


# Syndemic health crises—The growing role of National Public Health Institutes in shaping a coordinated response

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## Abstract

Countries across the world are experiencing syndemic health crises where infectious pathogens including COVID-19 interact with epidemics of communicable and non-communicable diseases. Combined with war, environmental instability and the effects of soaring inflation, a public health crisis has emerged requiring an integrated response. Increasingly, national public health institutes (NPHIs) are at the forefront of leading this, as demonstrated at the 2022 Annual Meeting of the International Association of National Public Health Institutes (IANPHI). These effects are particularly evident where conflict is exacerbating health crises in Ukraine and Somalia. In Ukraine, medical and public health workers have been killed and infrastructure destroyed, which require major efforts to rebuild to international standards. In Somalia, these crises are magnified by the effects of climate change, leading to greater food insecurity, heat-related deaths and famine. National public health institutes are crucial in these contexts and many others to support integrated political responses where health challenges span local, national and international levels and involve multiple stakeholders. This can be seen

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in strengthening of Integrated Disease Surveillance and work towards the Sustainable Development Goals. National public health institutes also provide integration through the international system, working jointly to build national capacities to deliver essential public health functions. In this context, the 2022 IANPHI Annual meeting agreed the Stockholm Statement, highlighting the role that NPHIs play in tackling the causes and effects of interconnected global and local challenges to public health. This represents an important step in addressing complex health crises and syndemics which require whole-of-society responses, with NPHIs uniquely placed to work across sectors and provide system leadership in response.

**KEYWORDS**

COVID-19, health crisis, National Public Health Institutes, public health, syndemic

**Highlights**

- COVID-19 syndemic with economic and social instability is a complex health crisis.
- Conflict and war exacerbate this crisis, demonstrated in Ukraine and Somalia.
- National public health institutes (NPHIs) are leading an integrated response.
- Strengthening NPHIs enable multisectoral actions to address health crises.

## 1 | INTRODUCTION

Much of the northern hemisphere is experiencing the compounding effects of a syndemic encompassing resurgent seasonal respiratory diseases plus COVID-19, combined with war in Europe and a related cost-of-living crisis brought about by soaring inflation.<sup>1</sup> Each of these crises have an impact on health and wellbeing and their combined effects are compounding the pressure on already stretched health and social systems. Such an intersection of economic, geopolitical, and epidemiological crises is precipitating a public health crisis that requires an integrated response, which, increasingly, NPHIs are at the forefront of leading nationally and globally. In this context, the 2022 Annual Meeting of the International Association of National Public Health Institutes (IANPHI), a network of over 110 NPHIs, sought to learn from its membership's experience of tackling multiple simultaneous threats to public health.<sup>2</sup> With a focus on pandemics, conflict and climate change, the conference in Stockholm heard powerful examples of the challenge faced by health systems and of the new and evolving roles required of NPHIs to respond to these interwoven issues over the past 3 years.

COVID-19 is increasingly recognised as a syndemic,<sup>3,4</sup> an infectious pathogen interacting with concurrent epidemics of communicable and non-communicable diseases, with its impact and the response to it shaped by

multiple determinants which extend beyond the health sector. Ultimately, this syndemic is amplified by social and economic factors including inequality, economic and energy insecurity and, both directly and indirectly, by armed conflict and climate change.<sup>1</sup> It is increasingly evident that the response requires a holistic public health approach. Although many commonalities exist between different national experiences of the syndemic, contexts vary enormously. Case studies presented by Ukraine and Somalia at the IANPHI annual meeting highlighted the extreme situations that the most vulnerable countries must contend with.

At the meeting, NPHIs from around the world declared their shared commitment to tackle these global crises in the Stockholm statement.<sup>5</sup> This reaffirmation of commitment to achieving the Sustainable Development Goals, prioritising health equity and strengthening health systems, with NPHIs working at the heart of crisis response, is a key step towards building a world more resilient to syndemic health crises.

## 2 | OVERVIEW OF THE SYNDEMIC NATURE OF HEALTH CRISES

Health emergencies inflict a grave toll not only on human health and health systems, but increasingly on economic stability (Figure 1), education, poverty alleviation, and on efforts to mitigate climate change. These impacts are multiplicative and syndemic in nature, propagating health crises across diverse global contexts. Recognising that the functioning of health systems is integrally linked to the environment, animal health and agriculture, demands solutions that reach across sectors and from community to national and global levels. As noted by Scott Pendergast, World Health Organization (WHO): “*The integration between primary health care, health promotion, and health security need to go hand in hand*”. Realising the potential of such an integrated approach is part of the rationale underlying the WHO’s ten proposals to strengthen the global architecture for health emergency preparedness, response, and resilience based on the principles of equity, inclusivity, and coherence.<sup>6</sup>

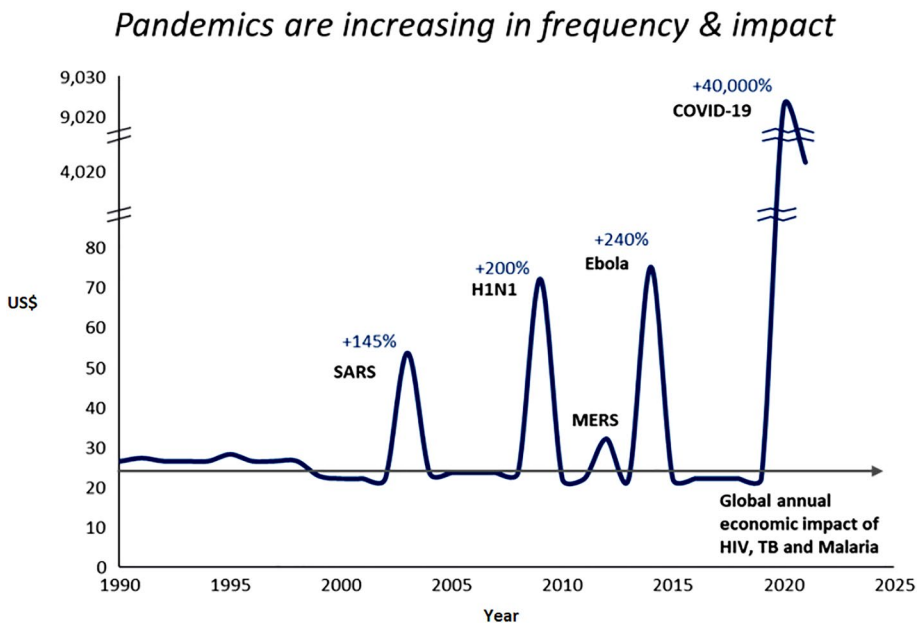


FIGURE 1 Economic impacts of public health emergencies 1990–2021. Source: World Health Organization (WHO).

### 3 | CONFLICT ESCALATES HEALTH CRISES—CASE STUDIES OF UKRAINE AND SOMALIA

#### 3.1 | Ukraine

The major escalation of Russia's war on Ukraine from 24<sup>th</sup> February 2022, has forcefully demonstrated the inter-related nature of health challenges with trauma, non-communicable diseases and mental health issues compounding the effects of infectious diseases, including COVID-19.<sup>7</sup>

As of December 2022, 1153 medical facilities had been damaged, with 29 civilian doctors killed and more than 100 injured. Further to direct impacts, key health personnel have been evacuated from areas of active conflict, and many have migrated to safer areas. In addition to mass displacement of the population, key services for those who remain have also been impacted. Medical information systems have been disrupted, with frequent Internet access and power outages, increasing the challenge of routine data collection for surveillance of infectious and other health hazards - weakening health security.

Public health workers including those from the Public Health Centre of Ukraine have been at the forefront of innovations, including the organisation of mobile clinics and vaccination teams for populations on the move. Adaptive logistics routes for medical supplies including vaccines have been developed, and the rapid adoption of electronic prescribing systems has enabled resilience in highly uncertain circumstances. Public health teams have supported development of hotlines and chat bots to provide health information in more accessible ways.

Despite the above innovations, the task of rebuilding the health system in a conflict that has no immediate end in sight is fraught with challenges. The war has required health system funding to be redirected towards emergency needs, but the task of rebuilding the healthcare system in the longer term remains and requires major investment. As Ukraine seeks to rebuild healthcare and public health systems to international standards and towards harmonisation with EU regulations,<sup>8</sup> continued development of national public health infrastructure and systems will be essential.

#### 3.2 | Somalia

Somalia is experiencing interconnected health crises, with the COVID-19 pandemic, extreme weather events due to climate change, and food insecurity contributing to negative impacts on the health and wellbeing of the population. Ongoing conflict has reduced the capacity for health system recovery from acute emergencies including floods, droughts and insect swarms (Figure 2). The 2020 flooding alone displaced 919,000 people, with desert locusts further destroying crops and subsequent drought extending the challenges facing the people of Somalia. As a consequence, 7.8 million people - more than half of Somalia's population - are now facing drought-related hunger, with 1.8 million acutely malnourished.

The COVID-19 pandemic exacerbated pressure on the public health system, with a 20% reduction in routine vaccination coverage, reductions in facility-based deliveries and a 13% increase in childhood mortality observed. Overstretched systems responded with major innovations however, including the roll out of PCR testing, upscaling of in country oxygen production, and development of genomic sequencing capacities.

As the pandemic progresses and the challenges of food insecurity, heat-related deaths and famine escalate, an intersectoral response is needed to make progress towards achieving the sustainable development goals. Despite these circumstances, establishment of the Somali National Institute of Health has been successful and alongside partners provides a crucial platform for shaping approaches to tackling these challenges.

### 4 | INTEGRATION IN RESPONSE THROUGH NPHIS

Integrated political responses are important for approaching health challenges that span local, national and international levels and involve multiple stakeholders.<sup>1</sup> This requires open information flows and collaboration across

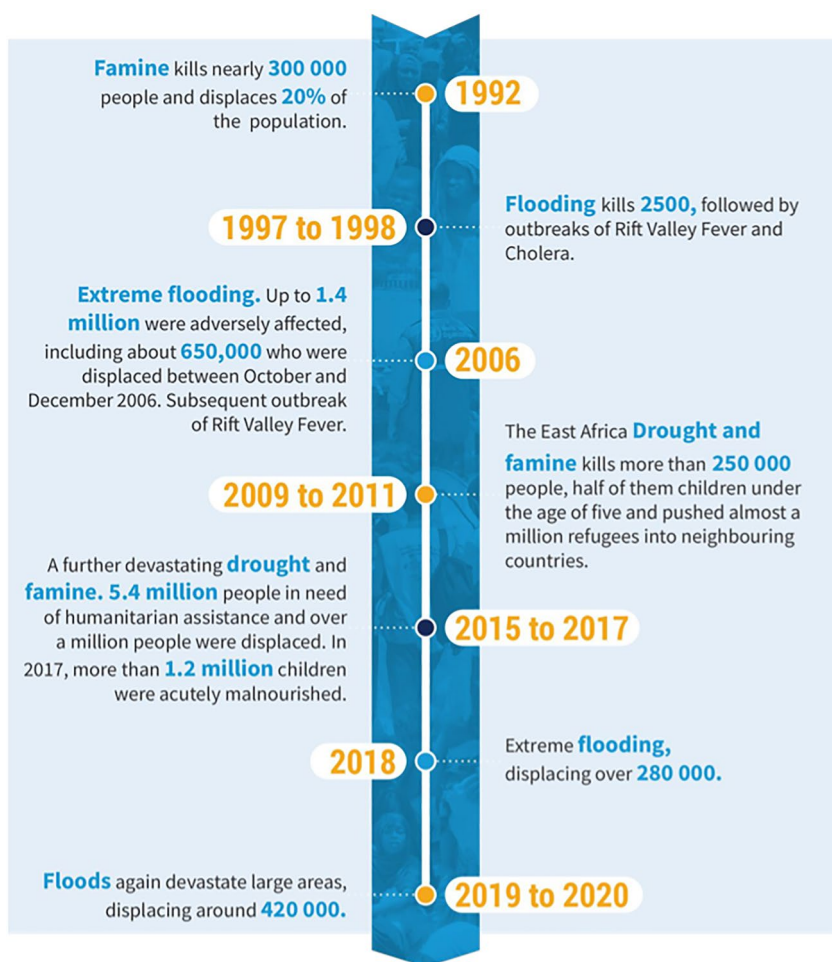


FIGURE 2 Timeline of extreme weather events and famines in Somalia, 1992-present. Source: National Institute of Health Somalia.

sectors including human and animal health, as well as environmental factors. To support this, NPHIs have collaborated to better understand Integrated Disease Surveillance (IDS) across countries.<sup>9</sup> Through a systematic scoping review and qualitative deep dives led by NPHIs, challenges were noted including fragmentation of existing evidence and steps were taken towards development of IDS working across institutions and silos. This work has reinforced the need to strengthen governance, financing, and institutional structures, and the need for a well-trained public health workforce.

National public health institutes have a crucial role to play in further development of IDS, particularly in strategic planning and supporting learning through collaborative networks. However, the achievement of full IDS requires both political understanding of the need for intersectoral collaboration in disease surveillance and, in contexts where required, support for integration from donor agencies to incentivise collaboration between sectors.

The development of the Sustainable Development Goals was intended to strengthen approaches that work at the interface between sectors, promoting greater political integration in support of global collective action in addition to better coordinated national and local actions. The indivisible nature of the SDGs has been well described,<sup>10</sup> and their inter-dependence is exemplified by multifactorial health crises, where it is clear that only a multi-disciplinary and whole-of-government response will result in sufficient impact.

National public health institutes are well positioned to coordinate this work across sectors, operating beyond the limitations of political cycles to plan, develop and operationalise essential public health functions.<sup>11</sup> At the heart of this approach is a recognition that NPHIs require a level of independence from political influence to be able to speak truth to power. A solid legal framework should protect the ability of NPHIs to speak to the evidence across government agencies, bringing together disparate political interests in addressing the complex nature of concurrent health crises.

## 5 | STRENGTHENING COLLABORATION BETWEEN NPHIS

Whilst politically integrated responses are difficult and time-consuming to achieve, NPHIs continue to support coordinated policy responses to complex issues in a rapid and effective manner.<sup>12</sup> At the heart of any approach to greater integration, whether political or of surveillance systems, collaboration and coordination build upon common purpose and are ideally underpinned by strong trust between individuals and institutions. Strengthened peer-to-peer linkages and advocacy for the development of NPHIs is critical to strengthening public health capacities in all countries. A shared vision on the objective of action is key for successful collaboration and is the basis for any form of integration.

National public health institutes are constantly evolving and learning, a process which is enhanced by the peer-to-peer exchange between institutions. The collective learning from many NPHIs on the response to COVID-19 provides a rich source of insights into the types of actions that will be needed to address future pandemics.<sup>13</sup> The need for multilevel and multisectoral collaboration are highlighted, as is the need for institutions to be adaptable to rapidly changing circumstances. For NPHIs to be an effective player in both national and global responses, a strong legal mandate is required that gives NPHIs the authority to work at the interface between sectors, to convene diverse stakeholders and thus ensure the Sustainable Development Goals can be treated as an indivisible set of priorities.

## 6 | INTEGRATION IN RESPONSE THROUGH INTERNATIONAL SYSTEM

Within the UN System, the World Health Organisation remains a strong champion for SDG 3 but is also a key player for many other SDGs and has a central role in coordinating global action against threats to human and planetary health. The opportunity for NPHIs to play an internationally coordinated role in addressing these complex health threats has been enhanced by a newly forged partnership between IANPHI and WHO.<sup>14</sup> This partnership includes a commitment to work jointly to build national capacities to deliver essential public health functions.<sup>15</sup> Core to this is a commitment to support international efforts to strengthen the public health workforce with expert skills and competency-based training.

Many NPHIs active within the IANPHI network such as US CDC, Public Health Agency of Sweden, Norwegian Institute of Public Health, Public Health Agency of Canada, UK Health Security Agency and Robert Koch Institute have dedicated resources to building NPHI capacity. Nigeria CDC and Uganda NPHI have already been hugely successful in developing public health capacity,<sup>16,17</sup> with countries including Australia now committed to NPHI establishment.<sup>18</sup> Important guidance has been developed on factors to consider when developing an NPHI, with integration at the centre.<sup>11</sup> IANPHI continues to collaborate with international actors including Africa Centres for Disease Control and national governments and institutes, to support countries to establish NPHIs where they do not yet exist,<sup>19</sup> and to facilitate further strengthening and collaboration where they do.

## 7 | STOCKHOLM STATEMENT

Acknowledging the interconnected nature of health threats and the essential role of NPHIs in coordinating a multi-sectoral response, the IANPHI Annual meeting agreed the Stockholm Statement (Table 1). This includes a number of recommendations highlighting the role that NPHIs can play in tackling the causes and effects of interconnected global and local challenges to public health.

**TABLE 1** Stockholm statement of International Association of National Public Health Institutes annual meeting, December 2022<sup>5</sup>.

The 2022 IANPHI Annual Meeting called upon member National Public Health Institutes to:

- Support countries to reaffirm their commitment to the achievement of the Sustainable Development Goals;
- Prioritise health equity and commit, through an appropriate investment in prevention and health promotion, towards healthier, and resilient populations;
- Support countries to strengthen their forecasting, preparedness, early threat detection and rapid response capabilities using the One Health approach, and support rapid decision-making to deal more effectively with crises including the ongoing pandemic;
- Support countries in establishing resilient health systems that can effectively mitigate and address the health impacts of climate change;
- Strengthen the role, mandate, governance, human resources, delivery and infrastructure of National Public Health Institutes that yield science-based evidence and are placed at the centre of crisis response systems in the countries;
- Strengthen advocacy for the health and well-being of the population, be at the centre of climate change adaptation;
- Adopt the use of digital systems, open standards, data sharing and data science methods to strengthen preparedness for health emergencies, promote health and prevent disease in today's digital age

## 8 | CONCLUSION

Complex health crises and syndemics require whole-of-society responses, with NPHIs uniquely placed to work across sectors and provide system leadership in response. This has been recently demonstrated in contexts, exemplified here by Ukraine and Somalia, experiencing acute overlapping crises of war, COVID-19, economic and environmental instability. The COVID-19 syndemic has further illustrated the need for integrated responses such as IDS, with growing evidence that comprehensive systems are more resilient to disruptive events including conflict and extreme weather. Through the 2022 Stockholm Statement, IANPHI's members reaffirmed their commitment to supporting the achievement of the Sustainable Development Goals, including through the essential roles that NPHIs can play in integrated political responses and in considering health across varied policymaking domains.

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## DATA AVAILABILITY STATEMENT

Data that support the findings of this study are available from the corresponding author upon reasonable request.

## ETHICS STATEMENT

Not applicable.

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