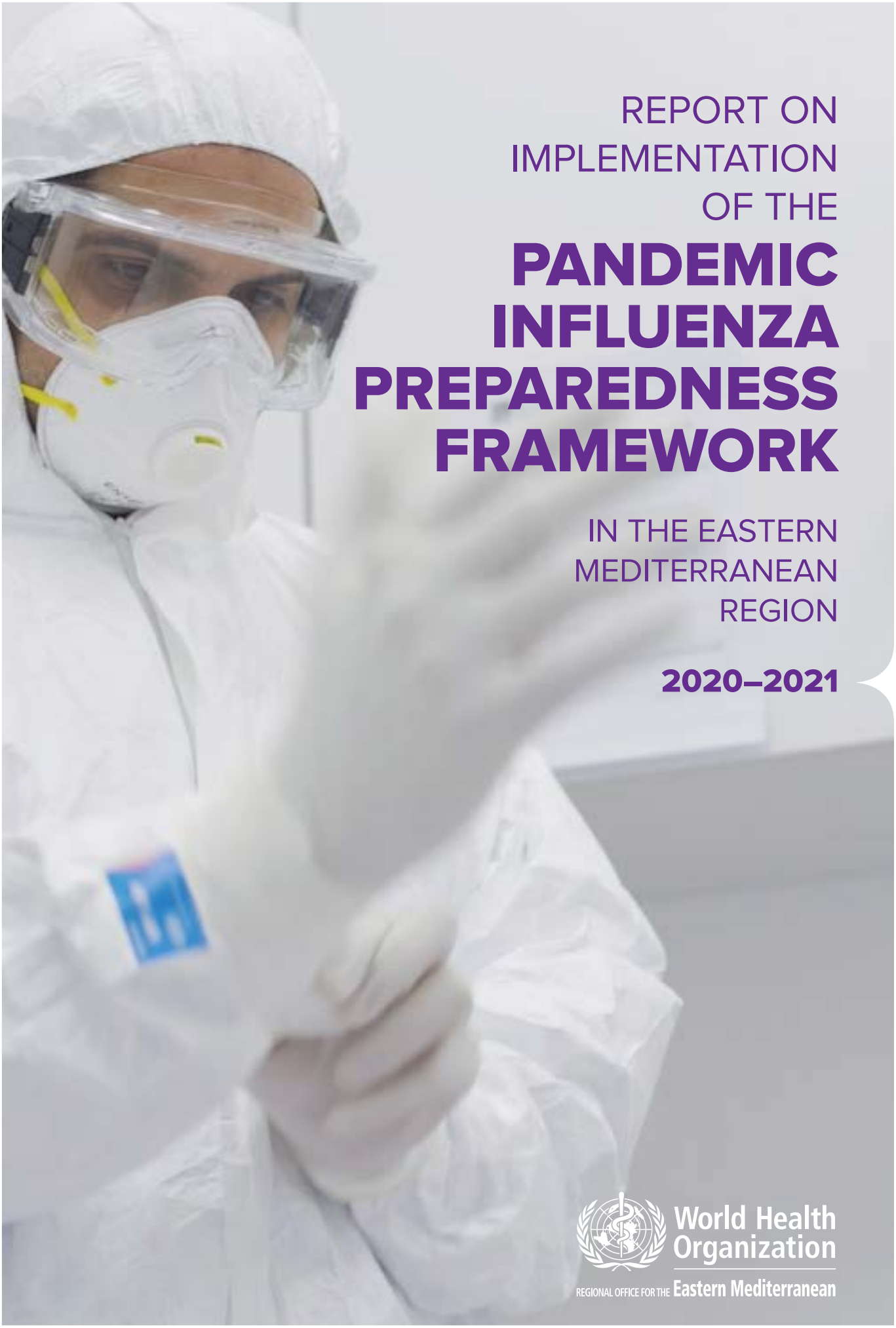
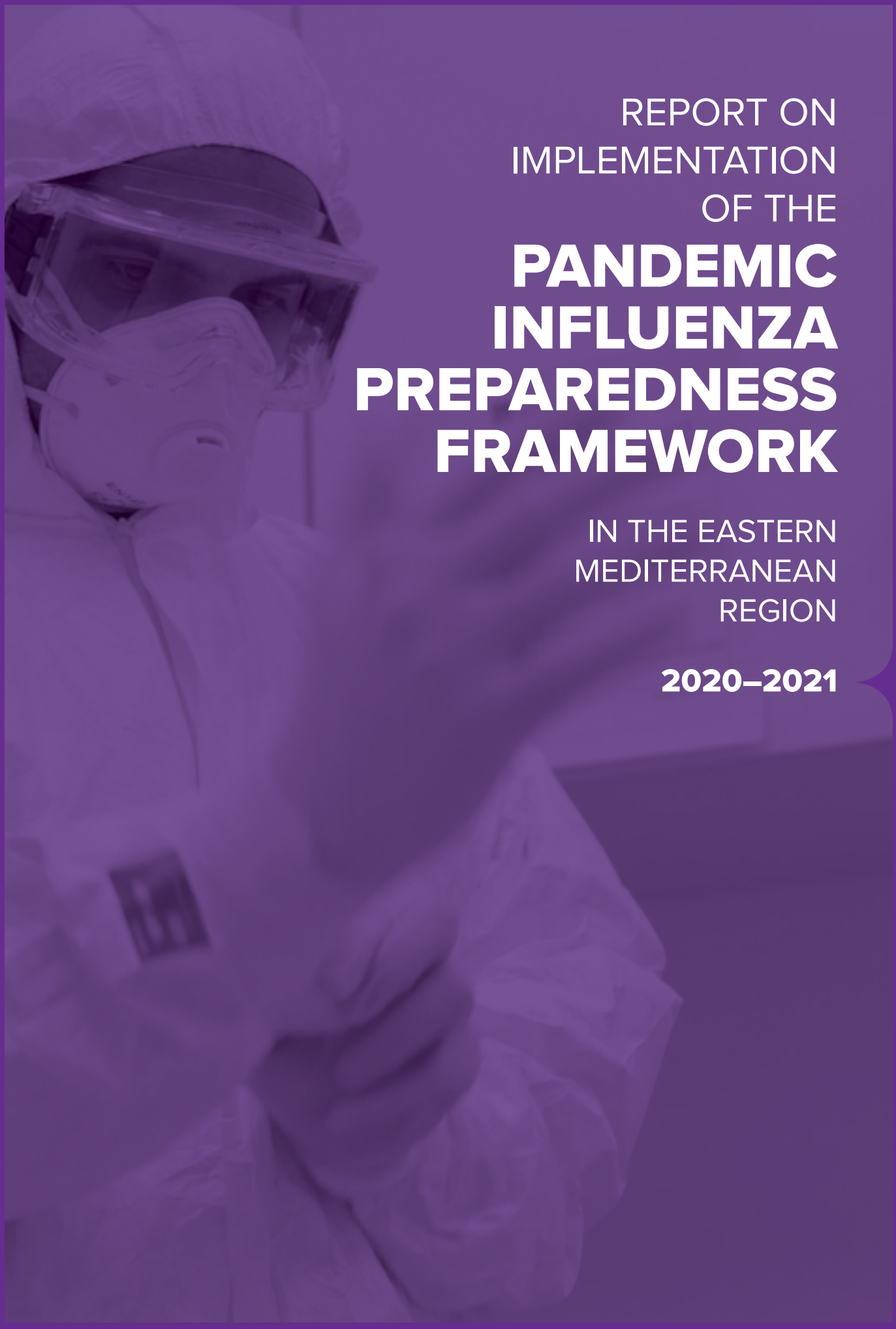


REPORT ON IMPLEMENTATION OF THE PANDEMIC INFLUENZA PREPAREDNESS FRAMEWORK

IN THE EASTERN MEDITERRANEAN REGION

2020–2021

World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean



REPORT ON IMPLEMENTATION OF THE PANDEMIC INFLUENZA PREPAREDNESS FRAMEWORK

IN THE EASTERN MEDITERRANEAN REGION

2020–2021

WHO Library Cataloguing in Publication Data

Names: World Health Organization. Regional Office for the Eastern Mediterranean

Title: Report on implementation of pandemic influenza preparedness framework: Eastern Mediterranean Region, 2020–2021 / World Health Organization. Regional Office for the Eastern Mediterranean

Description: Cairo: World Health Organization. Regional Office for the Eastern Mediterranean, [2022]

Identifier: ISBN 978-92-9021-007-8 (pbk.) | ISBN 978-92-9021-126-6 (online)

Subjects: Influenza, Human - prevention & control | Pandemics - prevention & control | Respiratory Tract Infections - prevention & control | Disaster Planning - organization & administration | COVID-19 - prevention & control | Betacoronavirus | Disease Outbreaks | Eastern Mediterranean Region

Classification: NLM WC 515

CONTENTS

ACRONYMS AND ABBREVIATIONS

eDEWS	Electronic Disease Early Warning System
EMARIS	Eastern Mediterranean Acute Respiratory Infection Surveillance
EQAP	External Quality Assessment Programme
EPI	Expanded Programme on Immunization
FAO	Food and Agriculture Organization of the United Nations
GISRS	Global Influenza Surveillance and Response System
ILI	Influenza-like illness
IPPP	Influenza pandemic preparedness plan
IVPP	Influenza viruses with pandemic potential
MERS-CoV	Middle East respiratory syndrome coronavirus
PIP	Pandemic Influenza Preparedness
PCR	Polymerase chain reaction
PISA	Pandemic influenza severity assessment
RCCE	Risk communication and community engagement
RRT	Rapid response team
SARI	Severe acute respiratory illness
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
SOPs	Standard operating procedures
WHA	World Health Assembly
WHO	World Health Organization
OIE	World Organisation for Animal Health

BACKGROUND

Influenza is a contagious and potentially life-threatening respiratory illness. When a new influenza virus emerges, it can lead to a pandemic, infecting large populations, with often devastating consequences. Although unpredictable and occurring infrequently, influenza pandemics have caused a large number of deaths and socioeconomic disruption in the past.

In 1918, the influenza pandemic infected one third of the global population and led to between 20 and 50 million deaths before it ended in 1920. In 1957, one million people around the world died in an influenza pandemic and another 1 to 3 million lives were lost to the same disease in 1968.[1] The 2003 outbreak of avian influenza A(H5N1) – a novel virus passing from animals to humans – put the world on high alert.

The 2009 A(H1N1)pdm09 pandemic spread to over 214 countries and territories, resulting in tens of millions of cases and an estimated 151 700 to 575 400 respiratory- and cardiovascular-associated deaths in just the first year, of which 9200 to 35 400 deaths were in WHO's Eastern Mediterranean Region.[2]

The COVID-19 pandemic has come as a stark reminder of the dangers of viral respiratory infectious diseases. Caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a novel respiratory pathogen, COVID-19 is the embodiment of the pandemic threat posed by respiratory viruses.

Following the 2009 H1N1 influenza pandemic and in light to the continuous threat of zoonotic influenza, countries in the Region have shown strong political commitment in expanding and strengthening strengthening pandemic preparedness capacity. With COVID-19, the need to build universal strong preparedness and response capacities for global health emergencies has become an even greater priority.

1 1918 Pandemic (H1N1 virus). In: Pandemic influenza [website]. Atlanta: Centers for Disease Control and Prevention; 2022 (https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html, accessed 24 July 2022).

2 2009 H1N1 Pandemic (H1N1pdm09 virus). In: Pandemic influenza [website]. Atlanta: Centers for Disease Control and Prevention; 2022 (2009 H1N1 Pandemic (H1N1pdm09 virus), accessed 24 July 2022).

Enhancing global preparedness for an equitable response to pandemic influenza

In 2011, WHO's World Health Assembly through resolution WHA64.5 adopted the Pandemic Influenza Preparedness (PIP) Framework, with the objective of improving preparedness and response for the next influenza pandemic. As a unique public-private partnership, the Framework has three major components: virus sharing, benefit sharing and governance.

The PIP Framework aims to make any international response to pandemic influenza rapid, flexible, effective and equitable. The first PIP Framework Partnership Contribution high-level implementation plan was implemented in 72 counties, 7 of which were in the Eastern Mediterranean Region. A final report on the progress made was published in 2018.[1] Building on progress made under the plan and to further guide investment priorities of the PIP Framework, a second implementation plan: High-Level Implementation Plan II (HLIP II) for the period of 2018–2023 was developed.

Funds from the PIP Partnership Contribution strengthen capacities in six critical areas of work: laboratory and surveillance capacity; knowledge of burden of disease; regulatory affairs capacity; planning for deployment of pandemic response supplies; and risk communication.

The specific goals for each area of work were developed in detail in the PIP Partnership Contribution Preparedness High-Level Implementation Plan II 2018–2023 and are presented Table 1 below.

Table 1. Areas of work and goals under the PIP Framework Partnership Contribution

Area of work	Goals
(Output 1) Laboratory and surveillance	Improve national ability to detect, monitor and share novel influenza viruses in six WHO's regions and through the use of global mechanisms managed at WHO headquarters
(Output 2) Burden of disease	Provide training and support for burden of influenza estimates that will contribute to the development of a global burden of the influenza estimate
(Output 3) Regulatory capacity building	Build national regulatory capacity so that vaccines, diagnostic tests and antiviral medicines for influenza can be deployed quickly
(Output 4) Risk communications and community engagement	Build national capacity to provide accurate public health information during emergencies
(Output 5) Planning for deployment	Plan for efficient and equitable deployment of vital supplies for pandemic influenza
(Output 6) Influenza pandemic preparedness planning	Develop/update national pandemic influenza preparedness and response plans in the context of all-hazards preparedness and global health security

Which countries are benefiting from PIP Framework Partnership Contribution funding?

Nine countries from the Region are recipient countries of the PIP Partnership Contribution: Afghanistan, Egypt, Iraq, Jordan, Lebanon, Morocco, Sudan, Syrian Arab Republic and Yemen.

These countries were selected based on their geographic distribution in influenza transmission zones, country development status and need to enhance influenza epidemiological and laboratory surveillance capacity.

1 Pandemic Influenza Preparedness Framework: Partnership Contribution High-Level Implementation Plan I. Final Report 2014–2017. Geneva: World Health Organization; 2018 (https://apps.who.int/iris/handle/10665/276211, accessed 19 February 2022).

IMPLEMENTATION OF THE PANDEMIC INFLUENZA PREPAREDNESS FRAMEWORK

Emergency amid emergencies in the Region: the PIP Framework presents opportunities and solutions

Influenza A viruses remain the circulating pathogens most likely to cause the next pandemic because of their propensity to antigenic shift that can result in the emergence of new influenza viruses with high human-to-human transmissibility. In addition, continuous antigenic drift may result in more virulent viral strains with potentially heightened immuno-escape, causing annual epidemics of varying intensity and severity. Each year, there are 3 to 5 million cases of influenza globally, and up to 650 000 deaths. The consequences of any potential influenza pandemic could be worse than the ongoing COVID-19 pandemic, and it is important to bear in mind that seasonal influenza is an annual occurrence and the next influenza pandemic could emerge at any time. Commitment to preparedness must be maintained and is a top priority for all Member States.

The COVID-19 pandemic has exposed fundamental weaknesses in health systems around the world and has exacerbated gaps in access to quality health care and services. The PIP Framework has been recognized globally for how it has provided Member States with the knowledge, plans and tools to respond to epidemics and pandemics. Support ranges from guidance on measures for surveillance, testing, and community engagement to offering a well-established platform and group of skilled experts who are rapidly deployed to respond to crises.

In the Eastern Mediterranean Region, support provided to the nine countries under the Framework was used to respond to the COVID-19 pandemic utilizing the capacities, assets, platforms and also the structural concepts, developed initially for the influenza response.

Restrictions on mobility due to COVID-19, as well as political instability in Afghanistan, Iraq, Syrian Arab Republic, Somalia and Yemen, economic challenges in Lebanon, or disease outbreaks in Sudan and Yemen, make both the implementation of the PIP workplan and responding to the COVID-19 pandemic very challenging.

Despite this, the majority of PIP-recipient funding distributed was utilized and countries were able to implement over 90% of their plans in the last biennium and respond to the pandemic.

Positive developments have included adopting the concept of integrating COVID-19 surveillance in national influenza sentinel surveillance systems, establishing new surveillance systems in countries such as Syrian Arab Republic and Somalia and establishing an influenza-like illness surveillance system in Lebanon. For the first time, Sudan was able to share viruses and genomic/epidemiological data through the Global Influenza Surveillance and Response System (GISRS), Jordan and Egypt began work to institutionalize the concept of the "One Health" approach and improve coordination though the animal-human interface to better prepare for future pandemics. The Syrian Arab Republic also developed its first influenza pandemic preparedness plan (IPPP) and four other countries are in the process of updating their plans.

Building capacity in virus/genomic sequencing began in countries both implementing the Framework and those not in a step to build national capacity to detect and identity circulating viruses, as well as the newly emerging viruses.

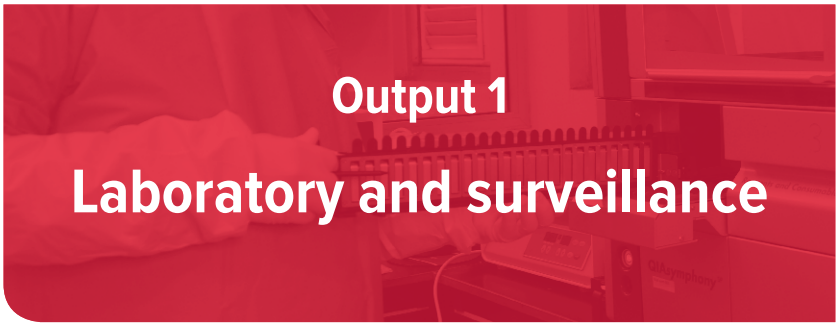
The number of influenza specimens tested and reported to WHO's FluNet/EMFLU from participating laboratories has increased again after interruptions to services as a result of the COVID-19 pandemic. EMFLU II was piloted in the Region to improve the quality and performance of influenza surveillance by collecting and analyzing severe acute respiratory illness (SARI) and influenza-like illness (ILI) sentinel data, according to specified case definitions for both virological and epidemiological surveillance data.

As we move towards improving/updating plans, it is important to build upon the achievements secured during the pandemic and to learn lessons and good practices from the COVID-19 experience to prepare for, and respond to, the next influenza and other respiratory viral pandemics. The COVID-19 pandemic has rapidly accelerated the emergence of new capabilities, technologies and research (especially in the areas of diagnostics, therapeutics, and vaccine production), improved collaboration and has led to the development of new policies, and investing in these areas is key to strengthening influenza preparedness and response plans.

MILESTONES 2020–2021

The WHO Regional Office for the Eastern Mediterranean has systematically implemented the PIP Framework in partnership with national partners. The US$ 2.6 million received from 2020 to 2021, enabled countries in the Region to invest in capacity strengthening for pandemic influenza preparedness. These capacities contributed to some of the earliest and continuing successes of the national, regional and global COVID-19 response.

The implementation of the PIP Framework has resulted in several significant advances in the global pandemic influenza preparedness landscape. The existing PIP-supported influenza infrastructure laid the foundations for COVID-19 response capacities.



Output 1
Laboratory and surveillance

BIENNIAL BUDGET: IMPLEMENTED

OUTPUT: National influenza Laboratory and surveillance systems contribute to GISRS for timely risk assessment and response measures

Deliverable A.

Risk and severity of influenza, including at the human-animal interface, are routinely assessed

Milestone 1. **Pandemic influenza severity assessment (PISA) training completed**

2 **2** Countries **29** People

2020	1	1	AFG
2021	1	1	JOR

Milestone 2. **Outbreak detection and response training completed (e.g. rapid response training) or operations of surveillance sites (e.g. training on sample collection, storage and shipment/transportation or meeting to assess influenza trends with the ministry of health)**

144 **8** Countries **3293** People

2020	124	7	AFG, EGY, JOR, LEB, MOR, SUD, SYR
2021	20	6	AFG, EGY, IRQ, LEB, YEM, SYR

Milestone 3. **Meetings, training, workshops, joint investigations or risk assessments conducted to strengthen human/animal interface**

6 **3** Countries

2020	3	2	LEB, EGY
2021	3	2	EGY, IRQ

19 out of 22 countries and territories in the Region have a functioning ILI and SARI surveillance system.

Despite the unstable political, security and economic situations in the Region, many PIP-supported countries have functioning influenza sentinel surveillance. Sudan and Syrian Arab Republic were able to establish influenza sentinel surveillance systems for the first time. Syrian Arab Republic formalized the first influenza national committee and Sudan shared influenza samples with a WHO collaborating centre for the first time.

Many activities took place to strengthen surveillance systems at national and subnational levels, as an example of that, a SARI/ILI epi and virological data management training in Yemen and a SARI/ILI and state laboratory assessment to expand influenza surveillance in South Darfur state in Sudan.

One PIP objective is to strengthen laboratory capacity. Six countries in the Region: Afghanistan, Iraq, Lebanon, Morocco, Syrian Arab Republic and Sudan procured materials to activate/expand new SARI sites to start sharing influenza data on the regional and global platform contributing to GISRS.

18 national influenza laboratories and four influenza centres, of which nine are in PIP-supported countries, are operational with the ability to detect and confirm unusual influenza viruses with human pandemic potential. The increase in number of GISRS institutions improves data representativeness and facilitates a timely and effective response to an influenza pandemic as more countries will be able to rapidly detect a novel influenza virus.

Deliverable B.

Quality influenza virus detection capacity is sustained

Milestone 1. **Laboratory training and technical support missions/visits provided to countries**

46 **8** Countries

2020	35	5	AFG, EGY, LEB, MOR, SUD
2021	8	6	AFG, IRQ, JOR, LEB, SUD, SYR

It is necessary to enhance genome sequencing for detecting, identifying, and understanding the evolution of newly emerging viruses. The PIP contribution supported the laboratory for influenza/ SARS-CoV-2 sequencing. In Morocco a meeting conducted to set national SOPs for routine collection of specimens for sequencing and in Lebanon, an operational and logistics/ transportation support plan developed for linkage of ILI/COVID-19-like illness network network to a local pathogenomics laboratory for routine sequencing of (COVID-19) specimens. So far, five out of the nine countries have capacity to conduct genomic surveillance.

Deliverable C.

Countries are supported to consistently report influenza data to global platforms

Milestone 1. **Regional influenza meetings (e.g. national influenza centre meetings) held to strengthen global influenza surveillance system**

6 **10** Countries

2020	4	9	AFG, EGY, IRQ, JOR, LEB, MOR, SUD, SYR, YEM
2021	2	10	AFG, EGY, IRQ, JOR, LEB, MOR, SUD, SOM, SYR, YEM

22 countries have national rapid response team (RTT) capacities, which have been strengthened and operationalized with the support of PIP contribution. In addition, 15 of 22 countries enhanced their subnational RRT capacities.

All PIP-supported countries organized webinars for RRTs on COVID-19 and other respiratory emerging diseases investigation and participants from Syrian Arab Republic and Sudan and other priority countries attended training sessions. In Jordan, training at subnational level was conducted to expand the RRT network and ensured the RRT was capacitated to conduct outbreak investigation of emerging respiratory epidemics.

Milestone 2. Technical support for surveillance provided to countries (for data management, data reporting, IT, etc.) and for bulletin development

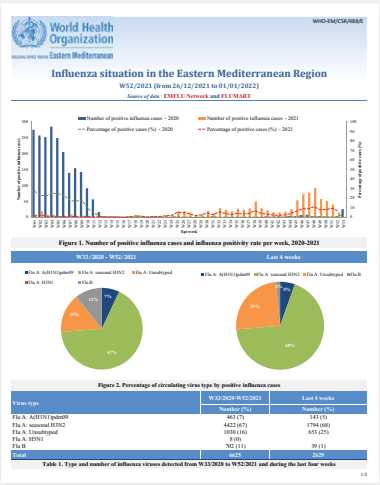
41 **9** Countries

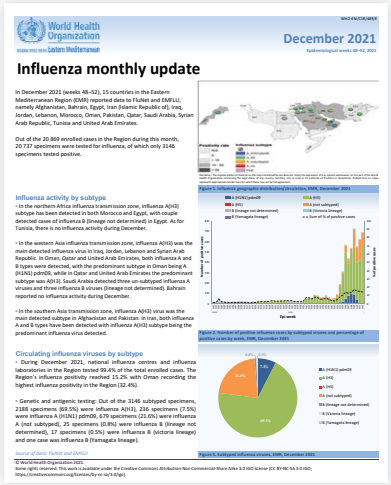
2020	5	3	SUD, JOR, MOR
2021	11	9	AFG, EGY, IRQ, JOR, LEB, MOR, SUD, SYR, YEM

Milestone 3. Regional bulletins published

21 bulletins[1]

2021





Protocols and guidance published

Morocco: Development of COVID-19 and influenza national surveillance and PISA national protocol

Somalia and Lebanon: Updated protocols and SOPs
The remaining PIP-supported countries with functional influenza sentinel surveillance systems are in the process of updating their protocols accordingly

Efforts were undertaken to enhance the capacity of Member States to submit timely quality data to GISRS in PIP-supported countries with a functional influenza sentinel surveillance system. Ongoing meetings with surveillance programmes at the ministries of health took place in Jordan and Yemen to discuss the quality timely sharing of data from sentinel sites.

The WHO Regional Office continued to provide technical support for the integration of data between the EMFLU Network platform and the global FluNet and FluID platforms based on the automatic synchronization of data. 18 countries now regularly report through the EMFLU Network, 16 countries report to FluNet and 12 to FluID.

EMFLU-II is a second version of EMFLU-1 (2016). EMFLU or Eastern Mediterranean Flu is a regional platform for sharing of epidemiological and virological data on influenza in the Region. It also complements WHO databases of FLuID and FLuNET. The tool is intended to provide useful information for informed decision-making regarding influenza prevention and control strategies.

The number of influenza specimens tested and reported to FluNet or EMFLU from participating national influenza centres or other laboratories increased from 19 329 in 2012 to 134 990 in 2019 but again decresed to 68 354 in 2020 and 20 745 in 2021 due to COVID-19.

Almost half of PIP-supported countries are sharing influenza viruses despite the political, health and economic challenges they are facing.

A EMARIS meeting was organized in 2021 to discuss and share surveillance and research findings for improving pandemic preparedness. EMARIS is a network of countries in the Region working together to strengthen and enhance influenza surveillance, improve the use of surveillance data for developing control programmes, and promote research on influenza and other respiratory viruses.

1 http://www.emro.who.int/health-topics/influenza/influenza-updates.html.

Output 4
Risk communications and community engagement

BIENNIAL BUDGET: IMPLEMENTED

OUTPUT: Tools and guidance are available for countries to enhance influenza risk communication and community engagement

Milestone 1. **Technical support provided to countries to plan and exercise influenza risk communication and community engagement**

4 **3** Countries

2020	1	1	YEM
2021	3	2	EGY, JOR

Countries	Number of people completed RCCE /influenza courses
Afghanistan	20
Egypt	1005
Iraq	222
Jordan	101
Lebanon	87
Morocco	117
Sudan	223
Yemen	217

Output 6
Influenza pandemic preparedness planning

BIENNIAL BUDGET: IMPLEMENTED

OUTPUT: National pandemic influenza preparedness and response plans are updated in the context of all-hazards preparedness and global health security

Milestone 1. **Influenza pandemic preparedness plan development/ revision stage in cycle**

In process	IRQ, SUD
Plan developed/revised	AFG, JOR, LEB, MOR, YEM
Endorsed	EGY, SYR

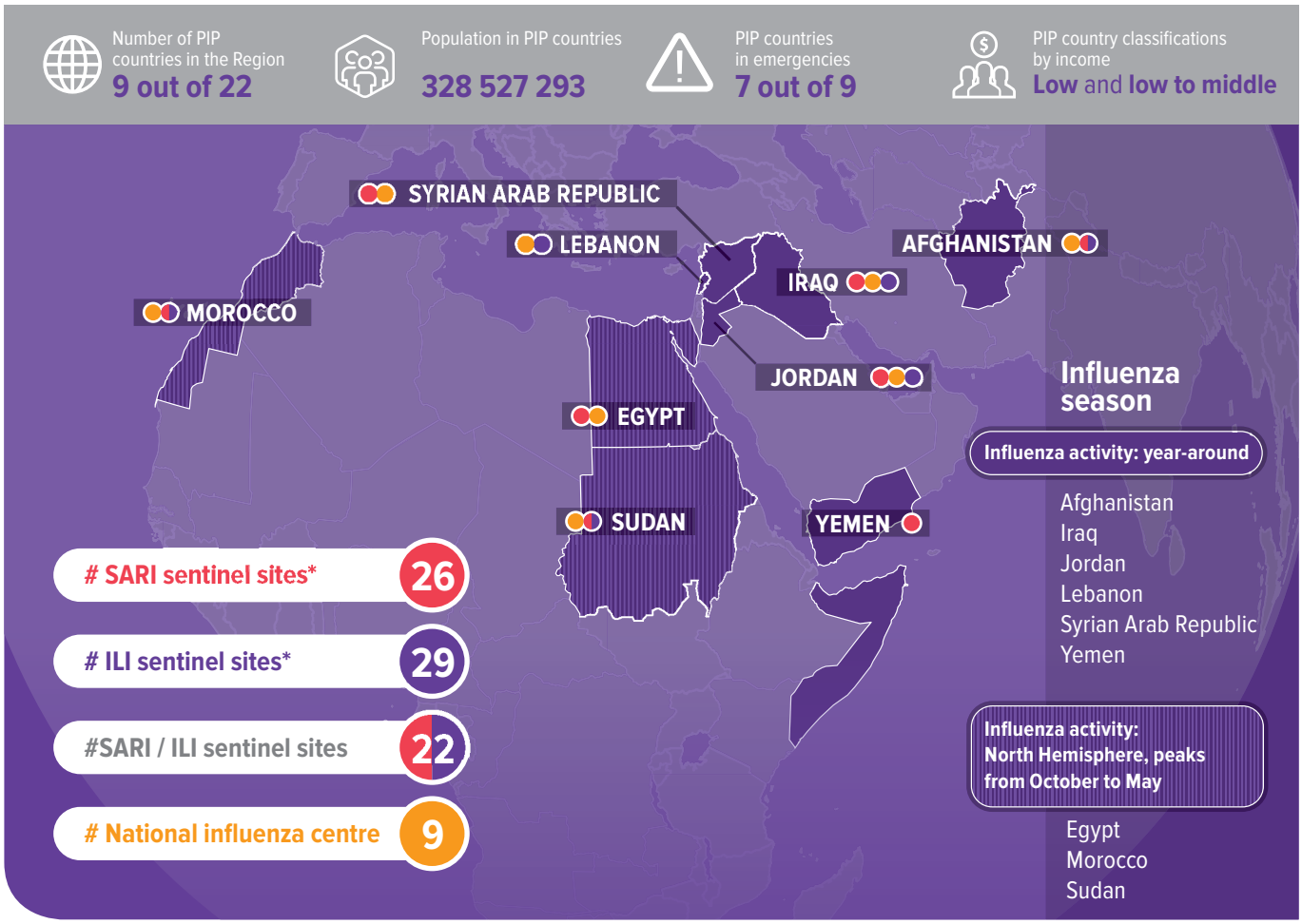
16 out of 22 countries reported having IPPPs.

Syrian Arab Republic developed a new IPPP, Lebanon and Jordan updated thier IPPP and Afghanistan, Egypt, Iraq are in process of updating their national plans based lessons being learned from the COVID-19 pandemic. During the previous months series of coordination meetings took place at country level to update the plan in collaboration with the national counterparts of each country.

Five out of the nine PIP priority countries reported using IPPPs as the basis of their COVID-19 response plan.

REGIONAL PROFILE 2020–2021

Pandemic influenza preparedness in the Eastern Mediterranean Region



* **SARI:** severe acute respiratory illness **ILI:** influenza-like illness **SARI / ILI sentinel site:** sites cover both SARI and ILI

PIP implementation in 2020–2021

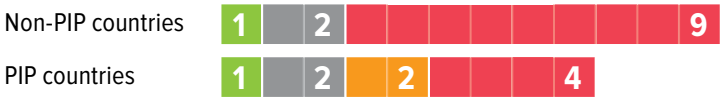
LABORATORY AND SURVEILLANCE (OUTPUT 1)

Sharing of influenza data

- Consistent and timely reporting
- Consistent reporting (but not timely)
- Inconsistent reporting
- No reporting

Number of countries reporting to FluNet (2021)

Number of countries reporting to FluID (2021)

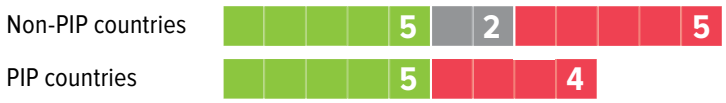


	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
% of PIP countries reporting to FluNet	71%	71%	86%	**78%**	**78%**	**86%**	**91%**
% of PIP countries reporting to FluID	43%	71%	71%	**56%**	**56%**	**71%**	**79%**

Country participation and scoring in the WHO PCR External Quality Assessment Programme (EQAP) for seasonal and non-seasonal influenza viruses

- Participated and 100% correct
- Participated but not 100% correct
- Did not participate

Country participation and scoring for non-seasonal EQAP (2021)

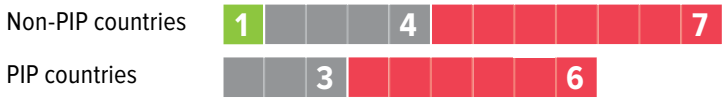


Country participation and scoring for seasonal EQAP (2021)

	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
% of countries that participated and were 100% correct for non-seasonal PCR EQAP	MR100%	86%	92%	**77%**	**83%**	**83%**	**83%**
% of countries states that participated and were 100% correct for seasonal PCR EQAP	MR100%	92%	100%	**85%**	**92%**	**92%**	**92%**

- 2 timely shipment(s) made
- Non-timely shipment(s) made
- No shipment made

Sharing of IVPPs with GISRS influenza viruses with pandemic potential (IVPPs) (Sept 2020–Aug 2021)



	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
% of Member States that have sent at least two timely shipments	19%	33%	38%	**29%**	**13%**	**N/A**	**N/A**

BURDEN OF DISEASE

	No or unknown	Before 2018	in 2018	in 2019	**in 2020**	**in 2021**
Estimates done or published	12	3	1	2	**1**	**0**

REGULATORY CAPACITY BUILDING

	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
# of countries that have implemented a defined regulatory approach that enables timely approval for use of pandemic influenza product	0	3	3	**3**	**3**	**N/A**	**N/A**
# of countries which strengthened national regulatory capacity to oversee pandemic influenza products as per WHO benchmarking and IDP implementation	0	0	0	**0**	**1**	**N/A**	**N/A**

RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

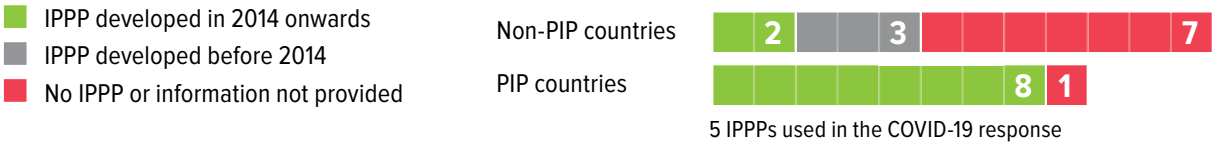
	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
# of countries that utilized RCCE support for influenza preparedness or response	0	4	5	**5**	**5**	**N/A**	**N/A**

PLANNING FOR DEPLOYMENT

	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
# of countries that have undergone a national analysis of influenza vaccine procurement or production sustainability	1	1		**1**	**1**	**N/A**	**N/A**

INFLUENZA PANDEMIC PREPAREDNESS PLANNING

Number of countries with a pandemic influenza preparedness plan (2021)



5 IPPPs used in the COVID-19 response

	Baseline 2017	2018 Results	2019 Results	**2020 Results**	**2021 Results**	**2021 Target**	**% of biennial target achieved**
% of PIP countries that developed or updated an IPPP since 2014 (revised indicator)	57%	86%	86%	**78%**	**89%**	**100%**	**89%**
% of PIP countries that exercised their IPPP in 2020-21 (revised indicator)	0%	29%	86%	**0%**	**0%**	**57%**	**0%**

Main achievements in 2020–2021

- A surveillance system established and activated in Syrian Arab Republic, Somalia and Lebanon.
- Sudan shared viruses and genomic data/epidemiological data through GISRS.
- Jordan and Egypt began work to institutionalize the concept of "One Health" and improve animal-human interface coordination to better prepare for future pandemics.
- Syrian Arab Republic also developed a IPPP for the first time while four other countries are in the process of updating theirs.
- Building the capacity on virus/genomic sequencing began in many PIP and non-PIP countries in a step to build national capacity to identity circulating viruses, measure the burden of disease and mitigate challenges arising from travel and shipping restrictions.
- EMFLU II launched in the Region to improve the quality and performance of influenza surveillance by collecting and analysing SARI data according to specified case definitions for both virological and epidemiological surveillance data.

Challenges

- Political instability, conflict and complex humanitarian emergencies. Many countries in the Region experience concurrent emergencies and fragile health systems. Seven out of the nine PIP countries are living in a major political or economic crisis.
- The high staff turnover at the Ministry of Health and the deployment of experienced staff to support the COVID-19 response hindered the implementation of planned activities.
- Operational obstacles in sharing viruses due to accessibility to courier services.

Priorities for 2022–2023

- Conduct national influenza landscape analyses, update the regional analysis, and link findings with national and regional public health policies and plans.
- Integrate sentinel surveillance for influenza and other respiratory viruses with epidemic and pandemic potential.
- Strengthen collaboration between human and animal health authorities.
- Improve shipping capacity of influenza virus specimens to WHO collaborating centres.

COUNTRY PROFILES 2020–2021

Population 39 269 174

Gross national income per capita: (Source: The World Bank,2020) US$ 508

Country classifications by income Low

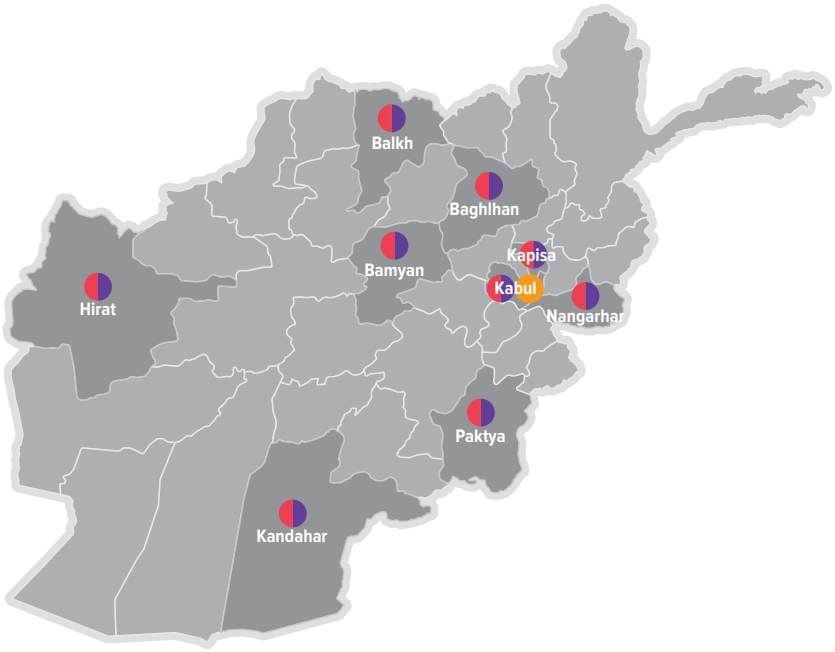
AFGHANISTAN

Pandemic influenza preparedness country profile

 # SARI and ILI sentinel sites: 9

Severe acute respiratory illness (SARI) Influenza-like illness (ILI)

 # National influenza centre: 1



Sharing of IVPPs with GISRS

Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data

(Timely and consistency)

FluID	Consistently and timely
FluNet	Consistently but not timely
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	No

IPPP used in the COVID-19 response

No

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year

External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

PIP work plan implementation on funds distributed

Funded	$ 339K
Expenditure	$ 309K
Implementation	91%

Main achievements in 2020–2021

- Sentinel sites served as a solid infrastructure for COVID-19 surveillance.
- Strengthened laboratory capacity (RT-PCR/virus isolation).
- Minimal disruption to sentinel influenza surveillance system in the country.

Challenges

- Delay in testing the SARI/ILI samples, as the national influenza centre is focused on COVID-19.
- Evaluation of the influenza surveillance has not yet implemented.

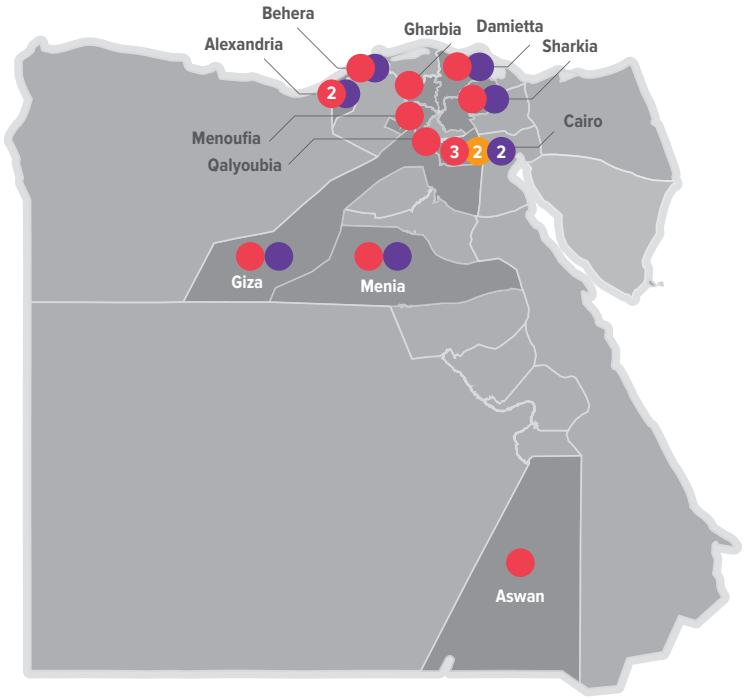
Priorities in 2022–2023

- Ensure WHO and partner support for continuation of the influenza programmes, particularly PIP.
- Sustain activities under the PIP support amid all the challenges.
- Improve influenza coordination with neighbouring countries.

EGYPT

Pandemic influenza preparedness country profile

# SARI sentinel sites: 14	# ILI sentinel sites: 9	# National influenza centre: 2
Severe acute respiratory illness (SARI)	Influenza-like illness (ILI)	



Sharing of IVPPs with GISRS

Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data

(Timely and consistency)

FluID	Consistently but not timely
FluNet	Consistently but not timely
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	Yes

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year

External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

Main achievements in 2020–2021

- Enhanced and adapted Egypt's acute respiratory infection surveillance systems to cover COVID-19 needs.
- The implementation of the national influenza pandemic preparedness plan proved effective in the COVID-19 early-stage epidemic containment, with high commitment from all partners to the predeveloped and agreed-upon preparedness plan.
- Conducted a joint risk assessment of highly pathogenic avian influenza at the human-animal-environment interface in Egypt in partnership with the tripartite organizations (WHO, FAO and OIE) using the "One Health" approach.

Challenges

- Timely sharing of influenza data to FluNET.
- Timely sharing of influenza samples with WHO collaborating centres.

Priorities in 2022–2023

- Conduct field visits to evaluate influenza sentinel sites after the COVID-19 pandemic.
- Organize training on gene sequencing.
- Organize RCCE training.
- Print and disseminate the national influenza pandemic preparedness plan.

PIP work plan implementation on funds distributed

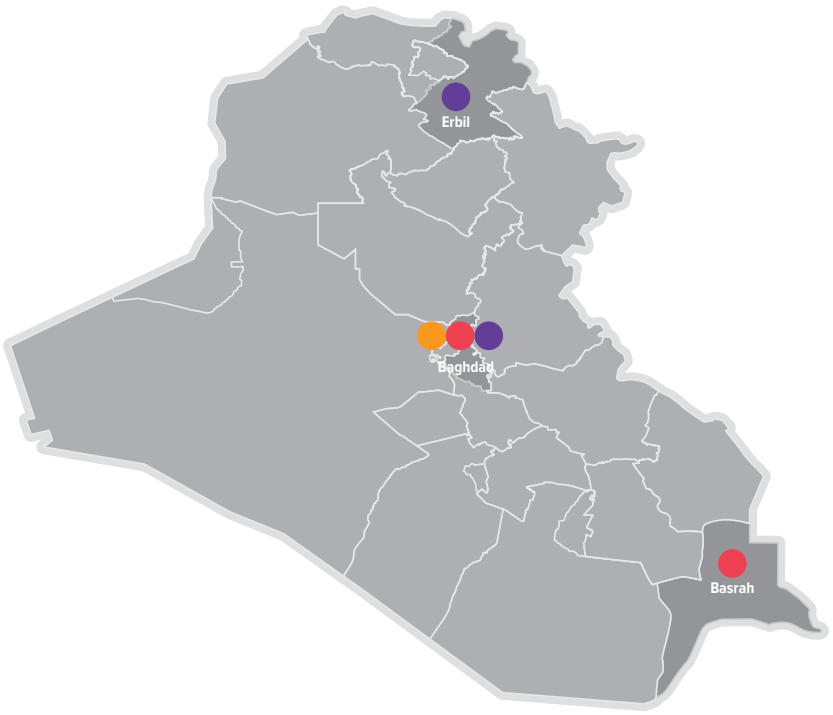
Funded	$ 208K
Expenditure	$ 207K
Implementation	90%

IRAQ

Pandemic influenza preparedness country profile

# SARI sentinel sites: 2	# ILI sentinel sites: 2	# National influenza centre: 1

Severe acute respiratory illness (SARI) — Influenza-like illness (ILI)



Sharing of IVPPs with GISRS

Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data

(Timely and consistency)

FluID	Not reporting
FluNet	Consistently but not timely
EMFLU	Not Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	No

IPPP used in the COVID-19 response

No

Country developed or updated an **influenza vaccination policy**

No

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year

External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

PIP work plan implementation on funds distributed

Funded	$ 154K
Expenditure	$ 142K
Implementation	66%

Main achievements in 2020–2021

- The EPI electronic data system used for data sharing and management between the sentinel sites and Ministry of Health.
- Passed in the EQAP panels for influenza and SARS-CoV-2.

Challenges

- Lack of resources to assure a periodic maintenance of laboratory instruments especially the real-time PCR systems and biological safety cabinets.
- Lack of local carrier to ship influenza viruses and /or clinical specimens timely on timely manner to WHO collaborating centres.

Priorities in 2022–2023

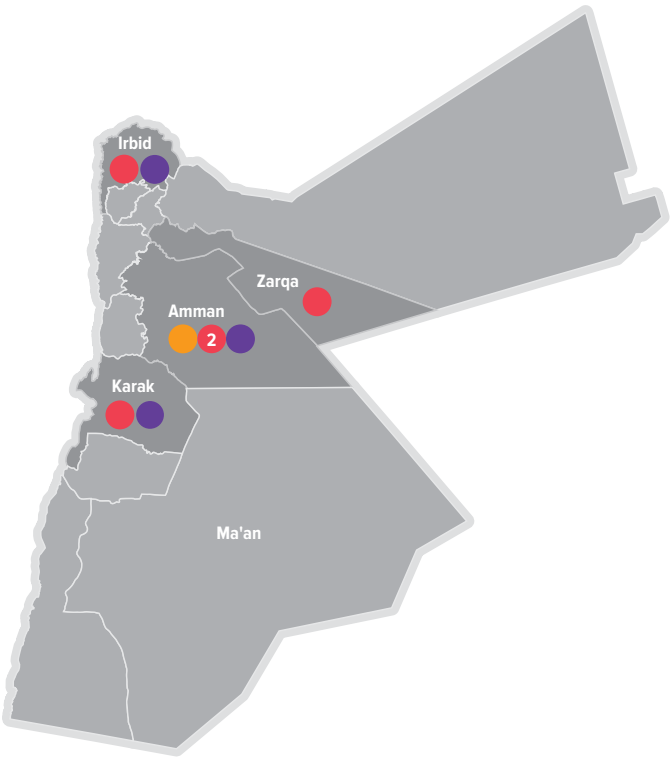
- Develop laboratory and surveillance capacity for: 1) surveillance for other non-influenza respiratory viruses like respiratory syncycial virus; and 2) reporting data through EMFLU.

JORDAN

Pandemic influenza preparedness country profile

# SARI sentinel sites: 5	# ILI sentinel sites: 3	# National influenza centre: 1

Severe acute respiratory illness (SARI) | Influenza-like illness (ILI)



Sharing of IVPPs with GISRS
Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data
(Timely and consistency)

FluID	Inconsistent/sporadic reporting
FluNet	Consistently but not timely
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	Yes

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year
External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

Main achievements in 2020–2021

- Integrated the ILI /COVID-19-like illness network sentinel surveillance with geographic representations across the country.
- Initiated the genomic sequencing at country level using sentinel surveillance as a source of specimens to detect circulation of SARS-CoV-2 variants.
- The national influenza centre has passed external quality assessment for respiratory syncytial virus.

Challenges

- Political and socioeconomic instability have severely impacted the health sector, including routine surveillance activities.
- The devaluation of the local currency has led to a severe drain in human resource capacities at central and peripheral levels.
- Shortages in basic and essential services such as availability of fuel and electricity which has intermittently paralyzed different processes, including focal point movement and specimen transportation.

Priorities in 2022–2023

- Organize PISA training to allow for prediction of severity of upcoming influenza seasons to optimize preparedness and response capacities.
- Expand the network of laboratories with standardized influenza testing.
- Organize simulation exercises at central and peripheral levels to optimize the preparedness mechanism building on the finalized preparedness plan for respiratory infections.

PIP work plan implementation on funds distributed

Funded	$ 237K
Expenditure	$ 233K
Implementation	74%

LEBANON

Pandemic influenza preparedness country profile

# SARI sentinel sites: 0	# ILI sentinel sites: 15	# National influenza centre: 1
Severe acute respiratory illness (SARI)	Influenza-like illness (ILI)	

Sharing of IVPPs with GISRS

Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data

(Timely and consistency)

FluID	Not reporting
FluNet	Consistently but not timely
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	Yes

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year

External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

PIP work plan implementation on funds distributed

Funded	$ 367K
Expenditure	$ 295K
Implementation	74%

Main achievements in 2020–2021

- Integrated the ILI and COVID-19-like illness sentinel surveillance with geographic representations across the country.
- Initiated the genomic sequencing at country level using sentinel surveillance as a source of specimens to detect circulation of SARS-CoV-2 variants.
- The national influenza centre has passed external quality assessment for respiratory syncytial virus.

Challenges

- The political and socioeconomic instability have severely impacted the health sector, including routine surveillance activities.
- The devaluation of the local currency has led to a severe drain in the human resource capacities at central and peripheral levels.
- Shortages in basic and essential services such as availability of fuel and electricity which has intermittently paralyzed different processes including focal point movement and specimen transportation.

Priorities in 2022–2023

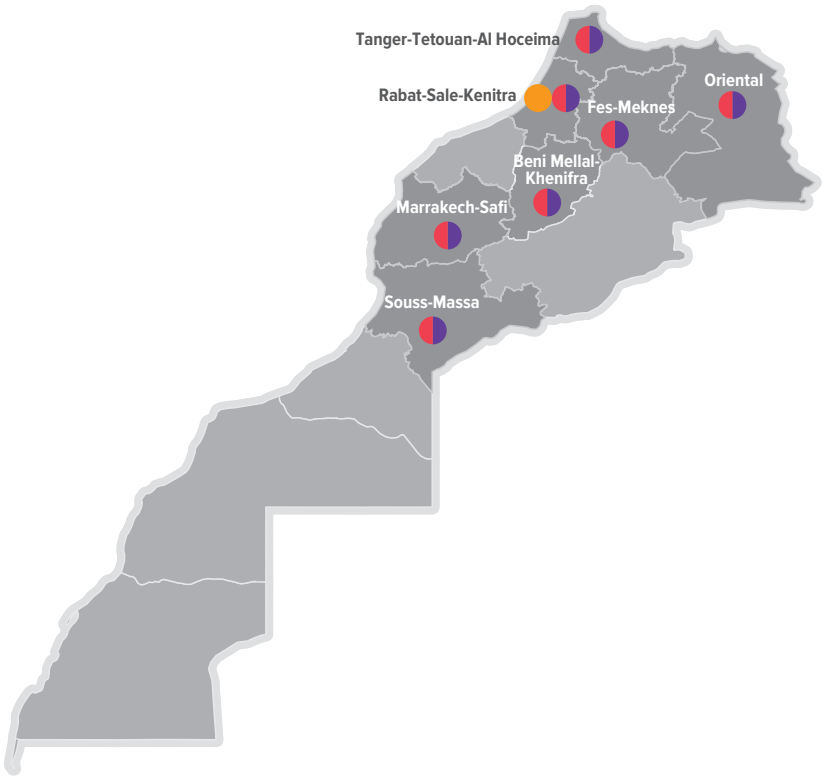
- Organize PISA training to allow for monitoring of severity of upcoming influenza seasons to optimize preparedness and response capacities.
- Expand the network of laboratories with standardized influenza testing.
- Organize simulation exercises at central and peripheral levels to optimize the preparedness mechanism building on the finalized preparedness plan for respiratory infections.

MOROCCO

Pandemic influenza preparedness country profile

 # SARI and ILI sentinel sites: 8 | **# National influenza centre: 1**

Severe acute respiratory illness (SARI) | Influenza-like illness (ILI)



Sharing of IVPPs with GISRS

Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data

(Timely and consistency)

FluID	Consistently but not timely
FluNet	Consistently but not timely
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP Yes

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year

External Quality Assessment Programme (EQAP)

Participated and 100% correct

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

PIP work plan implementation on funds distributed

Funded	$ 323K
Expenditure	$ 312K
Implementation	83%

Main achievements in 2020–2021

- Strengthened the epidemiological and virological surveillance in terms of Influenza/SARS-COV-2 sequencing capacities.
- Strengthened influenza/SARS-CoV 2 PCR diagnostic capacity in private and public laboratories at national level.
- Developed national continuity of services, human resources and vaccine deployment product plans in case of influenza pandemic.
- Ensure the revitalization of influenza surveillance after interruption of activity during the previous season due to the COVID-19 pandemic.

Challenges

- Resistance from some partners to implement PIP activities due to complication in payment modality (direct implementation instead of direct financial contribution).

Priorities in 2022–2023

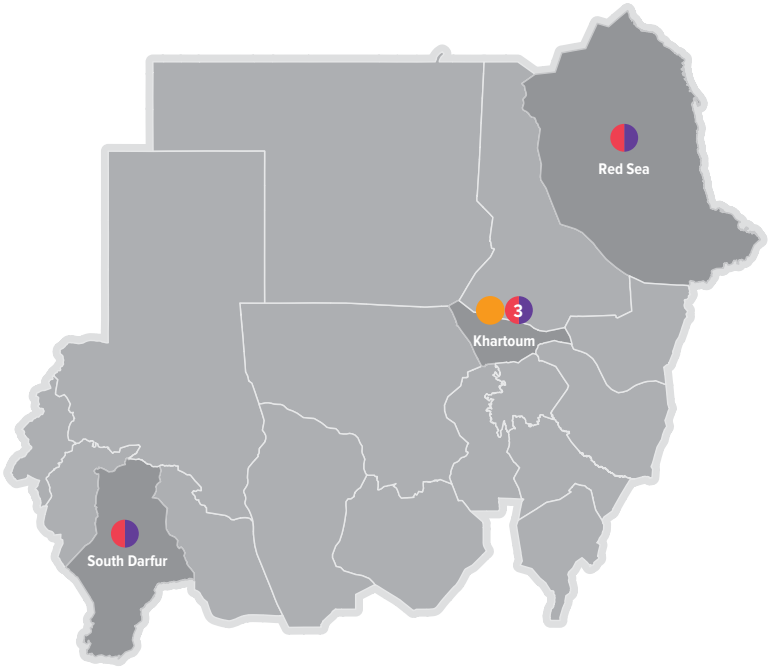
- Adapt the Global Influenza Surveillance and Response System to monitor influenza and SARS-CoV-2.
- Support the hands-on training and mentoring for laboratory technicians in the regional reference laboratory and those in the sentinel site.
- Train laboratory staff on multiplex qRT PCR (Flu-SARS-CoV2).
- Evaluate the seasonal influenza communication campaign.
- Conduct a simulation exercise to validate influenza national vaccine deployment plane and continuity of service plans.

SUDAN

Pandemic influenza preparedness country profile

 # SARI and ILI sentinel sites: 5 | **# National influenza centre: 1**

Severe acute respiratory illness (SARI) — Influenza-like illness (ILI)



Sharing of IVPPs with GISRS
Influenza viruses with pandemic potential (IVPPs)

No

Sharing of influenza data
(Timely and consistency)

FluID	Not shared
FluNet	Not shared
EMFLU	Not shared since 2019

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP	Currently in progress

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

No

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year
External Quality Assessment Programme (EQAP)

Did not participate

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

Main achievements in 2020–2021

- Expansion of PCR detection capacity in country from 1 to 46 laboratories.
- Ministry commitment to expand and renew activities in PIP.
- Proposed expansion of sentinel sites to include two sub-national states in the east and west.
- Designate a specific location inside the national public health laboratory for national influenza centre.

Challenges

- Political Instability.
- Very high turnover of Ministry of Health staff.
- Diversion of laboratory and human resources from PIP to address COVID-19.
- Shortages / delays in receipt of influenza reagents.
- Insufficient knowledge about the importance of PIP among health care workers.

Priorities in 2022–2023

- Updating of national SOPs and guidance, including PIPP, to account for COVID-19 differential diagnostics.
- Re-training of national sentinel site staff on ILI / SARI surveillance.
- Activation and reporting of influenza from five sentinel sites improving national representation and potential cross border / importation of ILI.
- Increase awareness among health care workers and the community about PIP and advocate for it.

PIP work plan implementation on funds distributed

Funded	$ 282K
Expenditure	$ 79K
Implementation	77K

Population 21 663 286

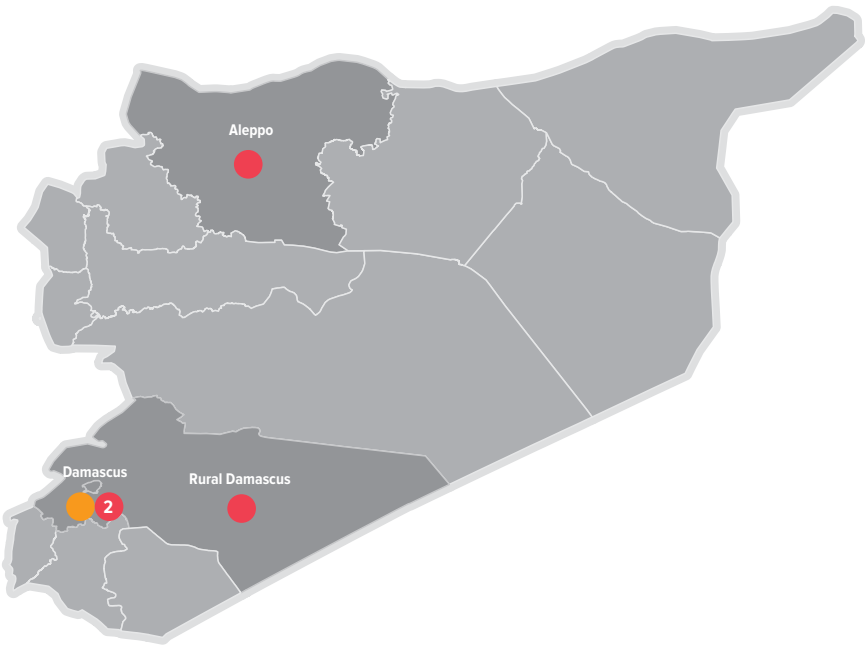
Gross national income per capita: (Source: The World Bank,2020) US$ 1170

Country classifications by income Low

SYRIAN ARAB REPUBLIC

Pandemic influenza preparedness country profile

# SARI sentinel sites: 4	# ILI sentinel sites: 0	# National influenza centre: 1
Severe acute respiratory illness (SARI)	Influenza-like illness (ILI)	



Sharing of IVPPs with GISRS
Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data
(Timely and consistency)

FluID	Inconsistent/sporadic reporting
FluNet	Inconsistent/sporadic reporting
EMFLU	Reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP Yes

IPPP used in the COVID-19 response

No

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year
External Quality Assessment Programme (EQAP)

Did not participate

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

Main achievements in 2020–2021

- Formalized a National Influenza Committee to develop the pandemic influenza preparedness plan and a detailed action plan for 2022.
- Activated a systematic SARI surveillance system in four sentinel hospitals (Aleppo, Rural Damascus, and Damascus).
- All SARI cases were tested for both influenza and COVID-19.
- Initiated laboratory testing at peripheral laboratories in two governorates (Aleppo and Rural Damascus).

Challenges

- Lack of qualified human resources due to high staff turnover rate and immigration of highly skilled personal.
- Insufficient and shortage of laboratory kits and supplies due to procurement challenges and sanctions.
- Unavailability of supplies in the local market and high inflation rate.

Priorities in 2022–2023

- Automatize the surveillance system and link it with laboratory data.
- Enhance the reporting system to improve the quality of surveillance and laboratory data and provide evidence-based data to guide decision-makers.
- Strengthen the Central Public Health Laboratory to be a reference influenza laboratory capable of conducting molecular typing, subtyping, serology, virus culture, and sequencing.
- Strengthen the RCCE profile by conducting capacity-building activities and developing a national plan.

PIP work plan implementation on funds distributed

Funded	$ 138K
Expenditure	$ 309K
Implementation	78%

Population 29 830 000 | Gross national income per capita: (Source: The World Bank,2020) US$ 910 | Country classifications by income Low

YEMEN

Pandemic influenza preparedness country profile

# SARI sentinel sites: 1	# ILI sentinel sites: 0	# National influenza centre: 0
Severe acute respiratory illness (SARI)	Influenza-like illness (ILI)	

Sharing of IVPPs with GISRS
Influenza viruses with pandemic potential (IVPPs)

Not shared

Sharing of influenza data
(Timely and consistency)

FluID	Not reporting
FluNet	Not reporting
EMFLU	Not reporting

Country developed or updated a national **Pandemic Influenza Preparedness Plan**

IPPP Yes

IPPP used in the COVID-19 response

Yes

Country developed or updated an **influenza vaccination policy**

Yes

Country **participated and reached full correctness** for seasonal and non-seasonal influenzas viruses in **WHO PCR EQAP** last year
External Quality Assessment Programme (EQAP)

Did not participate

Country implemented a defined **regulatory** approach that enables timely approval **for use of pandemic influenza products**

No

PIP work plan implementation on funds distributed

Funded	$ 79K
Expenditure	$ 309K
Implementation	93%

Main achievements in 2020–2021

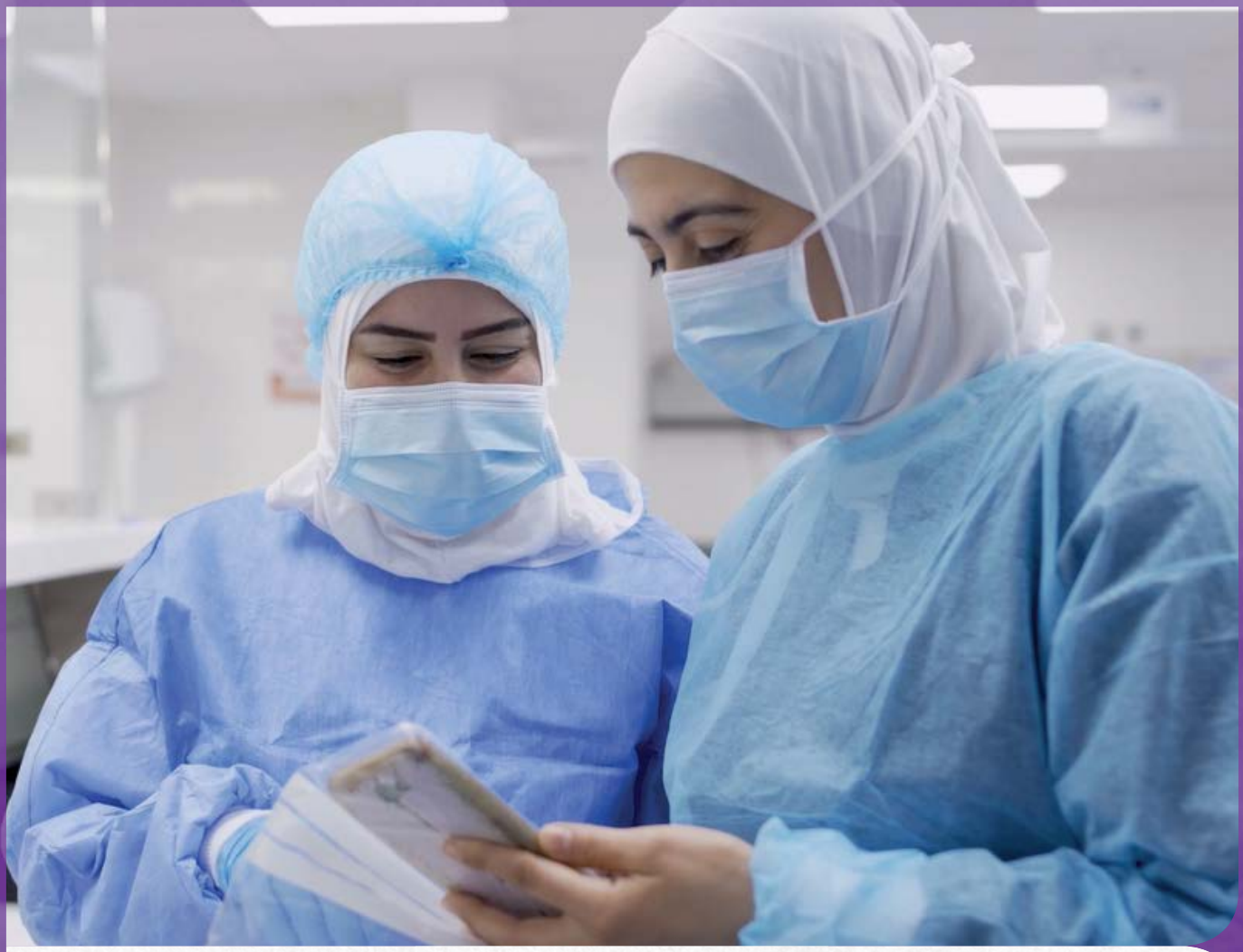
- The Ministry of Public Health demonstrated its commitment to adopt the concept of integrating the surveillance system for multiple respiratory viruses.
- Established eight PCR units for influenza and COVID-19 testing around the country in central public health laboratories (Sanaa, Aden, Taiz, Mukalla, Sayoun, Mareb, Hodiedah and Socotra).
- Improved laboratory capacity for testing.
- Upgraded SARI case reporting into eDEWS platform (immediate reporting 24-48 hours).

Challenges

- Lack of influenza reagents.
- Lack of motivation/incentives.
- The Ministry of Public Health in Sanaa did not share laboratory data.
- Political instability and war (two governments in one country).

Priorities in 2022–2023

- Reactivate influenzas sentinel sites, by updating SOPs and ensure full cover to all geographical areas of Yemen.
- Conduct PISA training.



FINANCIAL REPORT 2020–2021

Funds allocated under the PIP Framework Partnership Contribution aim to enhance pandemic influenza preparedness and response.

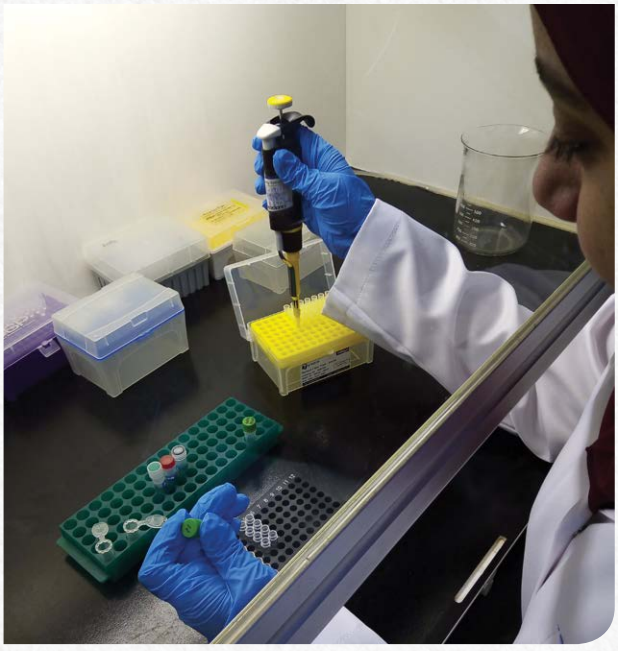
The PIP Framework Secretariat allocated a total of US$ 3 540 001 to the WHO Regional Office for the Eastern Mediterranean and countries of the Region in order to implement activities planned under Output 1 and 6, covering the period from 2020 to 2021.

Utilization and implementation of the PIP Framework funding

Biennial budget 2020–2021: US$ 3 540 001 Implemented: US$2 461 304 | 70% of approved allocation and 92% of fund distributed (COVID-19-related logistical and mobility restrictions decreased the implementation rate).

PIP financial implementation details for 2020–2021 biennium data as of 31 December 2021

Major Office / Budget Center	Planned budget 2020–21			Funding / Implementation			
	Approved Allocation (HR+ACT)	ACT Allocations	HR Allocations	Funds Distributed	Expenditure (ACT+HR)	% Impl. On Approved Allocation	% Impl. On Funds Distributed
EMR	**3 540 001**	**1 876 821**	**1 663 180**	**2 662 977**	**2 461 304**	**70%**	**92%**
EM/WHE	1 117 923	386 923	731 000	526 600	526 571	47%	100%
EM_AFG	339 148	223 648	115 500	339 148	309 143	91%	91%
EM_EGY	231 000	135 000	96 000	208 971	207 432	90%	99%
EM_IRQ	216 250	216 250	-	154 767	142 772	66%	92%
EM_JOR	317 000	202 500	114 500	237 782	233 085	74%	98%
EM_LEB	397 000	157 000	240 000	367 000	295 524	74%	81%
EM_MOR	378 180	201 000	177 180	323 433	312 052	83%	96%
EM_SUD	282 000	93 000	189 000	282 000	217 858	77%	77%
EM_SYR	176 500	176 500	-	138 276	137 511	78%	99%
EM_YEM	85 000	85 000	-	85 000	79 356	93%	93%



Notes:

The total approved allocation for 2020–21 was US$ 3.5 million of which 75% was funded during the biennium.

Funds distributed refers to funds available for 2020–2021 implementation at regional and country-level work plans.

Implementation achieved: 70% on approved allocations and 92% on funds distributed.

The part costs of PIP staff repurposed to the COVID-19 response back charged to COVID-19 awards accordingly.

SUSTAINABILITY AND CHALLENGES

As countries continue in their efforts to control the COVID-19 pandemic, scientists and stakeholders have warned that serious outbreaks of other viruses are inevitable and there is an urgent need to identify challenges and opportunities. There have been multiple pandemics and epidemics in the last century. During the last two years, COVID-19 has taught the world many lessons and has opened up the many opportunities that can be built upon in the coming years. A summary of the main sustainability elements needed is presented in the following section.

> "There have been multiple pandemics and epidemics in the last century. During the last two years, COVID-19 has taught the world many lessons and has opened up the many opportunities that can be built upon in the coming years."

Sustainability

Output 1: Laboratory and surveillance

- Influenza surveillance is part of national plans.
- Increasing country contributions are needed to reduce external financial support to maintain and expand sentinel site surveillance.
- Availability of surveillance tools (EMFLU).

Output 4: Risk communications and community engagement

- The field of risk communications and community engagement continues to rapidly develop, especially in light of the COVID-19 pandemic. The WHO Regional Office will continue to provide support to build national capacity in this area and expand understanding of newly emerging fields, such as social listening, message testing and infodemic management, along with the more traditional areas of engaging with communities, social media influencers and the media.

Output 6: National pandemic influenza preparedness and response planning

- Influenza pandemic preparedness planning is integrated in national preparedness and response plans.
- Increasing country contributions is needed to reduce external financial support to maintain and expand capacities.

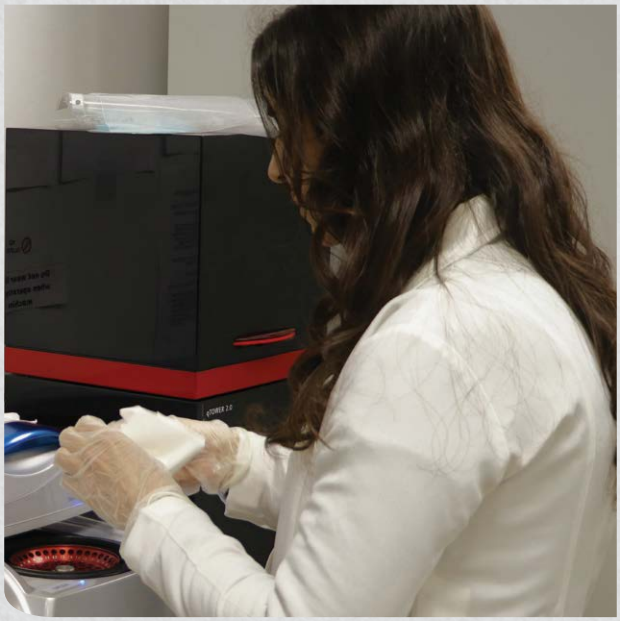
COVID-19 impact on PIP implementation

- Engagement of decision-making bodies for COVID-19 will lay the groundwork for further expanding engagement in influenza preparedness, thereby benefiting future policy on influenza disease prevention and mitigation strategies.
- Planning for COVID-19 vaccine allocation and deployment is serving as a real-world test for a future influenza pandemic. Lessons are being learnt on stakeholder coordination to define product allocation and ways of operationalizing country readiness in the midst of an emergency. This will help WHO to further refine tools and procedures for potential future influenza pandemics.
- The COVID-19 pandemic hindered the implementation of risk communications and community engagement activities with regards to PIP as all resources were redirected to address the pandemic. Nevertheless, the COVID-19 pandemic has also increased the interest and understanding of the importance of risk communications and community engagement, and has helped improve capacities in countries as compared to pre-pandemic levels. This will give the PIP Secretariat a good foundation from which to re-launch its activities moving forward.

Challenges

- Political instability, conflict and complex humanitarian emergencies. Many countries in the Region are facing ongoing emergencies and many have fragile health systems. Seven out of the nine PIP-supported countries are experiencing major political or economic crises.
- Competing priorities as a result of the COVID-19 pandemic and other emergencies at the policy level.
- Many countries have cancelled activities on influenza surveillance due to COVID-19 mobility-related restrictions, including travel bans, competing demand for diagnostic supplies, and the collapse of international supply chains, the Region rapidly increased its testing capacity; however, remote technical support is routinely provided through alternative means.
- High staff turnover at ministries of health and the deployment of experienced staff to support the COVID-19 response hindered the implementation of planned activities.
- Operational obstacles in sharing viruses due to accessibility to courier services.
- Risk communications and community engagement remain one of the underfunded and under-resourced technical areas in countries of the Region, which leaves preparedness lacking and response delayed to epidemic and pandemic events. Where resources are available, influenza remains low on authorities' list of priorities, which means that the development of messaging and engagement of communities about influenza falls behind when compared to other diseases in the Region. Advocating with health authorities has therefore become a high priority in order to build resources for risk communications and community engagement, but also to raise the awareness of surveillance teams in other areas on the importance of coordinating with colleagues to keep them informed and provide them with the needed information to build their understanding and resources.

BEST PRACTICES AND LESSONS LEARNT FROM 2020–2021



Leveraging and adapting influenza surveillance and response systems for the COVID-19 pandemic response, adaptation now, a vision for future response

The emergence of SARS-CoV-2 has demonstrated the ability of non-influenza viruses to cause a global pandemic and highlighted the need for broad and strengthened surveillance for non-influenza viruses with epidemic and pandemic potential.

With the support of the PIP Framework, the influenza sentinel surveillance system provided a ready-to-use platform for the integrated surveillance of multiple pathogens with epidemic and pandemic potential and has been used as a platform to respond to the COVID-19 pandemic in 2020–2021.

The integration of multi-pathogen surveillance within existing or developing influenza sentinel surveillance systems is in line with the WHO initiative to enhance and expand GISRS for respiratory viruses with epidemic and pandemic potential (GISRS+). This GISRS+ vision is aligned with the objective of the Global Influenza Strategy (2019–2030) to further strengthen and support the evolution of GISRS towards a system that integrates laboratory and epidemiological data to support public health decision-making for respiratory viruses of both epidemic and pandemic potential.

Although the WHO guidelines for the formal integration of multi-pathogen surveillance into influenza sentinel surveillance are in their conceptual and programmatic formulation stage, several countries globally, including some in the Region, have already adopted and implemented multi-pathogen testing either within existing influenza sentinel systems or other systems aimed at surveillance for non-influenza viruses (e.g. MERS-CoV). In addition, selected countries have participated and/or are participating in WHO-led respiratory syncytial virus pilot studies nested within existing influenza sentinel surveillance systems. While experience on multi-pathogen surveillance and

testing exists in the Region, the level of capacity and proficiency varies within the Region, and a formal process of integration, including virological testing and data collection, analysis and reporting must be explicitly defined.

As of the end of 2021, 21 of the 22 countries in the Region had real time reverse transcription polymerase chain reaction (rt-RT-PCR) capacity for the molecular detection of influenza viruses, 13 countries could perform influenza virus isolation, 12 countries had sequencing capacity and 11 countries could perform influenza antiviral resistance testing. In addition, all laboratories with influenza rt-RT-PCR capacity have access to the reagents for the influenza/SARS-CoV-2 multiplex rt-RT-PCR from the United States Centers for Disease Control and Prevention through the International Reagent Resources, or both. All laboratories were provided with technical expertise through training and mentoring, as well as the provision and maintenance of essential equipment and reagents.

Eight of the nine PIP-supported countries have developed, or are in the process of developing, protocols for sentinel surveillance for multi-pathogen surveillance using a standard WHO template. Having clear protocols forms the basis for the implementation of sentinel surveillance for influenza and other respiratory viruses with epidemic and pandemic potential. The protocols have been revised and updated to include the additional and revised procedures needed to expand influenza sentinel surveillance to these other respiratory viruses. The revision of protocols was led by the consideration for causing minimal disruption to the existing influenza sentinel surveillance systems in the different countries, while improving and maximizing the efficiency of the existing systems for expanded surveillance for other respiratory viruses, which could lead to epidemics or pandemics.

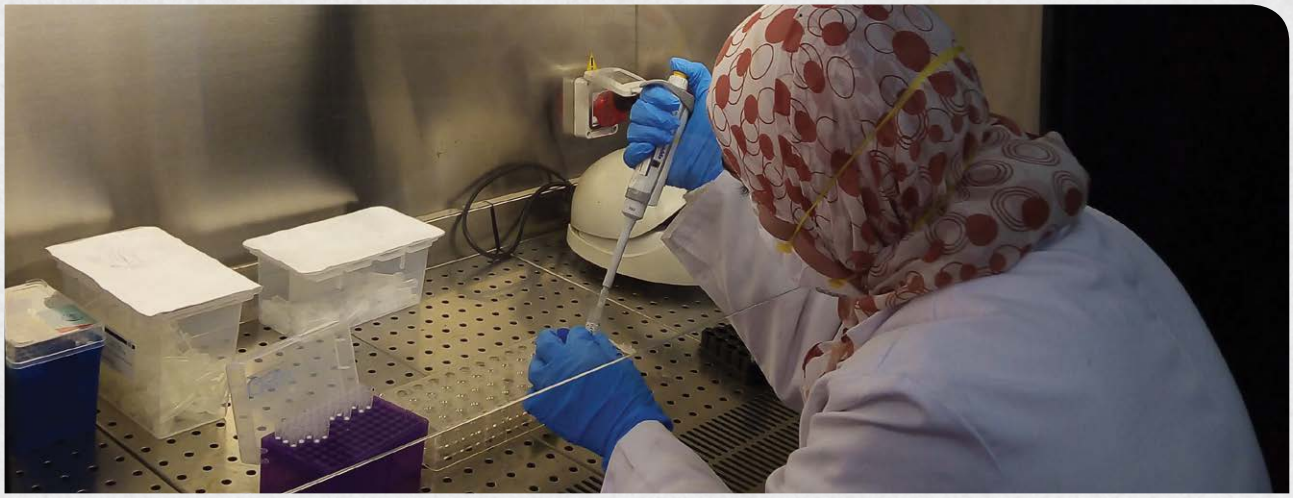
All countries in the Region, including all PIP-supported priority countries, have multisectoral rapid response teams established and trained at the central level and started building capacities at subnational level. Rapid response teams bring together the different skills and sectors (human and animal in particular) needed to appropriately characterize and control an outbreak caused by a zoonotic virus, including emergency coordination, epidemiological investigations, data management, infection prevention and control, laboratory diagnosis, social mobilization, risk communication and logistics.

Standardizing the collection and rapid sharing of epidemiological data from sentinel surveillance systems has remained challenging globally, including in the Region. Countries have an opportunity to benefit from a unique data collection and sharing (at individual and aggregated levels) electronic platform (EMFLU), and up until December 2021, 14 of the 22 countries have been reporting to EMFLU and FluMart. The number of influenza specimens tested and reported to WHO's FluNET/EMFLU from participating influenza laboratories increased again after an unexpected interruption due to the COVID-19 pandemic.

An improved version of EMFLU called EMFLU-2 has been launched and is currently being piloted. This version encompasses additional functionalities related to data capturing and analysis, including the capturing and sharing of multi-pathogen laboratory data. The use of the individual level data collection functionality by Member States would allow standardized and timely data collection and sharing of information, such as demographic, clinical and vaccination history data.

Finally, we must keep in mind that although in most parts of the world, influenza activity has been lower than usual during the COVID-19 pandemic an epidemic could occur at any time. The threat of zoonotic transmission is also still present, and animal influenza viruses continue to sporadically infect humans, highlighting the need to remain vigilant for the unexpected and move forward with the "One Health" concept in mind. We also need to remain open to the possibility of another respiratory virus emerging and causing the next pandemic.

Building upon existing influenza infrastructure to achieve integrated surveillance and response systems for influenza and other respiratory viruses with epidemic or pandemic potential is key. Greater efforts are needed to institutionalize the concept, develop technical capacities and explore options for coordinating this mechanism at the national, regional and global levels. Timely sharing of data and viruses must be assured to continue to ensure that the world is as prepared as possible against influenza and other viral respiratory pathogens of epidemic and pandemic potential.



Next generation sequencing for pandemic preparedness in the Region

Avian influenza H5N8 was confirmed in poultry fields by the central veterinary laboratories in Iraq in 2021. In accordance with WHO protocol, human respiratory specimens from workers in the poultry fields were sent to the national influenza centre for laboratory detection of H5N8 in humans. At the centre, specimens were tested for influenza A and subtyped for avian influenza of the three levels of WHO (headquarters, Regional Office and country office) to a WHO collaborating centre in London for confirmation but unfortunately due to shipment restrictions and the unavailability of a courier service agreement in Iraq, the samples were delayed in reaching the laboratory and consequently it was unable to confirm the presence of the H5N8 virus.

This incident demonstrates gaps in coordination and cooperation that urgently need to be addressed. It demonstrates how coordination between the animal and human sectors needs to be strengthened. This could be achieved by supporting the establishment of an integrated data electronic system for sharing information and data between sectors in a timely manner and conducting integrated meetings, systematically following the "One Health" concept.

The real challenge in countries in crisis such as Afghanistan and Iraq, is the timely shipment of specimens through a professional courier. Logistics are a key component of the function of global influenza surveillance and response. The national reference laboratory tests and transports positive specimens with human pandemic potential to a WHO collaborating centre following protocols, involving international airlines, biosafety and courier services. There is a need to strengthen the shipment system in emergency settings and find alternative solutions to overcome challenges during crises, such as building the capacity of national systems for virus sequencing and/or supporting coordination between neighbouring countries to facilitate timely and secure shipment of virus-related specimens in times of crisis.

As six out of the nine PIP-supported countries in the Region are countries in crisis, the impact of epidemics has been felt before and will likely continue to present challenges in the future. One of the ways to better understand these challenges is to sequence the genome that helps to identify the pathogen vis-a-vis new strain or novel mutations in the pre-existing pathogen.

Efforts have been made to strengthen capacity for genomic surveillance and develop means toward pathogen detection, tracking evolution, identifying mutations associated with clinical symptoms and performing longitudinal population-level screening. Regional training was organized in 2019 to increase the capacity of Member States to use virus sequencing tools and technical support was provided to several PIP-implementing countries, such as Iraq, Morocco and Lebanon. Strengthening preparedness will enable a faster and more effective and targeted response for susceptible group of individuals.

Developing national respiratory pandemic response plans

The impact of a respiratory pandemic virus on individuals and societies can be reduced if governments are well prepared. This requires having in place multisectoral, functional, comprehensive plans that engage the whole of society. Governments should ensure that national plans are updated on a regular basis to catalyze political commitment, coordination, risk assessment, infrastructure, financing, human resources, equipment, exercises and knowledge necessary.

In 2020–2021, the Syrian Arab Republic developed its first influenza pandemic preparedness plan. The exercise was part of tremendous efforts invested to establish a viral respiratory disease surveillance system, which is a considerable achievement for the country amid its COVID-19 pandemic response. The plan was based on WHO guidance regarding pandemic influenza preparedness and involved all relevant stakeholders. These whole-of-government and whole-of-society approaches towards preparedness and response were adopted and also aligned with the "One Health" approach. The plan has been endorsed by the Government and a simulation exercise will be conducted next biennium to validate and enhance PIP preparedness and response plans, procedures and systems and capabilities.

The Egyptian Ministry of Health and Population, along with other partners at the national level, updated their national influenza pandemic preparedness plan. Initially developed in 2007, the plan was last updated in 2018–2019 through the support of the PIP Framework. The plan has been tested twice in Egypt, in the 2009 influenza pandemic, the plan played an effective role in delaying the entry of the disease into Egypt and then facilitating successful containment and mitigation of the pandemic. In early 2020, Egypt began to adapt its influenza pandemic preparedness plan to cope with the COVID-19 pandemic. The plan addresses all aspects of influenza pandemic preparedness and response throughout all phases of the pandemic, starting with developing a crisis management framework and clarifying the responsibilities of each party, in coordination with all stakeholders and partners concerned with the response and passing through the details of all preventive and curative micro plans.

This process was not only carried out in Egypt, other PIP-supported countries in the Region, such as Jordan and Lebanon, have also used their influenza pandemic preparedness plans as a foundation to systematically respond to the COVID-19 pandemic using the pillars described in the plan.

The implementation of plans has proved effective in the early containment phase of the COVID-19 pandemic, with high-level commitment from all partners for preparedness plans that have been previously developed and agreed upon. However, the scale, complexity and length of the pandemic has highlighted the need to update national influenza pandemic preparedness plans in view of national risk assessments, best-practices and lessons learned from the COVID-19 pandemic to better cope with and respond to the emergence of pandemic influenza and other acute respiratory viruses.

Updates to plans started in 2021 in Egypt, Lebanon and Jordan, through a series of consultation, review meetings and workshops with national stakeholders, and will be further modified in 2022 to reflect the new global strategy of integrating plans.

In Jordan, given the importance of risk communications and community engagement as a tool to increase the demand for vaccines that protect against respiratory diseases and as part of the development process of the plan, the Ministry of Health and Population, in collaboration with other stakeholders, has developed a detailed risk communications and community engagement plan that will be integrated in the influenza preparedness and other national plans. This exercise will be replicated in other countries focusing on the "infodemic" and managing misinformation, with the aim of ensuring national plans are integrated, detailed and implementation is practical by the end of the next biennium.

While Afghanistan's health system is at breaking point, influenza surveillance system stands solid

In August 2021, Afghanistan's health care system was on the verge of collapse following regime change and a freeze on international funding. Some health facilities have shut down and programmes have been suspended, and many health workers have either quit or left the country, leaving fewer workers trying to urgently respond to emergencies. On top of this, COVID-19 continues to spread across the country, with insufficient available resources available to bring it under control.

The influenza surveillance system, despite all the challenges and struggles, has continued to function systematically. The Ministry of Public Health and WHO influenza team in Afghanistan were able to advocate for the importance of resuming influenza surveillance activities within the Ministry and continue to build on successes achieved during the COVID-19 pandemic. During this time, sentinel influenza surveillance system-related activities were seldom interrupted and acted as the foundation that led the pandemic response and ensured the timely sharing of data.

Being able to advocate for the importance of continuing influenza surveillance activities was a result of years of PIP investment in this area, it proved to be essential and should not be compromised. At the beginning of the COVID-19 pandemic in 2020, the influenza surveillance system was already established in nine major hospitals in nine provinces. The sites were selected based on the geographical location and population representativeness, staff were trained, and with a fully trained and skilled team who were able to take virus samples from infected patients, laboratories were provided with all required reagents and supplies for differential diagnostic techniques for influenza.

The first sample of COVID-19 was collected at a PIP-supported influenza sentinel site and shipped to the national influenza centre for confirmation by polymerase chain reaction test (PCR). Influenza practitioners were able to train health care professionals who then trained other health workers at central and provincial levels in taking samples from patients when COVID-19 was suspected and conducted proper reporting using WHO standard guidelines and protocols, in addition to other skills related to prevention, contract tracing, isolation, treatment and control measures.

Having a well-established system and being able to advocate, and transfer knowledge and skills, during a crisis saved a county like Afghanistan. It is a role model in the Region from which other countries can replicate best practices. In 2021, other countries in the Region faced complex political challenges but their surveillance systems were not able to function or were interrupted due to political insecurity or advocacy-related challenges.

Greater effort is needed to strengthen and expand surveillance activities for ILI in Afghanistan, focusing on integrating surveillance for all respiratory diseases. More coordination is needed between surveillance and laboratory testing activities, and national laboratory facilities in the Ministry of Public Health and the Ministry of Agriculture, Irrigation and Livestock.

According to WHO, Afghanistan is considered a country at high risk for avian influenza due to its position along the migratory pathways of wild birds, the widespread practice of raising poultry in the home and the occurrence of other influenza outbreaks due to low community awareness. This is compounded by the health system being still in the early stages of being able to deliver equitable and effective health services to its community.

Integrating and strengthening influenza and SARS-CoV-2 surveillance capacities in Morocco

As part of the quality management process for diagnosing SARS-COV-2 by rT PCR and following ministerial recommendations, the national laboratory of immuno-virology (National Institute of Hygiene), which is the national influenza centre, carried out a national level audit action of private and public sector laboratories that resulted in measures being taken ranging from simple recommendations for improvement to the cessation of selected activities.

With the support of the PIP Framework Contribution Fund, the Ministry of Health in Morocco initiated the decentralization of influenza diagnosis in the framework of the virological surveillance of influenza viruses in 2018. This decentralization made it possible to engage the laboratories of sentinel sites equipped with POC to perform the molecular screening of influenza A and B. The system was fully functional during the exceptional influenza season in 2018–2019.

During the 2019–2020 season, and since the onset of COVID-19, the Ministry has capitalized on the existing influenza network, with the influenza sentinel sites being the cornerstone of the COVID-19 laboratory network. After upgrading the premises and purchasing equipment for qRT-PCR, several on-site training sessions were provided to professionals working in hospital laboratories, and a network of 24 laboratories has been established.

As the 2020–2021 influenza season approaches, efforts have been made to revive the influenza virological surveillance system by adopting an approach of decentralization and also integrating COVID-19 efforts in sentinel sites. Training and coordination meetings have been organized at the sentinel sites with support from the PIP Framework Contribution Fund for the benefit of public health officials, as well as regional laboratories.

The main objective of the training has been to train stakeholders on the requirements of the virological surveillance system for influenza and SARS-CoV-2, and the methods for investigating cases of severe acute respiratory illnesses and influenza-like illness in the field. It is an opportunity to carry out an activity that integrates both influenza and SARS-CoV-2, and the influenza sentinel laboratories will benefit from integrated training for the management of diagnosing SARS-CoV-2 and influenza. Awareness sessions were also carried out for the benefit of private sector laboratories with a view to integrating them into influenza and COVID-19 surveillance.

This activity is one of the main actions leading actions for strengthening/integrating capacity in Morocco through the involvement of the private sector, and on a large scale. It is a major innovative project, establishing a national network of laboratories making it possible to strengthen the laboratory system for a more resilient health system in preparation for future pandemics. This has all been conducted within the framework of integration and aligning the synergies between the two programmes. Since being established in Morocco in 2014, the importance of the role of the PIP Framework in strengthening the health system has been clear, with key training being supported financially by PIP Framework and Canadian funds earmarked for health system strengthening.

Laboratory biosafety for handling emerging viruses

Emerging viral infections continue to pose a major threat to global public health. During the past 20 years, several viruses such as influenza A (H1N1) were identified as causing outbreaks and epidemics in many parts of the world. Three novel coronaviruses have caused several major pandemics since 2002: SARS coronavirus (SARS-CoV), which causes severe acute respiratory syndrome (SARS); MERS coronavirus (MERS-CoV), which causes Middle East respiratory syndrome (MERS); and SARS-CoV-2, which causes coronavirus disease 2019 (COVID-19).

The emergence and re-emergence of viral respiratory pathogens is eliciting grave concern as a result of their pandemic potential. There is steady increase in both the number of laboratories and practitioners handling emerging viruses for diagnostics and research, putting many at risk unless biosafety protocols are strictly adhered to.

In spite of greater awareness of safety and containment procedures, the handling of pathogenic viruses remains a likely source of infection and mortality among laboratory workers. In Jordan, measures were implemented to minimize the potential harm associated with working with these infectious viruses and to protect workers from emerging viruses, and safeguard the public through the safe disposal of infectious waste and agents. These efforts started with the application of sound biosafety concepts and practices by laboratory workers in handling emerging viruses in a safe and secure manner, and developing national codes of practice for the safe handling of biological agents in laboratories and health facilities.

The national influenza centre in Jordan contributed to the development of the WHO laboratory biosafety manual and implemented the standards at all levels in clinical and public health laboratories. In 2021, the Ministry of Health trained staff on the guidance, who will cascade the training to staff at subnational level, including in the private sector and other related sectors.

The manual provides laboratory personnel with basic biosafety principles to protect themselves from exposure to emerging viruses while working in the laboratory. It also provides an overview of emerging viruses in Jordan, why emerging viruses can cause laboratory-acquired infection, how to assess the risk of working with emerging viruses, and how laboratory-acquired infection can be prevented and managed. This evidence- and risk-based approach will optimize resource use and facilitate sustainable laboratory biosafety and biosecurity policies and practices, enabling equitable access to clinical and public health laboratory tests and biomedical research opportunities without compromising on safety.

PLANS FOR 2022–2023

A great deal has been accomplished in the past 10 years in the area of pandemic influenza preparedness to improve the sharing of information on influenza viruses with human pandemic potential; and achieve more equitable access for Member States in need of pandemic vaccines and medicines used in a pandemic. However, there is still a lot of work to be done. The COVID-19 pandemic has demonstrated that the world was even less prepared than most had imagined. It has highlighted several gaps and challenges for example, in managing supply chains at the time of an emergency, clinical surge capacity, prevention and community engagement. But at the same time, COVID-19 has demonstrated the capabilities and benefits of GISRS beyond influenza. Now is an opportune time to use the lessons learned and best practices to make GISRS and other PIP activities even stronger to respond to any future respiratory pathogen.

The world must remain vigilant for influenza viruses and other viral respiratory pathogens with pandemic potential. The Eastern Mediterranean Region faces many challenges, including fragile health systems in many countries, but a future pandemic could occur at any time. The presence of a pandemic in such fragile countries can have a huge impact on health infrastructure. WHO and countries of the Region will continue to prepare for influenza epidemics and pandemics through implementation of the PIP Framework.

The focus of PIP-supported countries in 2022–2023 will be on three outputs:

Output 1: Laboratory and surveillance

- Support countries to conduct national influenza landscape analyses, update the regional analysis, and link findings with national and regional public health policies and plans.
- Strengthen collaboration between human and animal health authorities.
- Support integrated surveillance for influenza and other high impact respiratory pathogens.
- Build capacity of laboratory staff to conduct Rt-PCR, cell culture, sequencing and virus isolation.
- Monitor and evaluate influenza surveillance activities.
- Assess the performance of national influenza centres and other national influenza laboratories.
- Improve shipping capacity of influenza virus specimens to WHO collaborating centres.
- Finalize and rollout EMFLU Version 2.0 to support countries in data entry, management, reporting, and sharing.

Output 4: Risk communications and community engagement

- Continue to build the capacities of countries in the traditional and newly developed areas of risk communications and community engagement.
- Support countries with existing PIP risk communications and community engagement plans to update them based on their experience with the COVID-19 pandemic.
- Support countries that had not developed plans to do so.

Output 6: National pandemic influenza preparedness and response planning

- Review national influenza pandemic preparedness plans in context of pandemic learned lessons and taking into consideration the integrated approach of influenza and other viral respiratory pathogens.
- Provide technical support to countries in the Region to review and update preparedness plans based on WHO guidance.
- Identify experts to support revisions and updates to plans in PIP Framework Contribution Fund-recipient countries and other countries, as needed.
- Provide support to countries to test their preparedness plans, revise plans and implement lessons learnt.
- Advocate and support countries to endorse and disseminate influenza pandemic preparedness plans, as well as train relevant staff in pandemic risk management based on SOPs.
- Facilitate linkages between influenza pandemic preparedness plans and other disease preparedness initiatives to embed and sustain plans efficiently in the health system.

In May 2011, the Pandemic Influenza Preparedness (PIP) Framework was adopted by the 64th World Health Assembly to provide a foundation for countries, WHO and key partners to improve the sharing of influenza viruses with pandemic potential and increase the access of developing countries to vaccines and other life-saving products during a pandemic. In WHO's Eastern Mediterranean Region, support provided to the nine PIP countries (Afghanistan, Egypt, Iraq, Jordan, Lebanon, Morocco, Sudan, Syrian Arab Republic and Yemen) has enabled these countries to detect, prepare for, and respond to pandemic influenza. With PIP investment and building on existing influenza surveillance systems, platforms, capacities and also the structural concepts, countries were able to leverage the assets for the COVID-19 pandemic response. This report, which includes country profiles, provides information on implementation of the PIP Framework in the Region from 2020 to 2021, utilization and implementation of funding and outlines plans for 2022–2023.