

## Article

# Current Response and Management Decisions of the European Union to the COVID-19 Outbreak: A Review

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**Abstract:** COVID-19 has proven to be a formidable challenge for many countries in the European Union to manage effectively. The European Union has implemented numerous strategies to face emerging issues. Member States have adopted measures such as the closure of borders and significant limitations on the mobility of people to mitigate the spread of the virus. An unprecedented crisis coordination effort between Member States has facilitated the ability to purchase equipment, personal protective equipment, and other medical supplies. Attention has also been focused on providing substantive money for research to find a vaccine and promote effective treatment therapies. Financial support has been made available to protect worker salaries and businesses to help facilitate a return to a functional economy. Lessons learned to date from COVID-19 in the European Union are many; the current crisis highlights the need to think about future pandemics from a population-based management approach and apply outside the box critical thinking. Due to the complexity, intensity, and frequency of complex disasters, global leaders in healthcare, government, and business will need to pivot from siloed approaches to decision-making to embrace multidisciplinary and transdisciplinary levels of cooperation. This cooperation requires courage and leadership to recognize that changes are necessary to avoid making the same mistakes we have planned countless times on avoiding. This study focuses on the European Union's initial response to the COVID-19 pandemic, starting with how the European Union first learned and processed the global information arising out of China, followed by the incremental population-based medicine/management decisions made that currently are defining the European Union's capacity and capability. The capacity to organize, deliver, and monitor care to a specific clinical population under a population-based management target includes strict social distancing strategies, contact testing and tracing, testing for the virus antigen and its antibodies, isolation, and treatment modalities such as new mitigating medications, and finally, a vaccine.

**Keywords:** coronavirus; COVID-19; European Union preparedness; pandemics; disaster; crisis; crisis management

## 1. Introduction

The primary treatments of patients presenting for healthcare worldwide are managed by individual practitioners trained in “one-on-one care focused on individual patient interactions and encounters with ill individuals” [1]. Increasingly, especially in hospital settings, a wide variety of health professions now practice team-based care, but the focus remains on individual patient interactions [1]. Population-based medicine/management (PBM) places the individual within the context of a broader community, composed of both ill and well individuals when the entire population is at risk.

PBM must focus on social and structural factors that impact the health of communities, cities, and entire countries to improve the health outcomes of both individuals and the population while improving efficiency and reducing costs [2]. Due to the rising frequency of complex crises worldwide, healthcare providers have been forced to better recognize and participate in the complex management of PBM events that impact both individuals and the populations in which they live. Moreover, health reform is all about practicing PBM, and the only way we can bend the cost curve is by keeping people out of the hospital; thereby, reducing unnecessary utilization. In this use, population health improvement emphasizes the central role of the primary care provider, a fully engaged patient, and care coordination [3].

A crisis is any event that is going to lead to an unstable and dangerous situation affecting an individual, group, community, or the whole society. Crises are deemed to be negative changes in security, economic, political, societal, or environmental affairs, mainly when they occur abruptly, with little or no warning. More loosely, it is a term meaning “a testing time” or an “emergency event” [4].

Modern-day health care providers have traditionally only focused on meeting the response phase requirements of disasters. The emergence of complex global public health crises such as increasing zoonotic infectious diseases, climate change and its extremes, biodiversity loss, emergencies of scarcity, rapid, unsustainable urbanization, migrant and refugee surges, domestic and international terrorism, cyber-security, the civilianization of war and conflict, and the global rise of resistant antibiotics have increased direct and indirect mortality and morbidity [5]. These crises are beyond the current decision-making and operational capabilities of traditional disaster management and its providers, most of whom are community-level practitioners representing every discipline. Successful management requires unprecedented multidisciplinary and transdisciplinary levels of cooperation among decision-makers that include economic and political powers. Focusing on the disproportionate burden that a pandemic causes, multidisciplinary teams are involved in everything from disease prevention and control to public health, the economy, politics, and the geopolitical impact among nations [6]. Some countries have done well in managing the current Coronavirus Disease 2019 (COVID-19) pandemic, while others have failed.

This study focuses on the European Union’s (EU) initial response to the COVID-19 pandemic, starting with how the EU first learned and processed the global information arising out of China, followed by the incremental PBM decisions made that currently define the EU’s capacity and capability today [7]. The authors believe that historical documentation of PBM including strict social distancing strategies (SDS), contact testing and tracing, testing for the virus antigen and its antibodies, isolation, and treatment modalities such as new mitigating medications, and finally, a vaccine, is crucial to the EU’s understanding of the multidisciplinary requirements posed by a pandemic and serves as an essential learning tool for future improvements.

## 2. Global Emergence of COVID-19

COVID-19 is a disease caused by a new type of coronavirus (SARS-CoV-2), first identified in the Chinese municipality of Wuhan in late December 2019. The virus quickly spread to other regions of China and the world. By 20 January 2020, there were reports of confirmed exported cases from Thailand, Japan, and South Korea [8]. During the outbreak, the Chinese changed the case definition several times, which caused uncertainty regarding the exact number of cases and the extent of the spread of the virus. Consequently, several European Union/European Economic Area (EEA) countries

had to modify their testing strategies during the outbreak to test only symptomatic or severe cases [9]. By the end of January 2020, isolated cases appeared in some EU Member States [10]. The first European case, with a travel history to China, was reported from France on 24 January 2020 [11]. In Germany, cases were reported on 28 January, related to a person visiting from China [12]. The first Swedish case was confirmed on 31 January 2020, related to a woman who had visited Wuhan a couple of weeks earlier [10]. On 30 January 2020, the World Health Organization (WHO), declared the first outbreak of a novel coronavirus, a public health emergency of international concern [8]. At the end of February 2020, Italy reported a significant increase of COVID-19 cases concentrated in the northern regions of the country. By March 2020, all EU Member States had reported COVID-19 cases (Figure 1). The number of cases has since continued to increase to 200,000 [13]. The European Council, together with other EU institutions, continues close monitoring and actions taken to date [9]. Those actions include the adoption of relevant EU legislation and ongoing coordination with Member States to share information, assess needs, and ensure a coherent EU-wide response. The WHO is coordinating the worldwide response and declared COVID-19 a global pandemic on 11 March 2020 [8]. The EU is directly contributing to the global response of the WHO by producing daily reports, guidelines, information, and registration of relevant data regarding the number of affected and deaths [14].

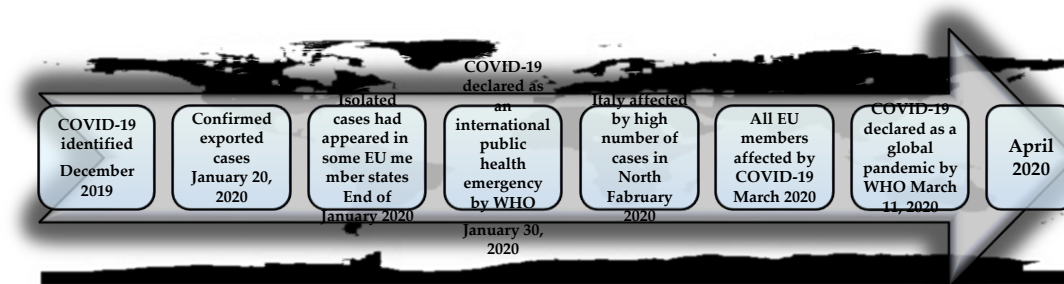


Figure 1. Global Emergence of COVID-19.

### 3. The EU's Response

The EU's response to COVID-19 has focused, to date, on several priorities to take control of the pandemic (Figure 2). EU leaders agreed on the following priorities during video conference meetings on 17 March and 26 March 2020: public health, travel and transportation, research and innovations, economy, crisis management and solidarity, and education. Article 3 of the Council Implementing Decision defines a crisis as a "situation of such a wide-ranging impact or political significance, that it requires timely policy coordination and response at the Union political level" [15]. The conclusions achieved at the meeting were based on prior discussions, which commenced on 10 March 2020, with the European Central Bank (ECB) President, the President of the Euro-group, and the High Representative. Members of the European Council agreed to collaborate in previously enumerated major areas to fight the pandemic [15]. The meeting confirmed the need to implement restricted border movements that are enforced to decrease the spread of the virus. Personal Protective Equipment (PPE) required to support the fight with the pandemic is to be purchased through the civil protection framework financed by EU funds, coordinated by the European Commission [16]. A coordinated and transparent process needs to be undertaken to share and support any developments in research concerning the novel public health threat, amongst all the supporting Advisory Groups on COVID-19 [9].

The EU's emergency response to the COVID-19 pandemic



Figure 2. The EU's emergency response to the COVID-19 pandemic.

#### 4. Challenges to Limiting the Spread: Borders and Mobility

The EU strives to join efforts with its Member States to contain the spread of the virus. Significant border restrictions were implemented to serve that purpose, as EU leaders decided on imposing temporary restrictions on non-essential travel to the EU for 30 days [17]. The European Commission, based on the scarce data concerning virus spread and development, had suggested a month-long restriction to help contain the outbreak and boost Europe's healthcare system to cope with an anticipated surge of patients. Several EU countries closed their borders in March. For example, Poland closed its borders to foreigners on 15 March 2020. Although Polish citizens could return to Poland, they are subjected to a mandatory 14-day home quarantine. International flights and rail connections have been suspended, except for cargo transport works [18]. Essential transport of goods is still permitted across Polish borders. Sweden closed its border on 19 March 2020 for an initial period of 30 days [15].

The EU Council activated the EU integrated political crisis response mechanism (IPCR) on 28 January 2020 [19]. This is a "tool" in the hands of the Presidency to coordinate the political response to major cross-sectoral and complex crises, including acts of terrorism that require multidisciplinary and transdisciplinary thinking, cooperation, and management. IPCR aims to improve EU flexibility when crisis response mechanisms are concerned. The critical responsibility belongs to the Permanent Representatives Committee (COREPER), which acts as a representative of the Member States, and the Council and its different bodies and agencies. This enables more flexible communication and timely decision-making processes [20]. Changes to information sharing as IPCR is implemented allow Member States to receive unrestricted access to regular reports by the European Commission and European External Action Service concerning the current situation and its analysis. Furthermore, there is a dedicated page on a secured web platform where current information is shared [21]. The European Commission and the Council are facilitating permanent contact and coordination among national health and interior ministries [22]. All national authorities are required to provide immediate spending towards fighting the pandemic as a key fiscal target.

The European Centre for Disease Control (ECDC) is issuing a continuous risk assessment for the EU population. Rapid risk/outbreaks assessment aim at supporting the countries and the European Commission in their preparedness and response to a public health threat. They provide a timely summary and risk assessment of a public health threat for EU/EEA countries related to a specific

event. They also include potential options for response. As outbreaks or public health events develop, ECDC may issue updated risk assessments. The essential functions of ECDC are surveillance, epidemic intelligence, response, scientific advice, microbiology, preparedness, public health training, international relations, and health communication. ECDC has developed a dedicated webpage for the pandemic outbreak (COVID-19) updates and risk assessments with a focus on Europe [23]. Their journal *Eurosurveillance* fast tracks reports concerning up-to-date scientific data on the virus spread and its consequences [9].

The EU is also committed to countering disinformation on the virus with transparent, timely, and fact-based communication. The European External Action Service (EEAS) publishes reports such as the Short Assessment of Narratives and Disinformation Around the COVID-19 Pandemic, which has been released to the public alert for disinformation [23].

## 5. Ensuring the Provision of Medical Equipment

Regarding the assessment of safety and performance of medical devices and personal protective equipment, national authorities should share best practices and seek a consensus on common approaches with the assistance of notified bodies as appropriate. Member States should set up a single contact point for all questions related to personal protective equipment and medical devices to link testing bodies and relevant market surveillance authorities [22]. Companies can focus on manufacturing critical medical devices to avoid shortages or delays when lives are at stake. Additionally, lowering the barriers to access medical equipment and supplies is facilitated by lifting customs, duties, and VAT for the import of medical devices and PPE from lower-income countries [8]. The EU is working together with its Member States to ensure the provision of personal protective equipment and medical supplies and to support healthcare systems across Europe through the following means:

- Joint public procurement for facemasks and other PPE. On 19 March, rescEU stockpiling was created, a common European reserve of medical equipment such as ventilators, PPE, reusable masks, vaccines and therapeutics, and laboratory supplies, financed at 90% by the EU Commission [24].
- Close contacts with the European industry to increase the production of all necessary supplies. The Commission announced four official calls to gather medical equipment and supplies for health systems in member countries (28 February, 17 and 19 March 2020), with 25 Member States responding to the request. The first call resulted in offers matching the requested amounts. The contracts concerning those calls were underway in the coming weeks, with distribution to member states of equipment and supplies expected shortly afterward. The European Commission coordinated revised harmonized standards enabling manufacturers to introduce into the market more PPE devices for patients, health care workers, and citizens in general [24].
- Regulated exports of personal protective equipment from the EU to ensure supply in all Member States. Member States are responsible for the issuance of authorizations. However, the process is managed by the Emergency Response Coordination Centre (ERCC), and for any questions concerning the supply of PPE within the EU, the Member States may refer to the ERCC. The Centre runs 24/7 and aims to help any country inside or outside the EU affected by a major disaster upon request from the national authorities or a United Nations (UN) body. The agency also is responsible for emergency communication and monitoring of instruments through the Common Emergency Communication and Information System (CECIS), a web-based alert and notification application enabling real-time exchange of information.
- Priority lanes to facilitate the free circulation of goods and people who need to cross borders. The implementation of the Union's policies is governed by the principle of solidarity among the Member States. To avoid shortages and avoid worsening the existing social and economic difficulties, Member States should not undertake measures that jeopardize the integrity of the Single Market for goods, of supply chains, or engage in any unfair practices. They must always admit their citizens and residents, and facilitate the transit of other EU citizens and residents who



are returning home. New guidelines set out principles for an integrated approach to effective border management to protect health while preserving the integrity of the Single Market [25].

Additionally, under the union civil protection mechanism, the EU has new possibilities to strengthen cooperation between the EU Member States and six Participating States in the field of civil protection, to improve prevention, preparedness, and response to disasters. When the scale of an emergency overwhelms the response capabilities of a country, it can request assistance via the ERCC. The European Commission plays a key role in coordinating the response to disasters in Europe and beyond, and contributes to at least 75% of the transport and/or operational costs of deployment [24,26].

The EU has effectively broadened its involvement by undertaking the following initiatives: facilitated the sourcing for additional personal protective equipment, especially medical masks; activated the Emergency Response Coordination Centre, to coordinate support 24/7; and created a new common European reserve of emergency medical equipment, such as ventilators, protective masks, and laboratory supplies to help EU countries in need.

## 6. Promoting Research for Treatments and Vaccines

Another crucial initiative includes promoting research for treatments and vaccines. On 1 April 2020, EU Commission scientists presented innovative test control procedures for reliable verification of up to 60 million laboratory tests throughout the EU [24]. Sampling methods can accurately evaluate the functioning of coronavirus tests reducing false negatives and requiring a minute quantity of sample material to be used [8]. The EU is fast-tracking and promoting research on COVID-19 by mobilizing €47.5 million for 17 projects for vaccines and treatment via the EU's Horizon 2020, which is the most extensive EU Research and Innovation program ever, with nearly €80 billion of funding available over seven years (2014 to 2020). In addition to the private investment that this money will attract, it also promises more breakthroughs, discoveries, and world-firsts by taking great ideas from the lab to the market. Other research funding sources include €90 million in public and private funds for therapeutics and diagnostics via the Innovative Medicines Initiative (IMI). The European Innovation Council accelerator program provides €164 million for small- and medium-sized enterprises (SMEs), and startups for innovative solutions to tackle the COVID-19 outbreak [19].

## 7. Supporting Employment, Businesses, and the Economy

Due to severe disruption in private sectors, especially in sectors affected by the virus spread, and those undertaking actions towards limiting its spread, member countries are required to provide security measures to protect those affected by bankruptcy, e.g., companies and workers [19]. Safety economic packages are being implemented across Europe, e.g., UK, and Germany (13 March 2020); Italy (17 March 2020); Sweden (16 March 2020); France (18 March 2020); Poland (18 March 2020); Belgium (22 March 2020); and the Czech Republic (23 March 2020) [27]. In Poland, the government proposed deferral of tax payments, a possible exemption from tax terms, assistance with the payment of employee wages in distressed firms, and other preferential loans with preferred terms, along with fee waivers [18]. In Sweden, several measures were undertaken to provide economic support to affected sectors of the economy. This included temporary exemption from tax payment and social expenses, easier procedures for sick leave, etc. [28].

The next fundamental task comprises supporting jobs, businesses, and the general economy. It aims to provide rapid support to workers and alleviate the unemployment risks brought upon by the outbreak. The main instrument in that fight is Support mitigating Unemployment Risks in Emergency initiatives (SURE).

The SURE instrument will be available to the Member States that need to mobilize significant financial means to fight the negative economic and social consequences of the coronavirus outbreak in their territory. It will provide financial assistance to Member States to address sudden increases in public expenditure for the preservation of employment. Specifically, the SURE instrument will act as a second line of defense, supporting short-time work schemes and similar measures, to help the

Member States protect jobs and thus, employees and self-employed against the risk of unemployment and loss of income [29]. The establishment of SURE is a further tangible expression of Union solidarity, whereby the Member States agree to support each other through the Union by making additional financial resources available through loans [29].

EU delegations are working with Member States' embassies to coordinate the repatriation of EU citizens. Help was provided to European nationals in Algeria by organizing a flight by the Polish Embassy on 17 March 2020 to Warsaw [27]. The support received about 630 EU citizens arriving from Iran [30]. When most airlines had stopped their services, the coordination at both the national and local level resulted in the safe return of about 630 EU citizens. Thanks to the coordinated local efforts, sufficient capacity could be organized at commercial airlines, so it was not necessary to activate the EU Civil Protection Mechanism. The Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) monitored the situation closely [31]. DG ECHO is the Directorate-General for European Civil Protection and Humanitarian Aid Operations with the primary mission of preserving lives, preventing, and alleviating human suffering, and safeguarding the integrity and dignity of populations affected by natural disasters and human-made crises. Headquartered in Brussels, it has a global network of field offices, which can ensure the rapid and effective delivery of EU relief assistance [32].

Examples of relief assistance include supporting 30,000 EU tourists who were stranded in Morocco to be able to return home, as well as support in repatriating around 10,000 British, Norwegian, and Swedish citizens [1]. Similar assistance was delivered to EU citizens in Africa, Asia, and the Pacific, as well as Latin America and the Caribbean. The EU and its Member States are taking action to minimize the fallout to the economy due to the COVID-19 outbreak. EU funds totaling €37 billion will be allocated to the Coronavirus Response Investment Initiative to support healthcare systems, small- and medium-sized enterprises (SMEs), and labor markets. Poland, Spain, Italy, Romania, and Hungary are the largest beneficiaries of EU support.

Member countries will not have to contribute to the planned new fund. The program covers expenses incurred by EU countries from 1 February 2020. Up to €28 billion of structural funds from 2014–2020, national budgets not yet allocated to the project, are to become eligible for crisis response. These funds include up to €800 million from the EU Solidarity Fund to be directed to the countries hardest hit [22].

The European Investment Bank has made available up to €40 billion to bridge the short-term financing needs of SMEs. This fund has promoted flexibility in the application of EU rules to state aid measures to support businesses and workers, public finance, and fiscal policies to accommodate exceptional spending. Altogether, the EU and its Member States are mobilizing 2% EU GDP in fiscal measures with 13% EU GDP in liquidity support. In addition, the European Central Bank also announced €750 billion pandemic emergency funding [22].

## 8. Crisis Coordination

Considering the changing situation and the different sectors affected (health, consular, civil protection, economy), the Croatian Presidency decided to activate the EU's IPCR in information sharing mode, on 28 January 2020. IPCR is the EU framework for the coordination of cross-sectoral crises at the highest political level. The idea is based on the notion that crises are inevitable and can hit several countries within the EU. To manage such a crisis, involving many countries, there is a need for collaboration, coordination, communication, and information sharing. IPCR offers the possibility of (a) sharing existing crisis reports, (b) 24/7 contact points, (c) analytical reports, (d) a web platform to exchange and collect information, (e) crisis meetings with EU ambassadors or ministers, and (f) proposals for EU actions decided by the European Council or the Council to the EU. These actions can be conducted stepwise in three distinct operational modes: monitoring (a and b), information sharing (a, b, c, and d), and a combination of all the above. The information-sharing mode means that Member States have access to regular situational awareness and analysis reports by the European Commission

and the European External Action Service. The Integrated Situational Awareness and Analysis (ISAA) Intel is based on relevant information and analysis provided by the Member States (e.g., from relevant national crisis centers), mainly through the web platform [22].

On 2 March 2020, the Presidency escalated the activation of the IPCR mechanism to full mode (meaning from information-sharing mode to preparing, developing, and updating proposals for actions at crisis presidency-led roundtables for the Council). The full activation mode allows for crisis roundtables with the participation of affected Member States: The European Commission, The European External Action Service, The office of the President of the European Council, and Relevant EU agencies and experts.

## 9. Limitations

Significant limitations occur when PBM is understood and practiced by healthcare providers but not by political and economic decision-makers when they legislate to make exceptions to mitigate SDS. The EU has performed well in this regard compared to the United States, for example. This includes understanding that the only two population-based management options the healthcare community has are SDS and vaccines. SDS, unfortunately, has been started too late and ended too soon, with some EU countries taking liberties or providing exceptions with SDS decisions allowing openings for the virus to thrive. It is an 'all or nothing' concept and practice that is integral to the understanding and success of PBM. Included in PBM are timely provisions for contact tracing, which is also imperfect if not done completely, virus antigen and antibody testing, isolation, and treatment with new medications to mitigate the illness and lastly, a vaccine itself. Without SDS, the number of patients now dependent upon the later provisions of PBM care, except for a future vaccine, have become insurmountable for some.

## 10. Conclusions

COVID-19 has proven that a disaster does not need to be a terrorist attack or a war with a known opponent. The enemy can simply be invisible with devastating consequences. One positive impact of the current pandemic is the time it offers to different nations to reflect on past events and learn what can be improved for future responses. Managing future crises demands trained leadership and functional infrastructure. A sound and strong leadership capable of making proper and quick decisions based on limited information is a crucial part of disaster and major incident management, and is needed at all levels of management from local to national and international [33]. Decisions should be made in favor of public health, not on political or economic imperatives. Unfortunately, many decisions made during the current crisis were focused more on political and economic considerations rather than public safety and security. Consequently, the outcome has suffered because of late engagement in crisis management, and failure to implement timely and crucial social distancing strategies, resulting in the loss of life and credibility [34]. While SDS measures vary, are inconsistent, and late in many circumstances, it has been proven to be the most critical element in preventing the spread and mitigating deaths [35].

In revisiting the requirement for capacity surge, there has been a wide range of shortcomings in the current situation that merits in-depth analysis and the development of new conceptual frameworks to understand and manage surge capacity for pandemics [36].

A highlight of the current crisis is the engagement and willingness of the medical staff to work and show up at work. Many healthcare professionals risk their lives and leave their families for the work they have been trained for. Although the same attitudes have been demonstrated in many communities, the community roles in providing consistent support to medical staff for childcare, as an example, are essential [37].

Additionally, new initiatives that were made by many companies to shift their production to what was needed proved essential. There is no space for error in just-in-time delivery, and any minor shortcomings can result in major emergencies [38].



Guidelines and instructions are necessary for the smooth management of chaotic situations. Triage has been used in many years to bring order to chaos, however, the ethical and moral dilemma associated with a pandemic such as COVID-19 requires additional study [39]. The current crisis has shown that when resources are scarce, difficult decisions must be made. These measures should be practiced continuously to create both staff and public awareness of all problematic decisions that must be made by leaders and easily comprehended by the public. A reliable fail-safe information system is necessary [40,41]. It should be independent of all sociopolitical relations to avoid misinformation and confusion that can be associated with short-term wins. Investing in civilian first-aid education, basic hygienic knowledge, etc., can be of importance for future crisis management policies.

Although new technologies can create additional difficulties, within the COVID-19 crisis, opportunities have emerged to apply innovative solutions. Implementing telehealth consultations, the use of media for information sharing, and webinars for sharing knowledge and expertise have seen widespread adoption during the COVID19 pandemic.

It is crucial that citizens rely only on authoritative sources to get updated information on the COVID-19 outbreak [42].

Future policy and decision-making in the EU, and globally, should incorporate thorough after-action reports and government commissions to investigate best practices and lessons learned from the COVID-19 pandemic. There is a need for strong containment, strong coordination, resource availability, political responsibility, and educational initiatives. There is especially a lack of proper training in which all issues such as ethical and moral concerns can be discussed. There is also a need to learn the principles of protection and prevention of infectious diseases. Closer collaboration is called for with the military which will allow for more effective resource distribution and shared information about future global threats. Disaster medicine and public health components of the curriculum should be incorporated into medical education [43]. Medical management and measures should cover all phases of disaster management, based on the new proactivity paradigm announced by the WHO [44,45]. Health organizations should be able to work independently, avoiding political partnership and decision-making. Political interference must cease. Population-based management and public education are imperative pillars from which future pandemic and disaster planning and response emanate from.

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## References

1. Graffunder, C.; Sakurada, B. Preparing Health Care and Public Health Professionals for Team Performance: The Community as a Classroom. NAM Perspectives. 2016. Available online: <http://nam.edu/wp-content/uploads/2016/04/Preparing-Health-Care-and-Public-Health-Professionals-for-Team-Performance-The-Community-as-Classroom.pdf> (accessed on 10 April 2020).
2. Breman, J.G. Population-Based Medicine. *JAMA* **1984**, *252*, 1188. [CrossRef]
3. Population Health Management: Steps to Risk Sharing and Data Analytics. Brentwood (T.N.): Health Leaders Media. 2013. Available online: [http://www.healthleadersmedia.com/intelligence/detail/cfm?content\\_id=296742&year=2013](http://www.healthleadersmedia.com/intelligence/detail/cfm?content_id=296742&year=2013) (accessed on 20 April 2020).
4. Coombs, W.T.; Holladay, S.J. (Eds.) *The Handbook of Crisis Communication*; John Wiley & Sons: Hoboken, NJ, USA, 2011.
5. Burkle, F.M. Challenges of Global Public Health Emergencies: Development of a Health-Crisis Management Framework. *Tohoku J. Exp. Med.* **2019**, *249*, 33–41. [CrossRef]
6. Foddai, A.; Lindberg, A.; Lubroth, J.; Ellis-Iversen, J. Surveillance to improve evidence for community control decisions during the COVID-19 pandemic—opening the animal epidemic toolbox for public health. *One Health* **2020**. [CrossRef] [PubMed]

7. The Flether School. A Multidisciplinary Approach to the Crisis: Fletcher Experts Weigh in. 19 March 2020. Available online: <https://fletcher.tufts.edu/news-events/news/multidisciplinary-approach-crisis-fletcher-experts-weigh> (accessed on 10 April 2020).
8. Sohrabi, C.; Alsafi, Z.; O'Neill, N.; Khan, M.; Kerwan, A.; Al-Jabir, A.; Iosifidis, C.; Agha, R. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *Int. J. Surg.* **2020**. [CrossRef]
9. Johnson, H.C.; Gossner, C.M.; Colzani, E.; Kinsman, J.; Alexakis, L.; Beauté, J.; Würz, A.; Tsoлова, S.; Bundle, N.; Ekdahl, K. Potential scenarios for the progression of a COVID-19 epidemic in the European Union and the European Economic Area, March 2020. *Eurosurveillance* **2020**, *25*. [CrossRef] [PubMed]
10. Pullano, G.; Pinotti, F.; Valdano, E.; Boëlle, P.Y.; Poletto, C.; Colizza, V. Novel coronavirus (2019-nCoV) early-stage importation risk to Europe, January 2020. *Eurosurveillance* **2020**, *25*. [CrossRef]
11. Stoecklin, S.B.; Rolland, P.; Silue, Y.; Mailles, A.; Campese, C.; Simondon, A.; Mechain, M.; Meurice, L.; Nguyen, M.; Bassi, C.; et al. First cases of coronavirus disease 2019 (COVID-19) in France: Surveillance, investigations and control measures, January 2020. *Eurosurveillance* **2020**, *25*. [CrossRef]
12. Rothe, C.; Schunk, M.; Sothmann, P.; Bretzel, G.; Froeschl, G.; Wallrauch, C.; Zimmer, T.; Thiel, V.; Janke, C.; Guggemos, W.; et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. *N. Engl. J. Med.* **2020**, *382*, 970–971. [CrossRef]
13. Dong, E.; Du, H.; Gardner, L. An interactive web-based dashboard to track COVID-19 in real time. *Lancet Infect. Dis.* **2020**. [CrossRef]
14. Lescurem, F.X.; Bouadma, L.; Nguyen, D.; Parisey, M.; Wicky, P.H.; Behillil, S.; Gaymard, A.; Bouscambert-Duchamp, M.; Donati, F.; Le Hingrat, Q.; et al. Clinical and virological data of the first cases of COVID-19 in Europe: A case series. *Lancet Infect. Dis.* **2020**. [CrossRef]
15. Council Implementing Decision (EU) 2018/1993 of 11 December 2018 on the EU Integrated Political Crisis Response Arrangements ST/13422/2018/INIT. OJ L 320, 17.12.2018; pp. 28–34. Available online: [https://eur-lex.europa.eu/eli/dec\\_impl/2018/1993/oj](https://eur-lex.europa.eu/eli/dec_impl/2018/1993/oj) (accessed on 7 April 2020).
16. European Council. Conclusions by the President of the European Council Following the Video Conference with Members of the European Council on COVID-19. Available online: <https://www.consilium.europa.eu/en/press/press-releases/2020/03/17/conclusions-by-the-president-of-the-european-council-following-the-video-conference-with-members-of-the-european-council-on-covid-19/> (accessed on 5 April 2020).
17. Chinazzi, M.; Davis, J.T.; Ajelli, M.; Gioannini, C.; Litvinova, M.; Merler, S.; Pastore YPiontti, A.; Mu, K.; Rossi, L.; Sun, K.; et al. The effect of travel restrictions on the spread of the 2019 novel coronavirus (COVID-19) outbreak. *Science* **2020**. [CrossRef] [PubMed]
18. Website of the Republic of Poland. Coronavirus: Information and Recommendations. Available online: <https://www.gov.pl/web/coronavirus> (accessed on 9 April 2020).
19. Djalante, R.; Shaw, R.; Dewit, A. Building resilience against biological hazards and pandemics: COVID-19 and its implications for the Sendai Framework. *Prog. Disaster Sci.* **2020**. [CrossRef]
20. De Miguel Beriain, I.; Atienza-Macías, E.; Armaza, E. The European Union integrated political crisis response arrangements: Improving the European Union's major crisis response coordination capacities. *Disaster Med. Public Health Prep.* **2015**, *9*, 234–238. [CrossRef] [PubMed]
21. European Council. Statement on COVID-19 Economic Policy Response. Available online: <https://www.consilium.europa.eu/en/press/press-releases/2020/03/16/statement-on-covid-19-economic-policy-response> (accessed on 5 April 2020).
22. European Commission. Coronavirus Response. Available online: [https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response\\_en](https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response_en) (accessed on 27 March 2020).
23. Outbreak of Novel Coronavirus Disease 2019 (COVID-19): Increased Transmission Globally—Fifth Update. Available online: <https://www.ecdc.europa.eu/sites/default/files/documents/RRA-outbreak-novel-coronavirus-disease-2019-increase-transmission-globally-COVID-19.pdf> (accessed on 20 April 2020).
24. European Commission. Ensuring the Availability of Supplies and Equipment. Available online: [https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/public-health\\_en#health-crisis-management](https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/public-health_en#health-crisis-management) (accessed on 5 April 2020).

25. European Commission. Guidelines for Border Management Measures to Protect Health and Ensure the Availability of Goods and Essential Services. Available online: [https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/european-agenda-migration/20200316\\_covid-19-guidelines-for-border-management.pdf](https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/european-agenda-migration/20200316_covid-19-guidelines-for-border-management.pdf) (accessed on 8 April 2020).
26. Bozorgmehr, K.; Saint, V.; Kaasch, A.; Stuckler, D.; Kentikelenis, A. COVID and the convergence of three crises in Europe. *Lancet Public Health* **2020**. [CrossRef]
27. Clifford Chance. Coronavirus: Government Financial Aid to Business an International Guide. 23 March 2020. Available online: <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2020/03/coronavirus-government-financial-aid-to-business-an-international-guide.pdf> (accessed on 5 April 2020).
28. Government Office of Sweden. Economic Measures in Response to COVID-19. Available online: <https://www.government.se/articles/2020/03/economic-measures-in-response-to-covid-19/> (accessed on 16 March 2020).
29. European Commission. A European Instrument for Temporary Support to Mitigate Unemployment Risks in an Emergency (SURE). Available online: [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-financial-assistance/loan-programmes/sure\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-financial-assistance/loan-programmes/sure_en) (accessed on 20 April 2020).
30. European Commission. Migration and Home Affairs. Available online: [https://ec.europa.eu/home-affairs/what-we-do/networks/european\\_migration\\_network/glossary\\_search/third-country-national\\_en](https://ec.europa.eu/home-affairs/what-we-do/networks/european_migration_network/glossary_search/third-country-national_en) (accessed on 20 April 2020).
31. European Union. External Action. Available online: [https://eeas.europa.eu/headquarters/headquarters-homepage/76203/good-stories-consular-support-eu-citizens-stranded-abroad\\_en](https://eeas.europa.eu/headquarters/headquarters-homepage/76203/good-stories-consular-support-eu-citizens-stranded-abroad_en) (accessed on 9 April 2020).
32. European Commission. About European Civil Protection and Humanitarian Aid Operations. Available online: [https://ec.europa.eu/echo/who/about-echo\\_en](https://ec.europa.eu/echo/who/about-echo_en) (accessed on 20 April 2020).
33. Khorram-Manesh, A.; Berlin, J.; Carlström, E. Two validated ways of improving the ability of decision-making in emergencies; Results from a literature review. *Bull. Emerg. Trauma* **2016**, *4*, 186. [PubMed]
34. La, V.P.; Pham, T.; Ho, M.; Nguyen, M.; Nguyen, K.P.; Vuong, T.; Nguyen, H.T.; Tran, T.; Khuc, Q.; Ho, M.-T.; et al. Policy response, social media and science journalism for the sustainability of the public health system amid COVID-19 outbreak: The Vietnam lessons. *Sustainability* **2020**, *12*, 2931. [CrossRef]
35. Lewnard, J.A.; Lo, N.C. Scientific and ethical basis for social-distancing interventions against COVID-19. *Lancet Infect. Dis.* **2020**. [CrossRef]
36. Khorram-Manesh, A. Flexible Surge Capacity—Public Health, Public Education, and Disaster Management. *Health Promot. Perspect.* **2020**. Available online: <https://hpp.tbzmed.ac.ir/> (accessed on 7 May 2020).
37. Khorram-Manesh, A.; Ashkenazi, M.; Djalali, A.; Ingrassia, P.L.; Friedl, T.; von Armin, G.; Lupesco, O.; Kaptan, K.; Arculeo, C.; Hreckovski, B.; et al. Education in disaster management and emergencies: Defining a new European course. *Disaster Med. Public Health Prep.* **2015**, *9*, 245–255. [CrossRef]
38. Khorram-Manesh, A.; Hedelin, A.; Örtengren, P. Hospital-related incidents; causes and its impact on disaster preparedness and prehospital organisations. *Scand. J. Trauma Resusc. Emerg. Med.* **2009**, *17*, 26. [CrossRef]
39. Burkle, F.M. Population-based triage management in response to surge and emergency medicine preparedness and prehospital disaster. *Acad. Emerg. Med.* **2006**, *13*, 1118–1129. [CrossRef] [PubMed]
40. Goniewicz, K.; Magiera, M.; Burkle, F.M.; Goniewicz, M. Prospective study on the potential use of satellite data for disaster prevention, preparedness, and mitigation in Poland. *Prehospital Disaster Med.* **2020**, 1–4. [CrossRef] [PubMed]
41. Goniewicz, K.; Misztal-Okońska, P.; Pawłowski, W.; Burkle, F.M., Jr.; Czerski, R.; Hertelendy, A.J.; Goniewicz, M. Evacuation from Healthcare Facilities in Poland: Legal Preparedness and Preparation. *Int. J. Environ. Res. Public Health* **2020**, *17*, 1779. [CrossRef] [PubMed]
42. European Commission. Fighting Disinformation. Available online: [https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/fighting-disinformation\\_en](https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/fighting-disinformation_en) (accessed on 20 April 2020).
43. Khorram-Manesh, A.; Lupesco, O.; Friedl, T.; Armin, G.; Kaptan, K.; Djalali, A.R.; Foletti, M.; Ingrassia, P.L.; Ashkenazi, M.; Arculeo, C.; et al. Education in disaster management: What do we offer and what do we need? Proposing a New Global Program. *Disaster Med. Public Health Prep.* **2016**, *10*, 854–873. [CrossRef]

44. Ranney, M.L.; Griffeth, V.; Jha, A.K. Critical Supply Shortages—The Need for Ventilators and Personal Protective Equipment during the Covid-19 Pandemic. *N. Engl. J. Med.* **2020**. [[CrossRef](#)]
45. World Health Organization. Key Planning Recommendations for Mass Gatherings in the Context of COVID-19: Interim Guidance, 19 March 2020 (No. WHO/2019-nCoV/POE Mass Gathering/2020.2). World Health Organization. Available online: <https://www.who.int/publications-detail/key-planning-recommendations-for-mass-gatherings-in-the-context-of-the-current-covid-19-outbreak> (accessed on 8 April 2020).



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