Why is it important for pandemic preparedness?

A timely and effective response to an influenza pandemic relies on country capacities to rapidly detect a novel influenza virus. Once detected, countries and other stakeholders can perform risk and severity assessments, implement early response measures, and inform the composition of a vaccine. Pandemic preparedness also requires routine monitoring of seasonal influenza, which provides baseline data to assess the importance and potential impact of a newly emerged virus. For this reason, seasonal influenza monitoring is an important foundation for pandemic preparedness and response.

To conduct effective monitoring, countries require laboratory capacities for routine diagnostic testing and surveillance systems, such as for influenza-like illness (ILI) or severe acute respiratory infections (SARI). Information gathered through detection and monitoring needs to be shared globally to support risk management. Viruses must also be shipped and shared with the WHO Collaborating Centres (WHO CCs) of GISRS. Global data and virus sharing improves international surveillance, and provides information that creates the foundation for effective and informed preparedness and response.

What did HLIP I aim to do?

Output 1
Detection
Strengthen national capacities to detect respiratory disease outbreaks due to a novel virus.

Output 2
Monitoring
Strengthen national capacities to monitor trends in circulating influenza viruses.

Output 3
Global collaboration
Strengthen global collaboration, through the sharing of information and viruses, and improve the quality of the system (i.e. GISRS).
65 years of GISRS

At the 2017 Global NIC Meeting, 98 representatives of GISRS laboratories and national epidemiology institutions gathered with other partners to mark the 65th anniversary of GISRS. Pandemic influenza preparedness priorities were discussed and advanced. This included NIC influenza surveillance to detect unusual respiratory events, and virus sharing to facilitate GISRS’ role in pandemic detection, risk assessment, and response. This forum stimulated Member State and other stakeholder collaboration and active participation in GISRS.

WHO CCs and other partners work with NICs to strengthen laboratory capacities and influenza virus characterization. This engagement fosters a strong collaborative spirit, an active involvement with GISRS, and many opportunities for virus sharing.”

What is GISRS?

GISRS is a global network of 114 National Influenza Centres (NICs), six WHO CCs, four Essential Regulatory Laboratories, and 13 WHO H5 Reference Laboratories.

GISRS monitors the evolution of influenza viruses and provides recommendations in areas including laboratory diagnostics, vaccines, antiviral susceptibility and risk assessment. It also serves as a global alert mechanism for the emergence of pandemic influenza.

In 2017 alone, 40,000 specimens were shared with WHO CCs from over 110 countries, and 3,500,000 specimens were tested.
Output 1: Detection

Detecting novel influenza viruses requires surveillance and laboratory capacities. National event-based surveillance (EBS) is needed to detect respiratory disease events from a variety of information sources including at the human-animal interface (HAI) and through the media or the informal health sector. In laboratories, staff need to have the skills to accurately identify influenza viruses from specimens tested. After detection, rapid response teams (RRTs) can investigate, respond, and control respiratory disease outbreaks, which provides decision-makers with information for further preventive action.

5x increase in the number of PIP priority countries with EBS.

4x as many PIP priority countries have a coordination mechanism between public health and animal health sectors.

Motivation and professional capacity of the national staff has improved due to number of professional development opportunities provided by the PIP program including international workshops, trainings, meetings, materials.”

Liana Torosyan, Head of Department of Epidemiology of Especially Dangerous and Airborne Diseases, National Centre of Disease Control and Prevention, Ministry of Health, Armenia

Examples of improved HAI coordination for better preparedness and response:

**Americas**
In the Region of the Americas, the Regional Office supported eight countries, including five PIP priority countries* as well as three other countries** to establish intersectoral work plans that strengthen surveillance for zoonotic influenza.

**Nepal**
The National Country Plan for influenza promoted a ‘One Health’ approach, and Nepal conducted a joint training of veterinary and human health workers. When avian influenza was later detected, the outbreak was quickly contained.

**Egypt**
After detecting human cases of avian influenza virus infection in Egypt, a pandemic influenza risk assessment was completed involving both the public health and animal health sectors.

*Chile, Costa Rica, Dominican Republic, Ecuador, and Suriname
**Colombia, Jamaica, and Panama
During 2014–2017, EQAP was conducted 4x (see Table 1 for results):

- In 2017, 133 countries participated in EQAP.
- 86% of participating countries correctly identified all influenza viruses.
- 34 PIP priority countries participated in the 2017 panel of which 88% correctly identified all influenza viruses.

Table 1: Global EQAP results from 2014–17

<table>
<thead>
<tr>
<th>Year</th>
<th>Participating Laboratories</th>
<th>% Identifying All Influenza Viruses</th>
<th>% Identifying All H5 Viruses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>156</td>
<td>71%</td>
<td>83%</td>
</tr>
<tr>
<td>2015</td>
<td>153</td>
<td>82%</td>
<td>89%</td>
</tr>
<tr>
<td>2016</td>
<td>151</td>
<td>87%</td>
<td>93%</td>
</tr>
<tr>
<td>2017</td>
<td>160</td>
<td>87%</td>
<td>93%</td>
</tr>
</tbody>
</table>

Three PIP priority countries established RRTs that can respond to influenza-related events.

69% of PIP priority countries sustained existing RRTs through refresher trainings in 2017.

Over 2,700 rapid responders were trained in 2016–17 alone.

What are rapid response teams?

Rapid response teams (RRTs) are multidisciplinary teams that are ready to respond on a 24-hour basis to a public health event.

Achievements

Countries have built their EBS systems, enhanced quality virus detection, and established and maintained RRTs. This improved national capacities to detect and respond to respiratory disease events, including through coordinated efforts at the HAI.

WHO's External Quality Assessment Programme (EQAP)

Due to the continuous threat of pandemic influenza, quality laboratory diagnostics are essential to accurately detect emerging influenza viruses. In 2007, WHO initiated EQAP for GISRS and other national influenza laboratories that perform polymerase chain reaction (PCR) diagnosis. EQAP helps laboratories monitor and improve influenza diagnosis quality and performance standards.

Are a laboratory’s influenza PCR test results accurate and reliable? The WHO EQAP helps answer this question. Based on yearly results, we follow up with laboratories to identify gaps and take corrective action. With support from PIP, WHO works with laboratory staff to provide training and revisit protocols for improved performance. This process ensures correct identification of influenza viruses with pandemic potential.”

Dmitriy Pereyaslov,
Technical Officer,
Health Emergency Programme,
WHO Regional Office for Europe
Output 2: Monitoring

Countries need to establish or strengthen their surveillance systems to monitor influenza disease activity. In low-resource settings, options include establishing sentinel ILI or SARI surveillance systems, where data are collected from a small number of healthcare facilities to produce trends and assess transmission patterns. Sentinel surveillance systems can provide timely and high-quality epidemiological and virological information to support decision-makers in influenza control and pandemic preparedness.

Over 2x as many PIP priority countries have functioning ILI surveillance.

Over 2x as many PIP priority countries have functioning SARI surveillance.

65% more countries globally are consistently sharing influenza epidemiological data through WHO FluID.

7 countries reported to FluID for the first time.

20% more countries globally are consistently sharing influenza virological data through WHO FluNet.

5 countries reported to FluNET for the first time.

Why is consistent data sharing important?

Consistent means that countries report data most weeks of the influenza season. Routine data availability means that situational analyses and risk assessments are up to date. These are critical for global and national preparedness.

Achievements

Countries have established and enhanced influenza surveillance systems to monitor and report virological and epidemiological trends on circulating influenza viruses.
Output 3: Global collaboration

Global collaboration is improved by strengthening GISRS. This includes increasing ways for countries to participate in GISRS, as well as expanding the network of laboratories globally. Through more participation, data and virus sharing increases. This provides better evidence for preparedness measures and response decisions, to ensure authorities can act appropriately when necessary.

3 new NICs were recognized by WHO in 2014–2017: Montenegro, United Republic of Tanzania, and Zambia.

114 countries now have WHO recognized NICs.

47% increase in all countries globally that routinely share seasonal influenza viruses with GISRS.

20% increase in PIP priority countries that routinely share viruses.

PIP funds supported activities to facilitate virus sharing, strengthen GISRS, and improve benefit sharing:

- **WHO Shipping Fund Project ($961 K):** NICs and other laboratories were supported to share influenza viruses quickly and safely up to four times per year (see Table 2).
- **Infectious Substances Shipping Training (ISST):** This training programme assists laboratory staff to understand and comply with international regulations for transporting dangerous goods, including influenza viruses. With the support of PIP funds, 615 laboratory staff were trained and certified from 108 countries between 2014–2017.
- **Influenza Virus Traceability Mechanism (IVTM):** This system tracks where PIP biological materials have been sent. WHO uses IVTM to identify manufacturers and other institutions accessing these materials.
  
Agreements are then signed with these entities to enable vaccine and other benefits to be available at the time of a pandemic. Seventy-six agreements, known as SMTA2s, were signed between 2014–2017.11

Why is seasonal influenza virus sharing important?

When countries share seasonal influenza viruses, they contribute to global surveillance and influenza vaccine development, and they show their capability to also share influenza viruses with pandemic potential when the need arises.

Table 2: Number of influenza specimen shipments

<table>
<thead>
<tr>
<th>Year</th>
<th>Virus shipments made using Shipping Fund Project (SFP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>123</td>
</tr>
<tr>
<td>2015</td>
<td>147</td>
</tr>
<tr>
<td>2016</td>
<td>230</td>
</tr>
<tr>
<td>2017</td>
<td>243</td>
</tr>
</tbody>
</table>

FluMart is a platform for sharing influenza-related data, which houses information from FluNet and FluID. It was launched by WHO’s Global Influenza Programme, and was designed to increase the simplicity of data sharing, enhance usability, and increase the interface with regional platforms. Its implementation has led to more countries reporting their data to FluNet and FluID (see Output 2, p15). FluMart is an organizational success and is sustained by WHO.

Achievements

Information and virus sharing has increased, which has strengthened GISRS.
Bringing together detection, monitoring and global collaboration: Cambodia’s story

Having experienced outbreaks of avian influenza A(H5N1) virus, Cambodia prioritized pandemic influenza preparedness through building laboratory and surveillance capacities.

Surveillance capacities that were supported by PIP include:

- Early warning alert and response RRT trainings;
- Exercises for HAI intersectoral coordination to maximize operational readiness;
- Supportive supervision visits to all 15 sentinel sites to improve surveillance; and
- Establishing influenza epidemic alert thresholds to interpret seasonal influenza trends, thereby improving data utilization.

Laboratory capacities were also supported. WHO CCs provided mentorship and training at the National Institute of Public Health (NIPH) to introduce virus isolation and sequencing capacities. PIP also helped facilitate participation in regional and global GISRS activities, and 100 seasonal influenza viruses were shipped to WHO CCs in 2017.

Outbreak response in action:
Health workers are ready to respond

On 6 December 2017, the Ministry of Agriculture informed the Ministry of Health about a disease outbreak with 1,739 chicken deaths on a poultry farm in Kampong Cham province. Within 24 hours a preliminary risk assessment was conducted, prompting a joint investigation by the public health and animal health sectors.

The RRT visited healthcare facilities near the affected village to review patient records and surveillance data, and to train healthcare workers in sample collection.

A health education campaign was conducted in the affected village. The signs and symptoms of avian influenza were explained using posters and demonstrations, and individuals learned when to seek treatment. Community members were also taught what to do with sick or dead birds.

The investigation identified 13 suspected human cases. Samples were collected from the suspected cases and sent to NIPH for testing. All samples were negative for avian influenza A(H5N1) virus.

THE IMPACT IS CLEAR. TOGETHER, NATIONAL COMMITMENT, PARTNERSHIPS AND RESOURCES CAN IMPROVE PREPAREDNESS.

"The enhanced human surveillance supported by PIP funds during the poultry outbreak was crucial to monitor for human infection. Ultimately, no human cases were found."

Ly Sovann, Director,
Communicable Disease Control Department
Ministry of Health, Cambodia

"WHO’s support helped our laboratory to improve global health security."

Chin Savuth, Deputy Chief,
NIPH, Cambodia
Impact: How did preparedness improve?

Across the globe, national capacities to detect and monitor influenza, and to share data and viruses have improved. With on-the-ground detection through EBS, sentinel influenza surveillance and RRTs, coupled with better laboratory detection as evidenced by improved EQAP scores, countries have enhanced capacities to detect novel influenza viruses in a timely fashion. Improvements in ILI and SARI surveillance across PIP priority countries support continuous monitoring of influenza trends, with more epidemiological and laboratory data – as well as viruses – shared globally, since 2014. With increased virus and information sharing, as well as collaborative opportunities across regional and global forums, countries are more engaged with GISRS, and this system continues to grow.

Overall, the substantial amount of work in countries, regionally and globally ensures that risk management operations are better informed and that global solidarity in pandemic preparedness continues.

Sustainable change

PIP stimulated improvements in national influenza laboratory and surveillance systems. As a result, a number of countries have already incorporated pandemic preparedness activities in their national budgets (see Integrating Influenza in National Budgets on p7 for more). This will have a strong positive and long-term impact on preparedness and response in the event of a future pandemic.
Why is it important for pandemic preparedness?

To protect a country’s health and economy during a pandemic, it is important that authorities allocate sufficient resources and plan appropriate intervention strategies capable of limiting the spread of disease and minimizing the health and economic impacts. To design effective pandemic influenza preparedness and response policies, decision-makers need to know how seasonal influenza impacts local populations, regions, and economies – that is, its burden of disease (BOD).

While it may sound simple, developing national and global estimates for disease, meaning morbidity and mortality, and economic burden is complex. It takes time to gather the relevant data, and analyze and publish the findings.

What did HLIP I aim to do?

**Output 1**
National estimates
Develop representative influenza disease burden estimates in countries and regions.

**Output 2**
Global estimates
Develop a global estimate of influenza disease burden.
National disease burden estimates are used by authorities to better understand the societal impact - both health and economic - of influenza. The information serves as an important evidence-base for pandemic planning. Authorities analyse the risk within a population to prioritize the allocation of resources and plan countermeasures such as vaccine and clinical management strategies.

8 PIP priority countries estimated their influenza disease burden, of which three were published in peer-reviewed journals.

3 were published in peer-reviewed journals: Costa Rica, Egypt, and Senegal.

5 completed estimates and are pending publication: Albania, Cambodia, Chile, Indonesia, and Madagascar. See Indonesia’s story on p22.

33 additional countries estimated their influenza burden and shared this information with WHO.

Standardized tools, training and advocacy materials were developed:

An economic burden manual was published. Two countries, Madagascar and Romania, piloted the manual and are currently in the process of estimating influenza-associated economic burden.

Training courses on estimating influenza disease burden were launched on OpenWHO: 280 people have already completed these online courses. See p33 for details on OpenWHO.

Two advocacy infographics were published to raise awareness on the: (1) Importance of measuring influenza burden of disease, and (2) Estimate of respiratory deaths due to seasonal influenza.12

Regional efforts on BOD

The WHO Regional Office for the Americas estimated the total number of influenza-associated respiratory hospitalizations in the Americas. A manuscript was submitted for peer-reviewed publication. Once published, countries in the region will benefit from the information as it can support national evidence-based policy development.
Knowledge sharing

A special edition of the Influenza and Other Respiratory Viruses journal was sponsored, which shared 18 population-specific burden estimates including estimates from Asia, Africa, Europe, and the Americas. There is now a better global picture of overall burden estimate, including more about the deaths, hospitalization, and illness caused by influenza (see Figure 4).

Figure 4. Countries with burden of disease estimates that have agreed to share data for the global estimate for influenza mortality and influenza associated hospitalizations, as of February 2018.

Achievements

More countries now have influenza disease burden estimates enabling evidence-based policy development.
Estimating influenza burden in Indonesia

Indonesia’s story to estimate influenza disease burden is one of commitment, collaboration and success. The Indonesian MOH built a new sentinel SARI surveillance system in 2013. The system, called SIBI, included six geographically dispersed sites and was designed to monitor influenza disease trends. Leveraging knowledge, guidance, and various resources, Indonesia went on to finalize its disease burden estimates four years later.

2014
- A national BOD team involving the NIC, the MOH, WHO, and US CDC was established to start the process for estimating influenza burden in Indonesia.
- Using WHO’s manual for estimating influenza burden, the team decided that hospital admission surveys (HAS) were needed to estimate the surveillance sites’ catchment populations.

2015
- Surveillance sites were routinely visited by the national and provincial SIBI surveillance managers to maintain case detection, data quality, and to start the HAS.

2016
- The HAS was completed.
- Influenza burden was estimated using three years of SARI surveillance data and HAS findings.

2017
- A manuscript was accepted for peer-reviewed publication. The study found that the incidence of influenza-associated hospitalizations was highest in children aged <5 years.
Global disease burden estimates can drive global, regional and national policy development on influenza prevention and control. A number of factors need to be considered when estimating global burden including the availability of data from a variety of countries, and the population and risk groups assessed. Even though estimating global burden is challenging, the information can underpin pandemic preparedness decisions including the use of countermeasures and allocation of resources.

The BOD work under PIP has produced notable successes, such as the first global death estimates for influenza in more than a decade. These estimates will allow for policy-makers to have the best data for decisions. The group has also spurred the creation of national disease burden in many countries, and is now turning its attention to ensuring that these data are actually used to drive policy for influenza and pandemic prevention.”

WHO now estimates that 290,000–650,000 respiratory deaths occur each year associated with seasonal influenza.

3 systematic literature reviews that contribute to the evidence-base on influenza burden globally and particularly in low- and middle-income countries (LMICs) were completed:

- Global burden of influenza associated mortality.\(^\text{13}\)
- Risk factors for serious outcomes associated with influenza in high income countries compared to LMICs.\(^\text{14}\)
- Influenza burden estimates compared to respiratory syncytial virus (RSV) in children.

Achievements

A global estimate of influenza burden was updated and published.
Impact: How did preparedness improve?

The evidence-base to support influenza preparedness policy has increased. Decision-makers have more influenza burden estimates to inform their actions, including priorities for how health resources are best used. Countries that previously lacked influenza burden information have either developed estimates, or are currently working towards estimates using the new tools available. Finally, countries are sharing their burden information and are working together in new ways. As a result, this information and collaboration led to an improved estimate of the global influenza burden.

Sustainable change

The burden estimates are an important step in understanding impact and developing prevention policies in countries. The tools developed now enable countries to estimate influenza burden in a cost-effective way without large, expensive studies. This information is used to drive public health policy.
Why is it important for pandemic preparedness?

National regulatory requirements for product approval can be a significant limiting factor in the optimal and timely deployment of vaccines and other products during an influenza pandemic. Engaging National Regulatory Authorities (NRAs) in the inter-pandemic period, supporting their regulatory preparedness plans, and strengthening necessary regulatory capacities will help reduce or eliminate country-specific regulatory delays during a pandemic.

What did HLIP I aim to do?

**Output 1**
**Guideline development**
Develop guidelines on regulatory preparedness for non-vaccine producing countries that enables them to expedite approval of influenza vaccines in response to a pandemic emergency.

**Output 2**
**NRA capacities**
Strengthen NRA capacities to regulate influenza products including vaccines, antivirals and diagnostics.

**Output 3**
**Accelerated approval**
Incorporate regulatory processes to accelerate approval of influenza vaccines, antivirals and diagnostics during a public health emergency into deployment plans for pandemic influenza products.
Output 1: Guideline development

Guidelines on regulatory pandemic preparedness for non-vaccine producing countries can improve processes that will expedite approval during an emergency. In 2009, many non-vaccine producing countries found the process for approving pandemic products unclear. They requested straightforward guidance on the identification of appropriate regulatory pathways for marketing authorization of pandemic influenza vaccines.

New regulatory guidance for non-vaccine producing countries was published.

- A major step was achieved in helping countries prepare for regulatory approval during a pandemic through publishing the WHO Guidelines on regulatory preparedness for provision of marketing authorization of human pandemic influenza vaccines in non-vaccine-producing countries.¹⁵

- Non-vaccine producing countries can select from a number of options including the WHO Prequalification (PQ) programme. Globally, nearly two-thirds (60%) of NRAs accept PQ as the basis for vaccine approval for use. Another option is to use the WHO collaborative registration procedure (CRP).

- Making the regulatory guidance available was an important first step. The guidelines were translated into five of the six official UN languages. Next, countries must operationalize and link their regulatory plan to other aspects of pandemic influenza preparedness. This will be a major focus of future PIP investments.

Catalysing donor interest

PIP has helped WHO leverage funding from other partners in sustainable development. For example, much-anticipated QMS guidelines are scheduled for submission to the Expert Committee on Specifications for Pharmaceutical Preparations (ECSPP) for endorsement in October 2019, and funding for this was catalyzed from additional donors. This is with thanks to the momentum created by PIP and other initiatives.

Achievements

WHO guidelines on regulatory preparedness for provision of marketing authorization of human pandemic influenza vaccines in non-vaccine-producing countries were published.
Output 2: NRA capacities

Strong NRA capacities are needed to regulate influenza products including vaccines, antivirals and diagnostics. An Institutional Development Plan (IDP) outlines the approach a country will take in order to develop these capacities. Elaborating an IDP results in a detailed plan of action to sustain strengths and address gaps. Implementing an IDP means that countries strengthen their regulatory system and related functions. This will support timely approval of assured-quality, safe and efficacious medical products for responding to public health emergencies, including pandemic influenza.

15 out of 16 PIP priority countries established IDPs containing activities to strengthen regulatory preparedness for pandemic influenza products.

All 16 PIP priority countries have improved at least one of the three NRA capacities (Figure 5).

Global and in-country regulatory capacity building activities were conducted to prepare NRAs for an efficient and effective response to pandemic influenza:

- 33 NRAs attended QMS workshops.
- 10 NRAs attended WHO courses on product evaluation of influenza vaccines.
- 15 NRAs attended PV trainings.

Three key regulatory capacities

PIP funds supported countries in strengthening three key regulatory capacities relevant to pandemic influenza preparedness:

- **Quality management systems (QMS):** A formalized regulatory system that documents processes, procedures, and responsibilities for achieving quality policies and objectives.
- **Marketing authorization (MA):** The process to assess and license a medical product including during an emergency.
- **Pharmacovigilance (PV):** A system to detect, assess, monitor, and prevent adverse effects of pharmaceutical products.

Figure 5: Three NRA capacities were strengthened in PIP priority countries

![Figure 5: Three NRA capacities were strengthened in PIP priority countries](image-url)
The Global Benchmarking Tool was used by WHO to assess the status of regulatory systems and their functions in 11 out of 16 priority countries.

Of the three countries that benchmarked the same regulatory capacity twice, all countries have improved implementation of indicators. Countries advanced within a maturity level or moved to a higher maturity level (Figure 6).

**Achievements**

Established IDPs are being implemented and countries are increasing their regulatory maturity.
Output 3: Accelerated approval

During a pandemic, countries need to approve vaccines and other products for use quickly. However, many NRAs have limited resources and procedures for regulatory oversight. To overcome these challenges, countries have a number of options for timely approval of pandemic products. This includes reliance on rigorous decisions of other NRAs, accepting WHO prequalified products, participation in the CRP, or implementing regional regulatory harmonization procedures.

All 48 PIP priority countries have an accelerated approach for regulatory approval:
- 60% accept WHO prequalification evaluations.
- 40% participate in the WHO CRP.
- Some countries use a combination of these or other accelerated approval approaches.

Building a pharmacovigilance system to ensure the safety of medical products in Guyana

Guyana has sought to establish a National Centre for PV since 2007. Such a centre would help the country ensure the safety of medical products, including influenza vaccines and other products.

In 2013, the Government Analyst Food and Drug Department (GA-FDD) incorporated this vision into its IDP, and turned to WHO for support in building the system and staff capacities.

In September 2016, WHO supported Guyana to organize in-country training targeting health-care professionals to introduce PV, its impact on patient health and quality of care, the role of various stakeholders, and the process for reporting adverse events. WHO and its network of experts also provided support to GA-FDD staff on how to establish and operate a national PV system.

During an influenza pandemic, post-marketing surveillance focused on pharmacovigilance will be critical for the successful roll-out of vaccine, but building a national PV system is a long-term commitment. WHO’s assistance, including PIP support since 2014, has helped Guyana to develop and implement a step-wise plan that lays the building blocks for years to come.

Achievements

NRAs in priority countries are incorporating pandemic influenza planning in their regulatory work, which will facilitate timely approval of products during a future pandemic.
Q&A with Hiiti Sillo, Director General of the Tanzania Food and Drugs Authority

What was your role in regulatory capacity building?

I supervised and managed the implementation of PIP funded activities within TFDA including implementation of the IDP.

What are you proud of as a result of PIP support?

First of all, I was proud of the outcome of the rapid benchmarking conducted in November 2016. The results clearly indicated the strengths and areas for improvement. WHO provided specific recommendations that, if implemented, would allow TFDA to reach maturity level 3 within two to three years, contrary to WHO expectations of five years. Some activities were quickly implemented in 2017 with the PIP funds. I was also very proud of the level of implementation of the QMS as a major component supporting the TFDA regulatory system.

Have there been broader benefits of the PIP support?

PIP funds have helped to strengthen regulatory systems for all medical products in the United Republic of Tanzania. Furthermore, additional training, learning, and capacity building opportunities have been opened for TFDA staff.

What do you hope to do in the future to prepare for an influenza pandemic?

At the time of 2016 benchmarking, TFDA did not have any influenza vaccine registered. It is necessary to build capacity for assessors to evaluate vaccines. For emergency use of pandemic influenza vaccines however, TFDA has already adopted the ‘WHO collaborative registration procedure’, which has enhanced the United Republic of Tanzania’s preparedness.

Anything else?

The PIP implementation of regulatory capacity building has tremendous potential to strengthen regulatory systems in low-to-middle-income countries.
Why is it important for pandemic preparedness?

At all stages of an influenza pandemic, fast, effective, and transparent risk communication can reduce morbidity and mortality. Many countries lack policies, procedures and skills that are needed to communicate risk during an emergency. Globally, emergency risk communications systems and resources are limited despite the massive needs and requests from countries. Increased national and global capacity for risk communications can help improve emergency management, as well as health outcomes.

What did HLIP I aim to do?

**Output 1**
Knowledge sharing
Increase access to risk communications training and platforms, enabling all countries to respond more effectively to a potential influenza pandemic or other Public Health Emergencies of International Concern (PHEIC).

**Output 2**
Country risk communication capacity
Establish risk communications capacity in priority countries with little or no capacity.

**Output 3**
Global surge capacity
Operationalize the global Emergency Communications Network (ECN) and the network of social scientists (SocialNET) to provide support to countries before, during and after public health emergencies.
Output 1: Knowledge sharing

Improved access to risk communications training and knowledge-sharing platforms will increase workforce and national capacities to implement risk communication measures in an emergency.

WHO’s first-ever evidence-based guideline on emergency risk communications was published, including in all six official UN languages and Portuguese.

“As a result of PIP implementation in the last few years (2014–2017), I am proud of the first guidelines on emergency risk communication. Despite this guiding document being propelled by pandemic flu as the most likely threat to face the world, as a practical evidence-based framework it can effectively help address any sort of public health emergency of national or international concern.”

Mohamed Nour, Public Health Expert, Ministry of Public Health, Qatar and Member of WHO’s Expert Group for Influenza Research Agenda

The Emergency Communications Network is trained to respond to emergencies. Photo credit: Violaine Martin
OpenWHO: An online knowledge transfer platform was launched with eight influenza courses now available. This is a highly accessible learning platform, which is freely available across the world in several languages. It has wide-ranging benefits – programmes and initiatives outside of influenza have benefited from the emergency preparedness resources.

10,000+ people from 190 countries have taken OpenWHO courses on pandemics and risk communication.

2,300 public health practitioners from 125 countries joined online risk communication trainings.

OpenWHO: Life-saving knowledge at your fingertips

During a pandemic, it is essential to have trusted and accessible channels to communicate with responders, health care workers, and the public. During inter-pandemic periods, accessible and accurate information can enhance personnel skills. PIP funds played an important role in helping WHO establish a new platform for both of these needs – the OpenWHO platform.

OpenWHO was launched in 2017. It is an online source of training videos, courses, live briefings and exchange forums. This platform compiles pandemic influenza resources, and hosts a variety of other learning materials. In just nine months, more than 13,000 users from around the globe registered for 30 different courses, ranging from Risk Communications to Pandemic Influenza Severity Assessment. This platform hosts over 200 videos, with one in three viewers from the Africa region.

Screen shot of ‘Preparing for pandemics’ channel on OpenWHO. © WHO

Achievements

Risk communications guidance, trainings and platforms were launched and utilized by public health professionals globally.
Establishing risk communications capacity in priority countries means that countries increase their national preparedness, and improve their systems in line with the IHR core capacity requirements.

**Output 2: Risk communications capacity**

- **350 public health practitioners** from **32 countries** were trained at **10 sub-regional workshops**, with country-level follow-up to develop emergency risk communications systems.

- **20% average increase** in risk communications IHR capacity scores in PIP priority countries.

Risk communications is a priority under the IHR, and targeting these capacities prepares countries for an emergency. PIP funds supported global experts to work with countries to develop national risk communication plans, test country risk communications capacities, and conduct IHR evaluations.

See p9 for more improvements on IHR core capacities.

**Developing risk communications in West Africa**

After a number of recent outbreaks including seasonal influenza, cholera, Lassa fever and the largest outbreak of Ebola ever-documented, countries in West Africa needed new tools for outbreak-response. PIP funds empowered countries in West Africa to institutionalize risk communications and to forward-plan for future outbreaks and emergencies.

The West African Health Organization has taken advantage of PIP, which trained communication and surveillance officers from the 15 countries in the Economic Community of West African States (ECOWAS) through a four-day regional workshop in July 2017. This training gave us the opportunity to support existing risk communication efforts in the region, identify needs, and encourage the development of robust planning, training, and advocacy. The PIP funds allow us to initiate discussions and collaboration among ECOWAS Members States and intensify advocacy at a strategic level in the region.

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**Kuassi Virgil Lokossou**, Project Officer, Epidemics Control, West African Health Organization

**Achievements**

Risk communications capacities were established in PIP priority countries.
A global surge capacity for risk communications will support countries with public health emergencies. This capacity was developed through the Emergency Communications Network (ECN) and was diversified through SocialNet.

Output 3: Global surge capacity

$840K

The Emergency Communications Network (ECN) was established and operationalized.
- 180 members trained with a pandemic focus.
- Over 70% of the ECN was deployed for capacity-building and response missions.
- All country requests for support were responded to within 72 hours.
- WHO deployed experts from the ECN to respond to 8 public health emergencies.

SocialNet was established to have a global cadre of anthropologists and social scientists trained and ready to support countries during emergencies.
- 24 members trained with a pandemic focus.
- WHO deployed experts from the SocialNET to respond to 5 public health emergencies.

Emergency Communications Network (ECN)
ECN is designed to build a cohort of competent and trusted communication officers. The ECN is available to all countries before, during, and after public health emergencies, including an influenza pandemic.

SocialNet is transforming emergency response teams

While medical anthropologists and social scientists have been part of outbreak response teams in the past, these professionals are not systematically embedded into response operations. They often face barriers to integrate their inputs into emergency response and decision-making.

WHO’s SocialNet fills this gap. Through SocialNet, social science experts are equipped to rapidly advocate, educate, and convince decision-makers on the strategies needed during an emergency, and to help embed them into the response. WHO now has 24 members of SocialNet. Members are ready to deploy and help shape the response to include the social and cultural needs and preferences of affected populations. This resource will be invaluable during a future influenza pandemic as it will assist countries to apply sensitive and effective pharmaceutical and non-pharmaceutical interventions at the community level.

I had the opportunity to participate in the first pre-deployment WHO SocialNet training. This training truly equipped me with essential knowledge and practical work, which allowed me to confidently be deployed into the field. It also gave me the confidence needed as a non-medic to engage in a meaningful and valuable way to enrich the response.”

Adama Thorlie, WHO social science consultant and social mobilization expert

Achievements

Global surge capacity for emergency risk communications established and used by countries.
Impact: How did preparedness improve?

Risk communication capacities are being built into national and global systems, with global tools and surge capacity available for use during a public health emergency. Thanks to the publication of guidance documents and the creation of OpenWHO, countries will be able to exchange information and receive training more rapidly during a pandemic. PIP investments have helped mainstream risk communications in national and international emergency responses thereby contributing to better influenza pandemic preparedness.

Sustainable change

The systems, tools and country-level plans are available for use now and during any public health emergency. The PIP Funds have catalysed other donor investments and recognition by many Member States towards the importance of risk communications in public health security.
Why is it important for pandemic preparedness?

During a pandemic, countries without purchasing power or production capacity rely on donations to access pandemic products such as vaccines. Factors that can delay deployment include multiple sources of vaccines and other products, changes or bottlenecks in the supply chain, and limited logistical capacity to receive and distribute products at country level.

Supply chains must be able to come together very quickly, with manufacturers, suppliers, governments, civil society, and commercial transporters consolidating their efforts into a common approach that moves products from the countries where they are produced or stockpiled to the countries where they are needed. By preparing deployment systems globally and in-country, countries will be able to receive and distribute vaccines and other pandemic products more efficiently and effectively.

What did HLIP I aim to do?

Output 1
Common deployment approach
Develop a common approach to manage deployment operations, and share it with stakeholders and deployment partners.

Output 2
Country deployment tools
Simplify and update country deployment readiness systems.
Output 1: Common deployment approach

A common approach will help manage deployment operations among global stakeholders and national authorities. For this, a global simulation portal ‘PIP Deploy’ was developed.

1st global simulation portal was designed and developed (Figure 7).

1st global simulation was conducted in 2017 with:

- 5 countries
- 3 manufacturers
- 1 donor
- 1 freight forwarder
- 2 civil society organizations

Figure 7: PIP Deploy development timeline

What is PIP Deploy?

PIP Deploy is an online coordination and simulation portal that enables stakeholders to practise the operational steps and interactions needed to deploy donated vaccines (Figure 8). It was built to closely match real-world operations. Simulations using PIP Deploy help stakeholders test three key steps in the supply chain – product supply, allocation and delivery – to help identify strengths and opportunities for improvements. This allows stakeholders to practise important aspects of the deployment process before a pandemic.

Strange feeling to be in a simulation! For a freight forwarder, it is like being dressed up, but with nowhere to go. It was an excellent opportunity to practise and make all of the mistakes possible in a dry run. To have a chance to practise and find our weak spots was very valuable. Of those that we found on the freight forwarding side, we saw a number of situations with voluminous products that would have been impossible to ship without some form of alternative plan. The best part of this in a real situation is the country profile information.”

PIP Deploy simulation participant, freight forwarder

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PIP Deploy simulation participant, freight forwarder
Participating in the simulation increases real-life preparedness

A few weeks after the PIP Deploy simulation finished, cases of influenza A(H1N1)pdm09 virus infection were detected at a boarding school in southern Ghana. Two students died from the infection within days of outbreak detection. Alarm bells were raised and the Government requested WHO support. WHO mobilized and deployed influenza vaccine to Ghana within 48 hours of receiving the request. Typically, countries take far longer to achieve a “ready to deploy” status; however, Ghana had developed a ‘country profile’ as part of the PIP Deploy simulation. The country profile contained the information needed to deploy vaccines rapidly, including consignee details, port of entry, cold chain storage capacity, and regulatory/marketing authorization. As a result, stakeholders including WHO and the freight forwarder had the necessary information to quickly deploy the vaccine and to bolster the national response to the outbreak.

It was valuable to have the information in the PIP Deploy country profile as there was an actual outbreak shortly after the simulation. Having spent time on this helped in reducing the time in a real response.”

Hilary Kahume Njenge, PIP Deploy simulation participant, Technical Officer for Emergency Preparedness, Ghana WHO Country Office

Achievements

PIP Deploy is the first global vaccine deployment simulation portal. Engaging in simulations to test and improve the process will streamline real-world pandemic product deployment.
Clear and updated country deployment plans are critical for an efficient and effective response to a pandemic. WHO guidance and tools help countries update their plans. This includes sharing lessons learnt and highlighting the considerations needed to improve the quality of pandemic product deployment plans. This knowledge lays the groundwork to improve operational readiness.

**Output 2: Country deployment tools**

A model country recipient agreement was updated by WHO.

This provides the framework for individual agreements between WHO and each country that will receive donated pandemic vaccines or medicines. This agreement manages the legal terms and conditions associated with all donations at the time of a pandemic. Having these agreements in place now will reduce bottlenecks during a pandemic.

National vaccine deployment plans (NVDPs) were analysed to identify key areas to improve future preparedness planning.

Two analyses of NVDPs were done. In 2015, 71 NVDPs from the 2009 pandemic were analyzed. In 2016, a second analysis examined eight plans that were developed or updated since 2010.

What was found? Plans adequately described the target populations and costs associated with deployment, but lacked details on critical logistical procedures including cold chain integrity, waste management and deployment timelines.

To help countries address the gaps identified, WHO published *A checklist for pandemic influenza risk and impact management: building capacity for pandemic response*. This document highlights key logistical considerations for developing or updating deployment plans as part of the overall pandemic preparedness planning process.

**Achievements**

Tools were developed that can assist countries to update their national pandemic product deployment plans.
Impact: How did preparedness improve?

Deploying pandemic products necessitates effective communication and coordination between the different supply chain stakeholders. The tools and support from this area of work have provided new avenues to bring these groups together and to refine deployment planning processes. Preparing agreements and procedures, and practising coordination will reduce bottlenecks at the time of a pandemic. This way, critical response supplies that have been donated to WHO can more quickly and efficiently reach vulnerable countries and populations.

Sustainable change

The guidance and tools can be used in preparing for and responding to influenza and other public health emergencies. Countries can use these resources to update and test all-hazard preparedness and emergency response plans. This is in line with the IHR (2005) core capacity requirements to periodically review, exercise and update preparedness and response plans.