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[Global Health](#)

# Pandemics: How Well-Prepared Is the EU?

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Epidemics and pandemics pose a real danger in the highly connected 21<sup>st</sup> century. Densely populated areas like the EU, with lively exchange of goods and services, are especially susceptible to the rapid spread of infectious diseases. The good news is: we can prepare ourselves – but it won't be easy.

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### **Welcome to the Age of Pandemics**

The pathogen that holds the attention of the G20 health ministers during their meeting in Berlin is a new and particularly dangerous one. The virus is spreading rapidly beyond national borders. Health systems are overwhelmed by the rapid rise of infected people and are on the point of collapse, air traffic has been suspended and stock markets are beginning to plummet. The outbreak is dominating headlines worldwide, generating fear and even panic. The emergency exercise scenario simulated by the G20 health ministers in Berlin in 2017 was purely fictional, but by no means unrealistic.

It is erroneous to believe that developing countries with weak health systems and practically non-existent state management are the only ones affected by epidemics. Severe Acute Respiratory Syndrome (SARS) was the first pandemic of the 21<sup>st</sup> century, spreading in 2002/2003 from southern China to the hub of Hong Kong and from there all over the world, causing serious damage in Singapore, Canada, and elsewhere. Flu viruses mutate rapidly and adapt quickly to external circumstances, giving them a high pandemic potential as well and presenting a threat to all countries.

New pathogens are especially good at using strong networking to spread across great distances, inflicting major damage. This is especially true of regions that are strongly interconnected through the exchange of people and goods. "In Europe, the increasing number of airline passengers with larger travel hubs mean that an emerging disease can reach a European city within a matter of hours. We also have a

large population of over 750 million people and densely populated cities," says Prof Máire Connolly, who coordinates the EU PANDEM (Pandemic Risk and Emergency Management) project.<sup>1</sup>

### **Infectious Diseases on the Rise**

In the 1960s and 1970s, the prevailing assumption was that infectious diseases would be defeated in the years to come. After all, medical advances and improved standards of living had suppressed diseases such as smallpox and malaria, which had afflicted humanity for centuries. Today, this optimism has dissipated entirely. Infectious diseases continue to account for very high death rates and cause tremendous damage. They are gaining ground throughout the world, and the threat of a pandemic has risen due to the high degree of global networking and mobility. The WHO declared health emergencies in 2009, 2014, and 2016 because of the spread of swine flu, setbacks in the fight against polio, the Ebola outbreak in West Africa, and, recently, because of the Zika virus.

The return of epidemics is particularly driven by megatrends closely connected to globalisation. The great increase in travel and commerce combined with such factors as urbanisation, climate change, and environmental degradation, means that the risk of epidemics and pandemics has reached unprecedented levels. Climate change, for instance, has led to an increase in mosquitoes that transmit dangerous diseases, so that a greater number of people are exposed to the pathogens that they carry as well as poorly prepared regions also being increasingly affected. Environmental

degradation such as deforestation and human penetration into pristine nature reserves, contributes to higher levels of contact between humans and animals, increasing the incidence of pathogens passing from the animal kingdom to humans. A majority of infectious diseases affecting humans originally derive from animals. Among them are Ebola, Nipah, SARS, HIV, and rabies.

Unfortunately, according to researchers and based on recent events, the danger of a pandemic in the hyper-connected 21<sup>st</sup> century is higher than most other times in human history. The acceleration of underlying trends such as

urbanisation and environmental degradation will serve to further increase pandemics and epidemics. Fortunately, we are well positioned to take precautions to prepare ourselves for epidemics. This does not mean that preparing for epidemics and pandemics is an easy task – quite the contrary: This is one of the greatest challenges of the 21<sup>st</sup> century. Over the past few years, we have gathered and evaluated important experience in how to handle epidemics. Putting these lessons into practice may contribute towards improving such efforts in future.

But what is the current state of preparation for combatting infectious diseases in Europe, a



A global threat: In the hyperconnected 21<sup>st</sup> century, the threat of a pandemic is as high as seldom before.

Source: © Kim Hong-Ji, Reuters.

region that is characterised by dense settlement and a high level of exchange of people and goods?

### **Preparing for Pandemics – One of the Greatest Challenges of the 21<sup>st</sup> Century**

There is no simple answer to this question. Expectation management is greatly needed. Ideally, the international community would successfully identify outbreaks and contain them before they spread across entire regions or several continents. Therefore, each pandemic demonstrates that the correct steps have not been taken in the areas of prevention, early detection, risk assessment, and reaction. Nevertheless even if we enhance each of these levels in the fight against pandemics – something that we must urgently work toward – it is safe to assume that, in future, we will at times face epidemics that spread over great distances. While the level of ambition in the area of combatting epidemics is to prevent outbreaks in the long term, the realistic goal for the foreseeable future will include managing severe epidemics. This is due to the complexity and extent of the task and the countless different disease outbreak scenarios.

For example, methods for successfully combatting an epidemic are specific to the disease in question. Is it a highly lethal flu virus, such as the H5N1 avian influenza virus, or an airborne and thus highly contagious pathogen such as H1N1, also known as swine flu? Is it a retrovirus like HIV or a disease like Zika or malaria that is transmitted by mosquitoes? Or is it a new kind of pathogen for which we are entirely unprepared? Are there effective medicines or vaccines for this pathogen? Could it mutate, and what would the potential implications be? The WHO tries to anticipate such questions by keeping a list of pathogens that it describes as priority; however, the list contains seven diseases plus “Disease X”, which stands for an entirely new pathogen. Successfully combatting an epidemic also depends on the conditions at the place of outbreak. How many health workers are there? What type of training do they have? How well are hospitals equipped? The level of trust in

government and medical institutions can also be decisive in combatting epidemics. All of these factors and many more need to be monitored when an epidemic threatens and experts must react.

### **Various measures can reduce the probability that a pandemic will arise.**

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Furthermore, combatting epidemics cuts across many areas of national and international policy such as agriculture, trade, research, development and security. Especially in the arena of prevention, disease protection should be considered an integral component of development, trade, research, and agricultural policy, since these are areas where measures can be introduced to reduce the incidence of epidemics and pandemics.

#### **Health Crises as a Motor**

As a region with open borders and lively exchange of people and goods, the EU is susceptible to the rapid spread of infectious diseases. Since the 1990s, the EU, and especially the European Commission, has therefore engaged in preparing for pandemics and health risks in various ways.<sup>2</sup> EU activities should therefore be seen as a complement to existing mechanisms. On the one hand, these mechanisms include national pandemic plans, which a 2003 WHO resolution requires each country to prepare, as well as the many international measures implemented by the various sub-organisations of the United Nations, the World Bank, and numerous NGOs, on the other.

The emergence of health risks usually served as a driver for the development and implementation of measures and instruments for protecting against health threats at the EU level. For instance, the BSE epidemic which in the 1990s spread from the United Kingdom to other EU states and had the potential to pass to humans in

the form of Creutzfeldt-Jakob disease, resulted in fierce criticism of the EU's insufficient consumer protection regarding health care. In the aftermath, the independent European Food Safety Authority was founded in 2002.<sup>3</sup> This example shows that effective protection against epidemics affects not only health policy, but also interventions in a number of policy areas – in this specific case, agriculture and consumer protection.

Yet other health crises have also led the EU's decision-makers to recognise how urgent reform steps are in preparation for the impending challenge and that necessary resources must be provided. The Health Security Committee (HSC) was established in the wake of the 2001 anthrax attacks in the US, the European Centre for Disease Prevention and Control (ECDC) was founded after the SARS pandemic of 2002/2003, and, most recently, the European Medical Corps (EMC) was organised in February 2016 after the Ebola crisis of 2014/2015 demonstrated the necessity of a quick reaction force. The European Commission has thus already implemented important measures to counter future health risks more quickly and comprehensively. Below is an overview of some of the EU's instruments and measures, a description of how they work and are equipped, and where further action is needed. The instruments introduced here are a selection of measures with a focus on their importance.

### **The Health Security Committee – Improving Coordination and Advice**

The Health Security Committee (HSC) is the EU's central advisory and coordination body in the area of prevention, preparation, and reaction to cross-border health hazards. It was initiated by the Commission and the member states in the aftermath of the 2001 anthrax attacks in the US and formalised in 2013, following the 2009 H1N1 flu pandemic.<sup>4</sup>

The HSC holds regular meetings in Brussels among representatives from the health ministries of member countries and a few neighbouring



countries as well as (in some cases) from the WHO under the chairmanship of the Commission – specifically, of the relevant Directorate-General.



Infectious diseases are on the rise: In the 1960s and 1970s, it was still believed that infectious diseases could be defeated within the next few years. Today, this kind of optimism has mostly evaporated. [Source: © Thomas Peter, Reuters.](#)

The committee's mandate is focused on the exchange of information and coordination of individual measures with respect to health

threats. Its tasks encompass detecting health risks, quickly transmitting information, and coordinating the reaction among member states, the EU

Directorates-General, and agencies. The committee also collects scientific data for establishing and evaluating risks and specific threats, which it reports to national authorities. The epidemiological data used as the basis for assessing risks primarily come from the European Centre for Disease Prevention and Control (ECDC). The HSC also supports member states in preventing and preparing for health risks by providing scientific and technical expertise and improving emergency planning.

## **The cross-cutting character of health care requires Europe-wide coordination between affected agencies.**

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With the HSC, the European Commission created an important instrument for combatting epidemics in the area of coordination among individual member states at the EU level and providing scientific and technical information. The option of greater coordination among the EU Directorates-General and agencies that work on preventing health hazards in completely different offices within the EU was a necessary step. Improving coordination within the EU should continue to be vigorously pursued and be incorporated in the HSC. This is because efforts at combatting health threats always tend to unravel owing to the cross-sectional character of the area and the fact that it affects numerous different policy areas. Nor should the initial cautious positive evaluation of the committee obscure the fact that it has no authority to make recommendations mandatory. It is merely a coordinating and advisory body and is reliant on member states for cooperation and information sharing.

### **The European Centre for Disease Prevention and Control**

The European Centre for Disease Prevention and Control (ECDC), whose very name is reminiscent of the powerful American CDC (Centers for Disease Control and Prevention)

was founded in 2005 as one of the lessons taken from the 2002/2003 SARS pandemic. The disease, still unknown at that time, spread rapidly from China to Hong Kong and from there all over the world, making it painfully clear to the international community how quickly new, highly contagious diseases can spread unnoticed in the hyper-networked 21<sup>st</sup> century and what damage they can do. In this context, the EU decided to establish its own disease control authority.

The EU agency, headquartered in Stockholm, is responsible for epidemiological monitoring and control of 52 infectious diseases and supports the EU in combatting health risks. As a scientific agency, the Centre provides data to EU decision-makers and member states and carries out risk assessments on the incidence of certain communicable pathogens. The agency also advises institutions on the appropriate countermeasures to be initiated in view of the incidence and spread of a certain infectious disease. The ECDC collects and evaluates the appropriate information by monitoring disease data and using various instruments of epidemic intelligence.

The operational capacities of the EU agency are much weaker when compared to those of the American CDC. For instance, during the Ebola crisis in West Africa, only a limited number of experts from the ECDC were on the ground, and those that were, played no significant role in the countries most affected, while CDC personnel were there in great numbers supporting West African countries to tackle the deadly epidemic. Admittedly, compared to the American disease control agency with its annual budget of around seven billion US dollars (2017) and its 12,000 employees, active in all 50 states and 120 foreign countries, the ECDC with its 290 employees and a budget of 58 million euros (2017), is poorly endowed.<sup>5</sup> It is true that the EU agency cooperates with relevant national agencies, such as the Robert Koch Institute in Germany, to improve European disease protection, but the ECDC's capacities – especially in the area of operational crisis reaction – are much more

limited than those of the Americans. In light of the microbiological threat situation, urgent consideration should be given to upgrading the resources for the ECDC in order to expand it into a powerful disease control agency, with the potential of becoming more active abroad.

### **Early Warning**

In addition to European coordination of reactions to a disease, especially by the HSC, and the provision of epidemiological data by the ECDC, early-warning systems could play an important role in combatting epidemics and pandemics. The digitalisation and availability of many online data sources have resulted in new options for epidemiological monitoring systems that use big data to discover indications of disease outbreaks that have pandemic potential. There are thus various monitoring and early-warning systems at both national and international levels operated by the WHO, individual governments and NGOs or research platforms. Among the best-known international early-warning systems are the Global Public Health Intelligence Network (GPHIN), established in 1997, and the Global Outbreak Alert and Response Network (GOARN), to whose data the EU also has access.<sup>6</sup>

### **Early-warning systems must always be used in conjunction with a relevant risk analysis and a suitable reaction.**

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The EU also operates its own early-warning systems such as the EU Early Warning and Rapid Response System (EWRS). This system is essentially an IT platform via which the ECDC or individual member states can indicate a threat – a dangerous biological situation that may affect the entire EU. This platform provides a great deal of information about the pathogen from a number of systems. EWRS connects employees with health agencies in member states and allows them to exchange information about the pathogen.<sup>7</sup>

Furthermore, the EU has developed the Medical Intelligence System (MediSys). MediSys searches news articles in the internet for abnormalities, classifies them according to various categories, and uses an algorithm to generate notifications pertaining to potential health risks.<sup>8</sup>

Hence, the various early-warning systems equip the European Commission with a great deal of information about epidemics and pandemics that may develop. Although these systems represent an important component of disease protection, the massive expansion of early-warning systems over the past few years have not prevented severe disease outbreaks and it is questionable whether additional systems will add any value. Much more decisive, although admittedly more difficult, is the performance of appropriate risk assessments on whose basis suitable containment measures are initiated. If such assessments are not performed, the best early-warning system will be powerless against the spread of an epidemic or pandemic. The 2014/2015 West Africa Ebola epidemic makes this particularly clear: While the mysterious disease that spread in Guinea from December 2013 was identified as the Zaire strain of Ebola (the most deadly) as early as March 2014, a public health emergency was not declared until August, and most of the large amounts of international aid arrived from September onward. This gave the epidemic a six-month head start. Early-warning systems are one thing, but appropriate risk assessments resulting in suitable reactions and the quick provision of resources are another.

### **Quick Reaction Force: The European Medical Corps**

The quick provision of personnel and material for combatting a health crisis was one of the most important lessons learnt from the Ebola epidemic. What is more, the European Medical Corps (EMC) was created at the EU level as early as February 2016. The EMC is part of the existing EU European Response Capacity disaster control structure, which in turn is part of the Directorate-General for European Civil Protection and Humanitarian Aid Operations.



The EMC is primarily a pool of equipment and expert teams from the medical and the public health sector that can be deployed quickly. Eleven member states contribute voluntarily to the 17 teams and EMC material. Germany provides experts from the Robert Koch Institute and a mobile laboratory from the Bernhard Nocht Institute for Tropical Medicine.

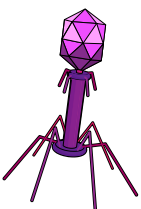
The Medical Corps currently consists of personnel and material that aim at combatting health crises with a variety of contributions. On the one hand, there are emergency teams that consist primarily of medical personnel. They can directly treat diseased individuals in the affected area. Public health experts also ensure that, during a health crisis, the situation on the ground is analysed and appropriate countermeasures are initiated. These teams can offer such things as training in dealing with infected individuals, organise education and vaccination programmes, and provide behaviour recommendations for containing the crisis. Mobile biosafety laboratories can contribute to quickly identifying those who are infected. This makes it possible to isolate and treat these people, hence interrupting further chains of infection. The EMC also has medical evaluation capacity so that, if there is a mass infection, EU citizens, humanitarian aid workers, or medical personnel can be evacuated. For instance, to allow evacuation of infected aid workers during the Ebola epidemic in West Africa, the German federal government provided a converted plane with an isolation unit that could be hermetically closed off. Another part of the EMC is the logistics team and experts who can assume overarching coordination between the EU, affected countries, the United Nations, and other players in a crisis situation.

The EMC public health team has taken part in several missions, including the 2016 Angola yellow fever outbreak. Epidemiologists assessed the situation on the ground, evaluated control measures that had already been implemented, advised and supported the local authorities, and performed risk estimates for the EU. In November 2017, at the request of the WHO a mobile laboratory was sent to Uganda via the EMC mechanism to help local authorities and the WHO, CDC, and MSF combat a Marburg outbreak.<sup>9</sup>

The EMC gives the EU promising, fast, flexible deployment capacity for personnel and material in crisis situations. The first missions appear to have been successful according to many experts. However, a few critical voices fear that the increased efforts to establish measures focused on event-based detection and reaction to severe health crises are causing the EU to lose sight of sustainable, long-term health policy that preferentially uses resources to enhance health systems and means of prevention.

#### **External Dimension: EU Global Health Policy**

A comprehensive disease-control policy is a cross-cutting issue that affects a number of areas of policy, invests in the intertwining of external and internal dimensions, and should always consider prevention. An active health policy and the promotion of Global Health are important steps in combatting pandemics and epidemics. For instance, the EU is a member of the Global Health Security Initiative (GHSI), an informal association of states whose aim it is to minimise health threats. The European Commission, one of the largest development fund donors, also contributes to expanding and strengthening health systems all over the world. As a whole, however, the EU's involvement in Global Health has lagged well behind expectations, and scarcely any overarching strategy is discernible. The EU did ratify a strategy for its foreign health policy in 2010, but in 2019, this is now outdated and has had no permanent impact; leaving the EU far behind its potential. It





Preparation is everything: National and international actors must come together to take preventive measures, encourage early detection, evaluate the risks, and react accordingly in hazardous situations. Source: © Philippe Wojazer, Reuters.

is currently unable to effectively pool the numerous health-related measures performed by various EU players. Doing so would make it better able to act outside its borders. And the fact that large member states pursue their own foreign health policy and do not necessarily coordinate them with the EU, contributes to limiting the EU's role in Global Health policy. For instance, it does not usually manage to speak with one voice within the WHO or other UN organisations.<sup>10</sup>

### **There Are Still Urgent Problems**

How well-prepared are we for a pandemic? As indicated above, expectation management is called for here, since there is no simple answer to this question. What we do know is that the EU has not been passive during past health

crises such as SARS, H1N1, and the Ebola epidemic, but has learnt important lessons and implemented a number of measures. It also finances various organisations and research projects devoted to improving preparation for and reactions to pandemics. What's more, the EU promotes the use of safe vaccines and supports member states in coordination, procurement, research, and innovation.<sup>11</sup> The EU's action plan for combatting antibiotic resistance ratified in June 2017, addressed one of the most ominous developments in the world of microorganisms.<sup>12</sup> Overall, Europe is currently better prepared for a severe epidemic or pandemic than it was just a few years ago. Nevertheless, a comprehensive answer to this question depends greatly on the type of pathogen and the severity of the pandemic scenario.

EU weaknesses in the area of reaction to pandemics are especially great when it comes to coordinating individual EU measures and among member states. While the HSC gives the EU an instrument for improving coordination, it lags behind expectations. There continues to be too little coordination among the EU's many measures and instruments which, as the cross-cutting nature of the issue requires, involve a large number of Directorates-General and agencies. A cross-sector coordination mechanism is urgently needed. It should be integrated into the HSC, where a number of threads already come together. However, other Directorates-General and EU agencies involved in managing pandemics should also be represented.

There is also a fragmented picture with respect to member states – some have adopted far-reaching measures while others are scarcely prepared at all. The varying standards and approaches by the individual states, such as clinical studies and research results, make it very difficult to collect and evaluate data at the EU level; this has implications when preparing for pandemics.<sup>13</sup> There is also urgent need for action in coordination and adaptation, and this should be discussed and pressed forward in the HSC.

The Global Health strategy update as currently implemented by the German federal government, is urgently needed at the EU level. The US's withdrawal from Global Health matters under the current administration marks the absence of what was formerly one of the largest sponsors, and the United Kingdom's exit robs the EU of what was hitherto a strong contribution to the Global Health system, too. The EU should therefore urgently revisit its role and increase the resources it assigns to this area.<sup>14</sup> This is an indispensable step on the road to improved disease prevention policy because, no matter where in the world a disease outbreak occurs, global networking can bring it to Europe sooner or later. In this context, financial and personal resources provided to the ECDC ought to be improved and the mandate expanded to include enhanced monitoring of pathogens

outside EU territory. In addition to this external dimension, the EU should also consider enhancing health systems in member states and contribute to the access of affordable, safe medications. Austerity measures in reaction to the economic and financial crisis have had repercussions on health systems, especially in the countries of Eastern and Southern Europe.<sup>15</sup> Infectious diseases can spread especially quickly in those areas where the health systems are fragile. It is therefore important to equip health systems in such a way that they can treat a large number of patients quickly and safely while protecting their own health care workers.

Even though the EU is already doing a great deal to prepare for epidemics and pandemics, there are still some urgent problems. This is no easy task, and it will require a great many resources. But the emergency exercise scenario that the G20 health ministers played out in Berlin in May 2017 is a real one: A pandemic can break out at any time, triggering instability in entire regions. It is important to prepare.

*–translated from German–*

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