

WHO'S work in emergencies: prepare, prevent, detect and respond

Dr Tedros Adhanom Ghebreyesus
WHO Director-General



Keeping the world safe is one of WHO's top priorities. Responding to outbreaks and other emergencies is a key part of what we do all over the world. In global health security, we are only as strong as the weakest link. No one is safe until we are all safe.



Outbreaks of infectious disease, disasters, and conflict have reinforced the reality that the world remains vulnerable to health emergencies that can have a global impact. Significant gaps remain in the capacity of many countries to manage all-hazards health emergencies and disaster risk.

In recent years, WHO has taken on more of an operational role than ever before. Protracted conflict and weak health systems mean that many countries cannot deliver basic health, nutrition and social services. It is in these vulnerable settings where most deaths among children under five occur, as well as the highest rates of maternal mortality, unintended pregnancy, sexual and gender-based violence, malnutrition, mental disorders, under immunization, and infectious disease outbreaks.

Conflict, climate change, population growth and movements are changing the context in which we operate. An estimated 1.4 billion people live in fragile, conflict-affected and vulnerable settings. Eighty percent of people affected by health emergencies and 70% of cases due to epidemic-prone diseases are occurring in conflict-affected settings. Meanwhile, a record number of people around the world - - more than 69 million - - have been forcibly displaced, many of whom are cut off from accessing basic health services.

In the face of these changes, patterns of disease transmission are changing dramatically, crossing frontiers and affecting new populations. Outbreaks of deadly diseases in urban areas are becoming the new norm: yellow fever in Angola and Brazil, Middle East Respiratory Syndrome (MERS) in Kuwait and the Republic of Korea, plague in Madagascar, or cholera in Yemen. The outbreak of Ebola

virus disease in the Democratic Republic of the Congo highlights the difficulty of operating amongst the interlinked challenges of a highly mobile population, a struggling health system, and a protracted conflict. In 2018 we deployed more than 700 people to help combat the outbreak, even as we have faced attacks on our health facilities.

All of this means that WHO's role as a convener and lead coordinator to ensure a swift response and international cooperation is more critical than ever. Our mandate at the WHO Health Emergencies Programme is to protect the vulnerable by helping countries to better prepare, prevent, detect and respond to the myriad health risks we face today. That means bringing together partners, providing technical guidance and support, sharing information, and conducting operational and logistical missions. None of this would be possible without our donors, who have helped to strengthen the capacity of the programme over the past two years, including the many donors who have contributed funds to the Contingency Fund for Emergencies and who are working together with us to provide reliable, timely support for preparedness and response.

As you'll read in this report, we face both daily risks - - such as operating health programmes in the midst of war zones - - and organizational hurdles, such as securing long-term funding that allows us to support our Members States to build more resilient health systems. In the face of these challenges, we at WHO, and our partners, are optimistic about the future. We have never been more organized nor had more sustained political attention for health emergencies.

WHO's work in emergencies – achievements in numbers – 2018

PREPARE

ASSESSMENTS FOR ACTION

187 Member States International Health Regulations (IHR) 2005 annual reports
24 Joint External Evaluations
31 Simulation exercises
28 National action plans
18 After action reviews
11 IHR–public veterinary sector bridging workshops

STRENGTHENED CAPACITIES FOR ALL HAZARDS

Health security workforce development

Goal: all countries prepared for the full emergency–cycle management

400

professionals at ports and airports trained on surveillance

850

laboratory personnel trained in 62 countries

2800

health professionals in 141 countries trained on health security

6300

enrolments in online course offered through the Health Security Learning Platform

16 000

downloads of the Managing Epidemics handbook

100 000

subscribers to OpenWHO learning platform

READINESS

41

risk–profiling workshops were conducted in the African region

83%

of high-risk countries in the Index for Risk Management have interagency preparedness plans in place

PREVENT

ELIMINATE YELLOW FEVER STRATEGY

61 million

people vaccinated in 24 African countries

20,8 million

doses of oral cholera vaccine were shipped to 10 countries

ENDING EBOLA

60 000

people vaccinated during response operations in the Democratic Republic of the Congo

GLOBAL INFLUENZA PREPAREDNESS AND RESPONSE

500 million

people are estimated to have been vaccinated around the world

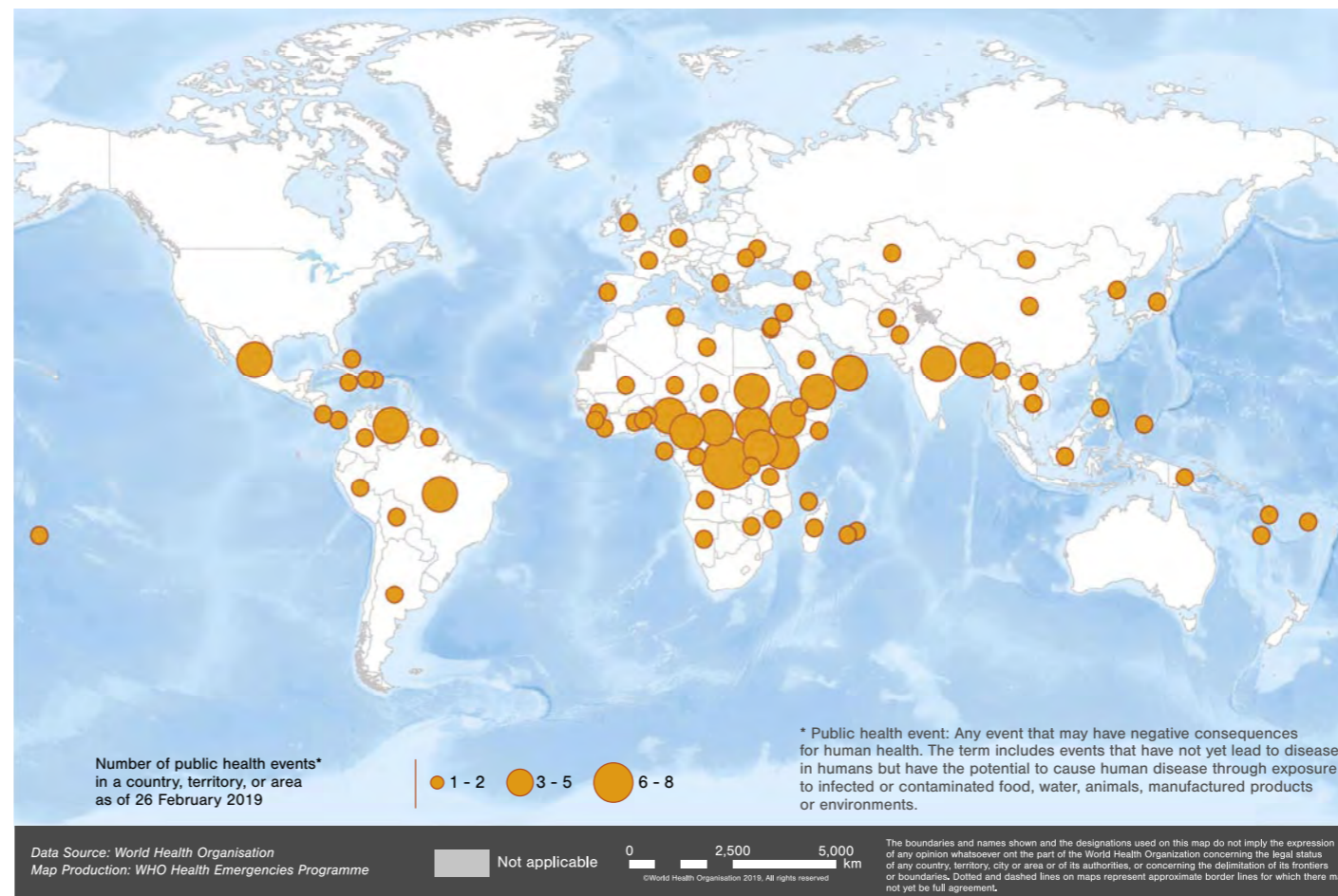
400 million

doses of pandemic vaccine secured through the Pandemic Influenza Preparedness (PIP) Framework

EMERGENCY VACCINATION

16 million

doses of vaccines deployed through the WHO International Coordinating Group on Vaccine Provision mechanism



1821 health emergencies experts from WHO and its partners deployed in 32 countries

DETECT AND RESPOND

24/7/365
 EACH DAY,
 EVERY DAY

the global surveillance system detects public health events

52

WEEKS A YEAR

the early warning system (EWARS) collects data each week, generates and manages alerts

7000

PUBLIC HEALTH THREAT SIGNALS PICKED UP EVERY MONTH

with about 0.5% of these resulting in a formal field investigation and a formal risk assessment

22

COUNTRIES

developed humanitarian response plans with a health response led by WHO

1600

TECHNICAL/ OPERATIONAL PARTNER INSTITUTIONS

WHO relies on its global network of technical and operational partners when responding to health emergencies, and when helping countries be better prepared to prevent, detect and respond to health emergencies

481

NEW EVENTS IN 141 COUNTRIES AND TERRITORIES

Some of the public health events included: cholera, Ebola virus disease, measles and monkeypox in the Democratic Republic of the Congo; plague in Madagascar; measles in Argentina, Brazil and Ecuador; emergency operations in Libya; West Nile fever in Serbia;

Nipah virus in India; diphtheria in Bangladesh; and hand foot and mouth disease in Viet Nam

30

EVENTS IN

29

COUNTRIES

The contingency fund for emergencies was provided within 24 hours

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The many facets of the Ebola response in the Democratic Republic of the Congo

In 2018, the Democratic Republic of the Congo experienced two Ebola outbreaks. The first, in the Equator Province, was successfully contained in 11 weeks, thanks to quick and efficient coordination, planning, and financing. It affected 54 people and claimed 33 lives. This was the first time investigational therapeutics were approved to treat Ebola in the midst of an outbreak. Only one week later, after the

Equateur outbreak was declared over, a second outbreak began in North Kivu Province, affecting over 960 number of people, of which 606 died. Despite the scale of the response, operations were hampered by security issues and the geographical location of the outbreak. Because of security issues, access by health workers was difficult, while proximity to urban centres and transit routes increased the risk of spread.



Risk communication and community engagement

Risk communication and community engagement are essential for any disease outbreak response. This is particularly critical during outbreaks of Ebola, which may create fear among the public and frontline responders alike due to the severity of symptoms and fatality rates, and misunderstandings about the causes of illness. This document outlined some of the key considerations for risk communication and community engagement response to Ebola outbreak in the Democratic Republic of the Congo.

From air bridges to case investigation: partnering for health

In addressing health crises around the globe, WHO works closely with ministries of health and many international and national partners. During the two 2018 Ebola outbreaks in the Democratic Republic of the Congo, WHO worked with the UN's World Food Programme to build an air bridge to deliver critical supplies into remote areas. In the Rohingya refugee camps, WHO worked with government agencies, international and non-governmental organizations to

control outbreaks. During the Zika outbreak in 2015, WHO and the Pan-American Health Organization worked closely with the Brazilian government on case investigations and to help shape the global research agenda. In combatting pandemics, such as the cholera outbreaks around the world and in preparing for both seasonal influenza and an influenza pandemic, WHO coordinates with national governments, international institutions, and civil society organizations to work towards better prevention and response.

Strengthening clinical care

During the Ebola outbreaks in the Equateur and North Kivu provinces of the Democratic Republic of the Congo, the WHO Emerging Diseases Clinical Assessment and Response Network (EDCARN) played a critical role by deploying clinical experts to the field to help Médecins sans Frontières (MSF) and the Alliance for International Medical Actors rapidly implement the appropriate standards of care. The network also provided support to partners to develop and implement standards of care for therapeutics. EDCARN also worked with Alima on the design of safe, patient-centered supportive treatment units.

Ring vaccination to stop the epidemic

WHO supported ring vaccination, an innovative approach using investigational doses of the vaccine to the contacts of confirmed cases, and the contacts of contacts, as well as health-care workers, frontline responders and other people with potential exposure to Ebola. "Ring vaccination is a new and vital tool in the control of Ebola," said Dr Michael Ryan, WHO Assistant Director-General, Emergency Preparedness and Response. "I just spent the day out with the vaccination teams in the community, and for the first time in my experience, I saw hope in the face of Ebola and not terror. This is a major milestone for global public health." This vaccination effort is the result of a major collaboration between the Democratic Republic of the Congo and the Republic of Guinea. Dr Alhassane Toure coordinated field operations of a 2015 trial in Guinea. For the 2018 outbreak, Guinean authorities gave their approval to loan more than 30 of the country's health experts to train local health workers in ring vaccination. "I am here to help my brothers and friends in the Democratic Republic of Congo to fight against Ebola," said Dr Alhassane. "Ring vaccination can help stop the spread of the Ebola virus."



Operational support and logistics

WHO deployed 60 000 doses of an Ebola virus disease vaccine and personal protective equipment, and set up an ultra cold chain to maintain its potency in storage. In addition in the particularly difficult contexts of these two outbreaks, WHO set up base camps for over 160 frontline responders, built office infrastructure for over 400 staff, set up the emergency operations center and provided training to local and international frontline responders.

Stopping diseases from crossing borders and mitigating negative economic impact

To prevent the spread of Ebola to neighboring countries, WHO set up exit screening for travelers at international airports, seaports and major land crossings. These activities included risk mapping activities at porous borders, screening for signs and symptoms of Ebola, mapping the history of exposure and reviewing exit screening procedures. WHO also coordinates IHR (2005) compliance with Member States and all relevant stakeholders in the travel transport and trade sectors to:

- minimize unnecessary restrictions to travel and trade during an emergency;
- ensure that effective measures are applied at borders to minimize the risk of spread;
- ensure that travelers are treated with respect for their dignity, human rights and fundamental freedoms, together with confidential treatment of their personal data.



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Rapidly responding to acute health emergencies

When WHO's global surveillance system picks up a public health threat signal following a field investigation and a formal risk assessment, a determination is made on the potential outbreak with high risk of spread. A series of steps are triggered within 48 hours:

- grading of the severity of this event;
- activation of an incident management system with a designated team functioning out of emergency operating centers in Geneva, in the regional offices, and in the country offices;
- release of financing from WHO's Contingency Fund for Emergencies -- about US\$ 50 million has been provided for 50 events;
- deployment of field teams, personal protective equipment and medical supplies, to be jointly governed at the national level;
- communications on the risk to the affected populations and to neighboring countries through official International Health Regulations (2005) procedures, and with the public through Disease Outbreak News and social media;
- activation of the Global Health Cluster, the Global Outbreak Alert and Response Network (GOARN), emergency medical teams and standby partners.

Supporting the Rohingya refugee crisis

During the Rohingya refugee crisis, WHO has been using standby partner arrangements to support the ongoing response in Cox' Bazar, Bangladesh. In 2018, 22 deployments took place for a total of 89 person-months. Partners such as the International Civilian Response Corps (CANADEM); Dutch Surge Support (DSS Water); IMMAP, the international information management services non profit organization; Norwegian Refugee Council, RedR Australia; and Save the Children United Kingdom, have worked with WHO to deploy experts in resource mobilization, infection prevention and control, communicable diseases, community engagement, media and communications, mental health and psychosocial care, information management, water, sanitation and hygiene, logistics, and in disease management and coordination of the Health Cluster. These experts were deployed for three to six months at no charge through the standby partnership roster, helping the country team bridge the gap while hiring staff for these locations.

When an emergency strikes, anywhere in the world within 48 hours, WHO mobilizes health responders, cash and supplies in the field. Within 1 week, WHO:

- has regional and global field mechanisms in place and activated;
- refines knowledge and needs based on working with the ministry of health, and develops a fully costed and budgeted action plan with the initial priorities identified;
- identifies strategies on infection, for prevention and control, for the laboratory, and to protect health workers;
- assesses the state of preparedness in the region and in surrounding countries;
- plans for further surge in human resources and supplies depending on the needs assessment, including looking at potential medical counter measures such as using for the first time on a large scale investigational vaccines and therapeutics for the Ebola outbreak in the Democratic Republic of the Congo;
- activates partnerships and financing mechanisms.

When WHO supports an emergency response in one country, the organization must continue to closely monitor and assess ongoing and new outbreaks not only in the affected country, but in all other countries around the world that are experiencing health events. In 2018, WHO detected, monitored and carried out risk assessments and field investigations of more than 170 health events each month, while providing full support to the two Ebola outbreaks in the Democratic Republic of the Congo beginning 8 May, the cholera outbreak in Yemen (since 2017) and the cholera outbreak in Zimbabwe in September 2018.



22 deployments
for a total
of 89 person-months
in 2018

Over 1600 technical/operational partner institutions

WHO relies on its global network of technical and operational partners when responding to health emergencies and supporting better preparedness, prevention detection and response. Key networks of partners include:

Global Outbreak Alert and Response Network (GOARN):

is a collaboration of existing institutions and networks with over 200 multidisciplinary experts that are ready to deploy when an outbreak strikes, anywhere in the world. WHO coordinates international outbreak response using resources from GOARN.

Global Health Cluster: aims to accelerate collective action, as locally as possible and as internationally as necessary, to ensure crisis-affected communities receive

immediate life-saving support and continued access to essential health services. It comprises over 700 partners in 27 countries working together to meet the health needs of approximately 75 million people worldwide.

Emergency Medical Teams Initiative:

assists organizations and Member States to build capacity and strengthen health systems by coordinating the deployment of quality assured medical teams in emergencies.

Standby Partners Programme:

links WHO with quasi-governmental organizations involved in emergency and relief work, and maintains a roster of trained experts that are ready to deploy at short notice to even the most challenging locations.



Enabling quick action to save lives

The Contingency Fund for Emergencies (CFE) allows WHO to respond rapidly to disease outbreaks and health emergencies--often in 24 hours or less. This saves lives and helps prevent unnecessary suffering. Furthermore, a quick response dramatically reduces the costs of controlling outbreaks and emergencies, as well as the wider social and economic impacts. The CFE is not earmarked, giving WHO the crucial flexibility it needs to act quickly in response to disease outbreaks, natural disasters, and humanitarian emergencies.

Issuing independent and evidence-based recommendations

An Emergency Committee was convened by the Director-General under the IHR in 2018 to get independent, evidence-based advice on whether three different events constituted a public health emergency of international concern, and if yes, to propose temporary recommendations.

- The Emergency Committee on Polio was convened four times in 2018, and the Committee maintained their assessment that current events related to polio spread constitute a public health emergency of international concern.
- The Emergency Committee was also convened for two separate Ebola outbreaks in 2018 in the Democratic Republic of the Congo. Neither event was deemed to be a public health concern.

More than medicine

While it is critical to treat patients affected by epidemic diseases, the response is much more than purely medical. The range of necessary expertise includes epidemiologists, logisticians, clinicians, data managers, anthropologists and planners. Even something as seemingly straightforward - - and critical - - as vaccination requires quick thinking, as officials discovered when many young Rohingya women were reluctant to be treated by male vaccinators. So health officials worked to quickly recruit and train female vaccinators to make sure that as many people as possible were covered by the life-saving immunization. "The cultural acceptance of health interventions is always a challenge," said Dr Sylvie Briand, the Director of the Infectious Hazard Management Department at WHO. Evidence from previous outbreaks has emphasized the clear need for including social science experts such as anthropologists to work with communities in outbreak response.

Risk communication and community engagement

Risk communication and community engagement are essential for any disease outbreak response. These are particularly critical during outbreaks of Ebola, which may create fear among the public and frontline responders alike due to the severity of symptoms and fatality rates, and misunderstandings about the causes of illness. This document outlined some of the key considerations for risk communication and community engagement response to Ebola outbreak in the Democratic Republic of the Congo.





Ensuring access to essential health services in fragile, conflict- affected, and vulnerable settings

Over 1.6 billion people—22% of the global population—currently live in settings of conflict, displacement, and natural disasters. Combined with weak national public health systems, these fragile conflict-affected, and vulnerable settings, called FCVs, make it difficult to deliver basic health services.

FCVs account for over 70% of cases of epidemic-prone diseases such as cholera, measles and meningitis; 60% of preventable maternal deaths; 53% of deaths in children younger than 5 years; and 45% of neonatal deaths.

The challenge of meeting basic needs and providing universal health coverage to people living in these settings requires innovative approaches between health emergencies and health systems programmes, as well as strong partnerships and coordination with the World Bank, The United Nations International Children's Emergency Fund, the World Food Programme, and alignment with complementary operational frameworks such as the Deliver Accelerated Results Effectively and Sustainably.

WHO's approach to support universal health coverage in FCVs is country-led and country-focused, capitalizing on support from the different levels and departments of the Organization.

In addition to leading response operations in fragile, conflict-affected and vulnerable settings, WHO ensures that vulnerable populations have access to basic health services, such as general clinical care, child health, nutrition, communicable diseases, sexually transmitted diseases and HIV/AIDS, maternal and newborn health, noncommunicable diseases and mental health.

Iraq: “We help critically ill children to live”

Heevi is the only specialist paediatric hospital in northern Iraq. Support from WHO has been critical to its mission to provide quality tertiary treatment to Iraq’s most vulnerable families. Working with the nongovernmental organization Italian Association for Solidarity among People (AISPO) and the Duhok Directorate of Health, the hospital was renovated and equipped with sophisticated machinery. A paediatric ICU was created

and a semi-intensive neo-natal unit (NICU) expanded and equipped. Staff have been trained to international standards. “Two hundred and fifty-four children have been admitted to the NICU since August 2016. Seventy per cent were successfully treated. If there was no NICU, most of these children would have died,” says hospital Director Dr Nizar Bekir.

WHO supports a vital paediatric hospital to bring quality care to the most vulnerable



WHO delivers largest cross-border shipment of health supplies to war-torn Syria

In October 2018, to prepare for any possible escalation of conflict, WHO supported close to 180 health facilities in northwest Syria with over 104 tons of essential medical supplies worth US\$ 1.3 million. With these supplies, health facilities were able to provide approximately 677 000 medical treatments for surgery and trauma, communicable and noncommunicable diseases, and more. Medical supplies allowed health facilities to remain functional and continue providing

medical services to both trauma patients and those in need of primary health care. “Having regular access to medical supplies enables health facilities to provide life-saving health services and medical care. WHO is committed to working with partners and donors to ensure that available health resources reach the most vulnerable people in need,” said Dr Annette Heinzlmann, Emergency Coordinator for WHO in Gaziantep, Turkey.

Providing life-saving health and nutrition services in South Sudan

Conflicts and insecurity have kept South Sudan in a chronic humanitarian crisis. In an effort to provide quality emergency health services, including a basic package of health and nutrition services, WHO has been implementing an integrated package of health, nutrition and water, and sanitation and hygiene services to save the lives of populations

at risk. To reach people with virtually no access to health care, WHO deployed mobile medical teams to priority locations across the country. These teams provide quality emergency health services, including a basic package of health and nutrition services, in a prompt and effective manner to populations at risk.



Delivering accelerated results effectively and sustainably

In 2017, building on the model developed for the Yemen response, WHO, The United Nations International Children’s Emergency Fund, the World Food Programme, and the World Bank entered into a new partnership for fragile and conflict-affected countries, in which they committed themselves to Deliver Accelerated Results Effectively and Sustainably (DARES). The agreed principles of partnership include supporting national systems; joint data analysis; multi-year, flexible, evidence-based programming; and accountability through rapid, transparent communication. The partners agreed to leverage their comparative strengths to improve efficiency, reduce competition and ensure faster scaling up of interventions. The DARES partnership is gradually being rolled out in other fragile countries, including the Central African Republic, the Democratic Republic of the Congo and Libya.



Whole of Syria value for money approach

As part of a recent shift to apply Value For Money (VFM) principles in its daily business, the quality of WHO’s response to the crisis in Syria is being measured to assess the monetary cost of its activities against their quality and/or benefits. Extensive consultations were held with WHO’s country office in Damascus, as well as cross-border hubs in Gaziantep and Amman, on the criteria and standards to assess the Whole of Syria (WoS) programme’s VFM efforts, as well as data and evidence sources. A reporting template was developed to collect data relevant to each hub’s diverse programming activities. The aim was to establish a baseline of VFM achievements in the WoS response, to which targets could be set for coming years. Major findings from the first year of reporting revealed that 75% of hub activities achieved high financial performance with a relatively low investment, using a cost efficiency analysis which measured cost per person vaccinated or trained, and assumed a linear relationship between inputs and outputs. Despite the fact that VFM-specific considerations were not incorporated at the design phase, the activities clearly demonstrate VFM from a financial perspective. As the project enters its next phase, VFM achievement will be measured from a more diverse lens than simply an economic standpoint. To guarantee that the most vulnerable are being reached and supported, the indicators will reflect an analysis of the target populations benefiting from WHO activities. A stakeholder analysis assessing contribution versus influence will be conducted to ensure that all viewpoints of “value” and “impact” are duly considered.

Health on wheels: mobile clinic brings vital care to displaced Yazidis in Iraq

WHO has provided 69 mobile medical clinics to Iraq's Ministry of Health to support health service provision for vulnerable populations across the country.

This programme is providing vital care for the Yazidi, one of Iraq's most vulnerable groups.



These alignments and synergies between emergency and health systems agendas are furthered in discussions as part of The New Way of Working, or the Humanitarian Development Nexus, introduced to acknowledge that the responsibilities toward populations affected by crisis require combined interventions from humanitarian, development and peace building actors. This way of working is based on joint analysis and planning toward collective outcomes by all actors.

Occupied Palestinian territory: WHO strengthens trauma care services in Gaza

From 30 March to the beginning of September 2018, more than 18 000 people were injured during the ongoing demonstrations in Gaza. Increasing numbers of casualties meant that critical medical supplies were rapidly depleting, leaving thousands of injured without the care and services they desperately needed. WHO delivered life-saving medicines and medical supplies to hospitals and trauma stabilization points (TSPs) to treat more than 100 000 people, thus filling the critical gaps, and helping to increase the capabilities of more than 60 health workers in 10 TSPs on emergency management of casualties at the TSPs and emergency rooms. "The role of health workers at trauma stabilization points is crucial," said Dr Gerald Rockenschaub, WHO's Head of Office for Gaza and the West Bank. "Health staff in TSPs are usually the first to see wounded patients, and their capacity to resuscitate, stabilize, and treat patients with serious injuries can significantly increase patients' chances of survival before they are referred to hospital for further medical care." More than 8600 people were managed and directly discharged at TSPs, and almost 9500 referred by TSP health workers to hospitals for specialized care.

Humanitarian/development nexus

Health systems are critical to prevent, detect and respond to health crises. When they are deficient, outbreaks such as cholera in Yemen or the re-emergence of polio in Nigeria and Syria due to conflict can occur. Governments, experts and development agencies now strongly advocate for health systems to be prepared and competent to guarantee the health security of the population and resilience of societies, clearly linking health system strengthening and the national and global health security agendas. Health systems strengthening needs to be part and parcel of International Health Regulation (IHR) compliance, national action plans for health security, and disaster preparedness to efficiently support the achievement of universal health coverage and health security. Additionally, IHR and preparedness need to be integrated into national health system strategies and plans.

Enhancing access to basic health services in Yemen: Yousra's story

Six-month old Yousra was brought to the Al Shaheed Hospital in Khairan Al Muharaq. Severely malnourished and excruciatingly frail - she weighs just 3 kilograms - she cries constantly. Her father sits on the hospital floor with his second child next to him while his wife speaks to the doctor. They both seem unsure what is wrong with their child. "She has had a fever for over three weeks. Yousra's father is unemployed and we have nothing and no one to support us," said Yousra's mother. Al Shaheed hospital receives support from WHO and health partners through the Minimum Service Package (MSP), which focuses on eight priority health care services, targeting health facilities at the district level. The hospital's Dr Ali Al Ashwal says severe acute malnutrition with medical complications, as well as communicable diseases, are spreading in communities. "Due to lack of resources and poverty, families like Yousra's are forced to use whatever means they can find to feed their children," he says. Yousra has been fed goat milk since birth. Dr Ali advises her parents she needs to be admitted for at least two weeks. She will be referred to Abs Health Centre where capacity for inpatients is available. It is an hour away from Al Shaheed hospital. "We lack a therapeutic feeding center with inpatient capacity here," explains Dr Ali, "though we hope to be able to provide one soon." MSP provides essential services in health centres, covering nutrition, noncommunicable diseases and environmental health, trauma care, childcare, reproductive, maternal, newborn and child health. It aims to provide access to health care at all levels, targeting priority health needs and recalibrating an unbalanced health system.



Health care under attack in Syria

Eight years into the conflict in the Syrian Arab Republic, attacks on health care facilities and personnel in the country continues unabated, despite United Nations resolutions strongly condemning these attacks. In the first six months of 2018, there were 126 separate attacks on health care in Syria - more than for the whole of 2017. In 2018, 102 people, including health-care staff and their patients, were killed, and 189 were injured in these attacks. Most attacks were reported from rural Damascus, where Eastern Ghouta was the focus of intense hostilities in the first quarter of 2018, Dar'a governorate in southern Syria, where over a quarter of a million people fled during the violence in June 2018, and Idlib. Almost half of the country's health care facilities are either partially functioning or closed due to the ongoing conflict, and the attacks further compound the issue. The above figures starkly illustrate the dangers faced by health-care workers who risk their lives daily to help their fellow Syrians. Surgeons operate

by candlelight. Health-care workers literally work underground, in hospital basements, to save lives as their places of work are bombed and shelled.

World Humanitarian Day 2018 - - #NotATarget

WHO released a video to support World Humanitarian Day 19 August, and call attention to the horrendous attacks on health-care settings and providers. "Health is a fundamental human right, and attacks on health care are a blatant violation of that right," said Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization. The attacks deprive communities of access to services when they need them most, and have a devastating impact on people who are innocent parties to conflict - children, women, civilians. World Humanitarian Day is an opportunity to remind everyone that health care is #NotATarget.



Rapidly detecting and responding to emergencies

24/7/365 each day, every day -- the global surveillance system detects public health events

52 weeks a year -- the early warning system (EWARS) collects data each week, generates and manages alerts

7000 public health threat signals picked up every month. About 0.5% of these result in a formal field investigation and a formal risk assessment

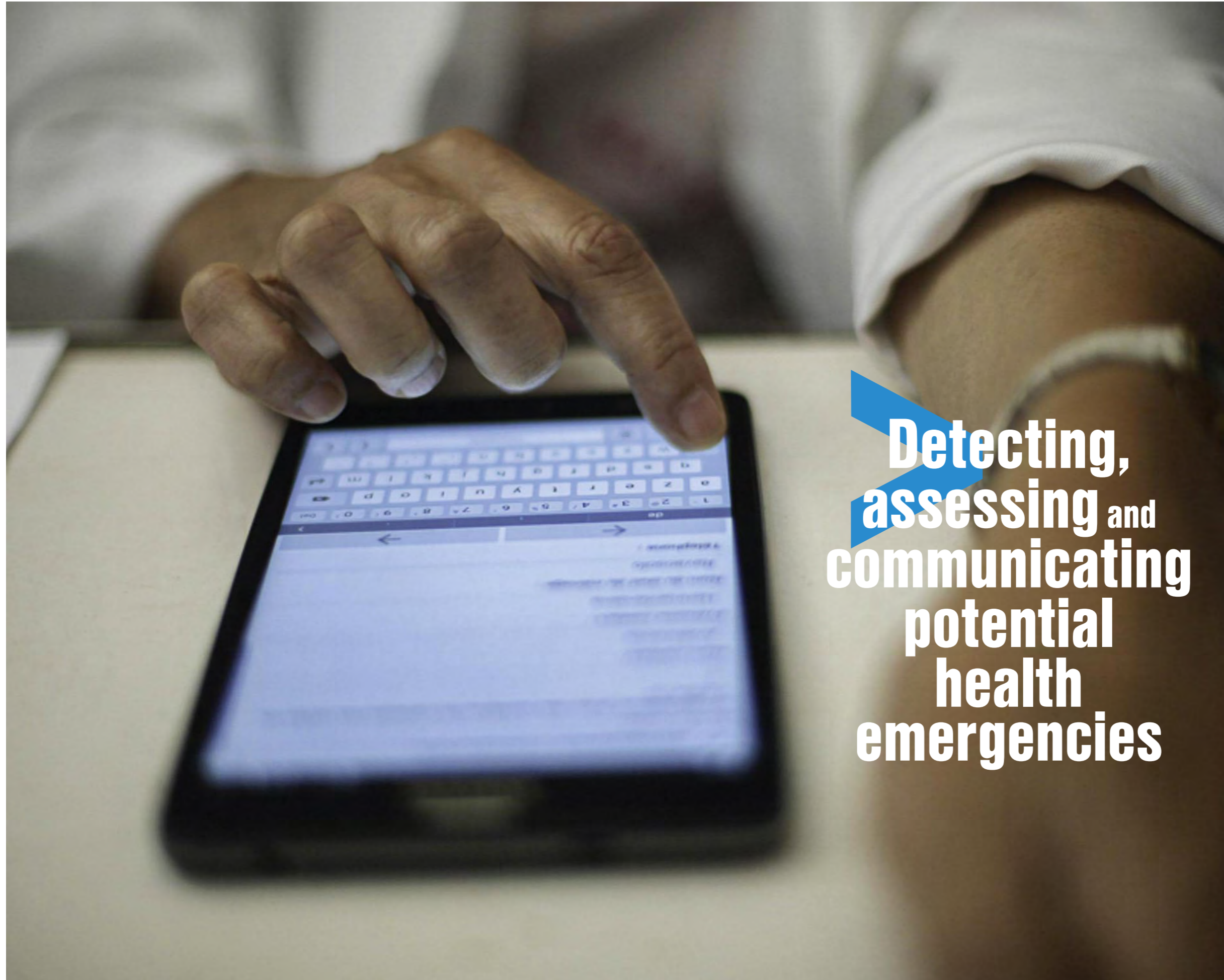
22 countries developed humanitarian response plans with a health response led by WHO

Over 1600 technical/operational partner institutions -- WHO relies on its global network of technical and operational partners when responding to health emergencies, and when helping countries be better prepared to prevent, detect and respond to health emergencies

1821 health emergencies experts from WHO and its partners deployed in **32 countries**

481 new events in 141 countries and territories -- some of the public health events included: cholera, Ebola virus disease, measles and monkeypox in the Democratic Republic of the Congo; plague in Madagascar; measles in Argentina, Brazil and Ecuador; emergency operations in Libya; West Nile fever in Serbia; Nipah virus in India; diphtheria in Bangladesh; and hand foot and mouth disease in Viet Nam

30 events in 29 countries -- The contingency fund for emergencies was provided within 24 hours



Detecting, assessing and communicating potential health emergencies

Rapid detection and verification of potential health emergencies is essential to save lives. The Secretariat manages a system of global event-based surveillance to detect all public health events and potential health emergencies. Once an event is verified, the Secretariat assesses the level of risk and sounds the alarm to help protect populations from the consequences of outbreaks, disasters, conflict and other hazards.

In addition to conducting around the clock monitoring and risk assessments during outbreaks, WHO's global surveillance system currently picks up 7000 public health threat signals every month. Approximately 0.5% of these result in a formal field investigation and formal risk assessment and are subsequently monitored until the event is determined to have ended.

In 2018, WHO monitored and assessed nearly 180 health events each week and produced weekly updates for the relevant WHO technical teams and external partners, and daily updates on Disease Outbreak News in collaboration with the regional and country offices.

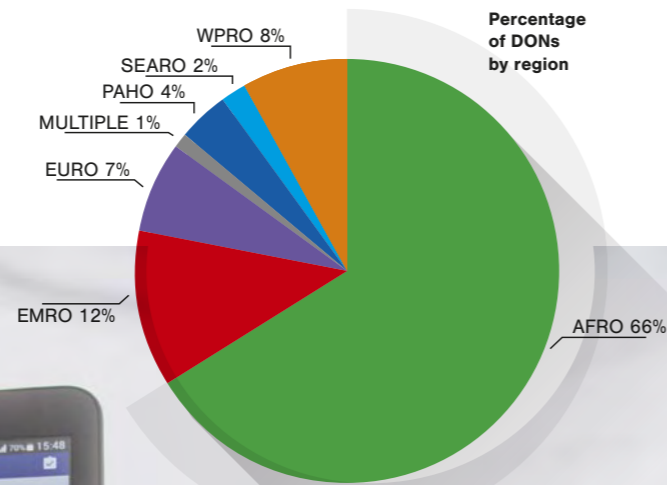
Keeping an eye on disease

Since 8 May, WHO has carried out surveillance, information management and risk assessment on Ebola virus disease in the Democratic Republic of the Congo on a 24/7 basis, guiding and monitoring the response. In addition, approximately 170 different ongoing health events in more than 40 countries are monitored every month. In parallel, WHO develops new technologies to be able to detect and track new health events in the most difficult settings, such as the Early Warning, Alert and Response System (EWARS), which proved successful in containing the diphtheria outbreak among the Rohingya population in Cox's Bazar.

Public information: Disease Outbreak News

WHO's Disease Outbreak News, known colloquially as DONs, are designed to inform the public and public health experts of new outbreaks and new information related to specific outbreaks.

DONs contain an epidemiological summary, the public health response, a WHO risk assessment, and WHO advice. DONs are among the most visited WHO webpages, with nearly 3 million visits a year (with an average time of more than two minutes, which is well above industry standards). WHO published 91 DONs in 2018.



A global network of partnerships

WHO works with more than 1600 partner organizations to prevent, detect and respond to health emergencies around the world. In addition to all the agencies under the UN umbrella, partners work with WHO in many different ways, from advocating and building support and political momentum for global health security, to preparedness and prevention. Technical partners in academic and research institutes share their expertise and knowledge to develop guidelines, conduct evaluation and analyses and make recommendations on a vast range of issues from disease prevention and control, to surveillance and laboratory performance. A network of collaborating centres carry out research on behalf of WHO

on diagnostics, vaccines and other biological and infectious hazards, as well as on traveller health and virus sharing. Operational partners work closely with WHO to rapidly deploy experts and expertise for risk assessments and emergency response around the globe. Partners provide funding for core activities, the contingency fund for emergencies, in-kind support, human resources in the form of secondments, and material goods to deploy to emergencies. All of these types of partnerships are vital to enable the scale-up of WHO's work in support of Member States to prevent, detect, respond and recover from health emergencies.

New technologies to detect and track outbreaks: WHO Early Warning System

Persecution and violence in Myanmar's Rakhine State stands out among recent refugee crises due to the large number of people fleeing in an extremely short period of time: an estimated 655 000 Rohingya women, men and children fled to Bangladesh between 25 August 2017 and mid-December 2017, according to the United Nations. It stands out among recent refugee crises due to the large number of people fleeing in an extremely short period of time: an estimated 655 000 Rohingya women, men and children fled to Bangladesh between 25 August 2017 and mid-December 2017, according to the United Nations. This level of displacement has not been seen in decades. In taking on the outbreak of diphtheria among the Rohingya refugees,

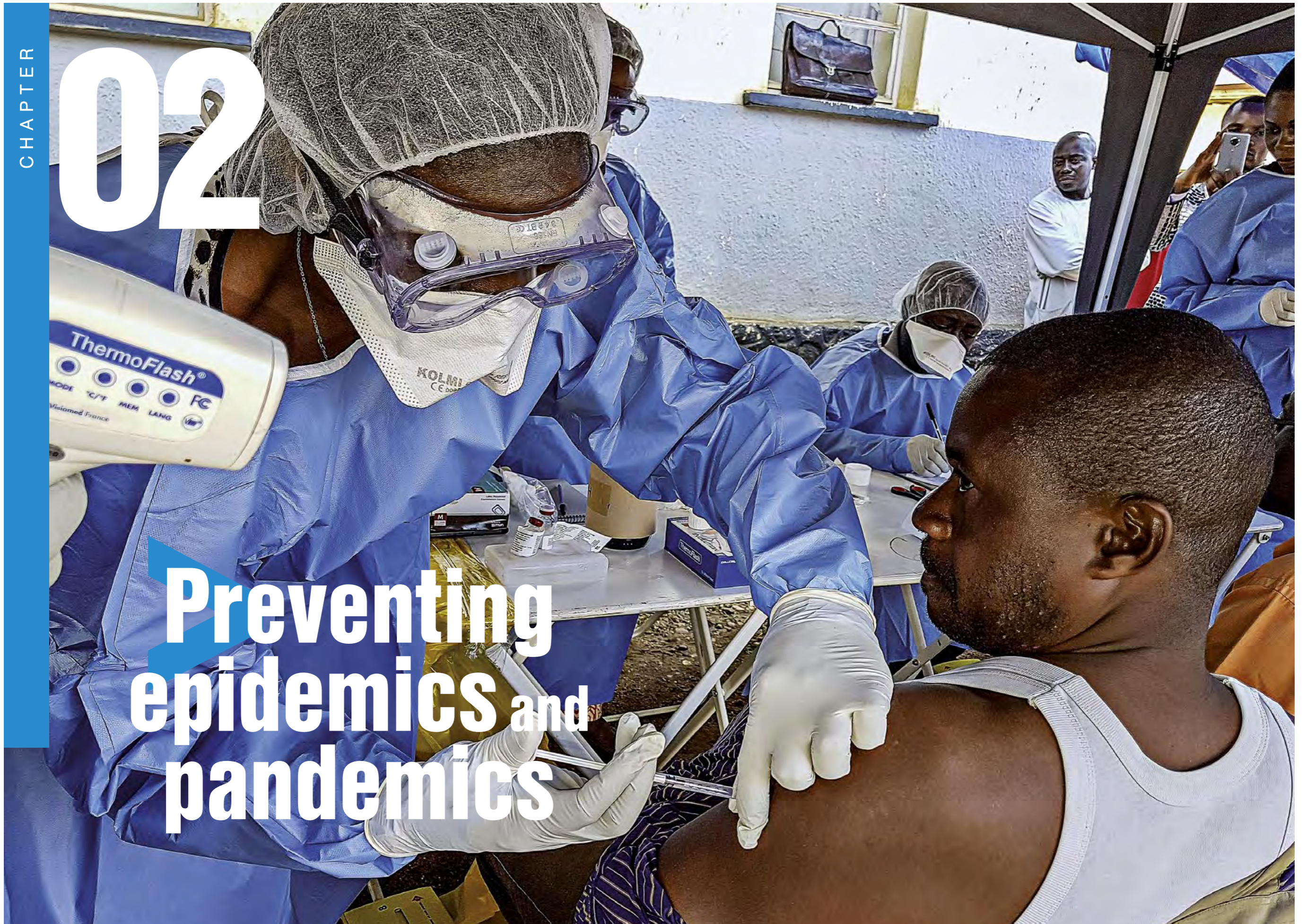
WHO used public health tools both old and new. Contact tracing was used to find all the people who may have been exposed to the disease. The establishment of diphtheria treatment centres was also critically important, to take care of those affected and keep the disease contained. A newly developed computer programme, known as the Early Warning, Alert and Response System (EWARS), allowed the quick collection of field data, geographical location, and affected populations so the response teams could act quickly. It was developed by WHO specifically for humanitarian and emergency settings, is designed to be used by local people in at-risk communities and works even without an internet connection.



CHAPTER

02

Preventing epidemics and pandemics



Developing proven strategies for priority pandemic and epidemic-prone diseases implemented at scale

The number of high-threat infectious hazards continues to rise; some of these are re-emerging and others are new. WHO develops global strategies for the prevention and control of epidemic-prone diseases. With partners from a wide range of technical, scientific and social fields, all globally available resources are brought together to counter high-threat infectious hazards such as yellow fever, cholera and influenza control and scale these strategies to regional and country level. Flagship global strategies include the Eliminate Yellow Fever Epidemics 2017-2026; Ending Cholera - a Global Roadmap to 2030; the Pandemic Influenza Preparedness (PIP) Framework; and the Global Strategy for Influenza 2018-2030. WHO is also the Secretariat for the governance of global emergency stockpiles, including the International Coordinating Group (ICG) on vaccine provision. Through the ICG mechanism, WHO has provided interventions in disease outbreaks for 20 years.

World Health
Organization
South-East Asia

YELLOW FEVER

Eliminate Yellow Fever Epidemics strategy

The Eliminate Yellow Fever (EYE) strategy, developed by a coalition of partners (Gavi, the Vaccine Alliance, the United Nations International Children's Emergency Fund and WHO), is a global and comprehensive long-term (2017-2026) strategy targeting the most vulnerable countries while addressing global risk. It aims to build resilience in urban centres, and preparedness in areas with potential for outbreaks, ensuring reliable vaccine supply.

The strategy consists of three strategic objectives built on lessons learned:

- 1) Protect at-risk populations**
- 2) Prevent international spread**
- 3) Contain outbreaks rapidly**

The strategy targets 40 countries in Africa and Latin America, involves more than 50 partners and aims at vaccinating more than 1.4 billion people by 2026.

61 million people vaccinated against yellow fever in 24 countries in Africa



Millions protected through mass vaccination campaigns in Nigeria and Ghana

In November 2018 Nigeria launched the largest ever yellow fever vaccination campaign. In 2018, more than 28 million people were vaccinated in 12 local government areas. In Ghana, the Ministry of Health and the Ghana Health Service, with WHO and partners, launched a campaign to vaccinate 5.3 million people against yellow fever from 28 November to 4 December 2018, as part of a roadmap for the

elimination of yellow fever in Africa by 2026.

"The West African Ebola outbreak showed that when a pathogen spreads to cities, it can amplify into a major epidemic on a scale never observed before. The public health impact of such outbreaks is huge and so too are the economic losses," said Dr Owen Kaluwa, WHO Country Representative.

CHOLERA

Ending Cholera: a global roadmap to 2030

In October 2018, partners of the Global Task Force on Cholera Control (GTFCC) marked one year since the launch of Ending Cholera: A Global Roadmap to 2030, which targets a 90% reduction in cholera deaths by 2030 and the elimination of cholera in at least 20 high risk countries out of the 47 currently affected. In 2018, 20.8 million doses of vaccines were shipped to 10 countries, totalling more than 40 million of doses shipped since 2013. At least 10 countries are now taking active measures towards cholera control plans in alignment with the Global Roadmap: Bangladesh, Haiti, Kenya, Malawi, Nigeria, South Sudan, the United Republic of Tanzania, Uganda, Zambia, and Zimbabwe. In May 2018, at the 71st World Health Assembly (WHA), WHO Member States passed a resolution -- introduced by the Governments of Zambia and Haiti -- committing to implementation of the

Global Roadmap, calling for the resources and policy changes necessary to meet the goal. In August, 47 African countries adopted the Regional Framework for the Implementation of the Global Strategy for Cholera Prevention and Control at the 68th session of the WHO Regional Committee for Africa. In line with the Global Roadmap, the Africa Regional Framework and the WHA resolution commit countries to implement evidence-based measures including:

- Mapping of cholera hotspots
- Significant investing in safe water, sanitation, and hygiene (WASH)
- Using oral cholera vaccine
- Enhancing epidemiological and laboratory surveillance
- Improving access to timely treatment
- Promoting community engagement.

Zimbabwe vaccinates 1.4 million people against cholera

WHO and partners launched an oral cholera vaccination campaign to protect 1.4 million people at high risk of cholera in Zimbabwe. The government, with the support of WHO and partners, moved quickly to implement key control efforts, including enhanced surveillance, the provision of clean water and hygiene promotion, cleaning of blocked drains and setting up dedicated treatment centres. The cholera vaccination campaign complemented these ongoing efforts.

New cholera cases drop in Yemen

The number of suspected cholera cases in the war-torn nation of Yemen dropped from a peak of 50 000 per week in 2017 to a low of approximately 10 000 in 2018, following a range of interventions, including a mass vaccination campaign. More than 306 000 people, including over 164 000 children, were vaccinated against cholera as part of a joint WHO-UNICEF campaign that concluded on 5 October. "We are grateful for the pause in fighting which enabled us to complete the cholera vaccination campaign. Vaccination is one of many health services people need. Ultimately, peace is the only road to health", said WHO Director-General Dr Tedros Adhanom Ghebreyesus.





The Global Influenza Surveillance and Response System (GISRS)

INFLUENZA

Building on its 70 years of global health leadership and six critical functions, WHO developed the Global Strategy for Influenza for 2018-2030 to enhance global and national pandemic preparedness, to combat the ongoing threat of zoonotic influenza, and to improve seasonal influenza prevention and control programmes in all countries. Influenza capacity

building has been conducted for decades; this strategy builds upon that work and presents an overarching mechanism to continue driving that work forward. The strategy presents a unifying vision and global goals and priorities that will rely on commitments from WHO, countries, and partners for full implementation.

The Global Influenza Surveillance and Response System (GISRS): Enable rapid and open access to influenza virus data

2018 was the centenary of the 50 to 100 million victims of the Spanish influenza outbreak of 1918. It is often forgotten that more people died due to the pandemic that year than from World War One. One hundred years later, it is clear that the impact of such events extend well beyond the health sector, and more than ever in a mobile and interconnected world. The Global Influenza Surveillance and Response System (GISRS) is a 66-year-old network that provides Member States with strategic guidance, technical support and coordination of activities essential to make their health systems better prepared against seasonal, zoonotic and pandemic influenza threats to populations and individuals. The network of more than 150 institutions from 114 Member States monitors influenza virus evolution, updates vaccine compositions, conducts risk assessments and develops

mitigation measures. GISRS promotes the international sharing of all influenza virus sequences, related clinical and epidemiological data associated with human viruses, and geographical as well as species-specific data associated with avian and other animal viruses, to help researchers understand how the viruses evolve, spread and potentially become pandemics. Twice a year, WHO organizes consultations with an advisory group of experts to analyze influenza virus surveillance data generated by GISRS, and issues recommendations on the composition of the influenza vaccines for the following influenza season. These recommendations are used by the national vaccine regulatory agencies and the pharmaceutical companies to develop, produce and license influenza vaccines.





The Pandemic Influenza Preparedness (PIP) Framework

The re-emergence in 2004 of a highly virulent influenza virus with pandemic potential triggered global discussions about access to pandemic vaccines by developing countries. Some countries, affected by high numbers of human infections, voiced concern that they were sharing virus samples with GISRS, while knowing that if a pandemic were to occur, they might not have access to the vaccines made using information and materials from those samples. To strengthen the sharing of influenza viruses with human pandemic potential and to increase the access of developing countries to vaccines and other critical pandemic response supplies, the Pandemic Influenza Preparedness (PIP)

Framework was set up in 2011 by the 194 Member States of WHO. This framework will help countries in times of a pandemic to access vaccines, antivirals, and diagnostics. Two of the main benefits of the agreement are: first, vaccine manufacturers that receive vaccine viruses from GISRS must commit to provide to WHO about 10% of their future pandemic vaccine production, so that it can be distributed to countries in need at the time of the next pandemic. Second, influenza product manufacturers that use GISRS are expected to contribute US \$28 million a year to WHO, which then uses the funds to bolster the ability of countries to respond to pandemics.

Influenza countermeasures secured so far by WHO for use in the next influenza pandemic:

- 400 million doses of pandemic vaccine secured
- 10 million antiviral treatment courses
- 250 000 diagnostic kits
- 25 million syringes
- over US\$ 169 million in partnership contributions collected (from 2012 to 2018) from manufacturers to support capacity building and response to the next pandemic
- 72 countries strengthened national preparedness capacities in 2018.

PIP Framework in numbers



Benefit sharing during a pandemic:

- In 2018, WHO signed two more contracts with manufacturers to provide products needed during a pandemic. Overall, the 14 contracts signed with manufacturers since 2013 cover:
 - 400 million doses of pandemic vaccine
 - 25 million syringes
 - 10 million antiviral treatment courses
 - 250 000 diagnostic kits

Benefit sharing to strengthen pandemic preparedness:

- Partnership contribution payments to WHO from companies: US\$ 169.6 million collected between 2012 and 2018;
- In 2018, US\$ 16 million distributed to strengthen pandemic preparedness in six areas;
- Implementation in 72 countries (all six regions and globally), with 80% funds implemented.

Zero to 100: Detecting influenza in Timor-Leste

- Before 2014, there was no influenza surveillance in Timor-Leste
- Between 2014-2018, PIP partnership contribution funds supported surveillance capacity building, laboratory training, supply provision and the set-up of a functioning influenza surveillance system.

IMPACT

- Five outpatient and three inpatient sentinel sites are now conducting influenza surveillance
- Staff are testing 50 samples a week for influenza
- Influenza viruses are being shared with WHO collaborating centres
- Influenza virological data are being reported to WHO's global platform FluNet.



MENINGITIS

Meningitis is a devastating disease and remains a major global public health challenge. The total number of deaths due to meningitis was estimated at 380 000 annually. Together with sepsis, it is estimated to cause more deaths in children under five years of age than malaria. Survivors can suffer severe health consequences with considerable social and economic costs.

Vaccines are available against three main bacterial causes of meningitis (*Neisseria meningitidis*, *Streptococcus pneumoniae*, and *Haemophilus influenzae* type b). There is no vaccine yet against disease caused by the group B streptococci (*Streptococcus agalactiae*). The burden of meningitis falls mainly on the poorest countries.

A call for action

In May 2017, over 50 representatives from governments, global health organizations, public health bodies, academia, private sector and civil society, made a call for a global vision to defeat meningitis by 2030. In September 2017, another 200 representatives from 26 African countries gathered and urged for the establishment of a

global commitment and the implementation of urgent actions for equitable and sustainable access to meningitis vaccines.

In May 2018, the “Defeating meningitis by 2030” strategy was introduced at the WHA by the Eastern Mediterranean and African Regions, with a first technical task force meeting in July.

Strategic goals by 2030

- Eliminate meningitis epidemics
- Reduce cases and deaths from vaccine-preventable meningitis by 80%
- Provide high quality care for survivors with sequelae



ACHIEVEMENTS IN 2018

- Yellow fever - - nearly 9.3 million doses vaccines deployed to 3 countries targeting 8.4 million people
- Cholera - 6.3 million doses of vaccines deployed to 7 countries targeting 4.2 million people
- Meningitis - 413 000 doses vaccines shipped to 2 countries targeting 387 000 people

Market shaping and ensuring equitable access to life-saving vaccines: The International Coordinating Group on Vaccine Provision

Outbreaks of epidemic-prone, vaccine-preventable infectious diseases such as meningococcal disease, yellow fever and cholera, are difficult to predict and can have disastrous effects when they occur in vulnerable countries with limited health infrastructure and resources, and where timely detection and response to outbreaks is undermined.

Following major outbreaks of meningitis in Africa, the International Coordinating Group on Vaccine Provision (ICG) was

established in 1997 to manage and coordinate the provision of emergency vaccine supplies and antibiotics to countries during major outbreaks. The ICG works to improve cooperation and coordination of epidemic preparedness and response. It also works on forecasting vaccine stocks, negotiates vaccine prices through its networks or partners, and evaluates interventions and standard protocols for managing diseases.



Its mission is to maximize the use of scarce vaccines and ensure the equitable distribution of available resources at the global level to countries experiencing outbreaks and humanitarian crises. The ICG provides a mechanism to ensure distribution of vaccine to the people who are most at risk, while giving all vulnerable populations a fair chance of being vaccinated. Priority actions include:

- rapidly delivering vaccines to respond to disease outbreaks;
- providing equitable vaccine allocation through careful assessment of risk, based on epidemiological and operational criteria;
- coordinating the use of limited amounts of vaccines and essential medicines;
- reducing wastage of vaccines and supplies;
- advocating for readily available, low-cost vaccines and medicines;
- working with manufacturers through UNICEF and WHO to guarantee the availability of vaccine emergency stock supplies at the global levels;
- following standard operating procedures and establishing financial mechanisms to purchase emergency vaccine supplies and ensure their sustainability.

WHO is striving to continue and expand its work on stockpile governance, ensuring that the mechanisms it employs are robust and lead to equitable and timely decision-making.

Ensuring equitable access to vaccines during epidemics and humanitarian emergencies

The International Coordinating Group on Vaccine Provision (ICG) manages and coordinates the provision of emergency vaccine supplies and antibiotics to countries during major outbreaks. This involves the following key areas:

- **Availability:** WHO is engaging with various stakeholders to ensure production of therapeutics and availability of funding for these goods. Fair prices are negotiated for these vaccines, ensuring global stockpiles that are often revolving so stockouts and expired products are avoided.
- **Access:** WHO ensures access for all countries in need and has established procedures for how countries can tap into global stockpiles. In the past year alone, WHO and partners addressed 30 country requests for emergency vaccine for yellow fever, cholera and meningitis, with more than 50 million vaccine doses being deployed in 16 countries.
- **Allocation:** WHO has put in place coordination mechanisms to guarantee an equitable allocation of products grounded in agreed and accepted criteria. The decision-making process is guided by assessments of the epidemiology of disease, vaccine features including costs, global production capacity, market characteristics and availability of other disease-specific control measures.



Mitigating the risks of the emergence and re-emergence of high-threat pathogens



What disease will emerge next, or where, is not known. The only certainty is that novel pathogens will emerge, causing disease in some of the world's most vulnerable countries and regions. Nearly 75% of these pathogens are zoonotic, passed from animals to humans. WHO is working with its network of partners from a broad range of technical areas to reduce the risks of the re-emergence of high-threat pathogens and the emergence of new and unknown high-threat pathogens such as viral hemorrhagic fevers, vector-borne diseases, respiratory pathogens, biosecurity threats and antimicrobial resistance (AMR).

VIRAL HAEMORRHAGIC FEVERS (VHFs)

WHO strengthened preparedness and effective rapid response capacity by deploying expertise to support the Ebola outbreaks in the Democratic Republic of Congo. Strategies were updated for: laboratory; clinical management and therapeutics; infection prevention and control; vaccination and survivor programme; community engagement; and safe and dignified burials. A rapid response was supported to a Lassa outbreak in Nigeria, with 633 confirmed cases, among which there were 17 deaths in 2018. WHO worked with the leadership of the country to organize the first international Lassa fever conference in January 2019.

ZIKA VIRUS DISEASE

Important steps in the technical agenda

The 2015–2016 Zika virus disease outbreak demonstrated how a relatively obscure and mild disease emerged as a global public health emergency, causing microcephaly, congenital Zika syndrome, and Guillain-Barré syndrome. WHO declared it a Public Health Emergency of International Concern in February 2016. To date, 86 countries and territories have documented mosquito-borne Zika virus transmission. WHO is focused on building a long-term, sustainable strategy for prevention, surveillance, preparedness, and response. Activities include integrated surveillance and control with other mosquito-borne diseases such as dengue and chikungunya, as well as efforts to advance detection of microcephaly and congenital Zika syndrome through strengthened integrated systems for birth defects surveil-

lance. While important scientific advancements have been made in understanding Zika virus disease, major scientific gaps remain. WHO continues to advance important research needed for Zika preparedness, prevention and control, including development of vaccines and diagnostics. In 2018, the second review of the WHO Research and Development Blueprint identified Zika again as one of ten priority diseases in urgent need of accelerated research and development, given the virus's capacity for epidemics and the critical need for diagnostics, treatment, vaccines. The WHO Zika Task Force, with the Department of Reproductive Health and Research, advanced collaborative research programmes to strengthen partnerships and advance a priority research agenda for Zika and related emerging pathogens.

WHO Global Prevention and Response Plan for Emerging Respiratory Diseases including MERS finalized

Middle East respiratory syndrome coronavirus (MERS-CoV)

The plan covers a four-year period for improving global prevention of, preparedness for, and response to high-threat emerging zoonotic respiratory pathogens with significant public health, health security, and economic consequences. It includes four pillars:

- early detection
- rapid containment
- improving evidence-based guidance
- advancing R&D for emerging diseases
- coordination.

SMALLPOX Secretariat

The WHO Smallpox Secretariat operates various committees and oversees biosecurity inspections of the two global repositories of the smallpox virus since the eradication of the disease in 1980 (WHA Resolution 33.3). It prepares yearly reports for discussions at the WHA.

PLAGUE

Three technical documents for addressing plague outbreaks in Madagascar (treatment, surveillance and rodent control) were developed in 2018.

When a community has a strong, responsive health system, disease outbreak and emergencies can more easily be brought under control. In cases like these, the role of WHO is to conduct risk assessments and offer support for treatment guidelines and research

Nipah outbreak in India puts the spotlight on strong health system and risk assessment

In the early hours of 17 May 2018, a critically ill patient was wheeled into Kozhikode's Baby Memorial Hospital in the Indian state of Kerala. Doctors dispatched the lab results to Karnataka's Manipal Centre for Virus Research some 300 kilometres away. The samples tested positive for Nipah virus. India notified the Nipah virus cases to WHO under the IHR (2005). Once the first case was identified, the state health machinery immediately swung into action. There is no treatment for Nipah, so surveillance, infection prevention and control measures are all vitally important. Nipah virus (NiV) infection is an emerging zoonosis that causes severe disease in both animals and humans. It can lead to acute respiratory distress, encephalitis and seizures,

progressing to coma within a day. The mortality rate is estimated at between 40 and 75 percent. By mid-June, the Kerala government and the Union Health Ministry announced that the outbreak had been contained. The outbreak response illustrates how effective, strong, and connected health systems -- in close cooperation with animal health and wildlife sectors -- are vital to preparedness and fast reaction. "The rapid and comprehensive response mounted both by the central and state governments clearly highlights the importance of strong health systems, and such a need has never been stronger than now, especially in view of the emerging and re-emerging viruses," said Dr Poonam Khetrpal Singh, Regional Director for WHO South-East Asia Region.

Biosafety and biosecurity

In 2018, activities focused on the improvement of specimen collection and transport in a safe and timely manner, and access to quality assured laboratory diagnostic capacity in safe and secure facilities. WHO organized a series of technical global consultations to gather experts' views, develop guidance and share best practices in the following areas: the safe shipping of infectious substances (15-16 March 2018, Geneva, Switzerland), laboratory biosafety and biosecurity regulatory framework (26-28 September 2018, Geneva, Switzerland), and community-based surveillance (26-28 June 2018, Lyon, France). The WHO Laboratory Manual editorial committee also met throughout the year to finalize the revision of the Manual, with a 4th edition to be published in 2019. Two regional laboratory biosafety training of trainers were organized in Nairobi, Kenya and Dakar, Senegal, in March 2018, with the participation of 16 participants from 39 African countries. Chad, Benin and South Sudan have already replicated the training at national level. This series of training complements similar initiatives started in South East Asia in 2016 and the Eastern Mediterranean Region in 2017, with more than 840 laboratory personnel trained in 62 countries since 2016.

The Health Security Interface

WHO's Health Security Interface (HSI) operates where the global public health and security sectors intersect and interact. This can occur in any number of public health-related scenarios, including:

- outbreak response operations in non-permissive environments, such as in highly politicized contexts, conflicts and wars;
- deliberate events, including the intentional use of chemical or biological agents in order to cause harm;
- issues related to mass gatherings, such as sporting events, festivals, and regular religious migrations;
- activities that might arise in the course of a natural disease outbreak.

The HSI is located within WHO's Health Emergency Programme and has been established as the focal point for all WHO's security-related activities. Its key role is to advocate for the role of public health in the security sector, increase WHO's preparedness and response capabilities in relation to deliberate events, and to provide outreach within WHO and internationally to raise awareness of HSI's Secretariat.



Saving lives with soap and water

Infection prevention and control is essential for health care systems, and particularly for handling infectious disease outbreaks. But despite the popular image of health workers in full overalls with breathing apparatuses, there are even more fundamental practices necessary to keep patients and health workers safe. After a major outbreak, people often think an expensive biosafety laboratory for highly infectious pathogens is needed. "This is always the immediate response, looking to costly, high technology structures as the answer to keep health workers and communities safe," said Dr Pierre Formenty, the WHO focal point for haemorrhagic fevers. Dr Formenty has responded to over 50 international outbreaks during his 22 years with WHO. He reminds people that one of the simplest and most cost-effective strategies for preventing and controlling the spread of many infectious diseases should not be forgotten: hand hygiene with alcohol-based solution or simply soap and water. During any outbreak, health workers are the frontline responders and need to be protected. During the 2014 Ebola outbreak in West Africa, health workers were around 25 times more likely to be infected than people in the general population, and - in countries which already faced shortages of skilled medical personnel - more than 500 lost their lives. "When one health worker dies, many people lose access to care and that weakens the entire health system," said Dr Sylvie Briand, the Director of the Infectious Hazard Management Department. "There is no health without a health workforce."



Preventing hospital-acquired infections in eastern Ukraine saves lives

To reduce the risk of infections acquired in hospitals, WHO is scaling up support to health facilities in the conflict-affected regions of Donetsk and Luhansk in eastern Ukraine. Ensuring a supply of sterilization equipment and training the health workforce are key to this objective. WHO supplied two pressure chambers for sterilization (called autoclaves), disinfection machinery and furniture to the Luhansk Regional Children's Hospital,

with financial support from its partners. "Success of infection prevention and control in health facilities is always due to multiple factors," explains Dr Marthe Everard, WHO Representative in Ukraine. "Better equipment is essential to improve the quality of disinfection; however, simple things such as hand hygiene and safe waste management can make a great impact on patients' safety."

Antimicrobial resistance: a global concern

Antimicrobial resistance (AMR) happens when micro-organisms (such as bacteria, fungi, viruses and parasites) change when they are exposed to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics). Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs". As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others. New resistance mechanisms are emerging and spreading globally, threatening our ability to treat common infectious diseases, resulting in prolonged illness, disability and death. Without effective antimicrobials for prevention and treatment of infections, medical procedures such as organ transplantation, cancer chemotherapy, diabetes management and major surgery (for example, caesarean sections or hip replacements) become very high risk. Antimicrobial resistance increases the cost of health care with lengthier stays in hospitals and more intensive care required.

- Antimicrobial resistance threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi.

- AMR is an increasingly serious threat to global public health that requires action across all government sectors and society.
- Without effective antibiotics, the success of major surgery and cancer chemotherapy would be compromised.
- The cost of health care for patients with resistant infections is higher than care for patients with non-resistant infections due to longer duration of illness, additional tests and use of more expensive drugs.
- In 2016, 490 000 people developed multi-drug resistant tuberculosis globally, and drug resistance is starting to complicate the fight against HIV and malaria, as well.

WHO is providing technical assistance to help countries develop their national action plans, and strengthen their health and surveillance systems so that they can prevent and manage antimicrobial resistance. It is collaborating with partners to strengthen the evidence base and develop new responses to this global threat. WHO is working closely with the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE) in the One Health approach to promote best practices to avoid the emergence and spread of antibiotic resistance, including optimal use of antibiotics in both humans and animals.

Human-animal interface/ One health

International Health Regulations-Public Veterinary Sector National Bridging Workshops: bringing human health and animal health actors together

Nearly 75% of emerging pathogens are zoonotic. This means they are transmitted from animals to humans through direct contact or through food, water, and the environment. Implementation of the IHR (2005) requires the contribution of different disciplines, areas of work and actors from different sectors, joining forces through a One Health approach. WHO is proactively facilitating the contribution of the relevant sectors, in particular that of animal health, to each of the components of the IHR (2005) Monitoring and Evaluation Framework (IHR MEF). The International Health Regulations (2005) are still poorly understood in the veterinary sector, so WHO has been working in close collaboration with the FAO and the OIE to align the work of the veterinary sector with IHR (2005) implementation. To support countries in reviewing the capacities of their veterinary sector, the OIE developed the Performance of Veterinary Services (PVS) Pathway. To make the best use of the results derived from both the IHR MEF and OIE PVS Pathway, WHO and OIE jointly developed the IHR-PVS National Bridging Workshops that create a unique opportunity for the two sectors to

review the gaps in their coordination and identify corrective actions. The corrective actions are included in a joint roadmap, and the findings of the bridging workshops are integrated in the countries' national action plans for health security. To date, 20 countries have conducted a national bridging workshop, and more and more countries are requesting an IHR-PVS bridging workshop. Zoonotic diseases, or zoonoses, are diseases shared between animals - including livestock, wildlife, and pets - and people. They are commonly spread where people and animals interact with each other in their shared environment. Zoonotic diseases can be foodborne, waterborne, or vector-borne, or transmitted through direct contact with animals, or indirectly by fomites or environmental contamination. They pose serious risks to both animal and human health and may have far-reaching impacts on economies and livelihoods.

Zoonotic disease threats include:

- zoonotic disease events and emergencies
- endemic zoonotic diseases
- new or emerging zoonotic diseases.

Taking a multisectoral, One Health approach means that all relevant sectors and disciplines across the human-animal-environment interface are involved to address health in a way that is more effective, efficient, or sustainable than might be achieved if not all relevant sectors were engaged. WHO led the revision of the tripartite zoonosis guide in collaboration with OIE and FAO, and many other partners.

PREVENTION in 2018

ELIMINATE YELLOW FEVER STRATEGY

- 61 million people vaccinated in 24 African countries

ENDING CHOLERA ROADMAP

- 20.8 million doses of oral cholera vaccine shipped to 10 countries

EBOLA

- 60 000 high-risk people vaccinated during response operations in the Democratic Republic of the Congo
- 13 500 GeneXpert samples tested

GLOBAL INFLUENZA

- 500 million people are estimated to have been vaccinated around the world
- 400 million doses of pandemic vaccine secured through the Pandemic Influenza Preparedness (PIP) Framework

EMERGENCY VACCINATION

- 16 million doses of vaccines deployed through the WHO International Coordinating Group on Vaccine Provision mechanism

TRANSFER OF KNOWLEDGE

- 100 000 subscribers to OpenWHO learning platform
- 16 000 downloads of the Managing Epidemics handbook

WHO has specific strategies to address some infectious hazards, such as cholera, influenza and yellow fever. However, there are other high-threat pathogens for which there are no medical countermeasures.

Emerging and re-emerging epidemic diseases and health hazards pose an ongoing threat to global health security, and the list of infectious hazards is growing.

In 2018, WHO made significant progress in fostering research and information sharing for high-threat hazard prevention and control. Expert technical networks and advisory groups from various fields were developed and coordinated to provide guidance, driving knowledge development and developing new countermeasures or updating existing ones with the latest technological advances.



Global expert networks for coordinated sharing of expertise and knowledge

These networks or centers of expertise are action-oriented but also function as think tanks, bringing together the latest expertise and institutional knowledge to identify innovative solutions to tackle pandemics and epidemics, treat patients, manage so-called infodemics (damaging “epidemics” of rumors during outbreaks) and ensure the rapid identification of diseases. These experts have the knowledge to analyze and assess the challenges and identify the appropriate evidence-based actions by consensus. Another important role of these expert networks is to address equitable access and benefit sharing.

Flagship expert networks

The Emerging Diseases Clinical Assessment and Response Network (EDCARN) defines standards of care -- clinical standards and standard operating procedures, for example -- and deploys clinical experts during health emergencies to help partners to rapidly implement the defined standards of care on the frontline. EDCARN also links frontline

health workers, global clinical experts and researchers to provide technical expertise to detect and treat emerging infectious diseases. The work of EDCARN, in particular its policies and strategies on standards of care, also contributes to the work of the WHO research and development blueprint. In 2018, there were significant improvements in clinical care during the Ebola outbreak, including a paradigm shift from isolation to care, and randomized control trials with new drugs during the North Kivu outbreak.

The Global Laboratories Alliance for the Diagnosis of High-Threat Pathogens (GLAD-HP)

Is a global network to enhance sharing and characterization of emerging viruses. Through this collaboration, WHO is able to successfully characterize and share high-threat pathogens to inform the response to emerging diseases outbreaks, and in line with international agreements such as the IHR (2005) the Nagoya Protocol (that defines requirements for access and benefit sharing, thereby providing a more structured framework for sharing pathogens).

Priority diseases and pathogens for research and development

- Crimean-Congo haemorrhagic fever
- Ebola virus disease and Marburg virus disease
- Lassa fever
- Middle East respiratory syndrome coronavirus and Severe Acute Respiratory Syndrome
- Nipah and henipaviral diseases
- Rift Valley fever
- Zika
- Unknown diseases (Disease X).

In 2018 WHO finalized the research agenda for MERS-CoV, Zika virus disease, influenza and smallpox. Research agendas are being developed for Crimean-Congo haemorrhagic fever

and plans have been developed for Ebola virus disease, Nipah virus infection, Marburg virus disease and Lassa fever. Today there are no vaccines or treatment for most emerging diseases. A very important part of WHO's work with global expert networks is the Research and Development Blueprint (R&D Blueprint), a global strategy and preparedness plan that triggers the rapid activation of research and development activities during outbreaks. This includes fast-track development of effective diagnostic tests, vaccines and medicines that can save lives and prevent the spread of large-scale epidemics. The Blueprint has allowed the introduction of four new therapeutic drugs for case management and large-scale vaccination against Ebola in the Democratic Republic of the Congo. More than 80 000 people at high-risk of infection have been vaccinated. Under the scope of the R&D Blueprint strategy, WHO has developed a special tool for determining which diseases and pathogens to prioritize for research and development in public health emergency contexts. This tool seeks to identify those diseases that pose a public health risk because of their epidemic potential and for which there are no, or insufficient, countermeasures. The diseases identified through this process are the focus of the work of R&D Blueprint. This is not an exhaustive list, nor does it indicate the most likely causes of the next epidemic.



Driving innovation: The R&D Blueprint

The WHO R&D Blueprint initiative was created in the wake of the 2014-15 Ebola outbreak to allow the fast-tracking of research and development for tests, vaccines, and medicines that can be used to help avert a large-scale crisis during an epidemic.

In May 2018, this work supported the deployment of an Ebola vaccine in the Democratic Republic of the Congo. Called rVSV-ZEBOV, the vaccine had been earlier trialed in Guinea in late 2015, where results showed it was highly effective and sufficiently safe to be used during outbreaks. In total, more than 3300 people in Equateur Province were vaccinated against the disease.

Ebola therapeutics and drugs in Democratic Republic of the Congo

In November 2018 a randomized control trial to evaluate the effectiveness and safety of drugs used in the treatment of Ebola patients was launched in the Democratic Republic of the

Congo. This was the first multi-drug trial for an Ebola treatment. It will form part of a multi-outbreak, multi-country study that was agreed to by partners under a WHO initiative.

“Our country is struck with Ebola outbreaks too often, which also means we have unique expertise in combating it,” said Dr Olly Ilunga, Minister of Health of the Democratic Republic of the Congo. “These trials will contribute to building that knowledge, while we continue to respond on every front to bring the current outbreak to an end.”

Improving response through technology: rapid, onsite Ebola testing

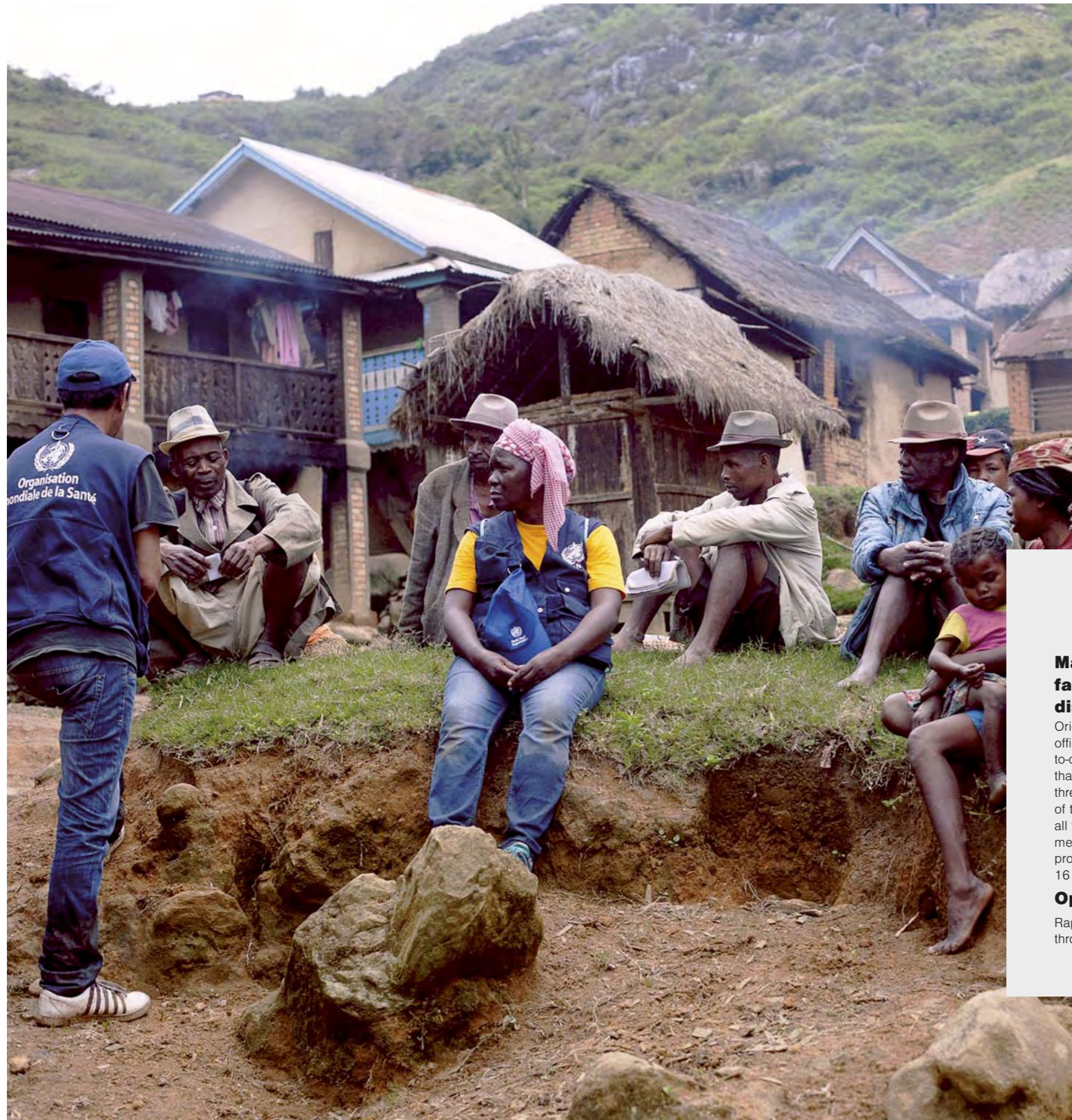
During the Ebola outbreaks in the Democratic Republic of the Congo in 2018, a new type of testing technology - GeneXpert - was used to augment the diagnostic capacity of the limited health facilities in the country. More than 13 500 samples were tested using GeneXpert resulting in quicker diagnosis, follow-up and improved patient outcomes.

Traditionally during an outbreak, getting a blood sample tested for Ebola and then returning the result to a patient could take days or even an entire week; in the absence of sufficient laboratory capacity locally, samples have typically been sent to highly secure labs to be PCR tested by specialized experts, far from the location of the outbreak. This procedure wasted precious time for the patient, but it also meant that the undetected virus could continue to spread.

This practice changed dramatically for the better with the arrival of a rapid genetic test for Ebola Zaire known as the Xpert Ebola test - developed

during the 2014-2016 Ebola outbreak in West Africa. The test uses the GeneXpert machine, which produces results in hours instead of days, allowing the rapid initiation of patient care and appropriate containment measures.

GeneXpert machines, which are widely used in Africa for specific endemic diseases (such as hepatitis, HIV, sexually transmitted diseases and tuberculosis) can perform Ebola tests in under two hours. This test, run on an automated PCR platform, can be safely implemented in provisional laboratories established near patient care settings, is much simpler to use than conventional PCR, and can be operated by locally-trained staff. Used in the Democratic Republic of the Congo initially during the Ebola outbreak in Equateur Province, the Institut National de Recherche Biomédical and WHO agreed to base the diagnostic strategy in North Kivu on Xpert Ebola testing. With this strategy, laboratories have been able to move with the outbreak, with new labs being set up within 48 hours.



Risk communication and community engagement

This is a process of evidence-based recommendations to implement effective social sciences interventions during epidemics of high-threat pathogens. Communicating effectively about epidemic risk and engaging communities during deadly epidemics (such as Ebola) is a critical component of a health emergency response. It builds trust and enhances partnership and ownership of communities in epidemic responses.

There is increasing demand for WHO to provide technical guidance in identifying and framing critical social science interventions that should be incorporated into risk communication and community engagement strategies at the global, regional and national levels. In 2018, WHO worked with The United Nations International Children's Emergency Fund, The International Federation of Red Cross and Red Crescent

Societies and universities to create a social science platform, and write and publish the first-time ever Communicating Risk in Public Health Emergencies: A WHO Guideline for Emergency Risk Communication Policy and Practice.

Risk communication and community engagement preparedness and readiness framework: Ebola response in North Kivu

Risk communications and community engagement is an essential part of any disease outbreak response. Risk communication in the context of the Ebola outbreak refers to real time exchange of information, opinion and advice between frontline responders and people who are faced with the threat of Ebola to the survival, health economic or social wellbeing.

TRANSFER OF KNOWLEDGE

Managing epidemics: Key facts about major deadly diseases

Originally developed as guidance for WHO officials, this manual provides concise and up-to-date knowledge on 15 infectious diseases that have the potential to become international threats, and tips on how to respond to each of them. Available to a wide readership including all frontline responders -- communities, government officials, non-State actors and public health profession, it has been downloaded more than 16 000 times since its publication in May 2018.

OpenWHO learning platform

Rapid transfer of knowledge was provided through the OpenWHO online platform,

with more than 85 000 subscribers, 18 knowledge packs and 56 courses, as well as other products in digital and other formats.

WHO Strategic and Technical Advisory Group for Infectious Hazards

STAG-IH is a global advisory group of 13 members who provide independent recommendations to WHO on infectious hazards that may pose a potential threat to global health security, and scientific advice on issues related to the Pandemic Emergency Financing Facility (PEF) and the Global Preparedness Monitoring Board (GPMB). In 2018, the group provided advice on strategies to contain the two Ebola outbreaks in the Democratic Republic of the Congo.

Preparing for health emergencies

ASSESSMENTS FOR ACTION

In 2018:

- 187 countries submitted IHR (2005) annual reports
- 24 voluntary Joint External Evaluations were carried out
- 31 simulation exercises were conducted
- 28 national action plans were developed
- 18 after action reviews were carried out
- 11 IHR-public veterinary sector bridging workshops were held

Speeding up readiness to respond

Strengthening emergency capacities helps public health systems handle the initial impact of emergencies, as well as subsequent recovery. This work is carried out over the long-term and is complemented by improving operational readiness, which identifies risks with the highest likelihood so that targeted responses can be prepared. Many countries currently lack the minimum capacities necessary to rapidly detect and respond to known vulnerabilities and likely events.

Working in close collaboration with regional and country offices, WHO provides country-level support for the development and implementation of health emergency preparedness, operational readiness and health emergency disaster risk management policies and programmes with a focus on the most vulnerable countries that have minimal health capacities.

Under the scope of the Sendai Framework for Disaster Risk Reduction, WHO regional and country offices support Member States to develop and implement comprehensive plans and programmes for national health security, emergency preparedness and health emergency and disaster risk management.

READINESS in 2018

41 risk profiling workshops were conducted in the African region

83% of high-risk countries in the Index for Risk Management have interagency preparedness plans in place



Typhoon Ompong in the Philippines

Known internationally as Mangkhut, the typhoon that made landfall on 15 September 2018 with winds topping 250 kilometres an hour, caused storm surges, flash floods and landslides.

The typhoon brought back memories of one of the strongest tropical cyclones ever recorded that also struck the Philippines: Super Typhoon Yolanda. Known internationally as Haiyan, the storm ripped through the central Philippines in 2013, killing 6300 people and injuring 28 000 more. Damages totaled more than US\$ 2 billion, including more than 2000 health facilities that were damaged or destroyed. This time, better readiness meant a quick and effective response in the Philippines. With support from WHO, the Department of Health had 17 national emergency medical teams trained and ready to be deployed when the typhoon hit.

A simulation exercise conducted seven months earlier, in close collaboration with the three levels of WHO, allowed the Department of Health to test large-scale emergency coordination mechanisms based on a 7.2 earthquake in Manila and neighbouring provinces. This included coordination between national and international emergency medical teams through the Emergency Medical Teams Coordination Cell.

The Department of Health reacted swiftly to Typhoon Ompong, activating emergency disease surveillance and immediately deploying staff, medicines and supplies to the region. While 156 health facilities sustained damage in the storm, they all remained operational, providing life-saving care when needed most. Generators kept vaccine refrigerators running during power outages, so that children could continue to receive the protection of immunization.



Operational Readiness

Operational readiness aims to ensure that Member States, WHO and partners are ready to respond to signals of health risks and imminent, high-priority risks. In 2018, key areas of work included:

- serving as secretariat for the WHO Global Operational Readiness Task Team, in coordination with WHO Regional Offices and relevant programmes at WHO headquarters, to provide technical guidance, support acute events management and readiness during response (e.g., fragile, vulnerable and conflict-affected settings, emergency operation centres, emergency medical teams, early warning);
- developing operational readiness frameworks, guidance and training packages, risk profiles including high-risk hazards scenarios, contingency planning, early warning and early action from the country to the region to the global level and business continuity planning for WHO offices;
- coordinating operational readiness functions in the headquarters incident management team for the two Ebola

outbreaks in the Democratic Republic of the Congo since May 2018 and for the cholera outbreak in Zimbabwe since September 2018;

- supporting the operational readiness of the four countries neighboring the Democratic Republic of Congo deemed high-risk for the spread of Ebola (Burundi, Rwanda, South Sudan and Uganda), through improving border surveillance, contact tracing, and training vaccination teams.

“It is absolutely vital that we are prepared for any potential case of Ebola spreading beyond the Democratic Republic of the Congo,” said Dr Matshidiso Moeti, WHO Regional Director for Africa. “WHO is investing a huge amount of resources into preventing Ebola from spreading and helping governments ramp up their readiness to respond, should any country have a positive case of Ebola.”

Uganda steps up readiness for Ebola virus disease

The ongoing Ebola virus disease outbreak in the Democratic Republic of Congo has led to intensified cross-border collaboration among East African countries on disease surveillance and emergency preparedness. North Kivu, the epicenter of the outbreak, is close to Uganda’s border to the West, with a lot of cross-border movements.

WHO conducted a risk assessment and identified 22 at-risk districts. The Uganda Ministry of Health and partners rapidly implemented Ebola preparedness and readiness activities

to prevent the disease from crossing into Uganda, and to ensure early detection of the disease, should it be imported. The activities included coordinating the preparedness activities; strengthening surveillance, contact tracing, laboratory diagnostics, infection prevention and control; and clinical management of patients, including psychosocial care. Safe and dignified burials, enhanced risk communication and community engagement, and cross-border surveillance are also part of the activities.



National rapid response team trainings and training of trainers

The national rapid response teams training was launched in 2014 to support the 2014-2016 Ebola response in West Africa. Since then, this training programme has become an integral part of the health security learning initiative. Several Member States of the WHO African Region have cascaded training at national and subnational levels, using the training packages available on the Health Security Learning Platform (HSLP): All-hazards Rapid Response Team Training Package and Ebola Virus Disease Rapid Response Team training package. The WHO Eastern Mediterranean Region is also using the training packages to run regional trainings with technical and financial support from headquarters. For example, all-hazard training in Pakistan took place from 26 to 30 November 2018, followed by provincial level trainings in Pakistan in December 2018.

Support to Ebola virus disease national rapid response team trainings

As part of Ebola readiness, WHO surrounded the affected areas and delivered national rapid response training to six at-risk countries in the African Region with a total of 423 participants from 35 African countries.

Assessing and reporting all-hazards emergency capacities in countries

Outbreaks of infectious diseases, natural and technological disasters, and conflict have highlighted that the world remains vulnerable to health emergencies that can have a global impact. Significant gaps remain in the capacity of many countries to manage all-hazards health emergencies and disaster risks. Ensuring that core public health capacities for emergency preparedness and risk management are in place is critical. The resilience of national systems to emergencies depends on strong health systems, which is why the Secretariat and partners support countries not only to respond quickly to manage crises and prevent international spread of outbreaks, but also support efforts to strengthen national capacities and health systems before a crisis occurs.

WHO works closely with countries and partners to monitor and report on their emergency preparedness capacities for all hazards. This includes preparedness for traditional health security risks such as infectious diseases, contaminated food and water, and environmental hazards. This also includes the increasing risks of chemical and radio-nuclear disasters, zoonotic diseases that are transmitted from animals to humans, antimicrobial resistance (AMR), mass gatherings, re-emergence and changing patterns of known diseases due to climate change, biosafety and biosecurity.

This work is founded on the 2005 International Health Regulations (IHR), the legal framework endorsed by 196 WHO Member States and territories, in which countries have jointly agreed to a set of procedures to prepare and respond to public health threats.

A critical part of the IHR compliance is strengthening and maintaining core public health capacities, as well as monitoring and evaluation of these capacities. This is part of a cyclical process of planning, implementing and assessing designed to help countries improve their capacities for prevention, detection and response by looking at the functionality of the systems in place, and identifying concrete measures to strengthen these based on lessons learned and after-action reviews. This cycle ensures the results of country capacity assessments are constantly analyzed against the actual outcomes of acute public health events and the context of the changing risks that countries face.

In 2015, the WHO Secretariat, along with States Parties, initiated the development of monitoring and evaluation approaches, focusing on national core capacities that were consolidated, as a whole, in the IHR Monitoring and Evaluation Framework. The goal was to satisfactorily ensure mutual accountability among States Parties, while building trust and appreciation of the public health benefits resulting from the adoption of a common set of rules inspired by dialogue and transparency.



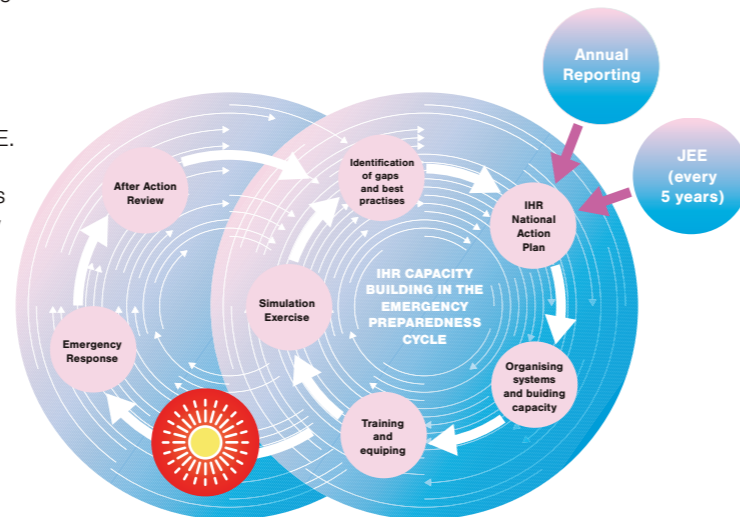
The revised IHR (2005) States Parties Annual Reporting Tool (SPAR)

Under the IHR (2005), WHO Member States committed to report on the status of their national capacities to prepare, prevent, detect and respond to health emergencies. Significant progress has been made in the last few years on the form and frequency of monitoring and reporting using a range of both qualitative and quantitative measures, including self-assessments, Joint External Evaluation, after action reviews and simulation exercises. In 2017, WHO revised the IHR annual reporting tool, known as the States Parties Annual Reporting tool (SPAR), to more closely align it with the Joint External Evaluation process (carried out on a voluntary basis), thus making it easier for countries to assess and report progress. In 2018, 180 countries reported to WHO on their national capacities to prepare, prevent, detect and respond to emergencies using the new reporting tool.

Joint External Evaluation

A Joint External Evaluation (JEE) is a voluntary, multisectoral process to assess country capabilities to prevent, detect and rapidly respond to public health risks, whether arising naturally or from deliberate or accidental events. The JEE helps countries identify the most critical gaps within their human and animal health systems in order to prioritize opportunities for enhanced preparedness and response. In 2018, 24 countries in the six WHO regions requested that a Joint External Evaluation be carried out. Since 2016, 91 countries have completed a JEE. These assessments are carried out with the support of health experts drawn from around the world. Joint External Evaluations are a critical component to strengthening global health security and IHR core capacities. This voluntary monitoring tool supports country leadership, multi-sectoral coordination, and collective partner engagement. After almost three years of JEE implementation, WHO has standardized the process, while developing specialized guidance for countries in conflict, small island developing nations, and countries with overseas territories and federated states. To support capacity strengthening at the country level, WHO is using the large volume of data generated from the JEEs to identify existing gaps and

actions to address them, and to build country capacity to prevent, detect and respond to public health emergencies. Korea's response to the 2018 Middle East Respiratory Syndrome (MERS) outbreak is an example of the successful application of findings from the JEE.



Republic of Korea: fighting MERS through health system strengthening

On 8 September, a case of Middle East Respiratory Syndrome (MERS) was confirmed in the Republic of Korea: a 61-year-old Korean man who had recently returned from a business trip to Kuwait. MERS is a viral respiratory disease that kills more than one out of three people it infects. The case brought back nightmares of the 2015 outbreak in the Republic of Korea that infected 186 and killed 39 people, affected more than 70 health care facilities, and cost the country an estimated US\$ 8 billion. This time was different. The Republic of Korea had made significant improvements in its health system, so that outbreaks like MERS could be quickly identified and contained. Following recommendations from WHO based on technical missions to the Republic of Korea in 2015 during the outbreak, and from the Joint External Evaluation carried out in 2017 which identified priority areas for systems strengthening, the Republic of Korea improved its health worker training, disease surveillance, infection prevention and control procedures, laboratory systems, and interagency communications. When the new case arrived in 2018,

Republic of Korea was able to respond promptly and keep the disease from spreading. "I've never seen such dramatic changes in a health system before," said Dr Maria Van Kerkhove, a senior scientist from the high-threat pathogens unit in the WHO Health Emergencies Programme, who was part of the WHO missions during the MERS outbreak in 2015 and Joint External Evaluation delegation in 2017. "The system was changed to address the gaps that were identified during the evaluation, and the new case was quickly identified and immediately isolated preventing any onward transmission." "The important lesson for all Member States is this: the point of entry for infectious diseases is not a physical border or an airport. The real point of entry is your hospital room. It's where a patient who develops a severe disease first seeks medical attention. Early recognition, prompt isolation and good infection, prevention and control measures in your health care facilities make a huge difference in how the rest of the event will unfold," said Dr Van Kerkhove.

Simulation exercise puts global pandemic readiness to the test

A simulation for a global pandemic response involving more than 40 countries took place in December 2018, coordinated by the WHO's Global Emergency Operations Centre (EOC) and by the EOC Network, a global network of health emergency operations centres. This was the first global pandemic response training exercise of its type, and the third in a series of simulations conducted this year, following regional exercises in Jordan and Senegal.

National and regional EOCs from around the world took part in the interactive scenario, which revolved around a virtual outbreak of influenza with pandemic potential on the fictional island nation of Mizzou, located off the coast of North America.

"The exercise offered participants a way to test their plans and capabilities in a realistic environment to gain in-depth experience that can best be achieved by practice," said Dr Michael J. Ryan, Assistant Director-General for Emergency Preparedness and Response. Evaluators drawn from Africa, Asia, Europe and North America watched how the participating EOCs performed in real time, measuring performance against what is expected from existing procedures. Gaps and areas for opportunity were identified that will ultimately help improve Member States' readiness to respond jointly and effectively to a global public health emergency.

This type of global training was the first of its kind and may serve as a model because it was efficient, low-cost, and tested a complex scenario using real employees working in their actual work environments.

Simulation exercises

Simulation exercises are training and quality assurance tools which provide an evidence-based assessment for the monitoring, testing and strengthening of functional capacities to respond to emergencies at all levels (national, regional, community and global). Exercises are not one-time events, but should be undertaken as part of a carefully designed programme focused on a strategic objective.

These voluntary functional exercises complement annual reporting and JEEs and help countries to test the functionality and interoperability of their preparedness, prevention, detection and response capabilities.

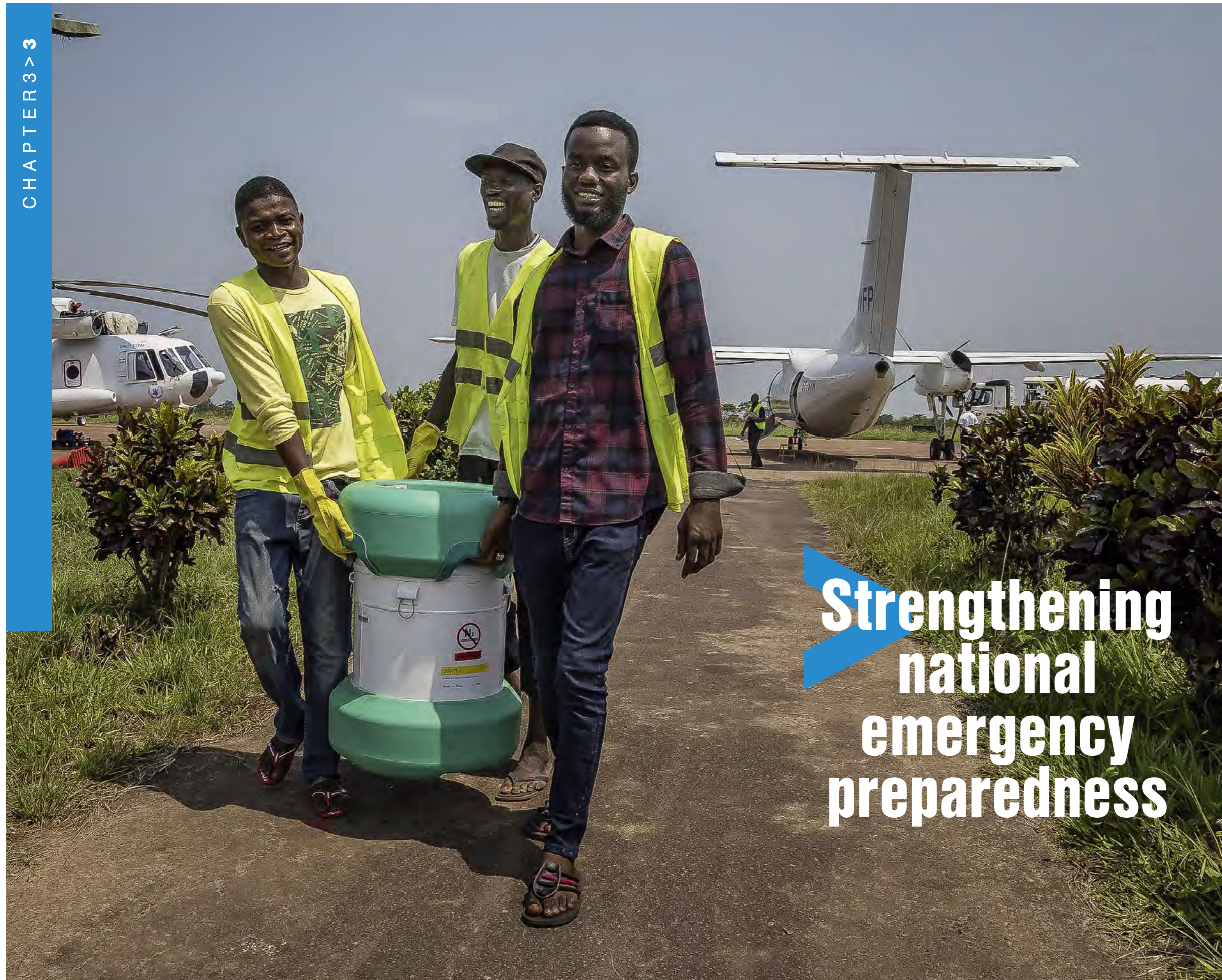


After action reviews

An after action review (AAR) is a qualitative review of actions taken to respond to an emergency as a means of identifying best practices, gaps and lessons learned. Following an emergency response to an emergency or outbreak, an AAR seeks to identify what worked well or not, and how these practices can be maintained, improved, institutionalized and shared with relevant stakeholders.

Plague in Madagascar

In 2017, Madagascar experienced an outbreak of plague, a disease that is endemic in the country. An in-depth after action review of its response identified weaknesses in national capacities for preparedness, prevention, detection and response and proposed concrete follow-up actions. The lessons learned from that review helped Madagascar mitigate the impact of the plague outbreak the following year.



Strengthening national emergency preparedness

At the core of emergency preparedness is a strong health system. A health system that can provide basic functions of primary care and has the trust of its citizens will be that much more resilient when a crisis strikes. This health security function is supported by the IHR (2005).

The framework includes functional capacities, such as laboratories, efficient national surveillance systems, national emergency plans, preparedness planning at points of entry, standard operating procedures, multi-sectoral cooperation, and risk communication.

WHO works with regions and countries to improve these capacities by developing guidance and tools, and delivering targeted training sessions to build a skilled health workforce.

National action plans for health security

WHO provides support for the development of national action plans for health security (NAPHS) to accelerate multisectoral implementation of the IHR (2005) core capacities following an all-hazards approach. In addition, WHO has facilitated the development of the five-pillar NAPHS Strategy 2020 strategy to standardize and accelerate health security planning and implementation. Key activities in 2018 included:

- finalization of the NAPHS Framework and Toolkit, development of trainings, and rolled out in the regions;
- development of a roster of trained NAPHS experts for planning, costing and monitoring and evaluation of NAPHS;
- facilitation of strategic partnerships to support the development and implementation.

At the time of writing this report, 45 countries had completed their NAPHS, 22 were under development, and five countries (Australia, Eritrea, Liberia, Myanmar, Sri Lanka, United Republic of Tanzania and the United States of America) have published their NAPHS on the Strategic Partnerships Portal for the IHR (2005) and Health Security.

Nigeria launches National Action Plan

The Ebola outbreak that struck Nigeria in 2014 raised awareness of the need to have strong coordination mechanisms at all levels to prevent the disease from spreading within and outside the country. While its health system was able to quickly contain the outbreak, the highly populous country faces a plethora of health challenges.

In 2017, Nigeria conducted a Joint External Evaluation, which revealed many critical gaps that needed to be in place in the next major health emergency. The results of the JEE have helped to guide the national action plans for health security planning process and to develop a roadmap for health security strengthening. Implementation of the recommendations is underway to ensure a strong immunization system and workforce development programme, safe supplies of food and water, health workers kept safe from infection, and systems for early warning and response for routine outbreaks and epidemics.



Bringing funding partners and countries together to build public health capacities: The Strategic Partnership Portal

The Strategic Partnership Portal for the IHR (2005) and Health Security (SPH) is a web-based platform for Member States, donors and partners. The data on country health emergency preparedness are placed within the IHR (2005) monitoring and evaluation framework. This is used for information sharing and to align initiatives. Since its inception in 2015, the SPH portal has contributed to IHR (2005) implementation through a collective, coherent, synergistic approach among Member States, partners and donors. To date, SPH has monitored and tracked more than 1900 partners' and donors' activities and investments across the globe and 960 global experts profiles. With more than 2100 subscribers, the SPH portal is accessed daily by 180 countries with an average of 380 daily sessions.

Building country capacity: South Sudan conducts its first diagnostic test for Ebola

South Sudan successfully conducted its first laboratory test for Ebola using the emergency management and laboratory infrastructure developed with support from WHO as part of emergency preparedness. The Joint External Evaluation for South Sudan, conducted in 2017, made a number of recommendations to fill the gaps in the country's laboratory capacity and ability to fulfill the core competencies of the International Health Regulations (IHR) 2005. South Sudan took concrete steps to implement the recommendations and in 2018, was able to successfully carry out its first ever Ebola diagnostic test.

Laboratory, biosafety and surveillance strengthening

WHO has provided support to Member States' laboratory and surveillance capacity strengthening efforts through the development and dissemination of technical guidance, materials and tools, and provision of technical assistance to vulnerable and fragile States. In 2018 activities focused on the improvement of specimen collection and transport in a safe and timely manner, access to quality assured laboratory diagnostic capacity in safe and secure facilities, and support to surveillance systems for the early detection of public health events.

In this context, WHO organized a series of technical global consultations to gather experts' views, develop guidance and/or share best practices on various topics: such as the safe shipping of infectious substances, the development of national biosafety regulatory frameworks or community-based surveillance. WHO also advanced the revision of the 4th edition of the Laboratory Manual, to be published in 2019.

A new on-line WHO course on laboratory quality system was developed in English and Russian and is available free of

charge for laboratory personnel on the WHO Health Security Learning Platform. Two regional laboratory bio-safety training sessions for trainers were organized in Nairobi, Kenya and Dakar, Senegal, in March 2018, with the participation of 46 participants from 39 African countries. Benin, Chad and South Sudan have already replicated the training at national level. This training series complements similar initiatives started in South East Asia in 2016 and the Eastern Mediterranean Region in 2017, with more than 840 laboratory personnel trained in 62 countries since 2016.

A new round of global proficiency-testing schemes was organized in 2018 to test reference laboratories' capacities to diagnose arboviruses infections. More than 110 laboratories have received a panel of specimens to be tested for dengue, chikungunya, Zika virus and yellow fever. Further analysis of the laboratory results will allow WHO to provide targeted technical assistance for laboratories showing deficiencies or weaknesses to detect these pathogens of public health importance.

WHO, along with its five partners (United States Centers for Disease Control, The Food and Agriculture Organization of the United Nations, World Organisation for Animal Health, the Association of Public Health Laboratories, and the European Centre for Disease Prevention and Control), is developing the Global Laboratory Leadership Programme (GLLP). This programme is a unique partnership initiative aiming at fostering and mentoring current and emerging laboratory leaders to build, strengthen and sustain national laboratory systems. A competency framework has been finalized for publication in early 2019, and the GLLP Learning Package is currently under development. Focused technical assistance to laboratory or surveillance strengthening activities has been provided throughout the year to priority countries such as Benin, Chad, the Democratic Republic of the Congo, South Sudan, Togo and Uganda.



Since its launch in 2012, 35 countries are being supported through WHO and the group of expert mentors trained by WHO to create and strengthen their own national EMTs.

Building a skilled workforce: the Emergency Medical Teams Initiative

The WHO Emergency Medical Teams (EMT) Initiative helps organizations and Member States build national capacities and stronger health systems so that countries have the ability to respond promptly when a disaster strikes or an outbreak flares. The more rapid the response, the better the outcome. That is why the EMT Initiative places such a strong focus on helping every country develop its own teams which can arrive where needed in the shortest time.

The objectives of the EMT initiative, which also includes an international EMT corps to respond to acute events around the world, are to build on global/regional coordination and partnerships, set standards, collect best practices, standard operating procedures and create a knowledge hub; implement capacity building and training; provide quality assurance, deliver response coordination and quality assurance in the field.

Health Security Learning Platform

In addition to face-to-face trainings, WHO's Health Security Learning Platform (HSLP) has been providing online self-learning packages since 2007 ranging from "Introduction to the IHR (2005)" the first online training, to surveillance, laboratory, management of health events at ports, airports and ground crossings, Joint external evaluations and simulation exercises, as well as IPC and disease-specific courses. New courses released in 2018 include: the Basics of One Health, and the recertification course Infectious Substances Shipment Training, Laboratory Quality Management System - - Basics, Simulation Exercise Management Training.

Strengthening surveillance at ports, airports and ground crossings

Globalization, urbanization, demographic growth, and increased mobility facilitate the national and global spread of infectious diseases. The IHR (2005) provide a framework to manage potential health risks associated with the international movement of people and goods. In addition, infected travelers can unintentionally spread diseases, so informing them through travel health medicine is important to prevent the further spread of infection and/or its introduction into a new region or country. WHO provides guidance, advice and technical support to countries to minimize the risks of spread, and advice for international travelers to keep them and their fellow travelers safe.

Sendai Framework for disaster risk reduction

WHO supports Member States in developing and implementing the wide range of capacities required to manage risks of emergencies associated with natural, biological, technological and societal hazards. It does this through prevention, preparedness, response and recovery measures and strengthening of health systems. Key areas of guidance and support include multisectoral disaster risk management and resilience, and the integration of universal health coverage and health security.

In 2018 WHO helped to implement the Sendai Framework by:

- contributing an in-depth report on disaster risk reduction, developed in consultation with the regional offices and relevant programmes at headquarters;
- integrating multi-hazard approaches to risk assessment, planning and coordination in the revisions to the IHR (2005) State Parties Annual Reporting Tool and Joint External Evaluation tool;
- improving links between health emergency preparedness and health systems strengthening through the establishment of a joint working group on universal health coverage and emergencies.

Total number of enrolments	4093
Total number of certificates	1505
New members	2198
Introduction to the IHR	
Enrolments	119
Certificates	427
Infectious Disease Surveillance and Response	
Enrolments	1761
Certificates	929
Ship Sanitation Certification	
Enrolments	171
Certificates	131
Laboratory Quality Management System	
Enrolments	822
Certificates	141
Joint External Evaluation	
Enrolments	95
Certificates	64
Simulation exercises	
Enrolments	86
Certificates	39
Event management at ports, airports and ground crossings	
Enrolments	179





International Day for Disaster Reduction: 13 October 2018

Investing in public health reduces the economic costs of disasters. Every year WHO joins with the global community in marking 13 October as the International Day for Disaster Risk Reduction to raise awareness of the importance of managing risks to people's health and well-being. The theme in 2018 was the Sustainable Development Goals and Disaster Risk Reduction: reducing the economic loss of disasters.

Helping hospitals prepare

Countries require capacities to effectively anticipate, respond to, and recover from the impacts of likely, imminent, emerging or current emergencies. Key areas of work include:

- Guidance and a toolkit to implement the global strategy for all-hazards emergency preparedness that covers epidemics, an influenza pandemic, natural hazards (including extreme events due to El Niño and climate change);
- Coordination of the Safe Hospitals Initiative as a global priority for action: technical guidance, advocacy, country support.

Hospitals complement and amplify the effectiveness of many other parts of the health system,

providing continuous availability of services for acute and complex conditions. Hospitals concentrate scarce resources within well-planned referral networks to respond efficiently to population health needs. They are an essential element of universal health coverage and will be critical to meeting the Sustainable Development Goals. In 2018, WHO coordinated the creation of a new WHO hospitals webpage to highlight the role of health care facilities in general, where 70% of the ministry of health's budget is invested annually. The need for safe and functional hospitals was one of the main agenda items of this year's International Search and Rescue Advisory Group Medical Working Group.



HEALTH
EMERGENCIES
programme

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