THESIS

LAW ENFORCEMENT'S ROLE IN PREVENTING EPIDEMICS: ENFORCING COMMUNICABLE DISEASE QUARANTINE POLICIES

by

Donald I. Lowenthal Jr.

March 2020

Co-Advisors: Anke Richter
              Lynda A. Peters (contractor)

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13. ABSTRACT (maximum 200 words)

The Philadelphia Police Department currently has no policy providing guidance to its police officers on how to safely and humanely enact the quarantine enforcement component of the Isolation and Quarantine Plan developed by the Philadelphia Department of Public Health. Thus, this thesis addresses the question: How can a humane quarantine policy be enforced by the Philadelphia Police Department to stop the spread of communicable infectious diseases? To answer the question, a Likert Scale was employed to rank the efficacy of quarantine enforcement: effectiveness, community support, cost, and implementation ease. The research indicates forced quarantine cannot be implemented successfully without evidence-based practices to support it. The use of self-quarantine benefits from providing essential services to quarantined citizens and the powers of arrest should only be used after reasonable enforcement means have been attempted. Hybrid quarantine plans tailored to the disease and enacted with sound medical advice are best suited to stop disease spread. U.S. law enforcement agencies would benefit from developing a quarantine enforcement plan and updating existing public health quarantine plans to include additional guidance for officers along these lines. A collaborative plan must be established among all stakeholders to deliver essential goods and information.
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LAW ENFORCEMENT’S ROLE IN PREVENTING EPIDEMICS: ENFORCING COMMUNICABLE DISEASE QUARANTINE POLICIES

Donald I. Lowenthal Jr.
Infection Control Officer, Philadelphia Police Department
BA, Eastern College, 2001
BS, Western Governors University, 2014

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Approved by: Anke Richter
Co-Advisor

Lynda A. Peters
Co-Advisor

Erik J. Dahl
Associate Professor, Department of National Security Affairs
ABSTRACT

The Philadelphia Police Department currently has no policy providing guidance to its police officers on how to safely and humanely enact the quarantine enforcement component of the Isolation and Quarantine Plan developed by the Philadelphia Department of Public Health. Thus, this thesis addresses the question: How can a humane quarantine policy be enforced by the Philadelphia Police Department to stop the spread of communicable infectious diseases? To answer the question, a Likert Scale was employed to rank the efficacy of quarantine enforcement: effectiveness, community support, cost, and implementation ease. The research indicates forced quarantine cannot be implemented successfully without evidence-based practices to support it. The use of self-quarantine benefits from providing essential services to quarantined citizens and the powers of arrest should only be used after reasonable enforcement means have been attempted. Hybrid quarantine plans tailored to the disease and enacted with sound medical advice are best suited to stop disease spread. U.S. law enforcement agencies would benefit from developing a quarantine enforcement plan and updating existing public health quarantine plans to include additional guidance for officers along these lines. A collaborative plan must be established among all stakeholders to deliver essential goods and information.
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<th>Full Form</th>
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<tbody>
<tr>
<td>ACLU</td>
<td>American Civil Liberties Union</td>
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<tr>
<td>BIT</td>
<td>Behavioral Insights Team</td>
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<tr>
<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
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<td>CHDS</td>
<td>Center for Homeland Defense and Security</td>
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<tr>
<td>DAO</td>
<td>District Attorney’s Office</td>
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<tr>
<td>DRC</td>
<td>Democratic Republic of the Congo</td>
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<td>EMS</td>
<td>emergency medical services</td>
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<td>EVD</td>
<td>Ebola Virus Disease</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<td>GED</td>
<td>General Education Development</td>
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<td>GPD</td>
<td>Gainesville Police Department</td>
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<td>GPS</td>
<td>global positioning system</td>
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<td>GTA</td>
<td>Greater Toronto Area</td>
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<td>HIP</td>
<td>Health Information Portal</td>
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<td>IQP</td>
<td>Isolation and Quarantine Plan</td>
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<td>KCDC</td>
<td>South Korean Center for Disease Control</td>
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<tr>
<td>MERS-CoV</td>
<td>Middle Eastern Respiratory Syndrome-Coronavirus</td>
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<tr>
<td>MMR</td>
<td>measles, mumps, and rubella</td>
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<tr>
<td>MOU</td>
<td>memorandum of understanding</td>
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<tr>
<td>MSF</td>
<td>Médecins sans frontières</td>
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<tr>
<td>NGO</td>
<td>non-government organization</td>
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<tr>
<td>PDPH</td>
<td>Philadelphia Department of Public Health</td>
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<td>PFD</td>
<td>Philadelphia Fire Department</td>
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<td>PPD</td>
<td>Philadelphia Police Department</td>
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<td>PPS</td>
<td>Philadelphia Prison System</td>
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<tr>
<td>SARS</td>
<td>Severe Acute Respiratory Syndrome</td>
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<td>TPS</td>
<td>Toronto Police Service</td>
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<tr>
<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
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<td>WHO</td>
<td>World Health Organization</td>
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EXECUTIVE SUMMARY

The Philadelphia Police Department (PPD) currently has no policy providing guidance to its police officers on how to enact the quarantine enforcement component of the Isolation and Quarantine Plan (IQP) developed by the Philadelphia Department of Public Health (PDPH). Quarantine restricts the movement of healthy people who may have been exposed to a contagious patient infected with a communicable disease.¹ The use of quarantine has successfully stopped the spread of disease to otherwise healthy people in the community.² Enforcing a successful quarantine plan may be the only method available to stop the spread of life-threatening communicable diseases. This thesis examines how a quarantine policy can be enforced by the PPD to stop the spread of communicable infectious diseases.

This thesis explores the enforcement of quarantine orders during communicable disease events between 1976 and 2018. The 2019 Novel Coronavirus pandemic had begun as this thesis was completed and is not included.³ The quarantine enforcement policies include forced quarantine, self-quarantine, and hybrid quarantine plans. Quarantine enforcement was used during the 2003 outbreaks of severe acute respiratory syndrome in Canada, in response to the 2014 Ebola virus disease scare in the United States, and with the 2009 H1N1 epidemic in China, among others.⁴ Therefore, based on these findings, this thesis addresses how the Philadelphia Police Department, along with other member agencies and community stakeholders, can quarantine people during communicable infectious diseases.

disease incidents. The research indicates, as case law establishes, that forced quarantine cannot be implemented successfully without evidence-based practices to support it. The use of self-quarantine benefits from providing essential services to quarantined citizens and the powers of arrest should only be used after reasonable means have been attempted. Hybrid quarantine plans tailored to the disease and enacted with sound medical advice are best suited to stop the spread of infectious disease.

The recommendations of this thesis can contribute to the creation of an effective plan for the PPD to enforce quarantine orders especially since the current IQP tasks the PPD with implementing quarantine enforcement orders with little guidance. Hopefully, this thesis will lead to appropriate changes to the existing IQP concerning the proper enforcement of quarantine orders. The collaboration of non-government and government agencies can be used to provide affected citizens with food, water, medication, and information while acting as a force multiplier to lessen the logistical strain on the PPD.

The lynchpin of the plan lies in the communication of pertinent medical information related to the communicable disease event. To provide timely and accurate information to the community, the release of this data should be made available through traditional and non-traditional media outlets (on Twitter, Facebook, Instagram, etc.), as well as prominently displayed on the websites of the PPD, Philadelphia Fire Department, PDPH, and the City of Philadelphia. Providing citizens with information concerning an epidemic and quarantine plans can assist them in maintaining quarantine compliance and stopping the spread of disease.
ACKNOWLEDGMENTS

I would like to thank my daughter, Bridget, and the Michvech and Hartman families for their incredible patience and support during my Center for Homeland Defense and Security (CHDS) journey. I would also like to express gratitude to Philadelphia Police Commissioners Richard Ross and Christine Coulter for providing me this tremendous educational experience. Additionally, I want to thank the staff assigned to the Safety Office to include Molly O’Neill, Jessica Linden, and Corporal Vincent Maroney. Each of you stepped in to assist when I was immersed in CHDS-related responsibilities and provided much-needed assistance to Philadelphia police officers while I was unavailable. I am looking forward to being a fully engaged member of the Safety Office team very soon.

I would also like to thank the instructors and staff at CHDS for providing me with exceptional guidance through the thesis process. Every member of the CHDS team was able to offer insight, suggestions, and a shoulder to lean on during the thesis process. I can only hope to provide future CHDS students with the same assistance given to me.

I owe an enormous debt of gratitude to my fellow students in Cohorts 1803 and 1804. I am looking forward to continuing our professional and personal relationships in the future. You are an amazing group of people and homeland security professionals, and I am grateful to now count you as friends.

I owe a huge debt of gratitude to my advisors, Lynda Peters, and Anke Richter, for providing the utmost patience, reassurance, and insight during the development of this thesis. I could not have had a better team to assist me in accomplishing my goals. I will always be grateful.
I. INTRODUCTION

A. PROBLEM STATEMENT

The Philadelphia Police Department (PPD) currently has no policy providing guidance to its police officers on how to enact the quarantine enforcement component of the Isolation and Quarantine Plan (IQP) developed by the Philadelphia Department of Public Health (PDPH) safely and humanely. Quarantine restricts the movement of healthy people who may have been exposed to a contagious patient infected with a communicable disease.\(^1\) The use of quarantine has successfully stopped the spread of disease to otherwise healthy people in the community.\(^2\) Thus, Philadelphia details both measures in its IQP. Enforcing a successful quarantine and isolation plan may be the only method available to stop the spread of life-threatening communicable diseases.

Without guidelines on the implementation of either isolation or quarantine, the IQP cannot be enforced effectively and can cause undue harm to the people affected by communicable diseases in Philadelphia. Accordingly, in 2018, the PDPH updated the IQP in response to past communicable disease pandemics, including the severe acute respiratory syndrome (SARS) outbreak in Toronto during 2003 and the 2014–2016 Ebola virus disease (EVD) that started in West Africa. Both pandemics caused fear and hysteria worldwide, and as a result, numerous city and state governments in the United States implemented policies with mixed results. Quarantine enforcement has been used during such events as the 2003 outbreaks of SARS in Canada, in response to the 2014 EVD scare.

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in the United States, and for the 2009 H1N1 epidemic in China. The use of quarantine enforcement during these episodes had varying degrees of success. Therefore, this thesis addresses how the PPD, along with other member agencies and community stakeholders, can safely and humanely quarantine and isolate people during communicable disease incidents.

The IQP outlines the legal steps to be taken if a person suspected of being infected with a contagious communicable disease needs to be placed under quarantine or isolation. The IQP states that a PDPH representative will appear before the Presiding Judge of the Philadelphia Court of Common Pleas and seek a court order against the person to be quarantined. The Pennsylvania Disease Prevention and Control Law of 1955 states an individual may be quarantined to protect the public “in such a manner as to prevent effective contact with those not exposed.” The PPD will enforce this order and the patient will be charged with a summary offense if non-compliant.

PPD leaders realized incarcerating offenders for any type of summary offenses caused undue liability issues and found it to be unnecessary. The citation policy was changed, and people previously arrested for summary offenses now receive a summary citation from a PPD officer at the scene of the incident and are released unless “exceptional circumstances” warrant an arrest.

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7 Philadelphia Police Department, 1.
Enforcing the IQP will likely have legal, social, and medical ramifications that have not been adequately addressed by the PDPH or the PPD. Since the enactment of the Pennsylvania Disease Prevention and Control Law of 1955, PPD arrest procedures have changed dramatically. Solely relying on legislation to decide that ordinary citizens, not criminals, may be held against their will because of a violation of the quarantine and isolation policy will undoubtedly have deleterious effects. While the IQP developed by the City of Philadelphia isolates people who have a contagious communicable disease from others, a holistic approach to executing the plan needs to be assessed prior to implementation.

B. RESEARCH QUESTION

How can a humane quarantine policy be enforced by the PPD to stop the spread of communicable infectious diseases?

C. LITERATURE REVIEW

This literature review explores available research related to the role of law enforcement in a public health emergency to enforce isolation and quarantine policies. This literature review also explores the need to balance the rights of individuals against the public expectation of being protected against communicable diseases. The third section discusses research describing the effectiveness of law enforcement actions during public health emergencies.

1. Role of Law Enforcement in a Public Health Crisis

The literature is mixed about whether it is appropriate for law enforcement to play a role during an epidemic, and if so, what that role should be. Some authors believe that law enforcement will and should play a predominant role but ideally will use a collaborative approach. For example, Mark A. Rothstein et al. describe in *Quarantine and Isolation: Lessons Learned from SARS* that Canadian law enforcement took on a collaborative role during this crisis and did not entirely rely on their powers of arrest and detention. Canadian law enforcement worked with members of the department of public health, local hospitals, and emergency medical services (EMS) personnel to enforce
quarantine orders. By the same token, Lurie et al. indicate public health officials are not as engaged with the public on a daily basis as law enforcement, which may lead to police officers playing a critical role in implementing cohesive quarantine enforcement plans.

On the opposite side of the debate, the American Civil Liberties Union (ACLU) calls law enforcement the “wrong tool for the job” when it involves quarantine enforcement. Similarly, in his book, Driven by Fear: Epidemics and Isolation in San Francisco’s House of Pestilence, Guenter B. Risse criticizes the past use of quarantine for being directed at immigrant groups and poor non-whites blamed for bringing diseases into the community. In a similar vein, Sam Adler-Bell and Barton Gellman highlight law enforcement’s history of focusing on disadvantaged communities and invasion of privacy as prohibitive factors that lead to quarantine orders being served unfairly. In addition, in an article published in The Lancet, Patrick Eba states that after the mass quarantine for Ebola was implemented in West Africa, abuses occurred, such as the denial of timely medical care, food, and water. The literature does not provide a consensus as to the proper role of law enforcement in a public health crisis.

2. Balancing Individual Rights vs. the Needs of the Public

Tasking law enforcement to enforce quarantine orders raises the issue of balancing the rights of the individual against the interests of maintaining the community’s health by

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8 Mark A. Rothstein et al., Quarantine and Isolation: Lessons Learned from SARS (Louisville, KY: University of Louisville School of Medicine, Institute for Bioethics, Health Policy and Law, 2003), 137, https://biotech.law.lsu.edu/blaw/cdc/SARS_REPORT.pdf.


taking the necessary steps to stop the spread of contagious diseases. The literature reflects
active debate about how to strike the proper balance. In an article published by the *Case Western Reserve Journal of International Law*, Erin M. Page argues that states have the power to enact quarantine laws, but do not have a right to abuse this power.\(^{14}\) Likewise, according to the ACLU, the public should not be required to “trade liberty for security” during an epidemic.\(^{15}\) To the ACLU, the collateral damage inflicted by law enforcement in forcing compliance argues against its use. Further, Annas et al. contend that when law enforcement enforced public health policies in the past, “people who were sick were frequently treated as if they had committed a crime.”\(^{16}\) Nonetheless, the courts have ruled in favor of forcing individuals to accept medical treatment and believe the needs of the public to be free of disease during a communicable disease event outweigh individual civil liberties. For example, in *Jacobson vs. Massachusetts*, the U.S. Supreme Court ordered an individual to be vaccinated against smallpox despite his objections.\(^{17}\) Viewed in the same light, it is entirely appropriate for law enforcement to participate on the public health team to enforce quarantine orders during a contagious disease outbreak. The literature review did not find a definitive, consensus view. Rather, it illustrates the competing interests concerning the public’s right to be free of disease versus the rights of the individual.

3. **Is Law Enforcement Needed to Enforce Quarantine Orders?**

Even more fundamental than the question of the proper role of law enforcement in a public health crisis is the bigger question of whether law enforcement is even necessary to ensure public compliance with quarantine orders. The literature is not settled on this question either. While some scholarly articles indicate law enforcement participation during communicable disease events helps stop the spread of disease, other research studies cast doubt on the need for law enforcement to enforce quarantine orders. For the pro-law

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16 Annas, Mariner, and Parmet, 12.

enforcement camp, Lipsitch et al. report SARS patients in Singapore placed in quarantine and monitored by a multi-organizational effort, including law enforcement, infected far fewer citizens if they were compliant before the 4th day of their illness.\textsuperscript{18} Likewise, Dr. Rebecca Katz from the Milken Institute School of Public Health at George Washington University pointed out that a police officer can be an effective member of the public health team if the legal and social environment concerning quarantine changes and if quarantined people are only taken into custody if they are non-compliant.\textsuperscript{19}

Other research concludes that law enforcement participation during a pandemic is not effective. A study published in \textit{BioMed Central Public Health} found only 28\% of Canadians affected by quarantine orders imposed during the 2003 SARS outbreak agreed that law enforcement should be permitted to arrest citizens suspected of having a communicable disease.\textsuperscript{20} Some scholars believe Canadians only obeyed the order because of an understood civic duty not to spread disease and not due to the threat of being placed under arrest or quarantine by law enforcement.\textsuperscript{21} Such journal articles call into question the need for law enforcement to enforce quarantine orders if their participation will only exacerbate problems during an epidemic.

This literature review reveals the depth of the unresolved issues surrounding law enforcement and quarantine orders. No one is sure what the role of law enforcement should be, which is driven by two considerable uncertainties, what is the proper balance of individual rights vs. public benefits and is law enforcement even a necessary component to ensure quarantine compliance. U.S. law enforcement organizations participating on the

\textsuperscript{18} Marc Lipsitch et al., “Transmission Dynamics and Control of Severe Acute Respiratory Syndrome,” \textit{Science} 300, no. 5627 (June 20, 2003): 1966–70, \url{https://doi.org/10.1126/science.1086616}.

\textsuperscript{19} Rebecca Katz, \textit{Shifting the Culture of Quarantine}, Scowcroft Paper, no. 4 (College Station, TX: Scowcroft Institute of International Affairs, 2017), 8, \url{http://hdl.handle.net/1969.1/158836}.


public health team during communicable disease events can expect these issues to arise and impact their operations while enforcing quarantine orders.

D. RESEARCH DESIGN

This thesis evaluates three policy option recommendations that address the role of law enforcement during a communicable disease event. The goal of the policy option evaluation is to determine the most practical and sensible policy recommendation. Implementation of the plan should strive to seek voluntary compliance by the citizens of Philadelphia. The quarantine enforcement plan should be implemented while emphasizing the need to maintain the rights and safety of all.

1. Policy Option A—Forced Quarantine

Forced quarantine is a policy that restricts the movement of the potentially contagious patient. This policy option coerces people to serve their quarantine in their homes, hospitals, college dormitories, or government facilities. This policy does not always provide due process to the affected patients. Additionally, the government can arbitrarily set the length of the quarantine period without regard to established medical practices. The case studies of forced quarantine that occurred in China and South Korea are explored because the primary focus of these policies is to restrict the movement of people regardless of the loss of personal freedoms.

During the 2003 SARS epidemic in China, the government introduced a forced quarantine policy. Citizens had to stay in their homes or hospital while being treated, and those citizens who did not comply were arrested and taken to prison. This episode of forced quarantine separated potentially infected citizens from others, but did not provide due process, the ability to contest the government’s actions, to those affected. The Chinese government even invoked the threat of the death penalty for people who spread SARS to others.22

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During the 2015 outbreak of Middle Eastern Respiratory Syndrome-Coronavirus (MERS-CoV), South Korea also enacted forced quarantine policies. Under the National Security Act of South Korea, the government can enforce quarantine orders on any persons who may compromise the “safety of the State.” Affected South Korean citizens were subjected to fines and prison terms if they did not comply with forced quarantine orders.

2. **Policy Option B—Self-quarantine**

The use of a self-quarantine policy also involves the restriction of citizens who may be infected with a potentially communicable disease. While forced quarantine orders resemble incarceration, self-quarantine orders rely on the affected individuals to report to the local department of public health that they are still compliant. The communication required to accomplish this task can be by telephone, closed circuit television, or by a visit from a member of the public health team to the patient’s location.

The 2003 SARS epidemic affected Canada, among other places, and the government responded by implementing self-quarantine orders to help stop the spread of the disease. Canadian citizens largely did not require law enforcement intervention to enforce quarantine. The success of the self-quarantine orders directly relied on the citizens of the Toronto metro area to comply voluntarily. According to Julian Fantino, the former police chief of the Toronto Police Service (TPS), only one citizen had to be served with a warrant because of non-compliance with self-quarantine orders. This event is not only examined as an example of self-quarantine because of the level of citizen cooperation that occurred, but also because the socio-economic status of Canada closely resembles that of the United States.

3. **Policy Option C—Hybrid**

This policy option includes having law enforcement provide surveillance and escort services for quarantined patients, and working collaboratively with government and non-

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government agencies to assist with non-compliant quarantine patients. It also includes establishing law enforcement quarantine extraction teams for citizens who do not comply with quarantine orders.

4. Judging Criteria

The criteria for judging the three policy recommendation options measures success based on four different factors: effectiveness, community support, cost (dollars and lives), and ease of implementation.

Effectiveness is measured using multiple factors, such as time to control the number of infected individuals, and the number of citizens who must be placed in quarantine by law enforcement. Injuries and deaths that occur because of law enforcement participation and the financial cost to the City of Philadelphia are also evaluated. The measurement of effectiveness is adjusted according to the issues presented by the communicable disease event. Although one policy recommendation option may be more effective than others may, the totality of the circumstances is considered.

Community support is a judging criterion because citizens will be more likely to comply with quarantine orders if they believe the orders are being served in the best interest of their health and well-being. This thesis considers the potential impact law enforcement may have while enforcing quarantine orders during a communicable disease event. The assessment includes the potential effect enforcement of quarantine orders has on the competing interests of citizens concerned about the preservation of their civil rights versus the public interest to protect against the spread of a disease that may cause illness and death.

The cost of the proposed policy recommendations options is measured against the parameters of dollars and lives lost. The assessment includes the advantages and disadvantages that can occur after the application of self-quarantine and examines the conflict of interests that can occur when trying to maintain the privacy of citizens while also protecting the community against the threat of widespread illness as the result of a communicable disease. An assessment of the three policy option recommendations must take into account the financial and personal costs of implementation.
The ease of implementation also is assessed. This thesis considers the possible repercussions that may occur while implementing each of the three different policy recommendation options. The evaluation of the implementation includes the conflicts faced when balancing the civil rights of citizens against the necessity to maintain the public health in the event of a communicable disease epidemic.

The evaluation criteria are ranked using a 5-point Likert scale, as shown in Table 1, ranging from low (1) to high (5). For example, an evaluation found to be low (1) indicates the measured parameter had no success or did not cause the communicable disease event to end. The description of the grading standards is as follows:

(1) Effectiveness
1. Government policy or inaction prolongs communicable disease event.
2. Government policy or inaction does not cause the stop of the communicable disease event.
3. Government policy or inaction slowly ends communicable disease event.
4. Government policy or action ends the communicable disease event.
5. Government policy or action rapidly ends the communicable disease event.

(2) Community Support
1. Demonstrated hostility (riots, protest, etc.) toward government as a result of government policy or inaction.
2. Some quarantine compliance noted in some communities, continued resistance in others.
3. Quarantine compliance and non-compliance seemingly occur equally.
4. Quarantine compliance with little non-compliance noted.
5. High quarantine compliance with no reported incidents of non-compliance.

(3) Cost

1. Quarantine policy or government inaction creates financial burden to most individuals, businesses, and/or government.

2. Quarantine policy or government inaction creates financial burden to some but not all individuals, businesses, and/or government.

3. Quarantine policy or government inaction has no correlation to costs incurred by individuals, businesses, and/or government.

4. Financial costs to individuals, businesses, and government begin to cease as a result of implemented quarantine policy.

5. Financial costs to individuals, businesses, and government completely cease as a result of implemented quarantine policy.

(4) Implementation Ease

1. Quarantine policy cannot be not implemented, or no policy is instituted.

2. Quarantine policy is implemented with few concerns of protecting the civil liberties of citizens; forced quarantine imposed.

3. Quarantine policy is implemented successfully in some areas; resistance occurs in other areas.

4. Quarantine policy is implemented with some considerations given to the protection of civil liberties.

5. Quarantine policy is easily implemented without imposing any undue burdens to citizens.

6. 
Table 1. Evaluation Criteria Are Ranked Using a 5-point Likert Scale

<table>
<thead>
<tr>
<th>Policy</th>
<th>Effectiveness</th>
<th>Community Support</th>
<th>Cost</th>
<th>Implementation Ease</th>
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<tbody>
<tr>
<td>A-Forced Quarantine</td>
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<td>B-Self-quarantine</td>
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<td>C-Hybrid</td>
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E. CHAPTER OVERVIEW

This thesis continues by evaluating Philadelphia’s communicable disease history (Chapter II). It next explores quarantine episodes in China, South Korea, Canada, and the United States, and Ebola epidemics in Zaire, and later in the renamed Democratic Republic of the Congo (Chapter III). This thesis then demonstrates the manner in which quarantine enforcement measures can be applied (Chapter IV). Chapter V presents suggestions for the implementation of a quarantine enforcement plan, to include the creation of a police department quarantine enforcement directive, revision of existing public health quarantine plans, and ideas for reinforcing the communication and collaboration necessary to involve relevant stakeholders.
II. COMMUNICABLE DISEASE HISTORY IN PHILADELPHIA

This chapter examines the facts and circumstances that have contributed to the communicable disease history in Philadelphia. This chapter also reviews the responses to these disease outbreaks. A summary of federal, state, and local laws that regulate communicable disease events is also presented. A history of the laws that authorize the use of quarantine is examined. This review provides background information that can inform the development of a humane quarantine enforcement policy for the PPD.

A. 1793 YELLOW FEVER EPIDEMIC

The city of Philadelphia has been affected by communicable disease epidemics throughout its history. In 1793, over 5,000 of Philadelphia’s 50,000 citizens succumbed to the effects of yellow fever, a viral disease transmitted by mosquitoes. This disastrous outbreak was not ended by any government action, such as isolation or quarantine, but rather by the chilly fall weather that killed off the infected mosquitoes.25

In the aftermath of that public health debacle, the Philadelphia Board of Health acted to prevent further deadly epidemics. The city erected a lazaretto; a term derived from St. Lazarus, the patron saint of lepers and which has been used to designate maritime quarantine stations since the 14th century.26 Located 10 miles south of the city in Delaware County, Pennsylvania, the Philadelphia lazaretto was finished nearly a century before immigrants would be screened for communicable diseases on Ellis Island in New York. The Philadelphia lazaretto was considered a state-of-the-art facility at the time, and one local newspaper stated that it could be mistaken for the “grounds of a wealthy gentleman”

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except for the yellow quarantine flag posted outside the hospital. Although viewed as necessary by the Philadelphia Board of Health, the time spent at this lazaretto by sailors, slaves, and cargo often translated to death from infectious illnesses, spoiled cargo, and lost wages. The construction of the lazaretto marked one of the city’s first attempts to mitigate a communicable disease event. The lazaretto was basically the first enforced isolation and quarantine facility in Philadelphia that separated potentially infected people and products from others and helped stop the spread of disease.

The Philadelphia Board of Health, now known as the PDPH, forced all sailors, slaves, and cargo to be inspected at the lazaretto prior to entering Philadelphia. In 1800, the U.S. Navy warship U.S.S. *Ganges* seized two ships carrying slaves near Cuba. U.S. sailors commandeered the ships and sailed north to Philadelphia where the slaves disembarked to await their fate. U.S. federal judge Richard Peters determined the slaves had been illegally captured and they were turned over to the Pennsylvania Abolition Society where they became indentured servants until they reached 18 years of age. Many of the slaves were given the surname Ganges. Later, in 1824, Dr. James Mease described the role of the quarantine master as the person who “prevents intercourse between vessels and the shore, and preserves order, and enforces obedience to the provision of the health

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28 Woods, “America’s Oldest Quarantine Hospital Tied to Philadelphia Yellow Fever History.”


The remote distance from Philadelphia, coupled with the laws of the time, prevented people remanded to the lazaretto from leaving and harming others.

A facility, such as a lazaretto, no longer exists in Philadelphia. Thus, while the PDPH still considers quarantine an effective tool to stop the spread of communicable diseases, no designated space designed to be used for quarantine purposes is available in the city. Therefore, the current IQP lacks a comprehensive method to enforce quarantine orders, and the police department does not use a lazaretto to contain potentially infected people.

B. 1918 SPANISH INFLUENZA EPIDEMIC

The Spanish Flu, which is now referred to as the H1N1 virus, killed an estimated 675,000 people in the United States and 50 million people worldwide a century ago. The Spanish Flu pandemic of 1918 did not come as a surprise to government officials in the city of Philadelphia; as it spread across the United States, reports about a flu emanating from Boston had been distributed in Philadelphia in the summer of 1918.

It has been determined that people standing in close proximity to each other while attending a parade down a major Philadelphia thoroughfare that fall contributed to this disease outbreak. During World War I, numerous parades were held to strengthen

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31 James Mease, *The Picture of Philadelphia, Giving an Account of its Origin, Increase and Improvements in Arts, Sciences, Manufactures, Commerce and Revenue* (Philadelphia: Thomas Town, 1823), 136, https://books.google.com/books?id=WSJMAAAAYAAJ&pg=PA136&lpg=PA136&dq=prevents%20intercourse%20between%20vessels%20and%20the%20shore%2C%20and%20preserves%20order%2C%20and%20enforces%20obedience%20to%20the%20provision%20of%20the%20health%20law%2C%20and%20the%20regulations%20of%20the%20board&source=bl&ots=9rP-v8Bjfb&sig=ACfU3U08TbLIZ9TYPYmG5mYxOxlYGfuQw&hl=en&sa=X&ved=2ahUKEwjix-Xezu_maAhXhuFkKHb8TAw4Q6AEwAhOECAkQAQ#v=onepage&q=prevents%20intercourse%20between%20vessels%20and%20the%20shore%2C%20and%20preserves%20order%2C%20and%20enforces%20obedience%20to%20the%20provision%20of%20the%20health%20law%2C%20and%20the%20regulations%20of%20the%20board&f=false.


patriotism and sell war bonds to support the overseas effort. In Philadelphia, the fourth Liberty Loan parade held on September 28, 1918, traveled south on Broad Street and culminated at the Philadelphia Navy Yard. Although the first cases of the Spanish Flu in Philadelphia were reported on September 17, 1918, no public health measures focused on public distancing were ordered.34 Parade attendees were exposed to the Spanish Flu and, within 72 hours, every bed in the city’s 31 hospitals was filled.35 More people worldwide died during the 1918 Spanish Flu pandemic than died during World War I.36 The epidemic ultimately claimed the lives of over 20,000 people in Philadelphia before running its course.37

The PDPH was ill equipped to respond to the Spanish Flu crisis. The quick onset of a deadly disease and the lack of timely public health orders utilizing social distancing, coupled with deployment of the city’s healthcare workers to overseas assignments, an incomplete understanding of the disease, and the lack of a legitimate vaccine, prompted this catastrophic event in Philadelphia. In contrast, Spanish Flu cases were reported in St. Louis on October 5, 1918, and public health orders prohibiting mass gatherings were instituted two days later. The quick public health response is widely credited as saving thousands of lives; the Spanish Flu was responsible for 1,703 deaths in St. Louis.38

By the winter of 1918, the Spanish Flu epidemic had run its course. Although Philadelphia suffered a great loss of life during this communicable disease event, no

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memorial marking has been erected to honor those who passed. The Mütter Museum of the College of Physicians of Philadelphia marked the 100th anniversary, ironically, by holding a parade along the same route on Broad Street. The parade allowed attendees to sponsor one of the 1918 victims by claiming that name from the event website; attendees were provided education about communicable diseases, free influenza vaccinations, and a sample of music of the era.39

Although the epidemic was short lived, the death toll was significant. An important takeaway from this epidemic concerns the speed and lethality of the disease. The circumstances of the time fell far short of modern standards of care, such as the use of antibiotics and accurate disease reporting. The next communicable disease event may also play out quickly and cause so many cases that it may not allow the police department to address its role in the public health mission as the situation unfolds.

C. 1976 LEGIONNAIRE’S DISEASE

Many conventions took place in Philadelphia for the U.S. Bicentennial celebration of 1976. The American Legion’s convention was held at the Bellevue Stratford Hotel on Broad Street in the center of the city. During the convention, and shortly thereafter, a number of American Legion members, who were nicknamed “Legionnaires,” complained of flu-like symptoms.40 Since many Legionnaires did not report these symptoms until they had returned to their homes located throughout Pennsylvania, the lag delayed a response to the outbreak. The outbreak of this new disease eventually led to 34 deaths.41

Given the swift onset of the disease and the delay in deaths after leaving Philadelphia, no actions taken by the municipal government of Philadelphia contributed to

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the end of the epidemic. Six months later, epidemiologists from the Center for Disease Control and Prevention (CDC) determined the source to be contaminated standing water pumped through the air as a mist into the lobby from the hotel’s air conditioning ducts. Consequently, the CDC now recommends proper maintenance of air conditioning systems and testing the water in pools and hot tubs to prevent the transmission of Legionella. On this point, Legionella is typically spread from contaminated water sources and not person-to-person. Yet, the PDPH now classifies Legionella pneumophila as a reportable disease and issues public health warnings when outbreaks occur.

The initial cause of Legionnaire’s Disease was unknown to healthcare professionals in 1976, and many of the affected immediately left Philadelphia after the convention. While quarantine would not have helped in this event (since Legionnaire’s Disease is not person-to-person communicable), quarantine would have been impossible to institute given the uncertainty and the timing of the situation. The uncertainty that played out in 1976 could very well occur again. Thus, even in situations where quarantine is called for, it may not be possible to implement.

D. 1991 MEASLES OUTBREAK

Although the rubeola virus, the formal name for measles, can cause fever, cough, and conjunctivitis, an effective vaccine to protect against the disease has been available since 1963. The 1991 measles outbreak primarily affected the children of members of the Faith Tabernacle Church and the First Century Gospel Church in Philadelphia who have long rejected the use of modern medicine, including vaccinations, due to religious

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beliefs. Both churches also operated schools, which exposed young children to the disease that subsequently had a profoundly negative effect.

The PDPH took prompt action to pressure the leadership of the two congregations to accept medical treatment for those affected by the measles outbreak. The PDPH obtained a court order to require parishioners be vaccinated; however, the churches’ leaders sought legal help to maintain the right to refuse vaccination. When the case was presented to it, the ACLU refused to represent the two churches because it felt the parishioners were “not at liberty to martyr your child to your religion.”

Although the PDPH was able to enforce vaccinations against the disease legally, a quarantine was not necessary because, in essence, the children were self-quarantined in their religious-based schools. The action taken by the PDPH was swift, but the damage from the measles outbreak had already been done. The 1991 measles outbreak in Philadelphia concluded after the congregants of Faith Tabernacle Church and the First Century Gospel Church were forced to accept medical treatment, but it eventually led to the deaths of six children. In this case, the leadership of both churches complied with the demands set forth by the PDPH to accept medical treatment. In the future, this acceptance may not occur. Protocols need to be developed that will address the issue when citizens are non-compliant with public health orders. In that situation, law enforcement should have a clear policy to enforce quarantine orders.

E. 2019 MUMPS OUTBREAK

The mumps virus affects the salivary and parotid glands located in the neck and mouth that gives sufferers swollen cheeks and necks and often a fever and headaches. Patients typically recover in a few weeks and severe complications, including encephalitis

47 Kelto.
and pancreatitis, are rare. A near eradication of measles, mumps, and rubella occurred after the development of a childhood vaccine in the 1960s. A 1998 study of British children suggesting that vaccinations caused autism and other disorders, however, made parents re-think their children’s vaccinations. Although a leading medical journal retracted this study because it was methodologically unsound, weak in sample size, and had an overly sweeping conclusion, the anti-vaccination movement remains convinced of the linkage between autism and vaccines. Statistics presented on PhilaVAX, a website operated by the PDPH, shows the measles, mumps, and rubella (MMR) vaccination rate in the city consistently in the 90 percentile since 2008.

Students at Temple University in Philadelphia began to report suffering from the symptoms of the mumps in early 2019, and over 140 students were ultimately diagnosed with the virus. The spread of mumps can occur easily in areas where high concentrations of people are in close proximity to each other and the effectiveness of the MMR vaccine wanes at about the time people reach college age. The PDPH responded to the outbreak by collaborating with Temple University Hospital to provide MMR vaccinations to students and employees.

The major stakeholders achieved a significant success in this communicable disease event. By working collaboratively and using the PDPH Health Information Portal (HIP) to

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communicate updates about the disease, the PDPH and Temple University brought the epidemic under control.\textsuperscript{56} Collaboration between two stakeholders who do not typically work together will be essential if a quarantine enforcement plan is to succeed. Additionally, effective communication between the PDPH and Temple University was achieved using the HIP. Clear and timely information provided to relevant stakeholders during a communicable disease event can be used to decrease fear and panic and to help bring the situation under control.

F. QUARANTINE LEGISLATION—PHILADELPHIA

This purpose of this section is to describe how laws authorize the City of Philadelphia to enforce quarantine orders if necessary. Beginning with executive orders issued by the President of the United States and including the application of local ordinances that provide guidance to city agencies, this section examines quarantine orders to provide an historical perspective. The section concludes with a review of the rights afforded to patients who have been targeted by quarantine enforcement orders.

1. Legal Authority to Enforce Quarantine Orders

As the Chief Executive Officer of the nation, the president can mandate quarantine policies in disease outbreaks. For example, the president can issue an executive order to bar the entry of immigrants from countries that pose a risk to public health.\textsuperscript{57} Such orders list the names of diseases thought to be communicable health risks. Presidents have issued additional executive orders to add to the initial list of diseases that pose a public health threat and have also amended previous executive orders by removing eradicated communicable diseases from the list. On March 26, 1946, President Harry S. Truman issued Executive Order 9708 “to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the States or possession, or from one


State possession into any other State possession.” Communicable diseases listed in this order include yellow fever, anthrax, and tuberculosis, among others. Many of the communicable diseases listed in Executive Order 9708, such as smallpox or various streptococcic infections, are no longer a public health threat because of the advancement of vaccinations or antibiotic medications, and have subsequently been deleted from the list over time.

President John F. Kennedy amended Executive Order 9708 with Executive Order 11070 on December 12, 1962. President Kennedy added chickenpox to the list of communicable diseases that pose a threat to public health. On April 4, 2003, President George W. Bush issued Executive Order 13925 to invoke the authority vested in him by the U.S. Constitution and the Public Health Service Act (42 U.S.C. 264 (b)) to declare that aliens traveling to the United States with specific communicable diseases would be refused entry or quarantined upon their arrival. The list of communicable diseases in Executive Order 13925 includes infectious tuberculosis and viral hemorrhagic diseases, such as Lassa fever and the Ebola virus, along with the following caveat, “and others not yet named,” which was included due to the ever-changing threat of communicable diseases.

President Bush also issued Executive Order 13375 that served as an amendment to Executive Order 13925 and added influenza to the list of communicable diseases because some strains of that virus were capable of causing a pandemic. Executive Order 13674

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59 American Presidency Project.


issued by President Barack Obama on July 31, 2014 added SARS to the list of communicable diseases that pose a threat to public health.63

Although the CDC has the legal authority to issue quarantines, it prefers that local public health departments quarantine and isolate communicable disease patients that put the community at risk. According to the CDC, federal authority should be used, “to quarantine an exposed person only in rare situations, such as [at] ports of entry or in similar time sensitive settings.”64

2. **Powers of Law Enforcement to Enforce Quarantine Policies**

Law enforcement must enforce quarantine policies without infringing on the rights of citizens. Law enforcement has long played a role in the enforcement of policies developed by public health departments in the United States. In the early 1900s, as Boston suffered from a smallpox epidemic, the local department of public health ordered mandatory vaccinations.65 The Boston Board of Health identified homeless and destitute people living in boarding houses and ordered them to be vaccinated, sometimes against their will. Thus, the Boston Board of Health authorized law enforcement to enter boarding homes and assist in the vaccination of residents.66 In this and all cases, law enforcement needs to balance the expectations of citizens subject to quarantine policies against the powers granted to law enforcement to carry out government policies and ensure public safety.

Several court rulings in favor of the enforcement of quarantine policies have given public health departments the authority to invoke police powers. For example, in *Barmore v. Robertson*, a Chicago woman claimed she had been illegally quarantined in her own

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home despite not experiencing the symptoms of typhoid fever. In 1921, the Chicago Department of Public Health tested Jennie Barmore, a boarding house owner, and found her to be a typhoid carrier. Barmore was ordered not to see any unvaccinated visitors or cook for anyone other than her husband. Barmore sought relief from the Supreme Court of Illinois; however, the court ruled in favor of the Chicago Department of Health. The Supreme Court of Illinois ruled, “it is not necessary that one be actually sick, as the term is usually applied, in order that the health authorities have the right to restrain his liberties by quarantine regulations.”

Law enforcement has a vital role in response to a communicable disease event. Executive orders, and federal, state, and local laws, can be used to authorize law enforcement officers to take action to stop the spread of disease. Along with investigating the incident to determine if a crime has been committed, law enforcement also has been tasked to ensure the protection of the vaccine delivery system in the event of a disease outbreak. Although it does not happen often, law enforcement also has been tasked with enforcing quarantine orders. Public health departments typically decide whether law enforcement will be required to enforce quarantine orders.

The U.S. Supreme Court has ruled on whether procedural due process limits government decisions that deprive individuals of their liberty, which includes forced quarantines. In Mathews vs. Eldridge, the Supreme Court decided that due process can be flexible and outlined three factors to be considered as the situation demands:

First, the private interest that will be affected by the official action; second, the risk of an erroneous deprivation of such interest through the procedures used, and probable value, if any, of additional procedural safeguards; and finally, the Government’s interest, including the function involved and the fiscal and administrative burdens that the additional or substitute procedural requirement would entail.

67 Barmore v. Robertson, 302 Ill. 422, 425 (1922).
68 Barmore, 433.
More recently, in *Washington v. Milwaukee*, the Supreme Court of Wisconsin heard the case of an infectious tuberculosis patient who was being forced to seek treatment under a quarantine order. Ruby Washington was living in a homeless shelter in Milwaukee when she tested positive at a clinic for tuberculosis. Washington received free medical treatment and bus tickets from the Milwaukee Department of Public Health; however, she refused to comply and left the homeless shelter. Washington later presented herself at a local hospital to give birth and was instructed to stay at the hospital and receive directly observed medical treatment for tuberculosis until she was no longer infectious. A compromise was reached that allowed Washington to be released once her medical status progressed to stay at her sister’s house for nine months until she was no longer contagious, and to continue to receive medication at a clinic; however, she left the home only one day after her discharge from the hospital. Washington was later arrested and jailed. The City sought an order of contempt against Washington for her failure to comply with the Health Department’s treatment order. The trial court denied the request, and instead entered a confinement order under the state’s “long-term confinement section of the tuberculosis control statute.”

A review of the case involving Ruby Washington demonstrates that she was diagnosed with tuberculosis while she was living in a homeless shelter. Washington’s only “crime” in this instance was that she contracted infectious tuberculosis and failed to comply multiple times with a directly observed treatment protocol. Although a compromise was struck that would allow Washington to avoid arrest and unnecessary restrictions on her liberty, Washington reneged on this agreement. The government of Milwaukee had a moral duty to protect the community from a variety of threats, including the possibility of introducing contagious diseases to the area, so it pursued the matter further.

The City of Milwaukee’s interest in this case was to protect the community against the threat of infectious tuberculosis. The government of Milwaukee took a more restrictive

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71 *City of Milwaukee v. Ruby Washington*, 292 Wis.2d 258 ¶6 (Wis. 2007).
72 *City of Milwaukee*, ¶7.
73 *City of Milwaukee*, ¶12.
74 *City of Milwaukee*, ¶19.
approach to Washington only after she repeatedly failed to comply with treatment plans. The Wisconsin tuberculous control statute follows the trajectory of the *Mathews v. Eldridge* case in that it institutes a four-part test to determine if and when a contagious citizen can be confined. The four conditions of the test are: (1) “the person has infectious tuberculosis, noninfectious tuberculosis but is at a high risk of developing infectious tuberculosis, or suspect tuberculosis,”75 (2) the person “has failed to comply with the prescribed treatment regimen . . . or that the disease is resistant to the medication prescribed” to the person, (3) “all other reasonable means of achieving voluntary compliance with treatment have been exhausted and no less restrictive alternative exists; or that no other medication to treat the resistant disease is available,”76 and (4) the person “poses an imminent and substantial threat to himself or herself or to the public health.”77

In this case, the court balanced the civil rights of citizens against the public health interest to stop the spread of disease. After reviewing the facts of the case, the Wisconsin Supreme Court ruled that Washington needed to be confined in a jail to stop the spread of infectious tuberculosis. The court took into account the highly infectious nature of the disease and Washington’s non-compliance with previous requests to maintain self-isolation and participate in directly observed treatment before concluding that the local jail could be used for confinement:

provided the jail is a place where proper care and treatment will be provided and the spread of disease will be prevented, and that no less restrictive alternative exists to jail confinement.78

Forced isolation in this case was used as a last resort after all reasonable means to convince Washington to comply with treatment protocols failed.

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75 Wisconsin State Legislature, Wis. Stat. §252.07 (9)(a) 1.
76 Wisconsin State Legislature, Wis. Stat. §252.07 (9)(a)3.
77 Wisconsin State Legislature, Wis. Stat. §252.07(1g)(a).
78 *City of Milwaukee*, ¶3.
3. Pennsylvania Disease Prevention Laws and Policies

The standards for quarantine have been spelled out in Pennsylvania state law but lack the specifics found in other state statutes. The Pennsylvania Disease Prevention and Control Law of 1955 defines quarantine as the “limitation of freedom of movement of persons or animals that have been exposed to a communicable disease for a period of time equal to the longest usual incubation period.” This statute also allows the quarantine order to be modified based on the nature of the communicable disease; however, it does not describe how law enforcement will enforce a quarantine if the patient is non-compliant with the order. In contrast to the Wisconsin law concerning quarantine, no test procedure in Pennsylvania law exists to ensure the affected citizen is not quarantined unnecessarily. Additionally, the Pennsylvania law does not spell out that forced quarantine is only to be used if all other reasonable means have been tried and failed. The Pennsylvania law addresses quarantine but does not provide law enforcement with sufficient guidelines to carry out these orders.

The Pennsylvania Code has since amended several provisions of the Pennsylvania Disease Prevention and Control Law of 1955 and now authorizes local boards of health to quarantine affected patients; however, it does not explicitly authorize law enforcement to carry out the quarantine order. Chapter 6–204 of the Philadelphia Code, which is titled “Quarantine and Isolation,” states the patient may be placed under quarantine for a period determined by the local board of health and for a period long enough to protect the community and prevent the spread of disease. Chapter 6 of the Philadelphia Code authorizes the PDPH to order patients to be quarantined if medically necessary to prevent the spread of communicable diseases.

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The IQP issued by the PDPH also vests the PPD with the authority to enforce quarantine orders. If the patient is non-compliant with the quarantine order, the IQP describes the process to obtain an emergency detention order. An emergency detention order operates in much the same way as an arrest or search warrant. A representative of the PDPH must appear before the presiding judge of the Philadelphia Court of Common Pleas or the representative judge to obtain the emergency detention order or arrest warrant if the patient to be quarantined does not comply with the order. The IQP states that the PPD will be responsible for escorting the quarantined patient using EMS to an appropriate facility; however, the plan does not provide any guidance concerning the appropriate use of force permitted during this arrest process or whether a search warrant may be authorized. These important details need to be addressed before a communicable disease event, not while the crisis is occurring.

4. Quarantine Enforcement and Patient’s Rights

While law enforcement must uphold the law and protect the public interest, it also must ensure the rights of citizens are not unnecessarily infringed upon. Canadian law enforcement faced this issue when it had to enforce quarantine orders in the metropolitan Toronto area during the SARS outbreak. The population of Toronto during this timeframe was approximately five million people.

The TPS enforced the isolation of patients located inside Toronto area hospitals and performed quarantine related duties. In a study published by the Health Law Institute at the University of Alberta, researcher Nola Ries stated that government officials who publicly identify and assess public health interventions to be made, such as the enforcement of quarantine, are more likely to be successful in achieving public health goals and

82 Philadelphia Department of Public Health, Isolation and Quarantine Plan, 12.
83 Philadelphia Department of Public Health, 12.
maintaining patient’s rights.86 The Canadian viewpoint expressed in this health law review journal mimics the requirements described in Mathews vs. Eldridge. A report issued by the Institute for Bioethics, Health Policy and Law University of the Louisville School of Medicine noted, however, that citizens of the United States may not be as willing to comply with isolation and quarantine orders as citizens in other countries.87

5. Psychosocial Aspects of Quarantine Policies

One element of the PPD’s mandate to enforce quarantine orders is to provide escorts to EMS first responders transporting quarantined patients to hospitals or other treatment facilities. If these escorts allay the concerns of a quarantined patient, then the client may cooperate peacefully. Coherent, consistent, and easily accessible information provided by public health departments and other government agencies helped to assuage fears among quarantined patients in Canada.88 Cooperation and understanding among the relevant stakeholders in this process, to include law enforcement, the public health department, and the citizens of the community, can ensure safety and quickly end a communicable disease event.

Information from the studies of Canadian SARS patients could provide invaluable insight for building a quarantine enforcement policy in the United States. These patients describe the loss and conflict they experienced during their quarantine periods, and the fear and frustration at being quarantined because of a communicable disease contracted through no fault of their own. According to these patients, a loss of income and social isolation from others were the most significant obstacles to being compliant with quarantine orders. The Canadian government sought to address these issues by conducting spot checks on quarantined citizens, having food and medical supplies delivered by volunteers, and

87 Rothstein et al., Quarantine and Isolation: Lessons Learned from SARS, 12.
releasing legitimate health crisis information in a timely manner.89 These practices could be adopted for U.S. quarantine enforcement plans to assist citizens to maintain quarantine compliance. The inclusion of non-traditional stakeholders in the quarantine enforcement plan can be a force multiplier in larger cities, like Philadelphia, where municipal resources are already strained.

Drawing similar conclusions, Sarbjit S. Johal notes the distress and fear of quarantined patients because of poor communication and information provided by government organizations and infection control experts. Johal advocates for a “transparent and credible public information strategy” as the best method to prevent widespread panic and fear in the affected communities.90 The three-factor test emanating from the Mathews vs. Eldridge case and the results of the University of Alberta Health Law Review study generated by Nola Ries indicate it is possible to preserve patient’s rights during quarantine enforcement. Quarantine enforcement must be minimally intrusive, and the plan must be effectively publicized, so the maximum number of patients has the opportunity to be compliant. Finally, quarantine enforcement by law enforcement officers must only take place after other attempts to encourage compliance have been attempted and the means employed to make a person comply with a treatment protocol must at every stage be the least restrictive means available. Providing a clear infection control and quarantine strategy can help citizens of the community become stakeholders in the plan to stop the spread of communicable disease.

The next chapter of this thesis examines the use of quarantine enforcement plans that have been implemented globally with varying degrees of success. The case studies examine not only the U.S. implementation of quarantine, but also what occurred in China, Canada, China, and the United States.


Canada, and South Korea. The quarantine plans used by the Democratic Republic of the Congo during the latest outbreak of Ebola are examined along with how the country, then known as Zaire, addressed the first outbreak of the disease. The lessons learned during these episodes provide a keen insight into how U.S. law enforcement can participate and contribute during a public health crisis.
III. QUARANTINE EXPERIENCES

This chapter reviews literature describing the enforcement of quarantine orders during infectious disease epidemics that occurred in Canada, China, South Korea, the Democratic Republic of the Congo, and the United States between 1976 and 2018 to gain insight into how such orders can be implemented by U.S. law enforcement. Such an examination will help fully develop the IQP issued by the PDPH that presently lacks specifics on how law enforcement should implement these policies. The research design establishes criteria to measure the effectiveness of the response in each case study and determine if the policies and actions taken during these events can be adapted for use by the PPD.

Forced quarantine policies are policies enacted by governments to require communicable disease patients to stay in their homes and face jail time if non-compliant or be placed in government facilities or hospitals. Patients subjected to forced quarantine orders in the following case studies served their quarantine in hospitals, college dormitories, and other government facilities. The incubation period of the pertinent contagious diseases determined the length of forced quarantine that each patient served. This chapter examines forced quarantine to determine whether components of these policies can be implemented by U.S. law enforcement.

Self-quarantine policies also have been used to stop the spread of disease, but in these situations, law enforcement is not depended on to make arrests to ensure compliance. In one case examined, the affected quarantined citizens largely complied with the self-quarantine order on their own. In the other case, the community where the disease outbreak occurred was so naturally isolated that law enforcement was not required to arrest people for non-compliance. In these case studies, governments did not rely primarily on law enforcement to compel communicable disease patients into compliance.

Both forced and self-quarantine policies have been used in the past to stop the spread of disease, but these policies mutated once the communicable disease event began to unfold. These hybrid quarantine policies utilize methods found in both forced and self-
quarantine policies felt to be successful at the beginning phases of an outbreak but delete practices that did not seem to contribute to ending the communicable disease event. In China during the 2003 SARS epidemic, the government imposed forced quarantine policies that compelled many patients to stay in prisons, hospitals, and college dormitories until they were no longer contagious. Forced quarantine was restrictive and met with resistance from Chinese citizens.91 Forced quarantine along with other measures, such as evidence-based practices as contact tracing and hospital containment measures, proved to be effective in stopping the spread of disease.92 Contact tracing is the practice of identifying and following up with people who have come in contact with contagious patients. The follow-up period should be determined by the nature of the disease in question.93 The Chinese forced quarantine plan became a hybrid quarantine plan once evidence-based practices were adopted. Hybrid quarantine policies are examined to determine whether these methods could be used by U.S. law enforcement to stop the spread of disease effectively.

As noted in Chapter I, the case studies presented in this thesis are measured using four parameters. The effectiveness, community support, cost, and ease of implementation of each quarantine episode are judged. By critiquing past quarantine episodes using these considerations, the components of a plan can be developed to resolve quarantine issues in the future. Effectiveness is measured by the amount of time it took to control the quarantined citizens along with the number of people who had to be quarantined by law enforcement. Additionally, the number of deaths incurred during the quarantine episode is evaluated in the effectiveness category. The measurement of effectiveness also takes into account the totality of circumstances. For example, those implementing public health orders in some of the countries examined may not be required to consider the civil liberties

of the affected citizens. Community support is a measurement that needs to be evaluated because people who believe quarantine orders are in their best interest are more likely to comply. This parameter also weighs the interests of individual citizens against the public interest to stop the spread of disease. The cost incurred as the result of quarantine plan implementation considers not only the financial burden to individual citizens, but also to government and businesses. The ease of implementation considers the repercussions faced by both citizens impacted by and the governments implementing quarantine policies. While a quarantine plan may be easily implemented, it may not guarantee the policy is successful. Each factor is rated within each case study on a scale of 1 to 5, with 5 being the highest attainable score.

A. FORCED QUARANTINE

Two episodes of forced quarantine are examined to determine viability for use in the United States. The SARS communicable disease outbreak in China during 2003 and the 2015 MERS-CoV epidemic that occurred in South Korea were forced quarantine events. They fit this category because government officials attempted to compel affected citizens into facilities to stop the spread of disease.

1. SARS—People’s Republic of China (2003)

The 2003 SARS pandemic quickly spread to other countries and controlling it presented new challenges to members of the public health care team. SARS first presented in a patient who lived in the Guangdong province, China during November 2002. The index patient, otherwise known as the first identified patient during a communicable disease outbreak, was a college professor who traveled to Hong Kong and stayed on the ninth floor of the Metropole Hotel. While there, he infected others who eventually traveled to Canada and Singapore. Although public health officials knew of the disease, official acknowledgment did not take place until February 11, 2003. Guangdong province public health officials declared only 305 SARS cases, but this total was later found to be grossly

underreported. Initially, China relied on the use of forced quarantine policies and the refusal to provide accurate and timely information to the public to show that the outbreak was under control.

**a. Policy**

Beijing enacted quarantine policies to prevent patients from leaving hospitals until treatment had been completed. Police officers investigated suspected SARS patients and placed them under quarantine when they were located. Regina Ip, Hong Kong’s Secretary for Security, believed the need to protect the civil liberties of citizens delayed the SARS response, and she insisted the practice would not continue. As she asserted, “The common reaction is, we should have moved faster, been more draconian. … Human rights concerns are not a problem in dealing with SARS.”

The Chinese government used forced quarantine to herd communicable disease patients into government facilities involuntarily. When the number of SARS patients in the region began to increase, the World Health Organization (WHO) began to question the SARS statistics being provided by the Chinese government. Eventually, the WHO was able to assist the Chinese government by recommending the use of contact tracing and hospital containment measures to stop the spread of SARS.

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100 Huang, *The SARS Epidemic and Its Aftermath in China*, 45.
b. Effectiveness

The Chinese government rapidly enacted forced quarantine policies on large numbers of people. While the Chinese government did not object to violating the rights of its citizens in the process, this method did not resolve the epidemic. The initial approach to stop the spread of disease by using forced quarantine was eventually replaced by an evidenced-based approach recommended by the WHO. The evidence-based approach, which included such practices as the use of contact tracing and hospital containment measures, contributed to the end of the 2003 SARS outbreak. The assessment of the effectiveness scores is low because these measures did not stop the spread of disease.

c. Community Support

The community support demonstrated during this episode validates the necessity of compliance when implementing quarantine to stop the spread of disease. A patient with a highly infectious strain of the virus was hospitalized in Guangzhou and eventually treated and transferred to three different hospitals, which led to the infection spreading to approximately 200 people, many of whom were healthcare workers.101 Subsequently, the Chinese government ordered the quarantine of all SARS patients and people suspected of having SARS, and those subjected to the order had to stay in their homes, college dormitories, or prisons. Patients who were non-compliant with quarantine orders faced a 10-year prison sentence, life imprisonment, or execution.102 According to a report posted on the Australian Broadcasting Company website, 10,000 people were quarantined in Nanjing, and the residents of two smaller villages destroyed government quarantine centers and assaulted staff members.103 The negative reaction displayed by affected Chinese citizens indicates a low level of community support for the implementation of forced quarantine policies.

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101 Rui-Heng Xu et al., “Epidemiologic Clues to SARS Origin in China,” *Emerging Infectious Diseases* 10, no. 6 (June 2004): 1031–37, [https://doi.org/10.3201/eid1006.030852](https://doi.org/10.3201/eid1006.030852).
102 Spencer, “China’s SARS Quarantine Cheats Face Execution.”
The unnecessary overuse of forced quarantine on Chinese citizens did not positively affect the outcome of this outbreak. Chinese citizens resisted this policy and it did not stop the spread of SARS. The SARS outbreak continued despite the introduction of forced quarantine and contributed further to the distrust citizens had of their government officials. The continued loss of life during the period of forced quarantine along with the unneeded intrusion into the lives of Chinese citizens justifies a low score in this category.

d. Cost

The financial cost to China during the 2003 SARS epidemic was substantial. SARS caused a downturn in tourism during this communicable disease event; the World Economic Forum scheduled to be held in Beijing was delayed and the Rolling Stones canceled concerts in Beijing and Shanghai. Researchers predicted the loss to the tourism industry would exceed 25 billion in U.S. dollars. It is also estimated that the epidemic caused a one percent decrease in the gross domestic product (GDP) of China during 2003. The cost assessment for application of forced quarantine receives a low grade due to the high financial cost suffered by China coupled with forced quarantine not being a causative factor responsible for ending the outbreak.

e. Implementation Ease

The implementation of forced quarantine policies on the Chinese citizens directly affected by SARS was neither impeded by the requirement to preserve civil rights, the need to reimburse organizations financially that had to house citizens, nor the cost incurred by the organizations that housed citizens unnecessarily. In this very limited view, forced quarantine policies were implemented with relative ease. Forced quarantine policies

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receive an elevated effectiveness grade based on a very narrow assessment of this criterion. Refer to Table 2 for a summary of the assessment scores of the SARS—People’s Republic of China forced quarantine policy.

Table 2. SARS—People’s Republic of China Forced Quarantine Summary Table with Assessment Scores

<table>
<thead>
<tr>
<th>SARS—People’s Republic of China (2003)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>1</td>
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<tr>
<td>Community Support</td>
<td>1</td>
</tr>
<tr>
<td>Cost</td>
<td>1</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>3</td>
</tr>
</tbody>
</table>

2. MERS-CoV—Republic of Korea (2015)

The first reported case of MERS-CoV in South Korea occurred in May 2015 after a patient reported taking commercial flights to Qatar, Saudi Arabia, and the United Arab Emirates. After his return to South Korea, the patient presented himself to a hospital for treatment. This index patient was treated at two different South Korean hospitals and found to be responsible for infecting 25 people with MERS-CoV.¹⁰⁷ A study conducted by Jung Wan Park et al. shows that the South Korean practice of hospital shopping, and improper infection control standards in South Korean hospitals, sparked the outbreak.¹⁰⁸ South Koreans routinely seek medical care from multiple hospitals. This phenomenon occurs because citizens believe excellent medical care can be obtained at the largest hospitals in Seoul.

During the MERS-CoV event, officials learned that South Koreans from small towns visited several rural hospitals to obtain a referral to a larger hospital in the country’s

¹⁰⁷ Jung Wan Park et al., “Hospital Outbreaks of Middle East Respiratory Syndrome, Daejeon, South Korea, 2015,” Emerging Infectious Diseases 23, no. 6 (June 2017): 898–905, https://doi.org/10.3201/eid2306.160120.
¹⁰⁸ Park et al., 898.
The WHO would later describe this crisis as the largest MERS-CoV outbreak to occur outside of Saudi Arabia; 138 confirmed cases and 38 deaths were attributed to this communicable disease outbreak.

**a. Policy**

In response to the epidemic, the South Korean government ordered the quarantine of over 1,300 people suspected of having contact with MERS-CoV patients. Most of these patients were quarantined at home. The South Korean government passed legislation that allowed public health officials to place people in quarantine and required police officers and other civil servants to enforce quarantine orders. Non-compliant citizens, including people suspected of breaking the law who were caught lying about their infectious disease status, could have been imprisoned for two years and fined 20 million won ($18,000 U.S. dollars). For example, authorities tracked down two South Korean women who traveled to Hong Kong to avoid the quarantine order, and arrested and forcibly quarantined them at a holiday park in the Hong Kong town of Sai Kung. The pair ultimately faced fines of HK$5,000 dollars and six months of imprisonment. The South Korean government also authorized the tracking of cell phones belonging to affected citizens to determine compliance with quarantine policies.

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111 Anna Fitfield, “South Korea Quarantines More than 1,300 in Race against MERS,” *Washington Post*, June 3, 2015, [https://www.washingtonpost.com/world/asia_pacific/south-korea-scrambles-to-try-to-contain-mers-outbreak/2015/06/03/589c19f6-4f6b-48f6-b4ea-ee3aa7ad66b5_story.html?noredirect=on&utm_term=.a8d0ccabdac8](https://www.washingtonpost.com/world/asia_pacific/south-korea-scrambles-to-try-to-contain-mers-outbreak/2015/06/03/589c19f6-4f6b-48f6-b4ea-ee3aa7ad66b5_story.html?noredirect=on&utm_term=.a8d0ccabdac8).


b. **Effectiveness**

The practice of hospital shopping, seeking care from multiple health care providers, contributed to the outbreak as Koreans spread the disease from hospital to hospital. The South Korean government instituted restrictive public health measures aimed at ending the spread of MERS-CoV, but research studies indicate that those measures did not play a substantial role in ending the outbreak. The WHO reported:

> In view of the current evidence of limited human-to-human transmission of MERS-CoV and, in particular, the lack of evidence that the disease is transmissible in the pre-symptomatic or early symptomatic stages, neither quarantine nor isolation of asymptomatic contacts seems necessary at this time.115

The CDC reports MERS-CoV is typically spread by patients in hospitals and is not typically seen in the community.116 Nevertheless, the South Korean government responded to this crisis by strengthening its quarantine enforcement law.117

In addition, the South Korean Center for Disease Control (KCDC) chose to disregard the crisis communication recommendations from the WHO that included ways to gain the public’s trust by providing early communication and ensuring operations were conducted transparently.118 Moreover, to avoid causing panic and hysteria, government officials refused to name the hospitals with the highest MERS-CoV infection rates, which compounded matters. Andrew Jack of the *Financial Times* reports that this refusal occurred

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due to a “longstanding culture of secrecy as well as to the desire to save face and preserve reputations.”\textsuperscript{119}

The public health measures ordered by the South Korean government did not help stop the spread of disease and the evidenced-based practices suggested by the WHO were ignored. The South Korean healthcare system was overwhelmed and could not effectively respond. Furthermore, South Korea’s healthcare system contributed to the spread of the disease because of a lack of preparedness for medical emergencies.\textsuperscript{120} This study finds that forced quarantine did not have any measurable effect on stopping the spread of the MERS-CoV disease in South Korea.

c. Community Support

Some South Koreans placed under quarantine suspected that other well-connected patients were flouting the quarantine laws. Some of these citizens disregarded the forced quarantine orders and one quarantined person took a commercial flight to China.\textsuperscript{121} The law was changed to impose stricter penalties for those found in non-compliance with forced quarantine orders. The KCDC did not follow the WHO’s instructions to win the public’s trust by telling South Koreans what they could do to protect themselves.\textsuperscript{122} Instead, forced quarantine was imposed; ultimately, it was not a factor that caused the end of the epidemic. The use of forced quarantine receives a low score in the assessment of community support because of non-compliance and the addition of stricter penalties to the quarantine enforcement law.


\textsuperscript{121} Sang-Hun, “After MERS, South Korea Authorizes Prison for Quarantine Scofflaws.


d. **Cost**

During the peak of the MERS-CoV outbreak, the South Korean government ordered the closure of schools and canceled public events. South Korean tourism declined during the outbreak that caused an estimated loss of 10 billion U.S. dollars.\textsuperscript{123} The assessment score of the costs incurred as a result of the 2015 MERS-CoV outbreak rates low based on the number of fatalities and the substantial financial cost sustained by South Korea.

e. **Implementation Ease**

The South Korean government did not adhere to the recommendations of the WHO and CDC in regard to the application of forced quarantine. Instead, the laws governing quarantine enforcement were strengthened and the penalties for non-compliance were increased. Quarantined South Koreans found to have violated public health orders faced fines and jail time.

The assessment score for the ease of implementation is high based on the short amount of time it took the government to strengthen its quarantine enforcement laws. It should be noted that the adjustment to the quarantine laws did not take into account the unnecessary quarantine of patients and the loss of privacy incurred by South Koreans. Although the implementation score is high, it did not translate into an effective measure that ended the epidemic. See Table 3 for a summary of the assessment scores of the MERS-CoV—Republic of Korea forced quarantine policy.

Table 3. MERS-CoV—Republic of Korea Forced Quarantine Summary Table with Assessment Scores

<table>
<thead>
<tr>
<th>MERS-CoV—Republic of Korea (2015)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>1</td>
</tr>
<tr>
<td>Community Support</td>
<td>2</td>
</tr>
<tr>
<td>Cost</td>
<td>1</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>4</td>
</tr>
</tbody>
</table>

B. SELF-QUARANTINE

The self-quarantine policies employed during the 2003 SARS outbreak in Canada and the 1976 Ebola epidemic in Zaire are assessed to determine whether these policies can be implemented by law enforcement in the United States. The two self-quarantine episodes included policies that directed affected citizens to isolate themselves from family, friends, and co-workers. These two episodes featured public health orders that directed citizens to maintain a safe distance from others and involved geographic or social constrictions that created a self-quarantine environment.

1. SARS—Canada (2003)

The 2003 SARS outbreak in Canada had two distinct phases. The first phase commenced after travelers returned from Hong Kong and sought medical treatment for respiratory symptoms. Once some of the individuals were admitted to the hospital, nosocomial infections occurred primarily in healthcare workers who were unaware of the patient’s illness. As noted previously, a nosocomial infection occurs when a patient is infected while hospitalized, instead of contracting a disease in the community.124 In late March 2003, as more Canadians contracted the disease, the government responded by designating SARS as a reportable disease under its Health Protection and Promotion Act. This legislation permits public health policymakers to issue quarantine orders and

document the information of patients as they are diagnosed.\textsuperscript{125} The Ontario provincial government declared a medical emergency related to SARS on March 26, 2003. By May 2003, the WHO determined that the Greater Toronto Area (GTA) was no longer experiencing newly acquired SARS cases.\textsuperscript{126} The Ontario provincial government declared that the medical emergency had concluded on May 17, 2003.\textsuperscript{127}

As the medical emergency was declared under control, the regional hospital requirements pertaining to SARS precautions ceased. A cluster of patients at an orthopedic hospital, however, developed respiratory symptoms and it was later determined that they contracted the disease during their hospital stay. This grouping of cases was determined to be nosocomial in nature because the patients became ill because of a lapse in SARS infection control procedures in the hospital where they were being treated. The lapse in SARS precautions at the conclusion of the first phase is believed to be the cause for the second wave of SARS cases.\textsuperscript{128}

\textit{a. Policy}

During the 2003 SARS epidemic in Canada, the government directed affected citizens to self-quarantine. According to Julian Fantino, former chief of the TPS during the SARS epidemic, most of the people affected by quarantine orders complied voluntarily.\textsuperscript{129} The self-quarantine orders were considered successful because people perceived the process as fair, and all the relevant stakeholders could successfully communicate with each other.


\textsuperscript{127} Low, “SARS: Lessons from Toronto,” 67.

\textsuperscript{128} Marianna Ofner-Agostini et al., “Investigation of the Second Wave (Phase 2) of Severe Acute Respiratory Syndrome (SARS) in Toronto, Canada. What Happened?” \textit{Canada Communicable Disease Report = Relevé des maladies transmissibles au Canada} 34, no. 2 (February 2008): 2, \url{https://www.researchgate.net/publication/5447489_Investigation_of_the_second_wave_Phase_2_of_severe_acute_respiratory_syndrome_SARS_in_Toronto_Canada_What_happened/link/53f343b70ef2dd48950e9f70/download}.

\textsuperscript{129} Fantino, “2003 SARS Outbreak,” 1–8.
The success of self-quarantine in this instance did not rely on law enforcement to compel communicable disease patients to comply. True, the infection control measures implemented at area hospitals during the first phase of the outbreak were ended prematurely, which resulted in a second outbreak of SARS. Reimplementation of the public health measures, to include continued compliance with self-quarantine orders, assisted in ending the 2003 SARS outbreak in Canada.

b. Effectiveness

Coherent, consistent, and easily accessible information provided by public health departments and other government agencies helped allay fears among quarantined patients in Canada. In a research study conducted by Emma Robertson et al., these patients described the loss and conflict they experienced during their quarantine periods, and their fear and frustration at being quarantined because of a communicable disease contracted through no fault of their own. The patients reported a loss of income and social isolation from others as the most significant obstacles to being compliant with quarantine orders. Drawing similar conclusions, Sarbjit S. Johal notes that distress and fear of quarantined patients can occur if government organizations and infection control experts provide poor communication and information. Johal advocates for a “transparent and credible public information strategy” as the best method to prevent widespread panic and fear in the affected communities.

The Canadian government took several steps to ease the impact of the quarantine on affected citizens. The federal two-week waiting period required before unemployment benefits could be received in Canada was waived. Steps were taken to ensure food, water,
and communication were provided to quarantined Canadians because, during a communicable disease event, the requirements of daily life do not cease. Both government and non-government agencies assisted citizens in need. The self-quarantine policy instituted by the Canadian government is determined to be effective because the measures taken provided economic and social support to affected citizens.

c. Community Support

As noted previously, research revealed that the psychological isolation of quarantine and a lack of timely communication could lead to non-compliance with quarantine orders. In a survey conducted by Dr. Laura Hawryluck et al., the researchers contacted over 15,000 Canadians who were self-quarantined and encouraged to participate in this survey through media releases and televised interviews of the research staff.

One of the methods to measure the support of the community is the lack of a law enforcement response required to enforce self-quarantine orders. During the 2003 SARS epidemic in the GTA, Canadians voluntarily complied with self-quarantine policies, and consequentially, police officers were not needed to make very many arrests. The community’s support for the self-quarantine plan rates as high due to the few arrests for non-compliance. Instead, the Canadian model of self-quarantine during the 2003 SARS epidemic primarily used law enforcement to make periodic checks on affected citizens.\(^\text{134}\) The adaptation of a less restrictive self-quarantine enforcement policy yielded positive results. This method should be considered when developing U.S. law enforcement strategies to carry out self-quarantine orders in the future.

d. Cost

The 2003 SARS outbreak in Canada resulted in 44 deaths and over 400 people were infected.\(^\text{135}\) The Canadian tourism industry was negatively affected and Air Canada was


forced to cut back on scheduled flights due to the fear and panic caused by the outbreak.\textsuperscript{136} The Ontario government enacted a plan that entailed spending over 300 million Canadian dollars to cover the lost wages of healthcare workers.\textsuperscript{137} The Ontario local government provided food to affected citizens.\textsuperscript{138} The Canadian Red Cross mobilized hundreds of volunteers to deliver food, water, and medical supplies and provided healthcare information to affected citizens.\textsuperscript{139} The cost of these supplies was absorbed by the participating organizations. As noted, the high compliance rate with self-quarantine resulted in Canadian law enforcement not being required to take an active role during this crisis. As a result, additional police staffing and overtime costs were not required. While the government did subsidize the salaries of affected healthcare workers, this action was seen as a direct measure that assisted quarantine compliance. Although the Canadian tourism industry was negatively impacted, events were later planned to encourage people to return.\textsuperscript{140} The evaluation of cost during this episode of self-quarantine receives high scores.

\textit{\textbf{e. Implementation Ease}}

The law enforcement component of the self-quarantine policy used during the 2003 SARS epidemic was implemented without significant negative issues. The evaluation of implementation ease therefore receives an elevated score. The TPS recognized the need to train and equip police officers to enforce quarantine orders safely. TPS police officers were prepared to locate non-compliant citizens and transport them to the hospital named in the

\begin{itemize}
\item \textsuperscript{138} Campbell, \textit{Volume 3. Spring of Fear}, 926.
\item \textsuperscript{139} International Federation of Red Cross and Red Crescent Societies, “Red Cross Supplies Essentials to Canada’s SARS Victims.”
\end{itemize}
quarantine order and then detain them until the order lapsed.\footnote{Edward P. Richards et al., \textit{The Role of Law Enforcement in Public Health Emergencies—Special Considerations for an All Hazards Approach} (Washington, DC: U.S. Department of Justice, Office of Justice Programs Bureau of Justice, Assistance in Partnership with Police Executive Research Forum, 2006), 20, \url{https://www.ncjrs.gov/pdffiles1/bja/214333.pdf}.} The assessment of the ease of implementation also takes into account the lack of law enforcement assistance to compel Canadians to comply with self-quarantine orders. Table 4 presents a summary of the assessment scores of the SARS—Canada self-quarantine policy.

Table 4. SARS—Canada Self-quarantine Summary Table with Assessment Scores

<table>
<thead>
<tr>
<th>SARS—Canada (2003)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>4</td>
</tr>
<tr>
<td>Community Support</td>
<td>4</td>
</tr>
<tr>
<td>Cost</td>
<td>4</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>4</td>
</tr>
</tbody>
</table>

2. \textit{Ebola—Zaire (1976)}

The EVD is a hemorrhagic disease first discovered in people living in a small village called Yambuku, near the Ebola River in Zaire (later renamed the Democratic Republic of the Congo) in 1976. The origin of EVD is unknown; however, the CDC posits that bats originally transmitted it to humans and non-human primates.\footnote{“What is Ebola Virus Disease?” Centers for Disease Control and Prevention, accessed December 5, 2019, \url{https://www.cdc.gov/vhf/ebola/about.html}.} EVD patients are contagious when they are symptomatic, and the virus spreads when contaminated bodily fluids come into contact with broken skin or the mucous membranes of another person, as well as through unprotected sexual contact.\footnote{“Diagnosis: Ebola (Ebola Virus Disease),” Centers for Disease Control and Prevention, accessed December 5, 2019, \url{https://www.cdc.gov/vhf/ebola/diagnosis/index.html}.} EVD is an often-deadly disease and its
symptoms, which may appear up to 21 days after exposure, include nausea, vomiting, diarrhea, and unexplained bleeding.\textsuperscript{144}

Care of the EVD patient focuses on alleviating pain, replenishing lost fluids, and treating other infections if they occur. Currently, no FDA-approved vaccination is available for the treatment of EVD although clinical trials are currently being conducted.\textsuperscript{145} The use of contaminated needles at a local hospital along with the consumption of animals infected with the virus (bushmeat) caused the outbreak of Ebola in 1976, and it spread via traditional funeral rituals involving the washing and cleaning of the bodies of deceased victims.\textsuperscript{146}

\textit{a. Policy}

The outbreak affected only an area near a remote village, and after determining that a primary cause was healthcare workers using improperly sterilized hypodermic needles, the suspect hospital was closed. The policy used was to flood the affected area with resources, use quarantine, and educate the population about EVD, and it ended this outbreak. The local citizens also received information concerning the transmission of EVD.\textsuperscript{147} The settlement’s isolation also played a significant role in preventing the further spread of EVD.\textsuperscript{148}

\begin{flushleft}
\footnotesize
\textsuperscript{144} “Transmission: Ebola Hemorrhagic Fever,” Centers for Disease Control and Prevention, last reviewed November 5, 2019, \url{https://www.cdc.gov/vhf/ebola/transmission/index.html}.


\end{flushleft}
b. **Effectiveness**

In Zaire, 318 EVD cases were reported during the 1976 outbreak. Of this number, 88 percent of these cases were fatal (280 patients).\(^ {149}\) During this initial outbreak of Ebola, compliance with self-quarantine prevented the disease from being transported to larger urban cities. Compared to the multiple Ebola outbreaks that have occurred since, the utilization of self-quarantine policies during this episode saved thousands of lives. While the cost in lives was high in the small villages near Yambuku, self-quarantine stopped the spread of Ebola to the rest of Zaire. The 1976 Ebola outbreak in Zaire lasted just 11 weeks.\(^ {150}\) The assessment of self-quarantine in Zaire during the 1976 outbreak results in an elevated grade for effectiveness.

c. **Community Support**

According to Dr. Peter Piot, one of the microbiologists credited with the discovery of EVD in Zaire, community support was an essential component that helped stop this communicable disease outbreak. Piot stated at the time:

> getting the message out into the community and getting people to change their behavior is critical if we are to bring the current outbreak under control. Measures such as isolating patients, contact tracing and follow-up surveillance, and community education are all part of the response.\(^ {151}\)

In a research study published by the WHO in 1978, significant factors were identified as hastening the end of this epidemic, the decision to stop using contaminated hypodermic needles and the use of quarantine both contributed to the end of this


\(^{151}\) “Controlling Ebola in Communities Is Critical Factor in Containing Outbreaks,” London School of Hygiene & Tropical Medicine, October 6, 2019, [https://www.lshtm.ac.uk/nowevents/news/2014/controlling_ebola.html](https://www.lshtm.ac.uk/nowevents/news/2014/controlling_ebola.html).
outbreak. The high compliance rate with orders to self-quarantine produces a correspondingly high assessment score for this factor.

d. Cost

Due to the remote location of the village, the government of Zaire used military aircraft to shuttle people and supplies to the villages surrounding Yambuku. Mobuto Sese Seko ruled Zaire from 1965 until 1996; he was a corrupt leader who squandered the country’s vast resources. As a result, the dysfunctional Zairean government was unable to resolve this medical crisis without international support. Zaire relied on the assistance of the WHO and CDC along with several countries to stop the first outbreak of Ebola, to include the United States, Canada, South Africa, Belgium, and France. The assessment of cost to Zaire during this communicable disease event is elevated although other participating countries and agencies absorbed the cost.

e. Implementation Ease

Doctor Joel Breman of the American Society of Tropical Medicine and Hygiene was on a team that responded to the 1976 Ebola outbreak. Breman points to the ability of the team to work “harmoniously in laboratories and with local communities” and how that “was essential for rapid success in 1976.” The self-quarantine policy was easily implemented and directly contributed to the disease not being spread from the area. The policy receives an elevated grade for the ease of implementation, although it should be noted that some of the conditions that contributed to the success of the self-quarantine no

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156 Breman et al., “Discovery and Description of Ebola Zaire Virus,” S93.
longer exist. For example, the current EVD outbreak in the Democratic Republic of the Congo has been marred by community distrust that is negatively affecting efforts to control the epidemic.\textsuperscript{157} Table 5 shows a summary of the assessment scores of the Ebola—Zaire self-quarantine policy.

<table>
<thead>
<tr>
<th>Ebola—Zaire (1976)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>4</td>
</tr>
<tr>
<td>Community Support</td>
<td>4</td>
</tr>
<tr>
<td>Cost</td>
<td>4</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>4</td>
</tr>
</tbody>
</table>

C. HYBRID MODELS

Some examples of hybrid quarantine enforcement policies occurred after forced and self-quarantine policies were tried and failed. In China during 2003, the quarantine policy was changed from forced to hybrid. This change occurred due to the failure of forced quarantine. Hybrid quarantine enforcement policies typically utilize components of forced and self-quarantine policies. The following case studies are considered hybrid quarantine enforcement policies because either significant changes were made to the original plan or no mandated uniform quarantine enforcement plan ever was implemented during the course of the communicable disease event.

1. SARS—People’s Republic of China (2003) after Forced Quarantine Failure

The Chinese government initially relied on withholding information from the public and public health organizations in other countries about the spread of SARS. To


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prevent Chinese citizens from receiving information about SARS, the government blocked newscasts from other countries when information about the SARS outbreak was discussed.\textsuperscript{158} An admission by Deputy Health Minister Gao Qiang was one of the first acknowledgments of the SARS outbreak by the Chinese government.\textsuperscript{159} Officials from the WHO expressed disbelief concerning the low number of SARS cases, especially since cases in other countries occurred after people arrived from China.\textsuperscript{160} On April 20, 2003, the mayor of Beijing and the health minister were removed from office and the Chinese government reported several hundred cases of SARS; just a week earlier, only 22 cases of SARS were reported.\textsuperscript{161} The release of factual information did not occur until the WHO intervened. The lack of information provided to the public by the Chinese government also gave a false sense of security that the outbreak had subsided.

\textit{a. Policy}

By early 2004, the Chinese government changed its approach to quarantine. Rather than enforcing a broad quarantine that restricted the movement of hundreds of people, it focused exclusively on the 81 contacts identified by the first SARS patient.\textsuperscript{162} This approach appears to have been more successful; according to Julie Hall, the Communicable Disease Surveillance and Response Coordinator for China at the WHO at the time, “The system of identification and contact-tracing seems to be working.”\textsuperscript{163} This approach quarantined fewer people and focused more on the surveillance of patients in their homes, not government facilities. The Chinese political system has been described as fragmented authoritarianism and can lead to exasperatingly slow changes in public


\textsuperscript{160} Eckholm.

\textsuperscript{161} Eckholm.


\textsuperscript{163} Cyranoski, 89.
policies. As such, the Chinese government’s decision to use an evidence-based approach to ending the SARS outbreak instead of using forced quarantine policies occurred slowly.

Officials from the WHO were invited to China to investigate the SARS outbreak, but they were not permitted to travel to the Guangdong province until eight days after they arrived. WHO officials held discussions with Chinese authorities to express their concerns and convey the importance of “case reporting and contact tracing.” Update #27 issued by the WHO outlined issues and steps to be taken by the Chinese government. Notably, public health officials began to convey the “need to manage patients according to the principles of isolation and strict infection control.” The intervention by the WHO can be seen as a turning point in the fight against the spread of SARS in China.

b. Effectiveness

The Chinese government changed its position after negotiations with officials from the WHO convinced them of the need for an evidence-based approach to stop the spread of SARS. Due to early missteps by local public officials and the nature of the political system entrenched in China, controlling SARS took over a year. As noted, the focus on stopping the spread of SARS eventually included providing timely and accurate information to the public, surveilling new cases by contact tracing, and the use of quarantine enforcement when deemed medically necessary. The policy adopted by the Chinese government was eventually effective and the WHO declared the outbreak to be

167 World Health Organization.
under control on June 4, 2003.\textsuperscript{169} Chinese citizens quarantined during this phase were quarantined for sound medical reasons, as opposed to the policy of forced quarantine used earlier. The assessment of the effectiveness of the policy changes receives a high grade because of the focus on the use of evidence-based measures and the use of quarantine only on an as needed, not mass, basis.

\subsection*{c. Community Support}

Chinese citizens greatly distrust their government. As such, citizens circumvented early attempts to stop the news of this outbreak by texting each other and posting contrary information on internet chat rooms.\textsuperscript{170} Despite this distrust, the WHO suggested the Chinese government hold daily press conferences to keep citizens notified.

Near the end of the SARS outbreak in China, a cluster of SARS cases occurred because of a security lapse involving scientists conducting tests.\textsuperscript{171} One of the scientists suspected of the biosecurity breach took public rail transportation throughout China en route to her home. As a result, the Chinese government quarantined over 500 people. Unlike previous quarantine orders, the WHO noted:

\begin{quote}
[\textit{t}o date, all diagnosed cases and cases under investigation have been linked to chains of transmission involving close personal contact with an identified case. There is no evidence of wider transmission in the community.\textsuperscript{172}
\end{quote}

\begin{flushright}

170 Huang, \textit{The SARS Epidemic and Its Aftermath in China}, 118.


\end{flushright}
Additionally, to stop the spread of SARS during the May Day holiday in 2004, the Chinese government provided citizens with information about the security lapse and curtailed the holiday known as Golden Week to only three days.\textsuperscript{173}

The community support for the government actions is difficult to gauge. Fear caused by the epidemic compounded by the distrust of the government may have caused people to comply. The public health information eventually released by government officials helped assuage some of the fears caused by the outbreak and contributed to a higher level of compliance. The low score for this factor takes into account the actions taken to end this outbreak, but it should also be noted the Chinese government did not necessarily take these actions to seek out community support. The limited use of quarantine was based on the recommendations of the WHO and not an attempt to gain the support of Chinese citizens.

d. Cost

With the eventual adoption of the methods suggested by the WHO, the SARS outbreak eventually was declared under control. At the time, it was expected that an extended SARS outbreak would cause an undue economic burden on China.\textsuperscript{174} Due in part to the quick resolution of the epidemic, the Chinese economy quickly recovered from the economic crisis brought on by the SARS epidemic.\textsuperscript{175} The assessment of the cost in this hybrid quarantine episode is elevated because the methods implemented were instrumental in stopping the spread of disease and ending the economic downturn.


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e. Implementation Ease

The involvement of the WHO and the worldwide panic caused by the outbreak prompted the implementation of hybrid policy changes in China. The WHO afforded the Chinese government greater legitimacy to its citizens than it may have had prior to the outbreak. Chinese citizens were receiving almost no information about the SARS outbreak prior to WHO involvement; the hybrid policy change resulted in daily press conferences and officials were held responsible for mistakes. For example, the chief scientist responsible for the SARS biosecurity breach was publicly dismissed from his position. In addition, the policy changes resulted in fewer citizens being forced into quarantine. The policy changes contributed to reducing intrusions on the civil liberties of Chinese citizens while still ending this communicable disease event.

The bureaucracy of the Chinese government caused the slow implementation of the policy changes recommended by the WHO. Government resistance to employing such changes immediately is the cause for a decreased implementation score. See Table 6 for a summary of the assessment scores of the SARS—People’s Republic of China hybrid quarantine policy.

Table 6. SARS—People’s Republic of China Hybrid Model Summary
Table with Assessment Scores

<table>
<thead>
<tr>
<th>SARS—People’s Republic of China (2003)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>4</td>
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<tr>
<td>Community Support</td>
<td>2</td>
</tr>
<tr>
<td>Cost</td>
<td>4</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>3</td>
</tr>
</tbody>
</table>


The 2014 EVD outbreak in the United States occurred after Thomas Duncan, a native of Liberia, took a commercial flight to Dallas, Texas, to visit family. On September 25, 2014, Duncan arrived at the Emergency Department of Texas Health Presbyterian Hospital complaining of abdominal pain and a temperature of 103.1 F. After determining his condition not to be severe and perhaps not being informed about his recent travel from Liberia, the treating physician discharged him.\(^{177}\) Duncan returned to the hospital on September 28 after his condition worsened. Duncan was eventually admitted to the intensive care unit, and on September 30, the CDC confirmed Duncan’s EVD diagnosis.\(^ {178}\) Whether the hospital staff knew he was contagious or had the proper equipment and training to care for Duncan adequately is somewhat unclear.\(^ {179}\) Two nurses who provided care to Duncan contracted EVD. On October 8, Duncan succumbed to the illness.\(^ {180}\) Duncan’s death and the EVD diagnosis of the two nurses who cared for him prompted nationwide panic and hysteria.

In 2014, Donald Trump had not yet announced his intention to run in the 2016 U.S. presidential election, but was already a very outspoken public figure. Trump tweeted that healthcare workers volunteering in West Africa were “great;” however, he then went on to tweet that they also must “suffer the consequences” if they become infected with EVD.\(^ {181}\) The next day, he tweeted, “The U.S. must immediately stop all flights from EBOLA

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\(^{179}\) Voorhees, “Everything that Went Wrong in Dallas.”


\(^{181}\) Donald J. Trump @realdonaldtrump, “The U.S. cannot allow EBOLA infected people back. People that go to far away places to help out are great-but must suffer the consequences!,” Twitter, August 1, 2014, 6:22 p.m., [https://twitter.com/realdonaldtrump/status/495379061972410369?lang=en](https://twitter.com/realdonaldtrump/status/495379061972410369?lang=en).
infected countries or the plague will start and spread inside our ‘borders’. Act fast!” 182 The series of tweets contributed to the fear and hysteria at the time without providing any sound medical advice. Overreaction by such a controversial figure garnered headlines and may have been used to attract support for the upcoming election. 183 As this example shows, the information that pervades the public forum concerning disease outbreaks does not always come from credible sources and can unnecessarily cause fear and panic.

a. Policy

U.S. law enforcement gained unexpected experience in enforcing quarantine orders in 2014, but the experiences varied from state to state. The State of Texas sought to quarantine four people and monitor approximately 100 others in reference to the Duncan case. 184 Additionally, a guard was stationed outside Duncan’s hospital room while local law enforcement enforced quarantine at the apartment complex where he was staying. 185 Governors of other states enacted quarantine orders that were even more restrictive than CDC quarantine guidelines for EVD. For example, when he enacted the most restrictive quarantine and isolation laws in the United States, Connecticut’s then-Governor Daniel Malloy decided he needed to “go above and beyond what the CDC is recommending.” 186 At times, elected officials called for restrictive and varying versions of quarantine that required U.S. law enforcement to adapt.

182 Donald J. Trump @realdonaldtrump, “The U.S. must immediately stop all flights from EBOLA infected countries or the plague will start and spread inside our “borders.” Act fast!” Twitter, August 2, 2014, 4:26 a.m., https://twitter.com/realdonaldtrump/status/495531002505494528?lang=en.


Some states mandated forced quarantine orders for people exposed to communicable diseases, but the restrictions of the orders were subject to change. New Jersey’s then-Governor Chris Christie enacted a 21-day quarantine for people returning from countries suffering from the EVD epidemic.187 Kaci Hickox, a returning registered nurse who had worked with Doctors without Borders/Médecins sans frontières (MSF) treating patients in Sierra Leone, was quarantined under guard in a New Jersey hospital, then parking lot, until being released to her home state of Maine. Hickox never experienced any EVD symptoms and never tested positive for the virus. Hickox later obtained a court order to permit her the freedom to leave her house, but still had to consent to periodic testing for EVD during the incubation period. Hickox defied the conditions of her quarantine and filed a legal challenge to it.188 The legal challenge posed by Hickox reaffirms the requirement for quarantine orders to be imposed only out of medical necessity. In 1900, the city of San Francisco experienced an outbreak of bubonic plague.189 In the landmark case of Jew Ho vs. Williamson, it was determined that the implementation of forced quarantine needs to be based on medical necessity and not used arbitrarily.190

Other states relied on exposed people to self-quarantine. For example, Dr. Craig Spencer returned to the United States in October 2014 from treating EVD patients in Guinea. When he returned, Dr. Spencer was asymptomatic and went about his daily activities in New York City, where he was staying with his fiancée. When Dr. Spencer noticed he had a fever of 100.3 Fahrenheit, he presented himself to Bellevue Hospital where he was tested and treated for EVD.191 Additionally, Dr. Spencer’s fiancée self-
quarantined herself in their NYC apartment.²⁹² During his stay at Bellevue Hospital, Dr. Spencer was vilified in the media for being careless and possibly exposing unsuspecting people to EVD by using New York City mass transit, eating at a restaurant, and visiting a bowling alley.

b. **Effectiveness**

The effectiveness assessment of the hybrid quarantine orders imposed during this communicable disease outbreak receives a high score, but factors directly related to the political climate and disease characteristics also contribute to this assessment. Once released from forced quarantine in New Jersey, Hickox went home to Maine and openly defied her quarantine order.²⁹³ The panic created by EVD in the United States was short-lived; only the two nurses in Texas contracted EVD and both recovered from the illness without infecting others. In this light, the effectiveness of the ad-hoc quarantine policies is high, but whether quarantine played a notable role to end this disease outbreak remains unknown.

c. **Community Support**

The panic and hysteria that surrounded the event affected the community support for quarantine. Politicians and celebrities called for stopping flights from West Africa and the quarantine of returning healthcare workers.²⁹⁴ This situation resulted despite the fact that asymptomatic patients cannot spread EVD.²⁹⁵ While the assessment score of community support during this disease outbreak is high, traditional media and social media sources dispersed incorrect information and rumors that encouraged acceptance of overarching and medically unnecessary public health orders. If faced with similar

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²⁹³ Brady, “Nurse Kaci Hickox Takes a Bike Ride, Defying Maine’s Quarantine.”


circumstances in the future, community support for quarantine orders may not achieve its intended goals.

d. Cost

The cost assessment of this communicable disease outbreak includes two distinct factors. The first factor is that few U.S. citizens contracted EVD in the 2014 outbreak. Only 11 people in the United States received treatment for EVD and only two of those people contracted the disease within its borders.196 The second factor is that the 2014 EVD outbreak in the United States was short-lived and very few people were actually placed in quarantine.197 This assessment considers these two mitigating factors that affected the financial costs of this outbreak; these factors may not occur, however, during the next communicable disease event in the United States.

e. Implementation Ease

After an informal, and at times, medically unsound assessment by government leaders and political candidates preparing for upcoming elections, people were quarantined, which prompted the enforcement of quarantine orders by law enforcement. The manner in which these quarantine enforcement orders were enacted, however, made implementation difficult. Although residents in the apartment complex where Thomas Duncan stayed had to maintain compliance, Kaci Hickox obtained a court order that lifted her quarantine status in New Jersey. Once back home in Maine, Hickox defied a quarantine order to remain inside her home. The various public health orders created a hybrid quarantine enforcement plan because they relied on facets of forced and self-quarantine orders. An assessment of the implementation of quarantine orders yields a low score because conflicting public health orders were issued and not uniformly applied. Refer to Table 7 for a summary of the assessment scores of the Ebola—United States hybrid quarantine policy.

196 Centers for Disease Control and Prevention, “Years of Ebola Virus Outbreaks.”
Table 7. Ebola–United States Hybrid Model Summary Table with Assessment Scores

<table>
<thead>
<tr>
<th>Ebola—United States (2014)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>4</td>
</tr>
<tr>
<td>Community Support</td>
<td>4</td>
</tr>
<tr>
<td>Cost</td>
<td>3</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>2</td>
</tr>
</tbody>
</table>


On August 8, 2018, the Ministry of Health of the Democratic Republic of the Congo (DRC) sent a report to the WHO about a cluster of Ebola patients being treated in the North Kivu region of the country. Since this outbreak was declared by the DRC, additional cases have occurred in the South Kivu and Ituri provinces of the country. This latest episode of EVD has brought with it additional challenges that will need to be addressed.

Since the 1960s, civil wars have ravaged the DRC and although the latest civil war ended in 2003, conflicts between rival rebel groups continue. An estimated four million people have been displaced in the DRC because of continued rebel fighting. Approximately 400,000 people have immigrated to the DRC from neighboring South Sudan, Burundi, and the Central African Republic because of internal strife in the region. This current episode of EVD could pose logistical challenges to the organizations committed to stopping the outbreak. According to the United Nations High Commissioner for Refugees (UNHCR), although this current EVD outbreak has not reached refugee settlements or internal displacement sites yet, refugees and displaced persons are at a higher risk for EVD.

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because they have limited access to clean water and medicine. According to the CDC, the DRC has experienced 10 EVD outbreaks since the discovery of the disease.

**a. Policy**

The policy utilized in the DRC is a hybrid quarantine policy due to the use of both forced and self-quarantine orders. Additionally, a vaccine to prevent EVD has shown efficacy and is being used during the latest outbreak in the DRC. Although the international community has responded to assist the DRC to resolve this EVD outbreak, civil unrest in neighboring Uganda continues to threaten the safety of the at-risk populations residing in the DRC. Healthcare workers and security personnel deployed to the area are also at risk of being attacked. Medical and security staff continue to report being assaulted by rebel gangs. Due to the civil wars and ongoing feuding among gangs that persists, DRC citizens have expressed a palpable mistrust of people in power, which also includes healthcare workers and security staff. Rebels attacked an EVD treatment center operated by the MSF and burned the building to the ground. According to the MSF general director in North Kivu, Meine Nicolai, the:

reasons behind the attack are unclear and such violence is unacceptable, what we know is that the actors of the Ebola response—MSF included—have failed to gain the trust of a significant part of the population … [and] … all those involved in this response must change their approach and truly engage with the grievances and fears of the communities.

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201 Centers for Disease Control and Prevention.


b. Effectiveness

The current plan to stop the spread of the disease has had uneven results. Components of the current plan to stop the spread of Ebola in the DRC and neighboring countries have shown to be effective, at times. During this latest outbreak, a new vaccine has shown promise and the international community has responded to assist war-torn DRC. Despite these positive aspects to the response plan, the DRC, MSF, and other organizations have experienced setbacks. Besides the EVD treatment center being destroyed in February 2019, family members took three forced quarantine patients from the port city of Mbandaka from the MSF facility to attend a prayer service. Dr. Jean-Clement Cabrol, emergency medical coordinator for the MSF, told the *UK Independent*: “the escape was organised by the families, with six motorcycles as the patients were very ill and couldn’t walk.”

The effectiveness assessment results in a lower score because although a sound medical plan to end this outbreak appears to be in place, the plan is not being fully utilized.

c. Community Support

The plan to end the latest outbreak of EVD in the DRC has limited community support. Community disengagement resulting from years of distrust of authority along with ongoing fighting are the primary reasons this outbreak continues. Violent attacks have been launched against hospitals and while some DRC citizens have been non-compliant with quarantine orders, others have taken heed of the sound medical advice being provided. In July 2019, doctors in South Kivu convinced 15 people to comply with quarantine orders at a local hospital.

Much like the effectiveness assessment, the community support component of this analysis receives a lower score because of the widespread violence and non-compliance with quarantine orders.

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d. Cost

The costs for the plan to stop the latest EVD outbreak are high, regardless of how this situation is measured. Multiple governments and non-government organizations (NGOs) have contributed manpower, equipment, and funding to end this latest outbreak. In July 2019, the World Bank announced that it had mobilized $300 billion U.S. dollars to finance the latest DRC Ebola epidemic.\footnote{“World Bank Mobilizes US$300 Million to Finance the Ebola Response in Democratic Republic of Congo,” World Bank, July 24, 2019, \url{https://www.worldbank.org/en/news/press-release/2019/07/24/world-bank-mobilizes-us300-million-to-finance-the-ebola-response-in-democratic-republic-of-congo}.} The WHO estimates that it will need an additional $324 million in funding to continue its response and recovery operations.\footnote{Carleigh Krubiner and Liesl Schnabel, “Committing and Allocating Ebola Financing: What’s Next for the DRC?” ReliefWeb, August 2, 2019, \url{https://reliefweb.int/report/democratic-republic-congo/committing-and-allocating-ebola-financing-what-s-next-drc}.} Many of the conditions that have led to the previous 10 outbreaks in the region are still in place, and in some cases, the conditions are worse. The current EVD outbreak has not only involved small villages, but has now also encroached into a large urban DRC city.\footnote{“Ebola Strikes Big City in the Democratic Republic of the Congo and WHO Scales up Response to New Threat,” World Health Organization, Regional Office for Africa, accessed September 20, 2019, \url{https://www.afro.who.int/news/ebola-strikes-big-city-democratic-republic-congo-and-who-scales-response-new-threat}.} The cost analysis for the 2018 EVD outbreak in the DRC receives a low grade and will continue to do so for the foreseeable future.

e. Implementation Ease

Both self-quarantine and forced quarantine have been used in the DRC during past outbreaks, with mixed results. Although the region has experienced self-quarantine and forced quarantine orders previously, factors inherent to the region have caused the hybrid plan to experience difficulties in its implementation and results in a low score in this assessment. The ongoing civil war in Uganda, the large number of displaced persons, and an innate distrust of authority by the community have made the implementation of the plan markedly difficult. The takeaway from this EVD outbreak should be not to underestimate the unwillingness of some members of the community to cooperate with public health

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orders if a previous history of mistrust and mistreatment by local government representatives predates the outbreak, which could affect public health and law enforcement. Table 8 displays a summary of the assessment scores of the Ebola—The Democratic Republic of the Congo hybrid quarantine policy.

Table 8. Ebola—The Democratic Republic of the Congo Hybrid Model Summary Table with Assessment Scores

<table>
<thead>
<tr>
<th>Ebola—The Democratic Republic of the Congo (2018)</th>
<th>Grade (1 low to 5 high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>2</td>
</tr>
<tr>
<td>Community Support</td>
<td>2</td>
</tr>
<tr>
<td>Cost</td>
<td>2</td>
</tr>
<tr>
<td>Implementation Ease</td>
<td>3</td>
</tr>
</tbody>
</table>

D. QUARANTINE PLAN ASSESSMENTS

The case studies about the use of forced quarantine, self-quarantine, and hybrid models provide information that can be used to formulate quarantine policies in the United States. Although the case studies provide some evidence and statistics, not all of the data is relevant to U.S. law enforcement. For example, China’s plan to control the spread of SARS in 2003 began with draconian measures to stop the spread of disease. Some of the methods used in China could not legally be applied in this country. Likewise, the isolating conditions that prevailed during the self-quarantine event that occurred in Zaire in 1976 could not easily be replicated in the United States. Regardless of practicality, the assessment of the policies yields experiences and evidence that can be used to construct a quarantine enforcement plan that can be implemented by U.S. law enforcement.

1. Forced Quarantine Assessment

Forced quarantine policies may not be feasible to introduce or enforce in the United States, but important lessons can be learned from their attempted implementation. The early response to the 2003 SARS epidemic in China involved the forced quarantine of
hundreds of people and the withholding of public health information. The South Korean government instituted increased fines and authorized arrests for forced quarantine non-compliance, but these methods did not prove to be successful in ending the MERS-CoV outbreak in 2015. Both case studies illuminate the need to have an evidenced-based approach to using quarantine to stop the spread of disease.

These two cases are similar in that the civil liberties of these citizens were not considered when the policies were adopted. While the governments of China and South Korea were not directly concerned about violating the rights of its citizens, the U.S. government, if placed in a similar predicament, would be required to heed these considerations. Suspending constitutional protections for U.S. citizens would have to be deliberated prior to the implementation of a forced quarantine policy. The decision to suspend constitutional protections, even in the event of a threat to public safety, will assuredly face legal challenge.

During the 2015 MERS-CoV event in South Korea, citizens reverted to a tactic called hospital shopping. South Korean citizens visited multiple hospitals in an effort to receive better quality medical treatment. This practice led South Koreans to spread the disease further. This phenomenon could occur in the United States. To combat this issue, citizens will have to be reassured that they are receiving appropriate medical care, regardless of where the medical care is sought. While this issue might not be within the scope of law enforcement to address, this unexpected issue caused quarantine non-compliance in the case study countries. A U.S. law enforcement quarantine policy should anticipate such factors that may increase quarantine non-compliance. A policy should include consultation with public health authorities to seek out solutions to these issues. If this situation were to occur during a communicable disease event in the United States, members of the public health team would need to take steps to reassure members of the community that they were receiving appropriate medical care.

While the forced quarantine of large number of citizens occurred during both of these cases, it is imperative to note that this repressive tactic did not eventually become responsible for the cessation of these communicable disease events. In the case involving the MERS-CoV outbreak in South Korea, it was determined the forced quarantine of
asymptomatic patients was unnecessary because the disease was not spread among asymptomatic citizens. During the SARS event in China, the eventual intervention by the WHO and the adoption of evidence-based practices stopped the spread of disease, not the implementation of forced quarantine.

Both forced quarantine episodes were ended after consultation with the WHO or CDC. The application of evidence-based practices, such as the use of contact tracing in China, was responsible for the end of the disease outbreaks. The use of forced quarantine was not the inherent reason for the cessation of these events. Forced quarantine of large groups of people was not medically necessary. These factors should be considered when developing a quarantine enforcement plan in the United States.

2. **Self-quarantine Assessment**

Data was collected from the episodes of self-quarantine that occurred during the SARS outbreak in Canada in 2003 and also in Zaire during the 1976 outbreak of Ebola. Although these two episodes occurred 27 years apart, they both are examples of how self-quarantine can be used to stop the spread of disease. Moreover, the use of self-quarantine in Canada sheds light on how this public health policy can be effectively implemented without relying on law enforcement solely to make arrests for quarantine non-compliance.

Following discovery of the EVD in a small village in Zaire during 1976, scientists from the WHO were sent to Yambuku and examined the citizens and their surroundings. As a result, the causative factors of the disease were determined and corrective action was taken. Local citizens were instructed not to eat bushmeat that served as a reservoir of the disease and healthcare workers were instructed not to re-use hypodermic needles. The self-quarantine policy was successful, in part, due to the inaccessibility of the small village from urban cities in Zaire. While this facet of the episode contributed to its success, it could not be replicated or expected in the United States. Even the most rural U.S. town is accessible by private or public transportation.

The Canadian local and federal governments declared a medical emergency due to the 2003 SARS epidemic. As a part of this declaration, a self-quarantine was ordered for Canadians who might have been exposed to SARS patients. Self-quarantine was not
ordered in response to hysteria and panic. As a result, affected citizens were made aware of the rationale behind the quarantine orders. In addition, the Canadian government took actions to assist with quarantine compliance. For example, unemployment benefit wait times were waived, and food, water, and other supplies were provided to citizens who self-quarantined. These supportive actions encouraged most quarantined citizens to comply, which resulted in local law enforcement only having to make arrests as a last resort. The supportive actions taken by the government in conjunction with law enforcement making arrests as a last resort contributed to the success of this self-quarantine policy.

3. Hybrid Quarantine Assessment

The hybrid version of quarantine applied in China during 2003 occurred because of a failed forced quarantine policy. The policy changed after consultation with the WHO. The WHO recommendation of contact tracing drastically reduced the number of citizens who needed to be quarantined. The evidence-based approach introduced by the WHO was instrumental in the cessation of the epidemic. Even so, the Chinese government continued to censor news media coverage of the event. While the hybrid version of quarantine was a success, the freedom of the press is a constitutional protection and censorship of it would not be tolerated in the United States.

The quarantine policy during the EVD event in the United States became a hybrid policy due to the many different variations that occurred. While the people living in the apartment building with Thomas Duncan were quarantined or investigated in Texas, New Jersey only quarantined one nurse who was returning from West Africa. The governor of Connecticut took it upon himself to create a quarantine policy that was more restrictive than what was suggested by the CDC. These experiences of forced quarantine share similarities with the forced quarantine episode that occurred in San Francisco during the bubonic plague outbreak of 1900. Back then, overreaching and unnecessary forced quarantine orders were implemented in predominantly Chinese neighborhoods. A court later overruled the policy because it was not only medically unnecessary, but also
discriminatory in nature. While the 2018 EVD outbreak was short lived, it is unknown if the hybrid quarantine policies adopted actually were instrumental in ending the epidemic.

The 2019 Ebola outbreak is the latest of many to strike West Africa; this communicable disease event has been catastrophic in the DRC. A hybrid quarantine plan has been implemented and resources are being directed to the affected citizens and their communities. Due to the numerous Ebola outbreaks, longstanding distrust of the DRC government coupled with continued infighting amongst rival factions, and many refugees flooding into the country, community support of the plan is low. Due to a high level of distrust, citizens have resisted the policy. These reactions would have ramifications if such a policy were instituted in the United States. Without the support of the quarantined citizens, regardless of how effective the hybrid quarantine policy is, success is unlikely.

E. CONCLUSION

While forced quarantine has been used to stop the spread of disease, it has not successfully resulted in ending a communicable disease event in recent history. An examination of the case studies presented in this thesis illustrates the ineffectiveness of forced quarantine policies. Warehousing large numbers of people in these cases did not stop the spread of disease and fostered mistrust of the government, which resulted in citizens not complying with the policies.

A review of the case involving self-quarantine reveals that this policy has been effectively used to stop an epidemic. While the self-quarantine episode that occurred in Zaire during 1976 probably could not be replicated today in the United States, the Canadian self-quarantine policy has features that could be applied. The keys to the success of the Canadian self-quarantine lie in the support provided to affected citizens coupled with the evidence-based rationale for implementing self-quarantine. These measures resulted in self-quarantine compliance and did not require law enforcement to make an inordinate number of arrests.

210 Jew Ho vs. Williamson, 103 F. 10 (C.C.N.D. Cal 1900): 9, 21–23.
The two hybrid quarantine cases presented in this thesis illustrate the complexities of quarantine policies. The hybrid quarantine episode in China during 2003 occurred after the country experienced a failed forced quarantine policy. This change in policy occurred only after the WHO intervened and persuaded the Chinese government to quarantine people only when medically necessary. While the hybrid quarantine policies in the DRC may be effective, the longstanding regional conflict along with mistrust of the historically corrupt government is impeding the progress of this policy. The distrust of the DRC government by its citizens mirrors the distrust many have in U.S. law enforcement. A quarantine policy to be enforced by U.S. law enforcement needs to be implemented transparently and only be used to stop the spread of disease, without unnecessarily interrupting the constitutional rights of citizens.

The next chapter of this thesis addresses these topics and how they can be applied to develop a quarantine enforcement plan in Philadelphia. The implications for public health, the local political culture, and the inclusion of the PPD on the public health care team are examined. The goal of the next chapter is to review the issues that may affect Philadelphians during the next communicable disease event and to provide policy solutions to these obstacles.
IV. QUARANTINE ENFORCEMENT IN PHILADELPHIA

This chapter discusses matters the PPD will face while attempting to implement quarantine enforcement plans and offers guidance on how to address these issues based upon the information learned in the case studies examined in Chapter III. Law enforcement may only need to play an ancillary role when enforcing quarantine upon compliant citizens. Moreover, the collaboration and cooperation of the PPD with all relevant stakeholders can help provide information and services to affected citizens. However, with that said, these plans also will have to confront the possibility directly that force may be required to enforce quarantine in some cases. This chapter describes how law enforcement should approach the role of quarantine enforcement from the least restrictive method to the most restrictive method, arrest. Aspects of quarantine enforcement plans addressed in this thesis can be used to develop policies that can be implemented by other U.S. law enforcement as well.

The PDPH plan for the execution of quarantine enforcement is outlined in the IQP. Currently, the IQP lists five tasks that the PPD will address during a communicable disease event requiring enforcement of quarantine orders. In no particular order of importance, they are:

* Serve and enforce court orders for isolation or quarantine as requested by PDPH.

* Provide an escort for EMS transport of individuals or groups requiring transportation for purposes of isolation and quarantine, if needed.

* Execute arrest warrants related to isolation and quarantine cases, as needed.

* Provide security for those in isolation and quarantine, as needed.

* Manage neighborhood issues and media intrusion to those in home quarantine.\(^{211}\)

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While the inclusion of the PPD on the public health team is a constructive beginning, additional instruction and guidance needs to be included in the IQP, along with the creation of a PPD policy that addresses the responsibilities highlighted by the PDPH in the IQP. These changes will have implications on the health of affected citizens and can be used to stop the spread of disease in Philadelphia.

A. IMPLICATIONS FOR PUBLIC HEALTH

The use of quarantine as a public health tool to stop the spread of disease has proven to be effective. Assisting citizens with maintaining quarantine compliance will be one of the actions the PPD will undertake during a communicable disease event. The PPD’s techniques can influence citizens to make choices that are in the public interest, create collaboration between affected stakeholders, and include ways the public health team can verify compliance. A quarantine enforcement plan should also include evaluating the needs of the quarantined patient. Additionally, a method needs to be developed to address citizens who defiantly resist quarantine orders and risk spreading disease to the rest of the community.

B. PPD HISTORY WITH THE AFRICAN-AMERICAN COMMUNITY

The PPD has a long and unenviable history involving its policing of the African-American community in Philadelphia. Going as far back as the 1960s, the PPD methods used in these communities have come under scrutiny. Frank Rizzo, first as a PPD Police Commissioner and then later as the Mayor, often embodied a tough on crime stance that polarized the citizens of Philadelphia along racial lines.212 In 2015, Philadelphia civil rights attorney Larry Krasner told Jake Blumgart of Vice.com, “Rizzo kidnapped the

fucking city, that’s what he really did.” Many African-Americans in Philadelphia saw the Rizzo-led PPD as a “force of oppression and fear.”

On August 28, 1964, the Columbia Avenue Race Riot erupted after two PPD officers investigated two African-American citizens who were sitting in a broken down car at the corner of 22nd Street and Columbia Avenue. The couple, Odessa and Rush Bradford, were intoxicated and embroiled in a domestic dispute when the two PPD officers arrived. When the officers tried to intervene, the scene erupted into a riot. False rumors spread that the officers had beaten Odessa Bradford to death. Community activist Cecil B. Moore later found Odessa Bradford alive and well. Moore told reporters from *The Philadelphia Inquirer* that he drove her through the community to show the neighbors that she was unharmed. Nevertheless, the riot went on for several days as stores were burned and looted. Many of the businesses never recovered and still stand vacant today.

The Frank Rizzo-led PPD continued strategies that centered on the policing of African-American communities in Philadelphia. To counter the growing Black Panther Party in 1970, PPD officers conducted investigations that included mass arrests and strip searches conducted on sidewalks, as depicted in Figure 1.

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When Frank Rizzo was elected Mayor of Philadelphia in 1972, he still had the PPD at his disposal and the methods of policing he used in African-American communities continued. In 1978, an African-American activist group called MOVE was entrenched in a West Philadelphia neighborhood. It was not long before the PPD intervened. On August 8, 1978, PPD officers converged on a home and gunshots rang out. When the event was over, one PPD officer had died because of a gunshot wound. MOVE representatives continue to insist, however, that Officer James Ramp was killed by friendly fire.

By 1985, MOVE had regrouped and was occupying a new compound in West Philadelphia. Neighbors reported various issues with the group home, to include children not being properly fed, wild animals running loose, proclamations about the group at all

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hours of the night with a bullhorn, and random gunshots fired into the air. On May 13, 1985, a Pennsylvania State Police helicopter flew over the home and a PPD lieutenant dropped a satchel onto the roof to dislodge a fortified bunker. The ensuing explosion caused a fire that destroyed several city blocks. Eleven MOVE members, including five children perished in the inferno. As recently as August 15, 2019, PPD officers conducting a narcotics investigation came under siege from a gunman wielding a semi-automatic rifle. During the investigation and attempted arrest, six PPD officers were shot. The six officers were quickly transported to local hospitals and survived. The 2019 siege eerily resembled the 1985 MOVE event, but this time, the PPD had changed its tactics. After waiting several hours, the African-American gunman voluntarily surrendered and was not injured. Despite the relative success of the 2019 event, PPD officers were still taunted by members of the community.

The political culture surrounding how the PPD interacts with the African-American community in the city began to show signs of change in 2017. Larry Krasner was elected as the District Attorney of Philadelphia in a landslide victory. Krasner ran on a progressive platform that focuses on the downgrading of crimes and the declination of minor crimes that many see as something PPD officers have used to target the African-American community unfairly for decades. In addition, according to Krasner, his “decarceration” policy will stop the unfair prosecution of minority communities by


releasing non-violent criminals from local jails.225 The crime of retail theft under $500 dollars is no longer considered a felony, and instead, the District Attorney’s Office (DAO) treats it as a summary offense, punishable by only a fine. Additionally, the DAO no longer prosecutes marijuana possession cases with no intent to sell.226 The decision not to prosecute minor crimes and the release of non-violent offenders from prison has been met favorably by the African-American community in Philadelphia.227

In light of the history of the PPD and the current environment in the United States surrounding the methods police departments utilize to interact with at-risk communities, the forcible removal of citizens from their homes may well be perceived as an attack or an invasion. This removal will be counterproductive to the public health mission to stop the spread of disease. With the PPD history and the racial divide caused by the actions of some police officers serving as a backdrop, the construction of a policy to involve U.S. law enforcement in a plan to enforce quarantine orders needs to be undertaken with great care and consideration.

1. Influencing Citizens to Maintain Self-quarantine

Although the PDPH has assigned the quarantine enforcement role to the PPD, this role is not clearly defined in the IQP except for a statement that the PPD has the power to serve arrest warrants related to quarantine non-compliant citizens. However, the PPD will not be able to rely solely on arrest powers to enforce quarantine orders. Since executing arrest warrants for people suspected of committing crimes, even violating quarantine


orders, can be a dangerous and time-consuming procedure, non-arrest methods that assist citizens to maintain quarantine compliance also need to be utilized.

One useful method for promoting compliance is to create incentives for citizens to abide by quarantine orders. Economists claim that incentives can increase compliance with policies enacted by governments. Thaler and Sunstein coined a term called “libertarian paternalism” that describes actions that governments can take to influence citizens’ choices that will be beneficial to them and their community.\(^{228}\) According to Richard H. Thaler and Cass R. Sunstein, a person could be nudged to maintain the desired behavior if they were provided appropriate rewards.\(^{229}\) Nudging theory has already been used with positive results by government agencies. The Behavioral Insights Team (BIT), once a part of the British government, is an organization that uses nudges to alter the behavior of a targeted audience.\(^{230}\) Luke Ravenscroft of BIT explained to BloombergQuint.com that research has demonstrated that people care most about the status of the people who live nearest them. When the British government sought to increase the number of citizens paying their taxes in a timely manner, BIT nudged citizens by sending letters to tardy taxpayers to notify them of the prompt compliance of their neighbors. One of the letters read, “Nine out of ten people with a debt like yours, in your area, pay their tax on time. You are in the minority.” British citizens who received this letter paid their taxes at a 6% higher rate than those who did not receive the letter, which thus accounted for an additional 200 million pounds in taxes collected.\(^{231}\)

Law enforcement in the United States is already using nudges to influence public safety. The Gainesville (FL) Police Department (GPD) has instituted a vehicle safety program that nudges drivers and pedestrians to acknowledge each other. To accomplish the


\(^{229}\) Thaler and Sunstein, 5.


nudge, the GPD has erected large signs near busy highways that document the weekly percentage of drivers who yield to pedestrians in crosswalks.\textsuperscript{232} GPD police officers, along with staff from other police departments and local colleges, are used to monitor crosswalks near the signs. The goal yield rate is 60 percent. While that goal has not yet been reached, the GPD has reported yield rates as high as 52\%.\textsuperscript{233}

The use of nudging strategies could likewise positively influence quarantined citizens to maintain compliance and should be considered by any jurisdiction formulating a quarantine plan. To nudge citizens into compliance, the quarantine enforcement team can notify them about the compliance rate in their neighborhood and inform them about how maintaining compliance can help stop the spread of disease and result in a better chance of keeping themselves and their families healthy. Providing this information to the affected citizens can help them to make choices that maintain compliance with quarantine orders. The PDPH, PPD, and other member organizations on the quarantine enforcement team should also provide citizens with timely, relevant medical information about the disease and the quarantine status. When people are placed in quarantine, they lose the ability to make the decisions they routinely make. Nudging theories can assist citizens to make educated decisions without overtly compelling them to do so. The use of nudge theories by law enforcement can be an effective tool to help maintain quarantine compliance.

2. Quarantine Enforcement Conducted through Collaboration

Another important approach to securing citizens' compliance that should be a part of any quarantine plan is a collaborative team that includes the public health department, police and fire departments, and other stakeholders who can act to solve public health and community issues. In West Philadelphia, violent crime, unemployment and the rate of high school dropouts is on the rise. In a program started in the 18th police district, community leaders and government officials collaborated to develop a program that would encourage


and support citizens at risk of criminal recidivism to return to school to earn a General Education Development (GED) certificate. This program not only benefits citizens who have had prior contact with the judicial system, but also has established a team of organizations that can reach out to an at-risk population in the case of a public health emergency.

Such a direct pathway of communication could answer the questions and concerns of citizens affected by quarantine enforcement orders, as well as reinforce these citizens’ trust through demonstrations of accessibility. The result should lead to higher rates of compliance. The inclusion of faith-based and other community organizations can also be critical to the communication component of quarantine order enforcement. Using non-traditional organizations, such as churches, businesses, and schools, can assist in bridging the credibility gap the police department has with many at-risk communities. The Red Cross and Salvation Army have extensive disaster response experience and can assist in communicating timely and relevant public health information. For example, when Hurricane Ike struck Texas and Louisiana in 2007, the Red Cross used social media resources to increase effective communication with the community. By using the website Flickr, the Red Cross was able to post pictures of the event as it was occurring. YouTube, Facebook, and Twitter were used to urge the public to seek shelter or to volunteer during the emergency. Creating alternate and duplicate communication pathways to provide public health information to citizens affected by a public health emergency could be an effective method to increase quarantine order compliance.

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3. The Use of Surveillance without Unnecessary Intrusion

While nudging theories and community engagement can assist citizens to maintain quarantine compliance, law enforcement will still need to conduct surveillance to ensure amenability. When the PPD or other members of the public health team perform surveillance, they will need to be mindful that negligence or malfeasance during this phase may drive citizens to become non-compliant with quarantine orders. PPD officers conducting surveillance will be faced with the daunting task of checking in on citizens who have not committed a crime. The surveillance conducted during this phase of the operation needs to be keenly focused only on the medical requirements of the quarantine orders. The surveillance of citizens’ compliance with quarantine orders also needs to occur without unnecessarily intruding on their privacy. Establishing trust between quarantined citizens and the enforcement team, including the PPD, will be a crucial goal, as cooperation and transparency between quarantined citizens and the PPD may contribute to the success of such surveillance operations.

Surveillance of quarantined citizens can be conducted with the use of already existing technology. Telephones, video conferencing, geospatial technology, and ankle bracelets can be used to track people’s locations without members of the public health team having to be physically present in the same location. The use of cellular telephones, many of which include video conferencing functions, has made it particularly easy to communicate with people all over the world. During the 2003 SARS epidemics in Canada and China, for example, less than one percent of the quarantined citizens monitored by phone were found to be non-compliant.237 Computer software was utilized to call hundreds of people simultaneously under quarantine orders. If the person did not answer, then further investigation was conducted to determine the whereabouts and status of the quarantined person.

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Communication via telephone for quarantine enforcement surveillance may help to establish trust between the affected citizens and the designated caller. In a study conducted by Covello and his colleagues, four factors were found to be necessary to establish trust during crisis communications: “caring and empathy; dedication and commitment; competence and expertise; and honesty and openness.”238 Although the PPD has been tasked with enforcing quarantine orders, delegating some aspects of this effort may be beneficial for relevant stakeholders, as the presence of police officers during quarantine enforcement operations, even if limited to the telephone, may cause people to feel as if they have committed a crime or are being accused of doing so. The personnel performing quarantine surveillance over the telephone need not be members of the police department. Only after trust is established with affected citizens can other goals, such as maintaining quarantine compliance, be achieved.

The use of video conferencing can be a method to monitor quarantine enforcement compliance successfully, but drawbacks can occur. Video conferencing can be conducted via computer or cellular telephones and provides a method for quarantine compliance monitoring without the intrusion of allowing another person into the home. However, as in the case of telephones, using video conferencing to monitor compliance also requires establishing trust between the quarantined person and the members of the surveillance team. Just as quarantined citizens being monitored via telephone can become non-compliant with quarantine orders, people being monitored by video conferencing can leave their homes at other times of the day. If monitored citizens initially choose to be non-compliant, then the level of surveillance will need to be increased. Unnecessary intrusion by members of the public health team, especially the police department, can lead to an increased level of mistrust and non-compliance with quarantine orders.

Although ankle monitors can be used for the surveillance of quarantined citizens during a communicable disease event, the negative impacts of this method almost always

outweigh the advantages. Ankle monitors carry a stigma, as they have been used almost exclusively with people who have committed crimes and require supervision, usually people under house arrest, or on probation or parole.\(^{239}\) In a study conducted by the U.S. Department of Justice, 22 percent of respondents were found to have been fired from their jobs because they wore an ankle monitor.\(^{240}\) In addition, the poor quality of the global positioning system (GPS) tracking system or internet connection and dead batteries have contributed to decreased effectiveness of ankle monitors in California.\(^{241}\) The existing technical problems occurring with the use of ankle monitors, coupled with the stigma it may cause to at-risk populations, makes the implementation of this technology undesirable.

The PPD will play a role in the enforcement of quarantine orders by conducting physical surveillance of both compliant and non-compliant quarantined persons. In a city with a population of approximately 1.5 million people, this surveillance will be a daunting responsibility to undertake while also conducting traditional law enforcement duties.\(^{242}\) Non-law enforcement or non-governmental members of the public health team can be used to convince quarantined citizens to remain compliant. The surveillance of compliant people affected by quarantined orders can be accomplished through effective communication. As seen in the case studies involving the Canadian experience with SARS in 2003, providing the public with relevant information can positively affect quarantine compliance. Members of the public health team will be required to ensure quarantined people are maintaining compliance and it can be a time-consuming operation. If the quarantined person refuses to meet with non-governmental members of the public health response team, then their


actions should be interpreted as a clear signal of non-compliance and the PPD role should change accordingly. If the PPD is going to carry out the physical surveillance of quarantined people effectively, creativity and flexibility will be critical to its success.

4. Assessing the Needs of Quarantined Citizens

A patient needs assessment of citizens affected by quarantine orders will be necessary, as the resulting information may provide data that can be used to modify the quarantine enforcement plan to stop the spread of disease more effectively. The patient needs assessment should serve not only as a data collection document, but also as an opportunity for the quarantine enforcement team to use critical thinking skills that will allow the supervisory staff on team to make better policy decisions. As Albanese and Paturas explain, critical thinking can also be described as “reasoning skills” that policy makers can use to interpret and frame problems and develop conclusions to resolve complex issues often found during disaster response.243 The patient needs assessment conducted by the quarantine enforcement team will be used to record information that can be used to serve the quarantined citizen better and to adjust the quarantine enforcement plan, if needed.

The patient needs assessment should be seen not only as a way to collect data that can be used to modify enforcement operations, but also a means to gain compliance of the citizen being surveyed. Some citizens may choose to be non-compliant with quarantine orders for many reasons, and a patient needs assessment may be used to resolve these issues. If, for example, citizens were non-compliant because their utilities (gas, electric, water, cable, and/or internet) had been interrupted, a member of the quarantine enforcement team at the scene should be able to contact the appropriate provider and attempt to reinstate the service. Although contacting the local cable television company to improve customer satisfaction is not a traditional law enforcement role, it may be a way for affected citizens to maintain some connection to their community during a public health crisis and thus

enhance morale and maintain quarantine compliance. Addressing the needs of affected citizens could build community support for the quarantine enforcement plan.

The PPD also should use its resources and networking capabilities (in person or through technology) to serve at-risk populations, such as non-English speaking residents, the elderly, and homeless citizens to assess what they need to maintain compliance with quarantine orders. Completing a patient needs assessment for a single individual can provide information about why others are also non-compliant, as well as decrease the need for physical force to be used during enforcement operations.

C. TRANSPORTATION OF QUARANTINED CITIZENS

The PPD will be required to transport quarantined citizens safely while conducting quarantine enforcement operations. The IQP created by the PDPH delegates the responsibility to escort quarantined patients to the PPD.\textsuperscript{244} Although the IQP shifts this responsibility to the PPD, it provides no guidance on how it can be safely accomplished. The citizens’ physical condition, along with their willingness to comply with quarantine orders will need to be assessed prior to escorting them to an appropriate facility. Strategies to ensure the security and safe transport of quarantined citizens and the transporting officers are addressed in this chapter.

Although the PDPH has assigned the PPD the role of quarantine enforcement, it offers no guidance concerning the appropriate transportation of non-compliant quarantined citizens. Philadelphia Fire Department (PFD) personnel routinely transport sick and injured people via ambulance. Although this practice is expected to continue during a communicable disease event, the IQP provides no guidance concerning this issue. The ambulances used by the PFD frequently transport injured and sick Philadelphians to local hospitals, even if they have been placed under arrest.\textsuperscript{245} This practice should continue and the requirement should be communicated not only to the PFD, but also to the ambulance services of local hospitals and surrounding communities. PPD officers can escort

\textsuperscript{244} Philadelphia Department of Public Health, \textit{Isolation and Quarantine Plan}, 12.

ambulances containing quarantined patients to local hospitals using PPD vehicles, as well as defer this task to other local law enforcement agencies, if necessary.

Patients who are both in a non-infectious state and compliant with quarantine orders can be transported by PPD officers; however, the decision to use PPD vehicles for transportation should be communicated to the quarantined person prior to the event. Sharp and Johnson’s study about trust and local police identified at-risk communities as “seedbeds for distrust” of law enforcement. While the PPD needs to determine what type of police vehicle meets the operational needs of quarantine enforcement, this critical evaluation also needs to consider that the type of vehicle used can stigmatize the affected citizen and the community. Transportation of quarantined citizens in unmarked PPD vehicles can diminish the potential false appearance of citizens being placed under arrest and removed from their communities. Negative perceptions of law enforcement can destroy the spirit of cooperation required to carry out a quarantine enforcement plan successfully, particularly escort operations. The factors that will influence the escort of quarantined citizens by law enforcement need to be assessed during the planning stages and incorporate additional agencies that can also fulfill this role.

The escort of both compliant and non-compliant quarantined citizens will be dictated by the circumstances surrounding the encounter with the quarantine enforcement team and the citizens’ medical condition. Additionally, precautions will need to be taken when transporting citizens being arrested. Although it can be expected that most compliant citizens will accept transportation in an appropriate vehicle, the same cannot be expected of non-compliant citizens. Precautions should be taken to ensure that quarantined citizens are not injured during quarantine enforcement operations, including patient escorts. PPD budget availability along with a memorandum of understanding (MOU) should be evaluated to determine if some of the financial and operational responsibility can be shifted from the PPD. Sharing this increased responsibility can facilitate undisrupted law enforcement.

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enforcement operations by all affected agencies during a timeframe when the continuance of operations will be strained.

To make the transportation of quarantined citizens as non-confrontational as possible, prior contact with the citizens will be necessary. Prior communication with the affected citizens can be an opportunity to gain compliance or assuage any fears they may have. By informing the quarantined citizens about the rationale behind the actions that will be taken, PPD officers can give them adequate time to prepare for transportation. Taking these steps prior to the transportation of quarantined citizens can alleviate some of the stress and anxiety that may lead to further non-compliance and prevent possible hostile interactions with the police.

D. PLACING CITIZENS UNDER ARREST FOR QUARANTINE ORDER VIOLATIONS

Encouraging citizens to be compliant with quarantine orders should be one of the main goals to be achieved during a communicable disease event. However, not all citizens will be compliant and a plan for non-compliance needs to be created as well. Law enforcement organizations communicate with citizens and community organizations as a part of daily operations. These networking capabilities should be used to increase awareness of a disease event, transmit public health information to the public, and receive updated medical data from citizens for reciprocal reports to the public health department. Existing communication networks and the building of new alliances can be used to enforce quarantine, even amongst non-compliant citizens.

The enactment of quarantine orders may be necessary to stop the spread of disease, but a balance between maintaining individual rights and preserving the needs of the public must be met. The least restrictive means possible to enforce quarantine and serve quarantine related orders should be utilized. In the landmark case of Washington v. Milwaukee, the Supreme Court of Wisconsin weighed the risk of preserving an individual’s rights against the need to protect the community against the spread of infectious tuberculosis. The plaintiff in this case, Ruby Washington, had tested positive for infectious tuberculosis, was offered free medical care, and a non-punitive location was agreed upon
where she could serve her quarantine period. Despite these accommodations, Ruby Washington was determined to be non-compliant with this agreement. In finding for the City of Milwaukee, the courts determined the circumstances presented in the case would permit the arrest and forced quarantine to be the least restrictive means necessary.\footnote{City of Milwaukee v. Ruby Washington, 292 Wis.2d 258 ¶12 (Wis. 2007).} Affected citizens will still have due process rights and these orders must be carried out in the least restrictive manner to maintain the public health of the community. According to the non-profit organization, Trust for America’s Health, “nearly 9 out of 10 Americans say they would abide by a voluntary quarantine and stay home” and the 10 percent that indicated they would not comply indicated they were concerned they would lose their jobs or income.\footnote{Trust for America’s Health, \textit{Ready or Not? Protecting the Public’s Health from Diseases, Disasters, and Bioterrorism} (Washington, DC: Trust for America’s Health, 2007), 58, https://www.tfah.org/report-details/ready-or-not-2007/.} It is imperative for law enforcement to protect the delicate balance between the rights of citizens and the duty to protect the community while they enforce quarantine orders.

1. **Implications Surrounding the Arrest of Non-compliant Quarantined Citizens**

lawsuits. Despite constant monitoring and documentation of all PPD vehicle and pedestrian investigations, numerous allegations of misconduct have been made, as well as a number of related lawsuits filed.

Despite attempts to encourage citizens to maintain quarantine compliance, situations will inevitably arise that will require the PPD to arrest those who are not compliant with quarantine. The taking into custody of non-compliant quarantined citizens by the PPD must comply with the Fourth Amendment of the U.S. Constitution and all applicable state and city laws. To prevent an unreasonable search and seizure during a public health crisis, the courts have mandated that any actions taken be “reasonably related to the public health objective.” In case of the use of detention in public health matters, the courts have ruled that the examination and temporary detainment of individuals is permitted so long as it is not a punishment and it is necessary to stop the spread of disease. The suspension of civil rights and the policies dictating the proper methods of arrest cannot occur due to a communicable disease event where quarantine orders need to be enforced.

Law enforcement officers from the PPD have not been required to arrest individuals for non-compliance with quarantine orders in recent history. In cases when such action is required, the PDPH is responsible for obtaining an arrest warrant for communicable disease patients who have been non-compliant with quarantine orders. Once personnel from the PDPH have obtained the arrest warrant, law enforcement officers from the PPD can execute the warrant. While the PDPH does not provide guidance for how the PPD will place communicable disease patients who are non-compliant with quarantine under arrest,

252 Bailey et al. v. City of Philadelphia et al. (3rd Cir 2018).
past experience, training, and current policies can provide sufficient information to carry out this task.

2. The Use of Arrest and Search Warrants during Quarantine Enforcement

The utilization of arrest warrants needs to be addressed prior to the implementation of the quarantine plan. One of the goals listed by the PDPH in the IQP is for the PPD to “execute arrest warrants related to isolation and quarantine cases, as needed.”255 The PPD will be called upon to execute arrest warrants for non-compliant quarantined citizens. The IQP does not provide specific guidance for serving arrest warrants for non-compliant quarantined citizens. The IQP also does not address other issues pertaining to the issuance of arrest warrants, such as the need to serve search warrants as well.

Maintaining and documenting due diligence for possibly hundreds of people simultaneously will be a logistical obstacle that a quarantine enforcement plan must address. According to the PPD arrest warrant policy, sworn personnel will exercise due diligence when attempting to serve arrest warrants. Due diligence is described as “frequent and thorough attempts to apprehend a defendant named in an arrest warrant.”256 Arrest warrants in Pennsylvania have a 180-day limit. Failure to exercise and properly document due diligence results in the expiration of the arrest warrant; however, sworn PPD officers who obtain an arrest warrant and properly document due diligence are exempt from the 180-day rule. Nonetheless, if a communicable disease event lasts for several weeks or months, the number of non-compliant quarantined citizens will invariably rise.

The IQP will need to be adjusted to authorize PPD officers to execute and serve search warrants on non-compliant quarantined citizens if deemed to be necessary. Whereas the IQP authorizes the PPD to execute arrest warrants for quarantined citizens, the use of search warrants during quarantine enforcement will also pose unique challenges, as the IQP does not currently authorize officers to obtain and serve search warrants. The non-compliant citizens who are the subject of arrest warrants may not be present at their

255 Philadelphia Department of Public Health, Isolation and Quarantine Plan, 12.
256 Philadelphia Police Department, Arrest Warrants, 2.
residence during the execution of the arrest warrant. As mandated by the Supreme Court and directed by PPD regulations, sworn personnel who are executing arrest warrants on individuals located in residences other than their own will also be required to obtain a search warrant that authorizes them to enter the premises for the purpose of effectuating the arrest.257

The creation of a quarantine enforcement plan will need to incorporate the arrest and search warrant policies already in use. Another challenge related to search warrants concerns when they will be served. According to the pertinent directive, search warrants obtained by PPD officers are to be served between 6:00 a.m. and 10:00 p.m. Nighttime searches are permitted; however, the PPD officer applying for the search warrant must notate the exigent need to serve the search warrant during this timeframe on the warrant application.258 The same procedure will need to be followed if PPD officers are serving search and arrest warrants for citizens in violation of quarantine orders.

Additional issues could inhibit the use of search warrants during quarantine enforcement operations. As noted earlier, arrest warrants obtained by PPD officers can be utilized indefinitely if due diligence is maintained and documented during the process; however, search warrants obtained in Pennsylvania must be served within two days from the date of issuance.259 Although due diligence documentation for search warrants is not necessary under the directive, this practice should be adopted to satisfy future judicial expectations and expedite the process of reapplying for subsequent search warrants.

The utilization of search warrants along with arrest warrants when the targeted citizen is suspected of a crime occurs frequently during narcotics investigations. Once law enforcement has developed enough evidence reasonably to believe that narcotics are being stored or manufactured, search and arrest warrants are served at the most opportune time, i.e., when both the evidence and suspects can be taken into custody. In all likelihood, a

258 Philadelphia Police Department, Search Warrants, 7.
259 Philadelphia Police Department, 7.
most opportune time to arrest a quarantine non-compliant citizen will not exist. Whereas people manufacturing or storing illegal narcotics are closely linked to the location where the narcotics are, the non-compliant quarantine citizen has no such ties. Currently, all citizens wanted for violating a quarantine order would have to do to avoid arrest would be to stay in locations other than their residences and move periodically. If such actions are multiplied by the thousands of non-compliant people with quarantine orders, then the effective enforcement of quarantine orders by PPD is thus rendered virtually impossible. The inclusion of the use of search warrants in the IQP could improve this situation.

3. Maintaining the Security of Quarantined Citizens

Regardless of the law enforcement function being performed, police officers are responsible for the safety of the citizens in their custody. As such, police officers will be required to ensure the security of citizens during quarantine enforcement operations that result in an arrest. The methods needed to maintain the security of non-compliant citizens placed under arrest should resemble current PPD policy concerning the guarding of hospitalized prisoners. Under that policy, a prisoner is denied the ability to use the telephone and only immediate family members are permitted to have supervised visits.\(^\text{260}\) Although this PPD directive can provide guidance in the early stages of security operations involving a non-compliant quarantined patient taken into PPD custody, this policy will not be effective if the citizens need to spend an elongated time at the hospital. Under the current policy, PPD officers must guard hospitalized prisoners until they make bail or the charges are dropped. If the prisoners are not granted or cannot post bail, then responsibility for their custody shifts to the Philadelphia Prison System (PPS).\(^\text{261}\) Prisoners under medical care, though, are transported to jail only once they are discharged from the hospital. Adhering to this policy for weeks at a time could deplete PPD manpower and decrease operational capabilities.

\(^\text{261}\) Philadelphia Police Department, 7.
4. Use of Force Considerations during Quarantine Enforcement

The issues facing PPD officers attempting to enforce quarantine orders also include the appropriate amount of force that will be required to accomplish the task. PPD officers are guided by policies that dictate the appropriate amount of force to be used: according to PPD Directive 10.2, “Use of Moderate/Limited Force,” officers may only use the minimum amount of force needed to overcome the immediate threat or to place a person under arrest. The Use of Force Decision Chart in Directive 10.2 stresses that PPD officers will not use force if the subject is compliant with commands; however, they can progressively apply more force as the situation escalates. The rationale for using deadly force is described at the top of the chart depicted in Figure 2. According to PPD Directive 10.2, “deadly force is authorized when the officer has objectively reasonable belief that they must protect themselves or another person from the immediate threat of death or serious bodily injury.”

Figure 2. PPD Use of Force Decision Chart.264

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262 Philadelphia Police Department, Use of Moderate/Limited Force, 3.
263 Philadelphia Police Department, 5.
264 Source: Philadelphia Police Department, Use of Moderate/Limited Force, 4.
It can be expected that at least some non-compliant quarantine citizens will attempt to elude capture, and some may even use violence to avoid being placed under arrest; however, the enforcement of quarantine orders and the proper amount of force to be used by police officers during such encounters is not mentioned in any PPD directive. While the PPD has been assigned the task of enforcing quarantine orders, it would be a tragedy for both the department and the citizens of Philadelphia if such encounters turned deadly. Thus, it is critical that specific protocols be developed to guide the use of force in such situations. Quarantine policies must reflect the use of the least restrictive means necessary to maintain public safety while balancing the protected constitutional rights of the impacted citizens. In *Washington vs. Milwaukee*, the courts ruled that all reasonable attempts to gain compliance must be tried before a quarantine is imposed and the manner and place of quarantine must be the least restrictive necessary to accomplish the medical goal.\(^\text{265}\) This requirement must be considered when formulating and enacting quarantine orders upon the citizens of Philadelphia.

The next chapter of this thesis discusses recommendations to include the creation of a PPD policy designed to address quarantine enforcement specifically. These recommendations also include the identification of needed revisions to the existing IQP. Additionally, the importance of fostering and developing collaboration and communication amongst the organizations conducting quarantine order enforcement is also recommended. These recommendations represent an initial step towards better addressing the next communicable disease event in Philadelphia.

\(^{265}\) Wisconsin State Legislature, Wis. Stat. §252.07(1g)(a).
V. CONCLUSION

A. DISCUSSION

The PDPH has tasked the PPD to enforce quarantine orders if a communicable disease event occurs in the city. While the PDPH has delegated the enforcement task to the PPD, the IQP authored by the PDPH offers very little guidance concerning how enforcement of these orders will take place.

The recommendations presented in this thesis can contribute to the creation of an effective plan for law enforcement to enforce quarantine orders during a communicable disease event. The circumstances surrounding the onset of an epidemic will vary. However, it is imperative if police officers are delegated the enormous responsibility to enforce quarantine orders that a plan must be developed to include all the relevant stakeholders.

The literature presented in this thesis validates the use of quarantine to stop the spread of disease and law enforcement will play a role in its implementation. Besides taking on the task of enforcing quarantine orders, the PPD will still be required to carry out traditional law enforcement tasks. A quarantine enforcement plan developed for U.S. law enforcement will need to be carried out while police departments also continue to maintain operational readiness.

The issues of everyday life will not stop when quarantine enforcement becomes a reality; the recommendations provided in this thesis are a starting point to develop a plan to diminish the impact of communicable diseases on the citizens in U.S. communities. The recommendations presented can be used to formulate a quarantine plan that can be implemented by U.S. law enforcement in general, and the PPD, in particular.

B. RECOMMENDATIONS

- Recommendation #1—The PPD quarantine enforcement plan should be implemented using the least restrictive means necessary.

The PPD should create a quarantine plan that will provide affected citizens with a reasonable opportunity to comply with public health orders. In *Washington vs. Milwaukee*,
a four-step test was created to ensure a quarantine order gives the affected citizen a reasonable opportunity to comply before the order is enforced. Once all other feasible options are exhausted, the quarantined citizen should be taken into custody and taken to a local jail for treatment. A review of the case studies in this thesis concerning the use of forced quarantine show a markedly lower rate of success than that of policies that take into account the application of using the least restrictive means necessary. The PPD quarantine plan should incorporate a similar test to provide citizens a reasonable chance to comply without law enforcement involvement.

A challenge facing the PPD will concern how citizens are forcibly quarantined after they become non-compliant. While the PPD has existing policies concerning the use of force that may be used against citizens, no such instruction exists for the use of force police officers may use during quarantine enforcement operations. PPD use of force policies will need to be reviewed to address this unfortunate possibility.

Since quarantine enforcement has not been necessary in Philadelphia in over 100 years, training is needed for PPD officers to teach them how to enforce quarantine orders using the least restrictive means. In addition, both PPD officers and command staff should meet with members of the community to explain how quarantine orders will be carried out. The PPD currently has community outreach programs that can be used to provide this training for citizens and officers.

- Recommendation #2—Ancillary support of quarantined citizens can foster additional compliance.

To support compliance with quarantine orders further, procedures should be adopted to assist citizens with basic needs. The Canadian government took actions to assist with quarantine compliance by waiving unemployment benefit wait times, and delivering food, water, and other supplies to quarantined citizens. The literature review presented in this thesis indicates quarantined citizens are more likely to comply if their basic needs are met.

Logistical obstacles will be faced if basic necessities need to be delivered to affected quarantined citizens. Members of the public health care team, to include the PPD,
PDPH, PFD, volunteer citizens, and other stakeholders, will need to be trained to deliver these goods safely. Tabletop and live training opportunities are presented by the PDPH throughout the year; incorporating basic needs delivery methods into these exercises will allow the members of this public health team to find and resolve potential pitfalls before a communicable disease event occurs in Philadelphia.

The quarantine enforcement plan should include the assessment of the needs of those impacted and the delivery of basic necessities to them. This assessment by members of the public health team, including the PPD, can foster cooperation with the community during a stressful event.

- Recommendation #3—Providing the community with accurate and timely medical information can allay fears and promote quarantine compliance.

Once Canadian authorities determined a SARS outbreak had occurred, a medical emergency was declared. This medical emergency declaration informed the community about the disease and why citizens needed to self-quarantine. The research conducted for this thesis suggests that providing this information to affected citizens can decrease the stress and fear that will occur during an epidemic. During the 2003 SARS outbreak in the People’s Republic of China, in contrast, information was intentionally withheld from the public. While the government withheld information, Chinese citizens attempted to fill the information void by communicating at times inaccurate information about SARS to one another privately through texts and phone calls. This communication breakdown generated by government authorities further lead to distrust affecting Chinese citizens and played a role in increasing the length of the outbreak.

The release of both daily and time sensitive medical information to the public should occur via TV, radio, and the internet. This practice can help dispel rumors and incorrect information. The release of all incorrect medical information, as shared by Donald Trump during the 2014 Ebola outbreak, likely cannot be prevented. However, public health departments must continue to counterbalance this dissemination of incorrect information by being a trusted source that citizens can turn to during a communicable disease event. Sharing pertinent information about the public health emergency can ensure
the quarantine enforcement plan is carried out transparently and foster additional compliance.

The PPD and PDPH both maintain a strong social media presence in Philadelphia. Besides providing the community with accurate and timely medical information through traditional news media outlets, the PPD and PDPH should utilize their already existing social media accounts to provide this information. While the PDPH will continue to be the department to provide sound information concerning the disease outbreak, the PPD needs to be the lead agency for quarantine enforcement issues. These potential problems can be resolved by establishing clear interagency pathways between each agency’s public information departments.

- **Recommendation #4—Foster collaboration with the quarantine enforcement plan by addressing issues with citizens residing in at-risk communities.**

As discussed in Chapter IV, the PPD and citizens of at-risk communities have a long history of mutual distrust. Spanning as far back as the Columbia Avenue riots of 1964, many African-American Philadelphians have had a negative view of the PPD. The PPD should take this opportunity to collaborate with all relevant stakeholders, especially members of the African-American community, when developing a quarantine enforcement plan.

Collaboration between the PPD, other members of the public health care team, and citizens in the community should be developed to create a quarantine enforcement plan before a communicable disease event occurs. The PPD should ensure citizens are kept informed about these plans and reassured that the goal will be to use the least restrictive means necessary. Meetings can increase citizen engagement in this process. Additionally, this plan can be posted on the already existing PPD internet site and reviewed as the need arises.

To increase transparency of quarantine enforcement operations further, representatives from all the participating municipal organizations, to include the PDPH and PFD, along with the PPD, should maintain a presence at community meetings. Presenting
representatives from all the relevant agencies at these meetings can increase the legitimacy of quarantine enforcement operations by showing the public that a collective team effort working alongside citizens in the community can work together to maintain quarantine conditions safely during a crisis.

C. CONCLUSION

Quarantine is a method that has been successfully used in the past to stop the spread of communicable diseases. The enforcement of quarantine will cause people to be separated from family, friends, and co-workers, and this separation should not be taken lightly. The creation of a quarantine enforcement plan involving U.S. law enforcement can accomplish several goals. The plan can help protect citizens from getting sick, prevent unnecessary restriction of protected constitutional rights, and foster collaboration that can lead to the success of the plan. Addressing these needs prior to a communicable disease event, and not after it has begun, is vital to the success of the plan.
LIST OF REFERENCES


Mease, James. *The Picture of Philadelphia, Giving an Account of its Origin, Increase and Improvements in Arts, Sciences, Manufactures, Commerce and Revenue*. Philadelphia: Thomas Town, 1823. https://books.google.com/books?id=WSJMAAAAYAAJ&pg=PA136&lpg=PA136&dq=prevents+intercourse+between+vessels+and+the+shore,+and+preserves+order,+and+enforces+obedience+to+the+provision+of+the+health+law,+and+the+regulations+of+the+board&source=bl&ots=_rP-v8Bifb&sig=ACfU3U3U08TbLfnZ9TYPYmG5mYxOxQLYFuQw&hl=en&sa=X&ved=2ahUKEwjix-Xezu_mAhXhuKb8TAw4Q6AEwAHoECAkOQ#v=onepage&q=prevents%20intercourse%20between%20vessels%20and%20the%20shore%20C%20and%20preserves%20order%20C%20and%20enforces%20obedience%20to%20the%20provision%20of%20the%20health%20law%20C%20and%20the%20regulations%20of%20the%20board&f=false.


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