REFORMING QUARANTINE: MOVING TOWARDS A MORE ETHICAL AND EFFECTIVE APPROACH TO OUTBREAK MANAGEMENT

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ABSTRACT

Quarantine is a public health intervention where asymptomatic people who have been exposed to a contagious disease are separated from the general population while they are monitored to see if they become sick. Critics have cited several potential ethical issues raised by quarantine in the United States. These concerns include whether quarantine is the least restrictive alternative intervention,

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whether due process protections are adequate, and whether safe, humane, and fair methods have been used when executing quarantines. In addition, quarantines may be punitive or even counter-productive because they can be stigmatizing and because they can discourage reporting of symptoms.[1] In addition, the effectiveness of this emergency tool may be weakened by America's deference to individual rights, federalism, fragmented legal authority, and neglected public health infrastructure.[2] This paper will assess the ethics and efficacy of quarantine and propose some recommendations for improvement.

[1] *See, e.g.*, Wendy Parmet, *Dangerous Perspectives: The Perils of Individualizing Public Health Problems* 5, 8-9 (NE. U. SCH. OF LAW, WORKING PAPER NO. 31-20092009); AM. CIVIL LIBERTIES UNION & YALE GLOBAL HEALTH JUST. PARTNERSHIP, FEAR, POLITICS, AND EBOLA: HOW QUARANTINES HURT THE FIGHT AGAINST EBOLA AND VIOLATE THE CONSTITUTION 4, 32 (2015), https://www.aclu.org/sites/default/files/field_document/aclu-ebolareport.pdf [hereinafter AM. CIVIL LIBERTIES UNION].

[2] *See* David P. Fidler, *Legal Issues Surrounding Public Health Emergencies*, 116 PUB. HEALTH REP. 79, 81 (2001).

I. Introduction

> Although I tested negative for Ebola, there is no sign I will be able to leave this plastic prison-tent. . . . I know I cannot give anyone Ebola because I do not have symptoms. My rights have been taken away as if they do not matter and the wrong people are making decisions, people without expertise in public health or medicine. . . . I am being held captive in a tent due to fear and politics. . . . What scares me the most is . . . what if they keep me here, alone in this tent, for the entire twenty-one days?[3]

Quarantine is a public health intervention where asymptomatic people who have been exposed to a contagious disease are separated from the general population and their movement is restricted while they are monitored to see if they become sick.[4] The authority to quarantine is rooted in a state's authority to ensure the public's health under its general police powers,[5] but it has been in use in the United States since before the drafting of the Constitution.[6]

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[3] Kaci Hickox, *Caught Between Civil Liberties and Public Safety Fears: Personal Reflections from a Healthcare Provider Treating Ebola*, 11 J. OF HEALTH & BIOMEDICAl L. 9, 9-10 (2015). Hickox, an American Nurse for Doctors without Borders who treated Ebola patients in Sierra Leone, was one of the most vocal critics of the 2014 Ebola quarantines. Steven H. Miles, *Kaci Hickox: Public Health and the Politics of Fear*, 15 AM. J. OF BIOETHICS 17, 17 (2015). Asymptomatic individuals cannot spread Ebola. Hickox, *supra*, at 16. Although Hickox was asymptomatic, she was held in an isolation tent inside a New Jersey hospital for days before being released and escorted to her home in Maine with few medical precautions. Miles, *supra*, at 17. The same day Hickox returned to Maine, that state released a quarantine protocol requiring returning health workers to quarantine at home. Maine Center for Disease Control and Prevention, *Maine Center for Disease Control and Prevention Press Release* (Oct. 2014), http://www.maine.gov/dhhs/mecdc/press-release.shtml?id=630240. However, a state court dismissed the state health department's petition to order Hickox quarantined because she was not infectious. Miles, *supra*, at 18; *see* Maine Dep't of Health and Human Services v. Hickox, No. CV-2014-36 (D. Me. Oct. 31, 2014).

[4] *Quarantine and Isolation*, CENTERS FOR DISEASE CONTROL & PREVENTION (Aug. 2016), https://www.cdc.gov/quarantine/ (distinguishing quarantine from isolation where individuals known to be sick are separated); AM. CIVIL LIBERTIES UNION, *supra* note 1, at 6.

[5] *See, e.g.*, Jacobson v. Massachusetts, 197 U.S. 11, 25 (1905) ("According to settled principles the police power of a state must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety."). Note that the federal government's quarantine authority is derived from the Public Health Service Act of 1944 (PHSA), which charges the Secretary of Health and Human Services with making and enforcing regulation to prevent the introduction and transmission of communicable diseases into or within the United States. LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT 456 (2nd ed. 2008).

[6] LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT, 438 (2nd ed. 2008).

Critics have cited several potential ethical issues raised by the implementation or enforcement of quarantine in the United States. These concerns include whether quarantine is the least restrictive alternative intervention, whether due process protections are adequate, and whether safe, humane, and fair methods have been used when executing quarantines. In addition, quarantines may be punitive and/or counter-productive because they are stigmatizing and they discourage reporting of symptoms.[7] The public health efficacy of this tool in an emergency may be undercut by America's deference to individual rights and federalism, fragmented and outdated legal authority, and neglected public health infrastructure.[8] This paper will assess the ethics and efficacy of quarantine, and will propose some recommendations for improvement.

II. The Problem

The power to quarantine is perhaps the most coercive tool in a public official's toolkit for managing disease outbreaks. The public may demand it at times when people are fearful and do not have a rational understanding of the risks of infection. But when used correctly, the public health practitioner assesses quarantine's utility based only on science, and uses other measures to educate the public and mitigate fear.

Numerous criticisms and legal claims have been levied at the constitutionality of the state quarantines imposed in response to the panic surrounding the Ebola outbreak in 2014.[9] From policy and ethical perspectives, quarantines pose unique challenges. For example, one of the challenges of containing the 2014 Ebola outbreak in West Africa was the region's weak public health infrastructure, including the shortage of personnel trained in treating and managing patients when they were most infectious.[10] Non-governmental organizations mobilized American volunteers, but their efforts were thwarted by the threat that state and local health authorities would confine volunteers for three weeks upon their return to the United States.[11]

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[7] *See, e.g.*, Parmet, *supra* note 1; AM. CIVIL LIBERTIES UNION, *supra* note 1.
[8] *See* Fidler, *supra* note 2.
[9] *See, e.g.*, AM. CIVIL LIBERTIES UNION, *supra* note 1, at 8.
[10] *Id.* at 7, 31.
[11] *Id.* at 31.

In addition to the threat of confinement, exaggerated fears and stigmatization of Ebola health workers when they returned to their communities likely discouraged potential volunteers.[12] Ironically, many returning health workers were Ebola experts, trained in precautions and self-monitoring, a daily requirement of protecting themselves and their colleagues from the spread of the disease in West Africa.[13] Still, many health workers who were subjected to quarantines declined to challenge them because they wanted to protect their families from public and media scrutiny.[14] In addition, West African immigrant communities were stigmatized during this period; children traveling to the United States from West Africa were separated from their parents and prevented from going to school.[15]

In general, interventions that are perceived as punitive "threaten to spark evasive and counterproductive behavior"; for example, persons at risk of quarantine may downplay exposures or symptoms in order to avoid confinement and stigma, putting the public at risk if they later turn out to be contagious.[16] Quarantines are also expensive to administer and draw resources away from other public health priorities. For example, in some quarantine cases, police are present outside homes (reinforcing stigma) and public health officials make daily visits.[17] Quarantine also imposes other costs on its subjects, including forgone wages, legal fees, housing, childcare and eldercare expenses, and the stress of isolation and perceived rejection.[18]

In some ways, the 2014 Ebola quarantine cases were unique, but quarantines for other diagnoses, such as severe acute respiratory syndrome (SARS) and new influenza strains, can be similarly counterproductive and vulnerable to abuse. Depending on the nature of the infectious disease, applying a quarantine to all exposed persons without an individual assessment of risk may do more to undermine public health than protect it. The people who could most likely be harmed by a quarantine order are from groups who are vulnerable because of their age,

12 *Id.* at 7.
13 *Id.* at 32.
14 *Id.* at 31.
15 *Id.* at 8.
16 *Id.* at 32.
17 *Id.* at 18.
18 *Id.*

health or disability status, income, race, ethnicity, or national origin.[19] In addition to stigmatizing groups who may already be socially isolated, placing these vulnerable individuals under quarantine may limit their access to health care and basic services, and it may subject them to further discrimination. While some states provide employment protections, low-income hourly workers without access to paid time off may struggle financially while under a quarantine order or find they have no job to return to.[20] For these reasons, quarantine should only be used when absolutely necessary and when sufficient safeguards are in place to ensure basic needs are met.

III. Literature Review

A. Effectiveness of Quarantine

The effectiveness of quarantine, like other interventions, depends on a number of factors.[21] These include a microbe's behavior, pathogenicity, mode(s) of transmission, concentration in different age groups and susceptibility to drugs; the host's behavior, health status, when he or she becomes contagious with respect to onset of symptoms and the length of time the host remains contagious; and the risk level imposed by the environment.[22] Microbes include bacteria, viruses, protozoa, fungi, and prions.[23] The characteristics of microbes that pose a public health threat are those that can cause serious or fatal disease in humans and are transmitted person to person, animal to person, and food or water to person.[24] The most concerning are those microbes that spread rapidly, through casual contact and during the pre-symptomatic stage of illness.[25]

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[19] Mark A. Rothstein, *From SARS to Ebola, Legal and Ethical Considerations for Modern Quarantine*, 12 IND. L. REV. 227, 264 (2015).

[20] Mark A. Rothstein & Meghan K.Talbott, *Encouraging Compliance with Quarantine: A Proposal to Provide Job Security and Income Replacement*, 97 AM. J. OF PUB. HEALTH S49, S49-S50 (2007).

[21] *See* WORLD HEALTH ORG., AVIAN INFLUENZA: ASSESSING THE PANDEMIC THREAT 52 (2005).

[22] *Id.*

[23] LAURA B. SIVITZ, KATHLEEN STRATTON & GEORGES C. BENJAMIN, QUARANTINE STATIONS AT PORTS OF ENTRY PROTECTING THE PUBLIC'S HEALTH 3 (2005).

[24] *Id.* at 3-4.

[25] *Id.* Officials with quarantine authority are also concerned with the spread of chemical, radiological, and biological substances other than microbes (such as microbial toxins) that may be related to terrorism. *Id.*

For quarantine to be effective, an outbreak must meet the following three criteria: (1) the people likely to be incubating the infection must be effectively and efficiently identified; (2) the subjects, once identified, must comply with conditions of quarantine; and (3) the disease at hand must be transmissible in its pre-symptomatic or early symptomatic stages.[26]

Applying these criteria, the 2003 SARS quarantine in Toronto, which subjected 23,103 people to confinement, failed on all three counts.[27] First, the quarantine was too broad in scale; public health authorities quarantined approximately 100 people for each SARS case, when the United States Centers for Disease Control and Prevention (CDC) estimated that this could have been equally effective had it been reduced by two-thirds by focusing only on those individuals "who had contact with an actively ill SARS patient."[28] Toronto authorities may have quarantined twenty-five times more people than was appropriate, while failing to identify those most at risk: "at least the first 50 cases in the second phase of the outbreak were not quarantined."[29] Second, officials estimated the compliance rate was poor; only 57% of people quarantined followed guidance.[30] Third, SARS, like Ebola, is ill-suited for quarantine. There is evidence "showing SARS is not infectious during the preclinical phase and does not become significantly infectious until the symptomatic illness is well-established."[31] The Toronto mass quarantine consumed resources, created anxiety, and compromised public trust of health officials.[32]

However, not everyone thinks the Toronto quarantine was ineffective. Some believe that prematurely declaring an end to the outbreak and relaxing the quarantine and other control measures contributed to the SARS resurgence in phase 2.[33] Reinstituting these measures ultimately

[26] Richard Schabas, *Severe Acute Respiratory Syndrome: Did Quarantine Help?*, 15 CAN. J. INFECTIOUS DISEASES AND MED. MICROBIOLOGY 204, 204 (2004).

[27] *Id.*

[28] *Id.*

[29] *Id.*

[30] *Id.*

[31] *Id.*

[32] *Id.*

[33] Tomislav Svoboda et al., *Public Health Measures to Control the Spread of the Severe Acute Respiratory Syndrome during the Outbreak in Toronto*, 350 NEW ENG. J. MED. 2352, 2359 (2004).

brought the outbreak to a close.[34] Further, "the number of persons who were exposed to SARS in nonhospital and non-household settings dropped from twenty (13%) before the control measures were instituted (phase 1) to zero afterward (phase 2)."[35] In addition, "community spread (the length of the chains of transmission outside of hospital settings) was significantly reduced in phase 2 of the outbreak."[36]

In addition to quarantining people based on an individualized risk assessment, health officials may broadly quarantine groups of people based on their location or on some other characteristic or category (i.e., "geographic" or "largescale" quarantines),[37] although a largescale quarantine has never been implemented in the United States.[38] Similar to the three criteria for invoking an individualized quarantine, public health officials should examine three key questions when deciding whether to invoke a largescale quarantine: "(1) Do public health and medical analyses warrant the imposition largescale quarantine?; (2) Are the implementation and maintenance of largescale quarantines feasible?; and (3) Do the potential benefits . . . outweigh the possible adverse consequences?"[39]

With regard to the second question, officials must consider whether there is a way to determine who should be quarantined; whether there are resources (i.e., law enforcement) available to enforce an involuntary quarantine; and whether a group could be confined for the whole time period during which they could transmit the disease, as this would require the state to provide for the basic needs of those confined, including food, shelter, and medical care. [40] Failure to satisfy these considerations will undermine the effectiveness of the quarantine and confidence in the officials who administer it. With regard to the third question, health officials must evaluate whether there will be health risks to those quarantined (i.e., healthy family members quarantined with a sick relative); whether noncompliance and officials' responses to it will undermine their authority; and whether there is an impact on the economy, as well

[34] *Id.*

[35] *Id.* at 2352.

[36] *Id.*

[37] Joseph Barbera et al., *Large-Scale Quarantine Following Biological Terrorism in the United States: Scientific Examination, Logistic and Legal Limits, and Possible Consequences*, 286 J. OF AM. MED. ASS'N 2711 (2001).

[38] *Id.*

[39] *Id.* at 2714.

[40] *Id* at 2714-15.

as the availability of food, medicine, sanitation, and basic supplies if an area is under quarantine.[41] If a quarantine is to be successful, decision makers need timely, accurate information about the potential spread of the disease and the interventions available, as well as effective communication tools.[42] Officials should also build trust and offer incentives for compliance by, for example, allowing a family member to voluntarily remain with a sick loved one, but providing them with the information and tools to protect themselves.[43]

Overall, the literature on quarantine shows mixed results in terms of efficacy. A 2013 study assessed the impact of quarantine on a measles outbreak that occurred in Geneva, Switzerland in 2011.[44] In the study, seventy-three exposed unvaccinated or non-immune persons were quarantined, while a similar group of 173 exposed persons were not quarantined.[45] The groups produced six and eighty-one secondary measles cases, respectively.[46] The secondary cases stemming from the quarantined population occurred only in household members and not others in the community.[47] Quarantine reduced the overall risk of transmission by 74%.[48]

Similarly, a 2009 Swedish study simulated a hypothetical influenza outbreak and measured the impact of closing public schools, limiting the ability of children to mix with their peers.[49] Researchers found that social distancing interventions among only a minority of a population can have a decisive effect on the probability of an outbreak to spread.[50] This study points to the potential effectiveness of limited or voluntary social distancing in lieu of broad and/or mandatory quarantine orders.

Broad quarantines tend to both confine people who are not a real

41 *Id.* at 2715.

42 *Id.* at 2716.

43 *Id.*

44 E. Delaporte et al,. *Large measles outbreak in Geneva, Switzerland, January to August 2011: descriptive epidemiology and demonstration of quarantine effectiveness*, SURVEILLANCE AND OUTBREAK REP. 1 (Feb. 2013).

45 *Id.* at 5.

46 *Id.*

47 *Id.* at 7.

48 *Id.*

49 Joakim Ekberg et al., *Impact of Precautionary Behaviors During Outbreaks for Pandemic Influenza: Modeling of Regional Differences*, AM. MED. INFORMATICS ASS'N 2009 SYMPOSIUM PROCEEDINGS 163, 163 (2009).

50 *Id.* at 165.

risk and miss people who are a risk. A 2007 study examined the impact of quarantining over 150,000 people in a 2003 outbreak of SARS in Taiwan.[51] The study examined both Level A quarantines (impacting potentially exposed contacts of suspected SARS patients) and Level B quarantines, of travelers entering Taiwan from SARS affected areas.[52] Researchers found the Level A quarantines prevented about 461 additional SARS cases (81%) and sixty-two additional deaths (63%), but the impact of the Level B quarantine was very minor, reducing cases and deaths only by about 5%.[53] When combined, these two interventions reduced the number of cases and deaths by nearly half.[54] Still, the authors concluded that daily, under the Level A quarantine, only one out of every twenty-one exposed persons who should have been quarantined was in fact quarantined, reflecting the need for more efficient contact tracing to better identify potentially infected subjects.[55]

Beijing, China was also hit by a SARS epidemic in 2003 and approximately 30,000 residents were quarantined at home or at other sites.[56] Researchers found that only quarantined people who had a history of contact with a SARS patient acquired SARS during quarantine.[57] They concluded that as part of a SARS program, quarantine should be limited to subjects who have contact with an actively ill SARS patient, to better focus resources.[58]

B. Public Satisfaction

Some studies have examined the emotional effects of quarantines on their subjects. For example, a 2005 study surveyed a small sample, twenty-one of the over 14,000 individuals quarantined at home in Toronto during the SARS outbreak in 2003.[59] At that time quarantine was

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[51] Ying-Hen Hsieh et al., *Impact of quarantine on the 2003 SARS outbreak: A retrospective modeling study*, 244 J. OF THEORETICAL BIO 729, 729 (2007).

[52] *Id.*

[53] *Id.*

[54] *Id.* at 734

[55] *Id.*

[56] J. Ou et al., *Efficiency of quarantine during an epidemic of severe acute respiratory syndrome in Beijing, 2003,* U.S. NAT'L LIBR. OF MED. NAT'L INST. OF HEALTH (2003).

[57] *Id.*

[58] *Id.*

[59] Maureen E. Cava et al., *The Experience of Quarantine for Individuals Affected by SARS in Toronto*, 22 PUB. H. NURSING 398, 398 (2005).

chosen because it was unclear how SARS could be transmitted.[60] While in quarantine, subjects reported feelings of isolation, separation, rejection, and stigma.[61] With regard to their experiences with public health officials, some of those quarantined expressed frustration with not receiving a quarantine order until several days after exposure, and while some appreciated health officials calling them to check in, others were annoyed and suspicious of the monitoring, and confused by the messages they received about the protocols they were to follow.[62] Although the sample size precludes generalizing these results to a larger population, many of these same frustrations were reported during the 2014 Ebola scare. It is also worth noting that health officials may be able to mitigate this confusion and frustration by providing more support in the form of resources (i.e., masks, thermometers and instructions on when to use them) and accurate information about the quarantine, its purpose, and the important role of those quarantined in protecting the community.[63]

IV. Legal History of Quarantine

Exclusion to protect the health of the community has been long-used and is increasingly controversial. Disease tends to provoke fear, and healthy members of society may feel justified in blaming, isolating, and ostracizing a disease's victims and potential victims.[64] Such was the case with leprosy and syphilis dating back to ancient times; yellow fever for centuries in the United States; and more recently tuberculosis, AIDS, SARS,[65] and Ebola. Quarantine is distinct from isolation, in that isolation separates people who are known to be sick.[66]

The power to quarantine and isolate individuals is rooted in a state's authority to ensure the public's health under its general police

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60 *Id.*

61 *Id.* at 401-02.

62 *Id.* at 401-03; *see also* C. Collins, C. Upright & J. Aleksich, *Reverse isolation: What patients perceive*, ONCOLOGY NURSING FORUM 675-79 (1989); J. Gammon, *Analysis of the stressful effects of hospitalization and source isolation on coping and psychological constructs*, INT'L J. OF NURSING PRAC. 84-96 (1998); J. Gammon, *The psychological consequences of source isolation: A review of the literature*, 8 J. OF CLINICAL NURSING 13 (1999); Robert J. Blendon et al., *Attitudes Toward The Use Of Quarantine In A Public Health Emergency In Four Countries* (Jan. 24, 2006), http://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.25.w15.

63 Cava et al., *supra* note 59, at 403-04.

64 GOSTIN, *supra* note 6, at 426.

65 *Id.* at 423-29.

66 *Id.*

powers.[67] But this authority has been used in the United States since before the drafting of the Constitution.[68] In the nineteenth and twentieth centuries, judicial action in the area of compulsory health measures, such as quarantine and isolation, was often spurred by disease outbreaks.[69] The courts typically were deferential to government authorities, generally subordinating an individual's liberty to the public interest,[70] with some limits. As early as 1824, in *Gibbons v. Ogden*, the Supreme Court found that states have the authority to quarantine under their police powers.[71] Then in 1905 in *Jacobson v. Massachusetts*, the U.S. Supreme Court upheld compulsory vaccination but said that compulsory public health measures must be exercised in a manner "reasonably required for the safety of the public" and cannot be arbitrary.[72] But since the civil rights era of the 1960s, the judicial balance has shifted somewhat to favor individual liberties.[73] However, state laws have not necessarily been updated to reflect either the evolution of the case law or public health science and management.[74]

With increased concerns about bioterrorism in the early 2000s, there was an interest in updating and creating uniformity in quarantine laws across the states. Following the terrorism of September 11, 2001

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[67] *See, e.g.*, Jacobson v. Massachusetts, 197 U.S. 11, 25 (1905) ("According to settled principles, the police power of a state must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety.")

[68] GOSTIN, *supra* note 6, at 437.

[69] *Id.* at 442. Governments typically acted in response to venereal disease, tuberculosis, smallpox, scarlet fever, leprosy, cholera and bubonic plague. *Id.*

[70] *See, e.g.*, Mugler v. Kansas, 123 U.S. 623, 660-61 (1887) (finding the authority to quarantine "so as to bind us all must exist somewhere else, society will be at the mercy of the few, who, regarding only their appetites or passions, may be willing to imperil the security of the many, provided only they are permitted to do as they please"); Rudolphe v. City of New Orleans, 11 La. Ann. 242 (1856) (upholding quarantine of a ship carrying passengers with cholera); Haverty v. Bass, 66 Me. 71 (1876) (upholding the seizure and quarantine of a child believed to have smallpox); People *ex rel.* Barmore v. Robertson, 134 N.E. 815 (Ill. 1922) (upholding quarantine and other restrictions of a typhoid carrier); *Ex Parte* Brown, 172 N.W. 522 (Neb. 1919) (finding that people detained to prevent transmission of venereal disease are not entitled to a writ of habeas corpus); Highland v. Schlute, 82 N.W. 62 (Mich. 1900) (upholding quarantine of a man whose roommate had smallpox); *In re* Martin, 188 P.2d 287 (Cal. Ct. App. 1948) (finding that quarantine of prostitutes was reasonable because they were likely to have venereal disease).

[71] Gibbons v. Ogden, 22 U.S. 1, 205 (1824).

[72] Jacobson v. Massachusetts, 197 U.S. 11, 28 (1905).

[73] GOSTIN, *supra* note 6, at 444.

[74] *See* Lawrence O. Gostin, *The Model State Emergency Health Powers Act: Public Health and Civil Liberties in a Time of Terrorism*, 13 HEALTH MATRIX 3, 19 (2003).

and subsequent anthrax attacks,[75] the CDC enlisted the help of public health law experts in drafting the Model State Emergency Health Powers Act (MSEHPA), which was aimed at standardizing states' public health emergency powers and at modernizing related individual rights and due process safeguards.[76] The model act permits the exercise of coercive public health measures only after a governor has declared a state of emergency. [77] It also requires officials to obtain a court order when using these measures; provides detainees with a right to counsel; and requires officials to adhere to human rights principles when applying coercive measures, including selecting the least restrictive alternative, ensuring the subject of an order is housed in a safe and habitable environment and his or her basic needs are satisfied.[78] Despite being drafted by well-respected health law scholars, MSEHPA drew significant criticism from others in the field who questioned "the breathtakingly expansive scope of the definition of 'public health emergency' . . . . [T]he model act, as drafted, appears to allow the existence of any epidemic, whatever the cause, to trigger the emergency powers vested in state authorities—powers that include the ability to quarantine individuals and compel treatment . . . ."[79] The model law ultimately underwent some revisions, and nearly 40 states revised their statutes to adopt the model act or portions of it.[80]

The federal government has a more limited power to quarantine than the states. The federal quarantine authority is derived from the Public Health Service Act of 1944 (PHSA), which charges the Secretary of Health and Human Services with making and enforcing regulation to prevent the introduction and transmission of communicable diseases into or within the United States in a relatively limited way.[81] These rules were

[75] *Id.* at 4.

[76] *Id.*

[77] *Id.* at 17; s*ee also* GOSTIN, *supra* note 6, at 439 (discussing the Turning Point Model Act, which provides a framework for public health prevention and disease management, and which emphasizes seeking voluntary compliance before implementing mandatory quarantines and isolation).

[78] GOSTIN, *supra* note 6, at 439.

[79] George J. Annas, *Blinded by Bioterrorism: Public Health and Liberty in the 21st Century*, 13 HEALTH MATRIX 33, 48 (2013).

[80] Fidler, David P.; Gostin, Lawrence O; Markel, Howard, *Through the Quarantine Looking Glass: Drug-Resistant Tuberculosis and Public Health Governance, Law, and Ethics*, (2007). *Articles by Maureer Faculty.* Paper 371.

[81] GOSTIN, *supra* note 6, at 441.

not significantly updated until 2017, when the CDC released a final set of regulations allowing the agency to detain people anywhere in the country without obtaining approval from state and local officials.[82] Again, public health law experts disagree over whether the rule strikes the right balance between government authority and individual protections.[83]

V. Modern Legal and Ethical Framework

Based on the development of common law in the area of quarantine and compulsory interventions since the 1960s, Georgetown Law Professor and health law expert Lawrence O. Gostin has identified four legal prerequisites to the use of quarantine: (1) it must satisfy a compelling state interest; (2) it must be a targeted intervention; (3) it must be the least restrictive alternative; and (4) it must include opportunities for procedural due process.[84] Unpacking these elements in order: First, the U.S. Supreme Court has adopted a "strict scrutiny" standard, requiring state laws to be "suitably tailored to serve a compelling state interest" if they impact personal rights protected by the Constitution.[85] Further, the Court has held that without providing treatment, a state cannot detain a non-dangerous person with mental illness who is capable of surviving in the community.[86] Some lower courts have extended this civil liberties protection by requiring a finding of dangerousness as a condition of confining a person with an infectious disease.[87] Second, because only persons

[82] CDC Final Rule, 42 CFR § 70, 71 (2017), https://www.federalregister.gov/documents/2017/01/19/2017-00615/control-of-communicable-diseases.

[83] *See* Public Comments on Notice of Proposed Rulemaking, Control of Communicable Diseases, 81 Fed. Reg. 157; James G. Hodge, Jr., et al., *Federal Powers to Control Communicable Conditions: Call for Reforms to Assure National Preparedness and Promote Global Security*, 15 HEALTH SECURITY 1 (2017); Rob Stein, *CDC Seeks Controversial New Powers to Stop Outbreaks*, NPR (Feb. 2, 2017, 4:47 AM), www.npr.org/sections/health-shots/2017/02/02/512678115/cdc-seeks-controversial-new-quarantine-powers-to-stop-outbreaks.

[84] GOSTIN, *supra* note 6, at 444-45.

[85] City of Cleburne v. Cleburne Living Center, 473 U.S. 432, 440 (1985).

[86] O'Connor v. Donaldson, 422 U.S. 563, 576 (1975). Gostin has argued that the civil liberty protections around the involuntary civil commitment of those with mental illness, a severe form of restraint, should apply equally to isolation and quarantine because "[i]nvoluntary commitment for having communicable tuberculosis impinges on the right to liberty . . . no less than involuntary commitment for being mentally ill." GOSTIN, *supra* note 6, at 444 (quoting Greene v. Edwards, 263 S.E.2d 661, 663 (W. Va. 1980)).

[87] *Contra: In re* Halko, 246 Cal.App.2d 553, 558 (1966); *see* Moore v. Draper, 57 So.2d 648, 650 (Fla. 1952).

who pose a significant risk of transmission can be confined,[88] broad interventions intended to confine large groups without individually demonstrated risk are constitutionally questionable.[89] Instead, quarantines should be targeted toward individuals who demonstrate a risk to public health. Third, some courts have required states to show that less restrictive alternative interventions would not protect the public's health.[90] Fourth, individuals subject to confinement are entitled to procedural due process because confinement is a deprivation of liberty under the Constitution.[91] The type of process required depends on the nature and duration of the restraint.[92] For example, the West Virginia Supreme Court held that individuals with infectious diseases are entitled to procedures similar to those of people facing civil commitment for mental illness, including an adequate notice, a right to counsel, a hearing, a demonstration by the state of the need for confinement by a high standard of proof (clear and convincing evidence), and a right to an appeal.[93]

Given that under some circumstances, quarantine can be counterproductive and vulnerable to abuse, Gostin and colleagues lay out an ethical framework to mitigate its impact on individual liberties. They advocate for the restriction of individual rights only when necessary based on the precautionary principle.[94] The precautionary principle obligates governments to "protect populations against reasonably foreseeable threats, even under conditions of uncertainty."[95] Further, "given the potential costs of inaction, it is the failure to implement preventive measures that requires justification."[96] One of the goals of the precautionary principle is to guide decision-making in the face of incomplete knowledge.

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88 *See* Kansas v. Crane, 534 U.S. 407, 413 (2002).

89 GOSTIN, *supra* note 6, at 444; *see also* Jew Ho v. Williamson, 103 F. 10, 12 (N.D. Cal. 1900).

90 *See* City of New York v. Antoinette R., 630 N.Y.S.2d 1008, 1009 (N.Y. Sup. Ct. 1995) (upholding detention for tuberculosis treatment upon a showing that less restrictive means would not succeed).

91 *See O'Connor*, 422 U.S. at 580 (1975); Vitek v. Jones, 445 U.S. 480, 481 (1980).

92 Washington v. Harper, 494 U.S. 210, 235 (1990).

93 Greene v. Edwards, 263 S.E.2d 661, 662 (W. Va. 1980).

94 *See generally* Lawrence O. Gostin et al., *Ethical and Legal Challenges Posed by Severe Acute Respiratory Syndrome: Implications for the Control of Severe Infectious Disease Threats*, PUBLIC HEALTH ETHICS: THEORY, POLICY AND PRACTICE 266 (2007).

95 *Id.* at 265 (citing John Applegate, *The Precautionary Preference: An American Perspective on the Precautionary Principle*, 6 HUM. ECOL. RISK ASSESS. 413, 420 (2000)).

96 *Id.*

While the Gostin et al. framework advises policymakers to proactively intervene, it urges them to approach quarantine carefully by applying the following criteria to their decision-making in order to avoid burdening individual rights: (1) targeting restrictive measures; (2) ensuring a safe and humane environment; (3) providing for fair treatment and social justice; (4) ensuring procedural due process; (5) using quarantine only when it is the least restrictive alternative; and (6) engaging in a scientific assessment of risk.[97]

First, restrictive measures should be targeted or limited to those known to be infectious.[98] This criterion can be applied to some diseases more easily than others. For example, Ebola patients are only infectious once they have symptoms and are most infectious at a time when they are likely to seek medical treatment because their symptoms are severe. While SARS is similar, this was not known during the early SARS outbreaks.[99]

Second, because quarantine is not intended to be punitive, public health officials have an obligation to provide a safe and habitable environment, preferably in a person's own home, which is less restrictive than an institution or health facility and mitigates stigma.[100] Although this "sheltering in place" method assumes voluntary compliance, it may intrude on privacy, as health and law enforcement officials may want to monitor patients remotely or in person.[101] This type of quarantine also cannot be used if it will impose health risks on housemates and neighbors.[102] Whether the subject of quarantine is at home or elsewhere, officials must ensure that basic needs are met, including food, clothing, healthcare, and a means of communication.[103]

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[97] *Id.* at 269. Others have proposed similar approaches to the analysis, *see, e.g.,* Mark A. Rothstein, *From SARS to Ebola, Legal and Ethical Considerations for Modern Quarantine* 12 IND. L. REV. 227, 249-50 (2015) (proposing the following criteria: (1) necessity, effectiveness, and scientific rationale; (2) proportionality and least infringement; (3) humane supportive services; and (4) public justification); Ross E.G. Upshur, *Principles for the Justification of Public Health Intervention*, 93 CAN. J. PUB. HEALTH 101, 102-03 (2002) (proposing the following criteria: (1) necessity, (2) least restrictive means, (3) necessary support services, and (4) communication of reasons).

[97] Gostin, *supra* note 94, at 269-71.

[98] *Id.* at 269.

[99] Cava et al., *supra* note 59, at 398.

[100] Gostin, *supra* note 94, at 270.

[101] *Id.*

[102] *Id.*

[103] *Id.*

Third, "[w]hen public health authorities require people to forgo their freedom for the common good, equity requires that the financial burden be borne by the community as a whole."[104] Quarantines have a more significant economic impact on low income hourly workers than salaried workers with access to paid time off, but most states do not offer financial compensation to those it subjects to quarantine.[105]

Fourth, states must ensure procedural due process, including the opportunity for a hearing by "an independent tribunal in a timely manner with representation by an attorney."[106] In an emergency, the hearing may come after the confinement begins, but it should still be available.[107] Fifth, at the end of the day, even if all the previously mentioned criteria are satisfied, public health authorities should only implement quarantine if it is the least restrictive way of adequately protecting the public's health—a last resort.[108]

Finally, the sixth step in assessing risk involves cases that will range from those easily justifiable to those ethically problematic based on the certainty that the patient is infected and poses a risk to others.[109] Where there is a significant risk based on the probability of transmission, policymakers should err on the side of quarantine, even when there is medical uncertainty.[110] On the one hand, quarantine and isolation are justified in a suspected Ebola case when symptoms are present prior to diagnostic testing and the patient is theoretically infected. On the other hand, if the subject has merely been exposed or is suspected of being exposed and is not showing symptoms, then less restrictive measures, such as travel restrictions and active monitoring for symptoms by a public health official, would be more appropriate.

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104 *Id.*

105 Eugene Kontorovich, *Paying People for Quarantines*, WASH. POST (Oct. 30, 2014), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/10/30/paying-people-for-quarantines/?utm_term=.81f206608d8a.

106 Gostin, *supra* note 94, at 271.

107 *Id.*

108 *Id.*

109 *Id.* at 269.

110 *Id.*

VI. Lack of Coordination and Stigma

According to Fidler, certain characteristics make societies vulnerable to disease outbreaks from bioterrorism.[111] Other than anthrax, none of the diseases described herein have emerged as a result of bioterrorism, but the characteristics Fidler describes also leave societies vulnerable to emerging diseases or epidemics of existing disease. These include deference to individual rights and federalism, fragmented and outdated legal authority, and neglected public health infrastructure.[112]

The issue of fragmented legal authority was illustrated by the Kaci Hickox case.[113] When Hickox returned from Sierra Leone in fall 2014, the CDC's guidelines advised, but did not require, persons at risk for developing Ebola to distance themselves from others for twenty-one days.[114] The federal government apparently did not believe Hickox's exposure was a significant risk to public health; it only issued advisory guidelines, imposing modest restrictions on her personal liberty.[115] Several states, including New Jersey and Maine, which both attempted to quarantine Hickox, imposed their own stricter guidelines. New Jersey ultimately allowed Hickox to leave the state and Maine's quarantine petition was rejected by a state court in favor of an order for direct active monitoring.[116] Still, Hickox was vilified by politicians and the media; her actions were not viewed as a legitimate challenge to the state's authority to restrict her rights, but instead as her willfully putting others at risk.

Another well-known case highlighting weaknesses in legal authority and government coordination was that of Andrew Speaker. Speaker was infected with tuberculosis (TB), which typically warrants isolation. Despite being advised by local health officials that he had multidrug resistant TB in March 2007, Speaker traveled to Europe for his wedding

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111 *See* Fidler, *supra* note 2, at 80-81.

112 *Id.*

113 For discussion of the Hickox case, *see supra* note 4 and accompanying text.

114 Betsy McKay et al., *CDC Rejects Mandatory Ebola Quarantines*, WALL ST. J. (Oct. 27, 2014), http://www.wsj.com/articles/federal-ebola-quarantine-guidelines-releasedby-cdc-141444 3143.

115 Roni Adil Elias, *Preventing Contagion and Protecting Civil Liberties: Problems in Quarantine & Isolation Law in the United States & Suggestions for Reform*, 7 CHARLOTTE L. REV. 135, 148 (2016).

116 *See* Hickox, *supra* note 3.

and honeymoon.[117] While he was away, tests showed Speaker had a more dangerous, drug resistant form of the disease than previously thought. The CDC then asked him to stay in Europe until a plan was in place to get him home safely and protect the public, as TB can be transmitted during long flights.[118] The CDC also had the U.S. Department of Homeland Security (DHS) add Speaker to the "no fly list."[119] But before this occurred, Speaker flew to Montreal and traveled by car to the U.S. border where a border patrol agent allowed him to enter the U.S., even though the agent had been warned by DHS. Once across the border, Speaker checked himself into a New York hospital where he was placed under a rarely issued federal order.[120] Medical officials later determined Speaker had the less severe form of multidrug resistant TB, consistent with his original diagnosis.[121]

While Fidler claims that deference to individual rights detracts from an effective system for managing disease outbreaks, subjects of confinement, such as quarantine and isolation, are not only victims of disease, but victims of stigmatizing policy. Like Hickox, the much-caricatured Typhoid Mary of one hundred years ago,[122] and countless others, Speaker was also vilified by the press and politicians following the incident. At a congressional hearing on the topic, Congressman Christopher Shays said, "Now I don't care, frankly, if it is a terrorist carrying the contagious disease or a citizen who doesn't give a darn about anyone else. I would treat them frankly the same way because the result could be the same way."[123]

In contrast to the reaction of America's public and politicians, a

117 Parmet, *supra* note 1, at 1.

118 *Id.* at 1-2.

119 *Id.* at 2.

120 *Id.* at 1-2.

121 *Id.* at 2.

122 Mary Mallon was an Irish immigrant cook in New York City and asymptomatic carrier of the pathogen associated with typhoid fever. *Id.* at 6. She was initially quarantined by health officials and released on the condition that she would not work as a cook, but resumed her occupation and infected additional people. *Id.* She was then quarantined for almost thirty years until her death in 1938. *Id.* at 6-7 & n.32. Mallon was treated more harshly than others similarly situated. *See id.* at 6-8. She is believed to have infected forty-seven people, three of whom died. *Id.* at 7 & n.33. During that time, there were 3000 cases of the disease in New York City. *Id.*

123 *The XDR Tuberculosis Incident: Poorly Coordinated Federal Response to an Incident with Homeland Security Implications, Hearing Before Comm. on Homeland Security*, 110th Cong. 44 (Jun. 6, 2007) (statement of Christopher Shays, Congressman of Connecticut), https://archive.org/stream/gov.gpo.fdsys.CHRG-110hhrg48919/CHRG-110hhrg48919_djvu.txt.

more scientific assessment of Speaker's actual risk of transmission reveals it was small.[124] TB is typically not very infectious without prolonged contact.[125] Although long airplane flights do increase the risk of transmission,[126] it was a mere coincidence (a rib injury leading to a chest x-ray) that Speaker was even diagnosed before embarking on his trip, suggesting that he was never symptomatic and may not have been contagious.[127] Successfully detaining Speaker at any point would not have produced a major impact on public TB risk.[128] In fact, the enormous resources spent on tracking down Speaker would have been better spent addressing the root causes of the disease. These might include contributing factors to the spread of TB, including poverty, low body mass index, and poor indoor air quality, particularly in developing countries,[129] rather than on "the risks posed by one not-very-infectious man."[130]

VII. Policy Approaches

States' authority to order quarantines stems from their police powers. However, state approaches vary. Although many states have adopted portions of MSEHPA, some statutes are still outdated, fragmented, and do not represent a modern public health approach. In some cases, state laws are disease-specific. In such cases, quarantine may be authorized for specified communicable diseases, for example, but leave health officials without the proper tools to address other conditions.[131]

A. Mental Health Commitment Model

The United States Supreme Court has never ruled on what specific type of due process quarantined individuals are entitled to, but it has held

[124] Parmet, *supra* note 1, at 3.

[125] *How TB Spreads*, CDC, https://www.cdc.gov/tb/topic/basics/howtbspreads (last updated Feb. 23, 2018).

[126] Thomas A. Kenyon et al., *Transmission of Multi-Drug Resistant Mycrobacterium Tuberculosis During a Long Plane Flight*, 334 N. ENG. J.MED. 933, 933-38 (1996).

[127] Parmet, *supra* note 1, at 4.

[128] Parmet, *supra* note 1, at 4.

[129] *See* Olivia Oxlade & Megan Murray, *Tuberculosis and Poverty: Why are the Poor at Greater Risk in India?* PLOS ONE 1 (Nov. 2012).

[130] Parmet, *supra* note 1, at 5.

[131] GOSTIN, *supra* note 6, at 437.

that involuntary confinement is a significant deprivation of liberty requiring due process protections.[132] The Fifth and Fourteenth Amendment prohibit the federal and state governments, respectively, from depriving individuals of liberty without due process of law.[133] In the case of civil commitment for mental illness, however, the Court has established a relatively high standard: a state must show by ''clear and convincing evidence'' that an individual is ill and dangerous.[134] Some have argued that this higher standard should be applied to quarantine and isolation because "[i]nvoluntary commitment for having communicable tuberculosis impinges on the right to liberty . . . no less than involuntary commitment for being mentally ill."[135] At least one state, Maine, has adopted the clear and convincing standard in its statute.[136] In fact, it was a Maine state court that overturned Kaci Hickox's quarantine order, because the state health department did not meet this high standard of proof.[137]

B. State Statutes

Each state and the District of Columbia have laws authorizing quarantine, usually through their public health authorities.[138] A 2009 survey of state statutes by the University of Michigan School of Public Health revealed inconsistencies across the states.[139] Among other characteristics, the survey examined how the statutes safeguarded individual rights, based on whether the statutes contain provisions for notice, right to a

132 Michelle A. Daubert, *Pandemic Fears and Contemporary Quarantine: Protecting Liberty Through a Continuum of Due Process Rights*, 54 BUFF. L. REV. 1299, 1333 (2007) (citing Foucha v. Louisiana, 504 U.S. 71, 80 (1992)); Jones v. United States, 463 U.S. 354, 361 (1983); Addington v. Texas, 441 U.S. 418, 425 (1979).

133 U.S. Const. amends. V and XIV.

134 Addington v. Texas, 441 U.S. 418, 433 (1979).

135 GOSTIN, *supra* note 6, at 444 (quoting Greene v. Edwards, 263 S.E. 2d 661, 663 (W. Va. 1980)) (holding that due process protections required in cases of civil commitment for mental illness, including right to appointment of counsel should apply to quarantines).

136 ME. Rev. Stat. Ann. Tit. 22, § 810 (2017).

137 Miles, *supra* note 3, at 18.

138 *State Quarantine and Isolation Statutes*, NAT. CONF. OF ST. LEGISLATURES, (Oct. 29, 2014.), http://www.ncsl.org/research/health/state-quarantine-and-isolation-statutes.aspx.

139 *State Isolation and Quarantine Measures: A Survey of State Laws*, UNIV. OF MICH. SCH. OF PUB. HEALTH 1 (Oct. 12, 2010), https://practice.sph.umich.edu/practice/files/StateLawSurvey.pdf.

hearing, prior court approval, confidentiality, and religious protections.[140] It should be noted that the survey probably did not accurately capture each state's characteristics, because the law in this area may be articulated in regulations and case law in addition to the statute.

According to the survey, eighteen states provide notice of a quarantine order and most of these states also provide for a right to a hearing.[141] Only seven states have provisions to protect privacy and confidentiality and only two states have statutes that contain religious protections.[142] Ten states require prior court approval in most cases.[143]

According to the National Conference of State Legislatures, most state statutes contain penalties for non-compliance.[144] These penalties range from a fine of up to $50 and up to two years in prison, or both, in Rhode Island,[145] to felony offenses in Mississippi, New Hampshire, South Carolina, and Texas.[146] Mississippi levies the harshest penalty: a fine of up to $5000, imprisonment for up to five years, or both.[147]

C. Connecticut Legislation

Having experienced the problematic 2014 Ebola quarantines firsthand, some Connecticut advocates have attempted to apply the rigorous due process standards the courts have demanded for mental health commitments to Connecticut's quarantine law. In 2017, the Connecticut legislature considered a proposal to reform its quarantine statute. Senate Bill 37, *An Act Concerning Health Emergency Response Operations* (HERO), was developed by students in Yale Law School's Worker and Immigrant Rights Advocacy Clinic, who also represented members of the Liberian community who were affected by Connecticut's 2014 Ebola quarantine orders.[148] The proposal would add several protections for individual rights. First, it would eliminate Connecticut's current two-track

[140] *Id.* at 6.
[141] *Id.* at 7.
[142] *Id.*
[143] *Id.* at 9.
[144] NAT. CONF. OF ST. LEGISLATURES, *supra* note 138.
[145] 23 R.I. Gen. Laws Ann. § 23-8-21 (West 2017).
[146] Miss. Code Ann. § 41-23-2 (West 2017); N.H. Rev. Stat. Ann. § 141-C:21 (2017); S.C. Code Ann. § 44-4-530 (2017); Tex. Health and Pub. Safety Code Ann. § 81.085 (West 2017).
[147] Miss. Code Ann. § 41-23-2 (West 2017).
[148] *Testimony in Support of Modifying Current Quarantine Laws*, Proposed SB 37, An Act Concerning Health Emergency Response Operations, Before the Public Health Committee (2017)

system, which authorizes local health directors or, when the Governor has declared a public health emergency, the state Commissioner of Public Health, to order quarantines under certain circumstances.[149] This would be replaced with a new bifurcated system that treats cases differently depending on whether exigent circumstances are present.[150] Exigent circumstances" are defined by the bill as "any circumstance in which the relative threat to public health or safety is so immediate and severe that there is no time for the commissioner or local health director to secure a court order without jeopardizing the health or safety of others."[151]

In the absence of exigent circumstances, the subject of a potential order is entitled to judicial oversight prior to the issuance of the order and detainment. The Commissioner or local health director must petition the superior court for a preliminary order by attesting that probable cause for the order exists and make an effort to notice the subject prior to filing the order.[152] If the court decides that there is probable cause, then it must grant the petition, in which case the order becomes effective and the subjects of the order must be served with a copy of the order detailing their rights, including the right to a hearing.[153] Probable cause is the same standard required for police to obtain an arrest warrant in a criminal case. If there is no probable cause, then the court must deny the state's petition for a quarantine order.[154]

If there are exigent circumstances, the Commissioner or local health director may issue a preliminary order based on probable cause that the order is required to avoid a clear, immediate danger to others and that safety considerations do not allow him or her time to petition the superior court.[155] Within twelve hours of the issuance of the order, the subjects must be served with the order, which must include a notice of their rights, including the right to a hearing within seventy-two hours.[156] This robust notice requirement is important, as it was reported

(statement of Megha Ram).

149 Conn. Gen. Stat. § 19a-131b (2017); Conn. Gen. Stat. § 19a-221 (2017).

150 *See* S.B. 37, 2017 Gen. Assemb., Reg. Sess. (Conn. 2017), §4-5.

151 *Id*. at § 1.

152 *Id*. at § 4(a).

153 *Id*. at § 4(b).

154 *Id.* at § 4(a).

155 *Id*. at § 5(a).

156 *Id*. at §§ 5(c)-(d).

by some quarantine subjects during the Ebola epidemic that they were unaware of their rights.[157]

Presently, when a due process hearing is held on a quarantine order, the public health official issuing the order must show that the order is the least restrictive means necessary to protect and preserve public health.[158] In doing so, the official must only meet the "preponderance of the evidence" standard,[159] which is the lower of the two typical standards applied in civil cases. Under the HERO proposal, public health officials would be required to meet the higher "clear and convincing" standard[160] to show that an order is the least restrictive means necessary and should be issued.

In addition to imposing more rigorous judicial review, the HERO proposal authorizes officials to order other less restrictive public health measures, such as active monitoring, social distancing, and travel, work, or school restrictions using the same processes as for quarantine.[161] These less restrictive alternatives are not available to health officials under the current statutory scheme.

Further, the existing Connecticut statute includes provisions to ensure a safe and humane environment, including addressing subjects' basic needs like food, clothing, shelter, communication with those outside, medical care, and keeping households together when it is safe to do so.[162] It also asks that health officials accommodate cultural and religious beliefs to the extent possible. The present statute does not address financial compensation.

The HERO proposal goes further in these areas as well. It requires that those quarantined be provided the following: adequate food that accommodates dietary restrictions; medication and medical care; clothing appropriate for the environment; shelter with an adequate number of beds; a means of communication with others in quarantine and those

157 *See, e.g.*, AM. CIVIL LIBERTIES, *supra* note 1, at 19, 40.

158 Conn. Gen. Stat. §§ 19a-131b(j), 19a-221(h).

159 The preponderance of the evidence standard only requires a party to show that the order is more likely than not necessary.

160 This burden of proof requires the party to prove that the order is substantially more likely than not to be necessary. It would likely require the health official to produce scientific evidence to support his or her claims.

161 S.B. 37, § 3(2).

162 Conn. Gen. Stat. §§ 19a-131b(b), 19a-221(b).

outside; and accommodations for cultural and religious beliefs.[163] The bill also bars employers from discriminating against employees because they have been subject to quarantine or a less restrictive public health order, and it enables employees to bring civil actions to recover lost wages.[164]

Overall, the HERO proposal provides more protections for individuals and more robust due process rights while also allowing state and local officials to better tailor their response to public health crises by specifically authorizing orders aimed at less restrictive social distancing measures. This is a strong step forward and should be adopted.[165] It seems unlikely that many of Connecticut's 2014 Ebola quarantine orders would have survived the clear and convincing standard, given that asymptomatic people cannot spread Ebola and the quarantine subjects were either asymptomatic or briefly symptomatic but tested negative for Ebola. However, if a public health official had been able to order active monitoring, school or work restrictions, as are authorized under the bill, then maybe quarantine orders would never have been attempted.

VIII. Conclusion and Policy Recommendations

Quarantine should have a very limited and unique role in modern public health practice. As a foundation, state statutes should comply with the Gostin et al. framework for protecting individual rights: (1) targeting the restrictive measures; (2) ensuring a safe and humane environment; (3) providing for fair treatment and social justice; (4) ensuring procedural due process; (5) using quarantine only when it is the least restrictive alternative; and (6) engaging in a scientific assessment of risk.

Quarantine should be used only when there are no other alternatives for protecting the public's health and only when health officials justify it with scientific evidence. State laws should encourage health officials to utilize less restrictive means by providing specific authority to order active monitoring, travel restrictions, and other social distancing measures. Health officials should use narrowly targeted measures and avoid broad or geographic orders unless absolutely necessary. In gen-

163 S.B. 37, § 7(b).
164 S.B. 37, § 9(2)(b).
165 The Connecticut legislature adjourned in 2017 without passing the HERO Act.

eral, there should always be an individualized risk analysis. Health authorities seeking a quarantine order should be required to present strong evidence to a court for that order to be granted. The clear and convincing standard used for mental health commitments is the appropriate standard in this case.

If it is impossible to obtain a court approval before issuing an order, the probable cause standard should apply. Probable cause is required under the Fourteenth Amendment and is the same standard that police officers must meet in order to obtain a search or seizure warrant. When there are exigent circumstances requiring police to act quickly, they may proceed with a search or seizure without a warrant, but they still must show probable cause.

Whether the order is issued before or after judicial review, the subjects of quarantine should always have notice of the order and the opportunity to be heard. The notice should be timely and served in person by a marshal or other appropriate process server, as is the case for other orders that restrict liberties, like restraining orders. The notice should be in plain language and outline the individual's rights, including the right to a hearing and the right to be represented by counsel.

A statute should include explicit provisions to ensure fair treatment, and to ensure a safe and humane environment, including addressing subjects' basic needs like food, clothing, shelter, communication both with those outside and others in quarantine, and medical care. These services should be paid for by the government and provided in a culturally competent manner. Additionally, to mitigate the stigma of quarantine, a quarantine statute should impose privacy and confidentiality requirements on public officials handling the quarantine, including health officials, courts, and police.

Given that a quarantine order is a type of court order and that every state imposes some penalties on those who violate these orders, a reasonable fine and/or prison time are appropriate penalties. These penalties should be in line with a state's penalties for violating similar court orders.

These recommendations provide a framework of best practices based on legal standards, ethical protocols, and models from states and other areas of law. They are designed to ensure quarantine is used rarely and only as a last resort, to promote respect, privacy, and human dignity, and to mitigate the stigma inherent in segregating individuals from their community.