



# Public Health and Pandemics

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 Institute of Public Policy  
Harry S. Truman School of Public Affairs  
University of Missouri

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## Introduction

This policy brief aims to introduce a public health lens to the resilience resources made available on the Building Regional Resilience website. This brief will provide information regarding pandemic preparedness to provide health officials and practitioners with the necessary information to develop strategies that will allow the community to become more prepared and resilient in the face of a public health emergency, such as a pandemic. Utilizing the Building Regional Resilience Tool will enable policy makers and practitioners to identify potential shortfalls located within their social, economic, infrastructure and environmental indicators that may hinder a community from being more resilient in the face of a pandemic.

Why is community resilience important when looking at public health emergencies, like pandemics? Community resilience is the sustained capacity of a community to endure, respond and rebound from adversity.<sup>1</sup> A resilient community fosters individual and community health physically, socially, and behaviorally to strengthen the community to combat daily challenges, as well as extreme unforeseen challenges.<sup>2</sup> A resilient community is linked socially and maintains accessible health services that can endure disasters, like pandemics, while facilitating a full recovery of the community.<sup>3</sup> Thus, for a community to become more resilient, it is essential for the community to have a strong public health system with substantial social links throughout the community.<sup>4</sup> A public health system is a dynamic structure that focuses on ensuring optimal health for the people under their jurisdiction.<sup>5</sup> Additionally, public health systems foster activities to protect people from unhealthy or hazardous environments, while providing the tools to encourage optimum health and disease prevention.<sup>6</sup>

## How Public Health Relates to a Resilient Community

**According to the National Health Security Strategy, resilient communities are composed of “healthy individuals, families, and communities with access to health care and the knowledge and resources to know what to do and care for others in both routine and emergency situations.”<sup>7</sup>** A resilient community is described as a community’s ability to resist, adopt to, and recover from adversity.<sup>8</sup> Physical, social, behavioral, and environmental health is a crucial foundation to achieving a resilient community in many respects; especially since planning for disasters is essentially aimed at maintaining human health and welfare.<sup>9</sup> To maintain human health and welfare, it is critical for the community to have accessible health care facilities to foster a better community recovery.<sup>10</sup> In addition, establishing accessible health care facilities is necessary to promote individual health prior to disaster, thus mitigating the potential severity of a health crisis when it occurs. Individuals who have chronic health issues or have inadequately received treatment for pre-existing health conditions have found it more difficult to restore their livelihood and to reestablish treatment after experiencing a health disaster such as a pandemic.

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## Mitigating Pandemics

A resilient community is a healthy one that can withstand health emergencies, like pandemics. A pandemic is defined as a disease outbreak that spreads across several countries and affects a significant amount of people.<sup>11</sup> In the face of a pandemic, public health systems execute strategic response strategies in efforts to contain the spread of the pandemic. Public health strategies focus on implementing and encouraging citizens to follow key health measures such as physical distancing, frequent thorough hand washing; coughing etiquettes; wearing a face mask when going out in public areas; and refraining from touching one's nose, eyes, and mouth. Strategies also include working to identify individuals who have contracted the disease and rendering the individual as non-infectious as possible to refrain them from transmitting the disease to someone else and hopefully breaking the chain of transmission.

Many public health officials also focus on contacting-tracing strategies and outbreak containment through disease surveillance tactics and ensuring that credible and evidence-based information is being conveyed to the public on a regular basis. This helps to ensure that the public is up to date on the associated risks, and trends associated with the pandemic.<sup>12</sup> Efforts to slow the potential spread of a disease give communities and health systems time to learn more about the disease and serve to slow the infection rate to avoid overwhelming health care systems if too many people need treatment at the same time.

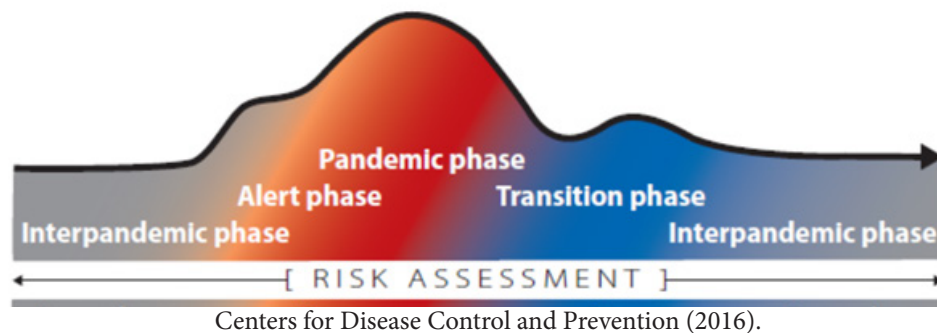


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## Continuum of Pandemic Phases

Figure 1 displays the World Health Organization's "Continuum of Pandemic Phases." The figure is in the form of a distribution curve and serves to illustrate the four phases of a continuum pandemic. The illustration can be utilized as a pandemic risk assessment tool in understanding the ongoing stages of pandemics.<sup>13</sup> Perhaps the most important concept is that since the risk of a pandemic can never be completely avoided, mitigation strategies should always consider themselves in one of the continuum stages detailed below.

Figure 1. The continuum of pandemic phases<sup>a</sup>



The distribution curve illustrates an increase and decrease of the global average of pandemic instances across four phases "interpandemic," "alert," "pandemic," and "transition." The continuum graph also corresponds with the three stages of risk assessment which include "preparedness," "response," and "recovery."<sup>14</sup> The "alert" pandemic phase which corresponds with the "response" risk assessment phase is when the global average of pandemic cases is at its highest. During the "transition" pandemic phase which corresponds to the "recovery" risk assessment phase is when the global average of pandemic cases begins to decrease leading into the interpandemic phase. The "interpandemic" pandemic phase in correlation with the "preparedness" risk assessment phase is when the global average of pandemic cases is the lowest. The information provided in this brief will pertain primarily to the "interpandemic" phase because as it will provide practitioners with recommendations to prepare for future pandemics and similar health emergencies

To respond to fallout, set forth by a pandemic, preparation and synchronized planning efforts must take place among the government, private-sector collaborators, communities, and individuals.<sup>15</sup> As a result, the "interpandemic" pandemic phase is particularly essential when becoming more resilient in the face of a global pandemic. It is hoped practitioners will use the resilience information presented here along with the Building Regional Resilience website to inform better resilience strategies that consider health emergency situations like pandemics. To understand the degree of health-related resilience in a community, it is necessary to understand the basics of the health care system at various levels and how the system interacts with the public. A public health system can be formed as a local government function, also known as "home ruled" under which the municipality or local government has the autonomy to develop their own local ordinances pertaining to public health crises.<sup>16</sup> Although the local government has jurisdiction to create local ordinances, municipalities cannot create local ordinances that contradict the state or federal government's authority. The purpose of state public health is to supervise and monitor the health of the state's overall population. Furthermore, state status gives states the ability to allow them to enforce power during a natural disaster, or catastrophic medical event like a pandemic where current protocols are insufficient to respond to the crisis.<sup>18</sup>

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## Public Health and Emergency Preparedness Chart<sup>18</sup>

Scale of Discussion	Actors Involved
Local Public	<ul style="list-style-type: none"> <li>• Agency emergency management/preparedness coordinator</li> <li>• Health officer</li> <li>• Medical director at a minimum</li> <li>• Agency subject matter experts</li> <li>• Emergency management personnel</li> <li>• Behavioral health experts</li> <li>• County commissioners</li> <li>• Coroner or medical examiner</li> <li>• Other local key stakeholders</li> </ul>
Local External	<ul style="list-style-type: none"> <li>• Executive leadership of impacted medical organizations</li> <li>• Medical director or executive of emergency medical services (EMS) agency(s).</li> <li>• Federally Qualified Health Centers</li> <li>• Long-term care facilities</li> <li>• Community mental health</li> <li>• Dialysis Centers</li> <li>• Home care professionals</li> <li>• Impacted primary care providers</li> <li>• Funeral directors</li> </ul>
State	<ul style="list-style-type: none"> <li>• Chief medical executive</li> <li>• State health officer</li> <li>• State epidemiologist</li> <li>• Director of public health preparedness,</li> <li>• EMS and trauma system medical director or executive</li> <li>• A behavior/mental health executive, health emergency coordinator</li> <li>• Emergency Support Function</li> <li>• State operation center chiefs</li> <li>• Legal advisor such as attorney general if suitable.</li> </ul>
State External	<ul style="list-style-type: none"> <li>• State Disaster Medical Advisory Committee (SDMAC)</li> <li>• Affected community health organizations</li> <li>• Regional health care association leaderships or related groups such as state EMS/trauma advisory teams</li> <li>• Executive management of affected medical health associations such as hospitals and state medical societies</li> <li>• Stakeholders or SMEs based on incident or event.</li> </ul>

Hanfling,D., & Stroud,H. J.L. (2013)

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When developing or reforming emergency preparedness protocols, practitioners should incorporate actors in multiple scales to ensure that all necessary levels of government approve and agree upon the emergency preparedness protocols. It is important that as many actors at as many levels as possible are involved to meet the needs created during a health emergency. Actors at all levels should have contacts and strategies in place to coordinate in the event of a pandemic or other wide-spread health emergency.

## Public Health Preparedness and the Building Resilience Tool

The Building Regional Resilience Tool can assist practitioners with developing public health emergency protocols by identifying potential shortfalls within the community that could make it difficult for the community to be resilient in the face of a public health disaster like a pandemic. The Building Regional Resilience Tool consist of indexes that are structured based on four categories – economic, social, infrastructure, and environmental – for every county in the United States. There are indicators that are particularly relevant in building resilience to withstand public health emergencies like pandemics.

Adjusting strategies based on the indicators to prepare for a public health pandemic can vary depending on the community's current economic, environmental, infrastructure and social needs. Some areas may need addressing before others, but in general if a community is focusing on pandemic preparedness strategies, indicators addressing the factors presented in Table 2 should be a priority. Results from the resilience website tool in conjunction with the information provided in this brief will assist practitioners with identifying the parts of the community that are the most vulnerable to a public health pandemic. This can give practitioners the knowledge of where change, policy adjustments, or simply community focus should take place. Understanding how public health relates to resilience, practitioners can better address potential shortfalls within the community's health system to improve the resilience of a community's health care system. Table 2 reveals how the resilience and vulnerability indicators relate to public health, and how characteristics of these indicators can create barriers to achieving resilience in the face of a pandemic if they are not addressed.



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Resilience/ Vulnerability Indicators	
Economic	<ul style="list-style-type: none"> <li>• Neighborhoods where there is a greater disparity in income may underinvest or not appeal to institutions that can assist the public with health care necessities leading to unequal health care access.<sup>19</sup></li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Hazardous substances lingering in the environment can affect our health.<sup>20</sup></li> <li>• Harmful substances can be found in the air, soil and water and derive from several agricultural and industrial activities such as mining operations.<sup>21</sup></li> <li>• Landfills and leaky underground storage toxins also can release harmful toxins.<sup>22</sup></li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• Inadequate access to transportation is a barrier that can contribute to negative health consequences.<sup>23</sup></li> <li>• Unreliable transportation is associated with late-stage detection of specific health conditions and may cause patients from vulnerable populations to defer, or skip taking medicine, postpone or miss appointments and delay care.<sup>24</sup></li> </ul>
Social	<ul style="list-style-type: none"> <li>• Racial and ethnic minorities face disparities in illnesses and deaths during public health pandemics because they are more susceptible to exposures due to working low paid jobs that are essential and do not provide the option to work remotely or paid sick leave.<sup>25</sup></li> <li>• Nonprofit organizations can assist communities to become more resilient during a public health pandemic. Nonprofits associated with the public health system provide services and health advocacy for the community. Services that these nonprofits offer include educational, fiscal support, psychological, social, health, nursing, unification activities, material and informational resources and training.<sup>26</sup></li> </ul>

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## Conclusion

Understanding how public health relates to resilience can prove beneficial when working toward developing a strategic plan to achieve a more resilient community during a pandemic. Although there are several pandemic phases, this brief focused exclusively on the interpandemic phase to provide practitioners with the knowledge of pandemic preparedness strategies in hopes that they will use this information in conjunction with the Building Regional Resilience tool to establish a pandemic preparedness plan. Furthermore, applying a public health lens that focuses on pandemic resilience can provide further insight into the challenges that various communities face when encountering a pandemic. By acknowledging the actors who are involved in decisions making processes during a pandemic, practitioners will be able to incorporate all stakeholders into decision making practices regarding strategic planning for pandemic preparedness. Overall, the strategies provided in this brief can provide communities with better strategic planning procedures during a public health crisis.

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