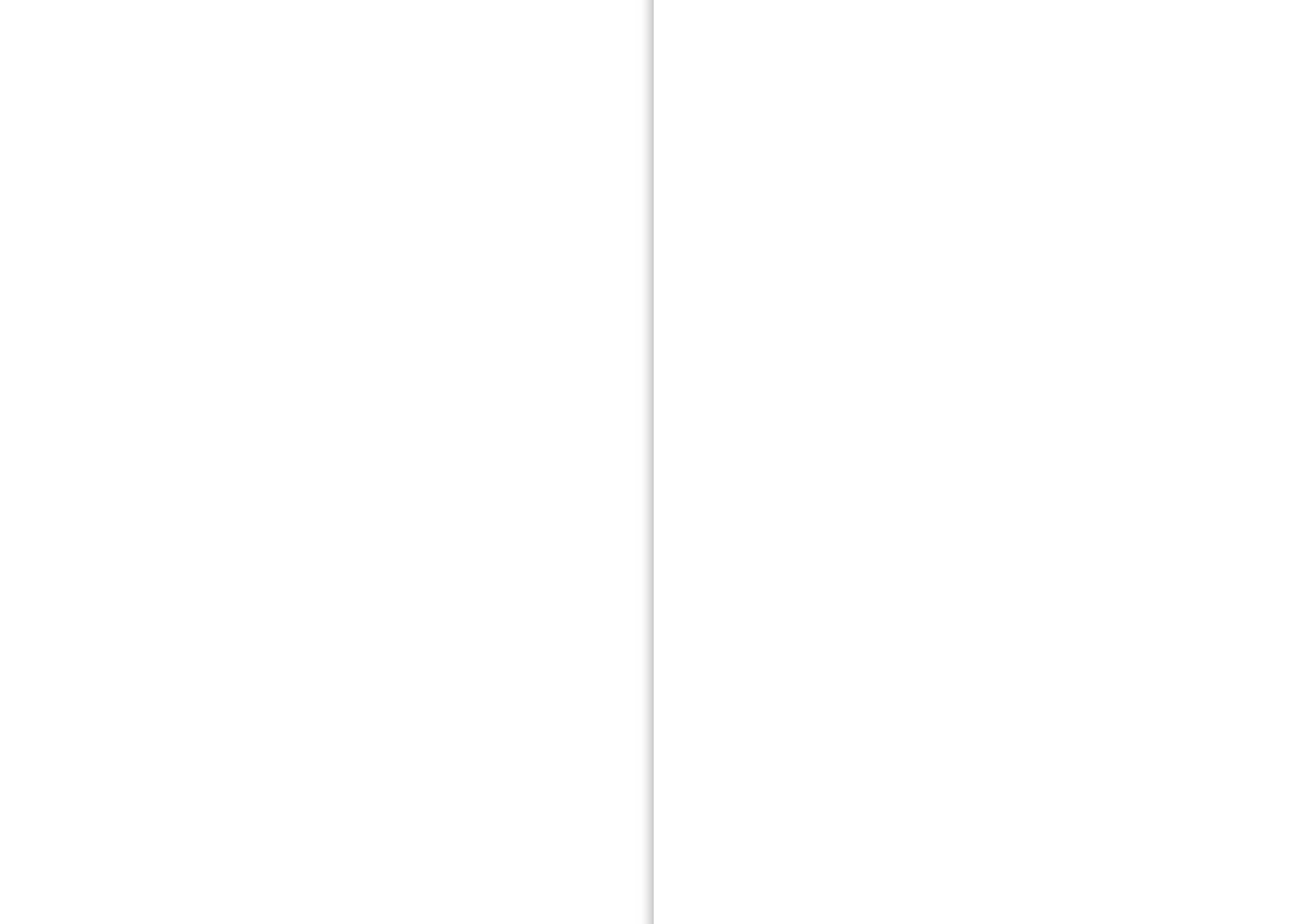
Under the PIP Framework, Member States agree to share influenza viruses with WHO through the Global Influenza Surveillance and Response Network (GISRS). Viruses are shared with vaccine manufacturers, drug and diagnostic

developers and researchers to produce the best medical interventions. The PIP Framework is designed to ensure that all Member States benefit from this sharing: this includes mechanisms to improve pandemic preparedness in most-in-need countries, and to provide real-time life-saving vaccines in the event of a pandemic.

WHO is working with dozens of countries around the world to build their capacity to detect new or unusual influenza viruses. WHO also provides technical support and guidance to all countries on pandemic preparedness planning. This work is funded by the PIP Partnership Contribution mechanism. Influenza vaccine, diagnostic and pharmaceutical manufacturers that benefit from WHO's surveillance and virus sharing actions make annual cash contributions to this mechanism.

The PIP priority countries in WHO European Region are: Armenia, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Actions supported in these countries by WHO Regional Office for Europe and PIP include:

- improving influenza surveillance systems, with quality epidemiological and virological surveillance data
- recognizing National Influenza Centres
- ensuring all countries share influenza viruses with WHO
- implementing national guidelines for outbreak investigation and response and for clinical management of patients with severe forms of influenza
- revising and testing national pandemic plans
- producing national influenza bulletins.



The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
North Macedonia
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

World Health Organization Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01
E-mail: euwhocontact@who.int
Website: www.euro.who.int