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Tears in Heaven: Religiously and Culturally Sensitive Laws for Preventing the Next Pandemic

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Tears in Heaven: Religiously and Culturally Sensitive Laws for Preventing the Next Pandemic

Cover Page Footnote

+ Professor of Law, Florida International University College of Law, J.D. University of Miami School of Law, 1990; Order of the Coif. I extend my deepest gratitude to law librarians Marisol Floren and Juan Jimenez, and my research assistants, Gabriel Glasser, Kendra New, and Maria Papasakelariou, for their superb research for this article. ++ Professor of Infectious Diseases, Herbert Wertheim College of Medicine Florida International University. I am thankful for the continuing support from NSF-AIR IIP-1237818 "PFI-AIR: CREST-I/UCRC-Industry Ecosystem to Pipeline Research" and The Public Health & Security Interface (HSI) of the Global Outbreak Alert and Response Network (GOARN) of the World Health Organization. +++Associate Dean for Diversity, Inclusion, and Public Impact & Professor of Law, Nova Southeastern University Shepard Broad College of Law, J.D. Georgetown University Law Center, 1983; LL.M., Georgetown University Law Center, 1986. I am also deeply grateful for the outstanding research assistance of Samantha Bowen, Erin Finlen, and William F. Mueller. I am also indebted for the exceptional library research skills of Senior Associate Director Becka Rich.

TEARS IN HEAVEN:
RELIGIOUSLY AND CULTURALLY SENSITIVE
LAWS FOR PREVENTING THE NEXT PANDEMIC

Eloisa C. Rodriguez-Dod⁺
Aileen Maria Marty, M.D.⁺⁺
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The title of this article is borrowed from the song *Tears in Heaven*. Eric Clapton & Will Jennings, *Tears in Heaven* (Warner Bros. 1991).

⁺ Professor of Law, Florida International University College of Law, J.D. University of Miami School of Law, 1990; Order of the Coif. I extend my deepest gratitude to law librarians Marisol Floren and Juan Jimenez, and my research assistants, Gabriel Glasser, Kendra New, and Maria Papasakelariou, for their superb research for this article.

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“After all, it really is all of humanity that is under threat during a pandemic.”¹

In February 2016, the World Health Organization (WHO) declared a “Public Health Emergency of International Concern” due to the increased clusters of microcephaly, Guillain-Barré Syndrome, and other neurological disorders in areas recently affected by the Zika virus.² That decision came only eighteen months after the WHO had declared the West Africa Ebola crisis a “Public Health Emergency of International Concern.”³ Back to back declarations by the WHO of the highest threat level for an international public health emergency underscore how quickly pathogens can now spread and cause devastation across borders.⁴ In addition, these outbreaks highlight the need to implement lessons learned from each pandemic crisis without delay.⁵

Most recently, the West Africa Ebola crisis demonstrates that laws to curtail the spread of deadly contagious diseases need to be drafted and implemented in ways to maximize community acceptance.⁶ Without prudently crafted laws in place that are as consistent as possible with community mores, threats from deadly diseases may cause anxiety and panic, and governments may react to political and public pressures by mandating rules that may unnecessarily impinge on personal rights and deeply held religious beliefs. Infringing upon ideological or religious beliefs could lead to increased distrust of government

1. Margaret Chan, *Media Centre: Influenza A(H1N1)*, WHO (Apr. 29, 2009), http://www.who.int/mediacentre/news/statements/2009/h1n1_20090429/en/.

2. *WHO Statement on the First Meeting of the International Health Regulations (2005) (IHR 2005) Emergency Committee on Zika Virus and Observed Increase in Neurological Disorders and Neonatal Malformations*, WHO (Feb. 1, 2016), <http://www.who.int/mediacentre/news/statements/2016/1st-emergency-committee-zika/en/>.

3. See *infra* Section II.C.1.

4. See Seth Berkley, *Zika and Ebola: A Taste of Things to Come?*, BBC (Feb. 26, 2016), <http://www.bbc.com/news/health-35614569> (“In the case of Ebola, what changed was its ability to spread.”); see also I. Glenn Cohen, *Traveling Patients, Traveling Disease: Ebola is Just the Tip of the Iceberg*, OUPBLOG (Dec. 14, 2014), <http://blog.oup.com/2014/12/ebola-travel-globalization-disease> (“Diseases have long traveled with patients, and as the phenomena of medical tourism and the more general globalization of health care grow, these problems are likely to grow as well.”); Aileen M. Marty, *Recognizing Ebola Is the Key to Prevention*, N.Y. TIMES (Oct. 2, 2014, 10:42 PM), <http://www.nytimes.com/roomfordebate/2014/10/02/how-to-stop-the-spread-of-ebola/recognizing-ebola-is-the-key-to-prevention> (“First and foremost, we must not forget, it is a small world we live in. The bacteria, viruses and other germs have already figured that out.”).

5. See Berkley, *supra* note 4; see also Cohen, *supra* note 4; see also Marty, *supra* note 4.

6. See Jonathan Paye-Layleh, *Cremation Ebola Beds in Liberia*, THE STATE (Oct. 25, 2014, 7:00 AM), <http://www.thestate.com/news/nation-world/world/article13903361.html> (noting Liberians had difficulty complying with an edict mandating the cremation of Ebola victims because cremation was at odds with their tradition of spending time with their deceased loved ones before burying them).

and civil disobedience and could also, paradoxically, undermine the goal of preventing the spread of infectious disease.

This Article focuses on a critical lesson from prior crises—the need for public health officials to accommodate religious and cultural practices of the community to effectively implement emergency measures for future pandemics.⁷ The need for proactive accommodation of cultural and religious practices when attempting to prevent the spread of infectious disease is made clear by an examination of certain recent infectious disease threats. Thus, Part I describes some of these existing and emerging threats, including Zika, Ebola, Influenza, and Middle East Respiratory Syndrome (MERS-CoV). Part II explores the role of governmental authorities in preventing the spread of contagious diseases during public health emergencies. It reviews constitutional, state, and international laws and regulations that may apply during infectious disease threats and examines how some laws attempting to contain the spread of infectious disease conflict with religious and cultural practices, particularly death rituals. It also addresses how religious and cultural practices should be accommodated in light of the lessons learned from the West Africa Ebola crisis and the Sin Nombre outbreak in the United States. Part III describes survivors' legal rights regarding human remains and the import of religious and cultural death rituals. Part IV sets forth a proposal, taking into account interdisciplinary approaches and ethical and policy considerations for such accommodations. Finally, the Article concludes with recommendations in hopes of triggering further discussion.

I. TRANSMISSION OF INFECTIOUS DISEASE

Microbes can cause outbreaks of infectious disease that may lead to public health emergencies.⁸ Microbes enter the body through the eyes, respiratory tract, gastrointestinal tract, urogenital tract, or skin.⁹ Some microbes can bore their

7. There is scholarship addressing the ethical concerns arising from government attempts to control infectious diseases. See, e.g., Polly J. Price, *Ebola and the Law in the United States: A Short Guide to Public Health Authority and Practical Limits*, EMORY LEGAL STUD. RES. PAPER NO. 14-299 1, 19-21 (Dec. 14, 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2538187 (noting that governments' attempts to control the spread of infectious disease can cause the unintentional ostracization of quarantined individuals, violate the privacy rights of people who do not consent to screenings for disease, and impinge on the right of doctors to refuse to treat people whom they fear may have a contagious disease).

8. See Michael G. Baker & Andrew M. Forsyth, *The New International Health Regulations: A Revolutionary Change in Global Health Security*, 120 J. N.Z. MED. ASS'N. 98, 99 (2007).

9. See VA Shanmuganathan et al., *External Ocular Infections Due to Methicillin-Resistant Staphylococcus Aureus (MRSA)*, 19 EYE 284, 284–85 (2005); see also Michael T. Osterholm & Craig W. Hedberg, *Epidemiologic Principles*, in GERALD L. MANDELL ET AL., MANDELL, DOUGLAS, AND BENNETT'S PRINCIPLES AND PRACTICE OF INFECTIOUS DISEASES 185, 187–89 (7th ed. 2010) (describing infections in the gastrointestinal system, infections spread through sexual intercourse, and infections that enter through the skin).

way into the body.¹⁰ Others can be injected via a bite¹¹ or by a mechanical device into the skin or simply drop into a deep penetrating wound or compound fracture.¹² They may be transmitted through sexual contact, close contamination of mucous membranes, bites from infected animals, and skin damaged by accidental or deliberate trauma, including injections.¹³

Microbes exist in humans, animals, plants, within other microorganisms, and throughout the Earth.¹⁴ Between species, microbes can be shared deliberately, directly, or indirectly.¹⁵ Carriers of microbes (vectors) can be plants, arthropods (e.g., mosquitos, ticks, mites, etc.), rodents, or other animals.¹⁶ A vector can even include a microorganism infected with a microbe that causes disease in humans.¹⁷ Microbes can also be conveyed within food, beverages, aerosols, respiratory droplets, body fluids, or fomites,¹⁸ including shrapnel and other deliberate ways of injecting microbes into people or animals.¹⁹

The more ease with which microbes spread from person to person (directly or via a vector), the more infectious they are.²⁰ Microbes transmitted by aerosols and vectors generally spread faster than those that require intimate contact.²¹ A microbe that can be spread by a vector or an aerosol might also be spread by

10. See, e.g., Wayne M. Meyers et al., *Ancylostomiasis*, in *PATHOLOGY OF INFECTIOUS DISEASES* 360–61 (2000).

11. Ronald C. Neafie et al., *Onchocerciasis*, in *PATHOLOGY OF INFECTIOUS DISEASES* 293–94 (2000).

12. Dominique Chauveaux, *Preventing Surgical-Site Infections: Measures Other than Antibiotics*, 101 *ORTHOPAEDICS & TRAUMATOLOGY: SURGERY & RES.* S77, S77 (2015).

13. See Khoi Do et al., *HIV Risks Among Injecting Drug Users in Vietnam: A Review of the Research Evidence*, 10 *CURRENT HIV RES.* 479, 479–80 (2012); see also Inger K. Damon, *Smallpox, Monkeypox, and Other Poxvirus Infections*, in *GOLDMAN-CECIL MEDICINE* 2215 (25th ed. 2016) (describing the spread of tanapox virus through “an insect or arthropod intermediary”).

14. MARTIN J. BLASER, *MISSING MICROBES: HOW THE OVERUSE OF ANTIBIOTICS IS FUELING OUR MODERN PLAGUES* 12–14 (2014).

15. Osterholm & Hedberg, *supra* note 9, at 186.

16. Cf. Selwyn Arlington Headley et al., *Neorickettsia Helminthoeca and Salmon Poisoning Disease: A Review*, 187 *VETERINARY J.* 165, 165–67 (2011) (showing examples of living vectors by following a bacterium’s numerous hosts, which include snails, salmon, fish-eating birds, dogs, and bears).

17. Elena V. Orlova, *How Viruses Infect Bacteria?*, 28 *EMBO J.* 797, 797 (2009).

18. Damon, *supra* note 13, at 2215–16.

19. See, e.g., Robert Carija et al., *Surgical Removal of Metallic Foreign Body (Shrapnel) from the Lumbosacral Spine and the Treatment of Chronic Osteomyelitis: A Case Report*, 63 *W. INDIAN MED. J.* 373, 374–75 (2014) (stating shrapnel should be removed from a wound if possible to aver the risk of a staphylococcus infection).

20. Osterholm & Hedberg, *supra* note 9, at 186.

21. See Kousuke Hanada et al., *A Large Variation in the Rates of Synonymous Substitution for RNA Viruses and Its Relationship to a Diversity of Viral Infection and Transmission Modes*, 21 *MOLECULAR BIOLOGY & EVOLUTION* 1074, 1079 (2004) (showing a chart indicating that viruses spread more quickly and replicate more frequently when spread among hosts via aerosols than via blood).

intimate contact or other means.²² Although infectiousness is a key concern, another important concern is the type of harm (i.e., long-term consequences or death) the microbe can inflict on a majority of those it infects.²³

For example, Zika virus has been documented to spread by mosquitos, by people during sexual contact, and by pregnant mothers to their children.²⁴ In addition, aspects of Zika virus, coupled with studies of similar viruses, such as West Nile virus, have led the U.S. Food and Drug Administration to issue guidelines to avert transmission of Zika through blood transfusions.²⁵ The effects of a Zika infection may be devastating. A mother infected with Zika may suffer a miscarriage or give birth to a child with microcephaly, a serious neurological condition.²⁶ Zika can also cause Guillain-Barré Syndrome, a neurological disease that leads to potentially fatal paralysis.²⁷

Other emerging threats, such as MERS-CoV, SARS-CoV, and influenza, are transmissible by aerosol and can spread rapidly from person to person.²⁸ How these viruses enter the respiratory tract, including which cells become infected, leads to differences in the degree to which they are contagious. This is true even among different species, types, strains, and clads of the same virus. For

22. See, e.g., Damon, *supra* note 13, at 2215 (noting that, although smallpox normally entered the human body through inhalation, smallpox could be spread through the scabs of infected individuals).

23. Osterholm & Hedberg, *supra* note 9, at 186 (indicating that another concern for epidemiologists is “[t]he gradient of infection . . . [which] is the range of manifestations of illness in the host resulting from infection with an agent [that] extends from death at one extreme to inapparent or subclinical illness at the other”).

24. *Pregnancy Management In the Context of Zika Virus Infection*, WHO, 1 (May 13, 2016), http://apps.who.int/iris/bitstream/10665/204520/1/WHO_ZIKV_MOC_16.2_eng.pdf?ua=1 (noting “there is increasing evidence that maternal-fetal transmission of Zika virus can occur throughout pregnancy”); *Prevention of Sexual Transmission of Zika Virus*, WHO, 1 (June 7, 2016), http://apps.who.int/iris/bitstream/10665/204421/1/WHO_ZIKV_MOC_16.1_eng.pdf?ua=1 (noting the sexual transmission of Zika virus through the semen of symptomatic males); *Risk Communication in the Context of Zika Virus*, WHO, 2 (Mar. 1, 2016), http://apps.who.int/iris/bitstream/10665/204513/1/WHO_ZIKV_RCCE_16.1_eng.pdf (noting Zika virus is spread by a mosquito that also transmits dengue and chikungunya).

25. E.g., *Recommendations for Donor Screening, Deferral, and Product Management to Reduce the Risk of Transfusion-Transmission of Zika Virus: Guidance for Industry*, FDA, 1–17 (Feb. 2016), <http://www.fda.gov/downloads/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Guidances/Blood/UCM486360.pdf>.

26. Donald G. McNeil, Jr., *W.H.O. Advises Pregnant Women to Avoid Areas Where Zika Is Spreading*, N.Y. TIMES (Mar. 8, 2016), http://www.nytimes.com/2016/03/09/health/zika-virus-pregnant-women-travel.html?_r=0.

27. See generally Van-Mai Cao-Lormeau et al., *Guillain-Barré Syndrome Outbreak Associated with Zika Virus Infection in French Polynesia: A Case-Control Study*, 387 LANCET 1531 (2016), <http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2816%2900562-6/fulltext>.

28. W.H. Seto, *Airborne Transmission and Precautions: Facts and Myths*, 89 J. HOSP INFECTION 225, 225–26 (2015); Rachael M. Jones & Lisa M. Brosseau, *Aerosol Transmission of Infectious Disease*, 57 J. OCCUPATIONAL & ENVTL. MED. 504–05 (2015).

example, the 2004 H5N1 (avian influenza) was a very deadly flu virus, but not very contagious; by contrast, the 2009-H1N1 influenza virus was less dangerous, but more contagious.²⁹ Most coronaviruses cause the common cold in humans.³⁰ However, two recently recognized coronaviruses—SARS-CoV and MERS-CoV—are causing a growing concern.³¹ These two coronaviruses have devastating effects because they produce very severe lung disease “with alarmingly high case fatality rates.”³²

The scientific community understands how pathogens enter bodies, can be highly contagious, and can sometimes cause great morbidity and mortality.³³ However, the world is filled with microbes, each with its own unique aspects, any of which may be altered at any time (by environmental, human, or other action) to become pathogenic to humans. Thus, the scientific community cannot know which pathogens will constitute the next contagious, deadly, or catastrophic outbreak or which modes of transmission will present the greatest risk.³⁴ Moreover, certain religious customs and cultural practices may hinder

29. Tjandra Y. Aditama et al., *Avian Influenza H5N1 Transmission in Households, Indonesia*, 7 PLOS ONE e29971, e29971 (2012); B. Bett et al., *Transmission Rate and Reproductive Number of the H5N1 Highly Pathogenic Avian Influenza Virus During the December 2005–July 2008 Epidemic in Nigeria*, 61 TRANSBOUNDARY & EMERGING DISEASES 60, 67 (2014); Sanhong Liu et al., *On Avian Influenza Epidemic Models with Time Delay*, 134 THEORY BIOSCI. 75, 75 (2015).

30. See Stephen B. Greenberg, *Rhinovirus and Coronavirus Infections*, 28 SEMINARS IN RESPIRATORY & CRITICAL CARE MED. 182, 184 (2007).

31. Rahul Vijay & Stanley Perlman, *Middle East Respiratory Syndrome and Severe Acute Respiratory Syndrome*, 16 CURRENT OP. IN VIROLOGY 70, 70 (2016).

32. *Id.*

33. Bess B. Ward, *How Many Species of Prokaryotes Are There?* 99 PROCEEDINGS OF THE NAT'L ACAD. OF SCI. 10234, 10234 (2002), <http://www.pnas.org/content/99/16/10234.full>; Carl Zimmer, *An Infinity of Viruses*, NAT'L GEOGRAPHIC (Feb. 20, 2013), <http://phenomena.nationalgeographic.com/2013/02/20/an-infinity-of-viruses/>.

34. See Hans Heesterbeek et al., *Modeling Infectious Disease Dynamics in the Complex Landscape of Global Health*, 347 SCI. 1216, aaa4339-1 (2015). Catastrophic infectious diseases are those which impact large numbers of people—some directly, some indirectly—leading to large numbers of critically ill people, mass numbers of worried-well, and overwhelmed public and private health care systems. They can produce social and economic havoc the consequences of which may continue long after the epidemic subsides. The more rapidly an infection spreads, the more people who are infected by any given single source, and the more devastating the effects of the disease in terms of the nature of the illness and the likelihood of death, the greater and more serious the threat and the more critical the need for appropriate governmental action.

Any number of currently recognized and unrecognized pathogens can, under specific circumstances, get out of control and become catastrophic outbreaks. The recent West Africa Ebola outbreak, although massive and catastrophic to the three countries that bore the brunt of the attack, could have been far worse had a public health emergency of international concern not been declared and the disease been allowed to spread widely throughout the world. During the West Africa outbreak, only ten patients were treated in the United States; of these cases, only four manifested in the United States, two were patients exposed in Africa, two were exposed to an infected case, and six persons were transported back from West Africa for treatment in the United States. These minimal numbers of cases nearly overwhelmed the U.S. health system. This underscores the

identifying the next emerging threat and containing a spread. For example, religious practices may prohibit certain scientific tests—such as autopsies—that could be helpful in diagnosing emerging pathogens.³⁵ Thus, laws to prevent the spread of the next pandemic must be medically sound and, from the lessons learned from prior outbreaks, should also accommodate religious and cultural practices.

II. PROACTIVE ACCOMMODATION OF RELIGIOUS AND CULTURAL PRACTICES TO PREVENT SPREAD OF INFECTIOUS DISEASE

With the ease of global movement, every country in the world is vulnerable to severe infectious diseases that emerge, or reemerge, in any part of the world.³⁶ What role do governmental authorities have in preventing the spread of deadly contagious diseases during public health emergencies? In light of the global nature of the threat of the spread of infectious disease,³⁷ containment requires putting legal frameworks in place at all of the following levels: international, national, state, tribal, territorial, and local. This framework needs to include governmental authorities, as well as private actors—both profit and non-profit.³⁸

A. International Framework

Clearly, international cooperation and coordination is vital to prevent a global disease crisis. A framework exists for such cooperation. In a dramatic example of worldwide cooperation, each of the WHO's 194 member states are bound by the revised International Health Regulations (IHR), which became effective in 2007.³⁹

concern that not only the number of infected persons, but also the lack of sufficient resources, can cause an infectious outbreak to become catastrophic. *See generally* *Statement on the 1st Meeting of the IHR Emergency Committee on the 2014 Ebola Outbreak in West Africa*, WHO (Aug. 8, 2014), <http://who.int/mediacentre/news/statements/2014/ebola-20140808/en/>.

35. *See* Jane E. Ritty, *Religious Attitudes to Death and Post-Mortem Examinations*, in *THE HOSPITAL AUTOPSY: A MANUAL OF FUNDAMENTAL AUTOPSY PRACTICE* 39–57 (3d ed. 2010) (discussing multiple religious attitudes towards death and autopsies).

36. Zika virus, first discovered in Uganda in 1947, was “considered mild compared to its killer cousins: yellow fever, dengue, West Nile and Japanese encephalitis” because there was no evidence that it had ever caused anyone to be hospitalized until 2013. Donald G. McNeil, Jr. et al., *How a Medical Mystery in Brazil Led Doctors to Zika*, N.Y. TIMES (Feb. 6, 2016), http://www.nytimes.com/2016/02/07/health/zika-virus-brazil-how-it-spread-explained.html?_r=0.

37. Berkley, *supra* note 4; Cohen, *supra* note 4; Marty, *supra* note 4.

38. *See, e.g.*, Berkley, *supra* note 4 (“[G]overnments, public funders and private donors need to share the costs, and they need to do so now, rather than waiting until the next epidemic.”).

39. *See* WORLD HEALTH ORGANIZATION, INTERNATIONAL HEALTH REGULATIONS (2d ed. 2005) [hereinafter IHR]. Initially adopted in 1969, the IHR originally covered six “quarantinable diseases,” later reduced to only three. *Id.* at 1. In 1995, “[i]n consideration of the growth in international travel and trade, and the emergence or re-emergence of international disease threats and other public health risks,” there was a call for substantial revision of the IHR. *Id.* Ten years later, in 2005, the substantially revised IHR were adopted, and entered into force on June 15, 2007.

Id. The IHR were strengthened to reflect lessons learned from the 2003 Severe Acute Respiratory Syndrome (SARS) epidemic. *Id.* at 3; see also James G. Hodge, Jr., *Global Legal Triage in Response to the 2009 H1N1 Outbreak*, 11 MINN. J.L. SCI. & TECH. 599, 610 (2010). Unlike the 1969 IHR, the revised IHR are “not limited to any specific disease or manner of transmission, but” rather cover any “illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans” IHR, *supra* note 39, at 1. The United States accepted the revised IHR, subject to the following reservation and understandings:

The Government of the United States of America reserves the right to assume obligations under these Regulations in a manner consistent with its fundamental principles of federalism. With respect to obligations concerning the development, strengthening, and maintenance of the core capacity requirements set forth in Annex 1, these Regulations shall be implemented by the Federal Government or the state governments, as appropriate and in accordance with our Constitution, to the extent that the implementation of these obligations comes under the legal jurisdiction of the Federal Government. To the extent that such obligations come under the legal jurisdiction of the state governments, the Federal Government shall bring such obligations with a favorable recommendation to the notice of the appropriate state authorities.

The Mission, by means of this note, also submits three understandings on behalf of the Government of the United States of America. The first understanding relates to the application of the IHRs to incidents involving natural, accidental or deliberate release of chemical, biological or radiological materials:

In view of the definitions of “disease,” “event,” and “public health emergency of international concern” as set forth in Article 1 of these Regulations, the notification requirements of Articles 6 and 7, and the decision instrument and guidelines set forth in Annex 2, the United States understands that States Parties to these Regulations have assumed an obligation to notify to WHO potential public health emergencies of international concern, irrespective of origin or source, whether they involve the natural, accidental or deliberate release of biological, chemical or radionuclear materials.

The second understanding relates to the application of Article 9 of the IHRs:

Article 9 of these Regulations obligates a State Party “as far as practicable” to notify the World Health Organization (WHO) of evidence received by that State of a public health risk occurring outside of its territory that may result in the international spread of disease. Among other notifications that could prove to be impractical under this article, it is the United States’ understanding that any notification that would undermine the ability of the U.S. Armed Forces to operate effectively in pursuit of U.S. national security interests would not be considered practical for purposes of this Article.

The third understanding relates to the question of whether the IHRs create judicially enforceable private rights. Based on its delegation’s participation in the negotiations of the IHRs, the Government of the United States of America does not believe that the IHRs were intended to create judicially enforceable private rights:

The United States understands that the provisions of the Regulations do not create judicially enforceable private rights.

Id. at 60–61. Professor Polly J. Price notes that “[t]he Ebola outbreak also led to unprecedented action by the U.N. Security Council.” Price, *supra* note 7, at 5. She further states that a U.N. Security Council resolution on Ebola control measures was sponsored by 130 nations, “the highest level of support for any Security Council resolution in the history of the U.N.” *Id.* This resolution “called on member nations to lift travel and border restrictions in the Ebola-affected region of West Africa, and to step up their response to the disease, which . . . was a ‘threat to international peace and security.’” *Id.*

The IHR is a legally binding agreement that provides a “framework for the coordination of the management of events that may constitute a public health emergency of international concern”⁴⁰ The IHR defines a public health emergency as “an extraordinary event which is determined, as provided in [the IHR]: (i) to constitute a public health risk to other States through the international spread of disease and (ii) to potentially require a coordinated international response”⁴¹ The goal of the IHR is to “improve the capacity of all countries to detect, assess, notify and respond to public health threats.”⁴² The scope of the IHR is “to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.”⁴³

Important provisions in the IHR include requiring each State to: designate a national focal point accessible at all times for communications with the WHO; meet minimum core capacities to detect, assess, report, and respond to public health events; support disease detection and control at designated ports and borders; develop a framework for notifying the WHO within twenty-four hours of an event that may constitute a public health emergency of international concern as defined by the IHR; take evidence-based actions sensitive to impact on trade, travel, and human rights; and perform self-assessments and report to the WHO.⁴⁴

Part IV of the IHR provides that the WHO may issue certain “standing” and “temporary” recommendations to prevent or reduce the international spread of disease and minimize interference with international traffic.⁴⁵ For specific on-

40. *Resilience of Tourism Development: International Health Regulations*, UN WORLD TOURISM ORG., <http://rcm.unwto.org/risk-crisis-management/international-health-regulations> (last visited Sept. 13, 2016) [hereinafter *Resilience of Tourism Development*]. In order for the IHR to gain acceptance by the WHO member states, the framework developed as a consensus that balanced state sovereignty with the commitment to contain the global spread of infectious disease. *Frequently Asked Questions About the International Health Regulations (2005)*, WHO, 3, <http://www.who.int/ihr/about/FAQ2009.pdf> (last visited Sept. 13, 2016). The international regulations lack enforcement mechanisms. *Id.* at 1.

41. IHR, *supra* note 39, at 9.

42. *Resilience of Tourism Development*, *supra* note 40.

43. IHR, *supra* note 39, at 10.

44. See generally *Frequently Asked Questions About the International Health Regulations (2005)*, *supra* note 40. An individual State cannot declare a public health emergency of international concern; only the WHO Director can do that. Rather, a State is to notify the WHO if it believes that there exists a public health emergency of international concern. Article 12 of the IHR expressly states: “The Director-General shall determine, on the basis of the information received, in particular from the State Party within whose territory an event is occurring, whether an event constitutes a public health emergency of international concern in accordance with the criteria and the procedure set out in these Regulations.” IHR, *supra* note 39, at 14.

45. *Frequently Asked Questions About the International Health Regulations (2005)*, *supra* note 40, at 2.

going public health risks, Article 16 provides that the “WHO may make standing recommendations [regarding] appropriate health measures . . . for routine or periodic application.”⁴⁶ With regard to specific instances of a public health emergency of international concern, Article 15 provides that the WHO may issue temporary recommendations on a time-limited, risk-specific basis.⁴⁷

Notwithstanding the legally binding nature of the IHR on the WHO member states, implementation of these regulations depends on the legal framework of the individual states.⁴⁸ Accordingly, each State should review and assess their respective existing legal framework to determine compliance and ensure implementation.⁴⁹

B. U.S. Framework

In the United States, there is broad and overlapping authority among the federal, state, tribal, territorial, and local governments to prevent the spread of infectious disease. This interrelated system has generated conflicting regulatory requirements.⁵⁰

46. IHR, *supra* note 39, at 16.

47. *Id.*

48. *International Health Regulations (2005): A Brief Introduction to Implementation in National Legislation*, WHO, 5 (Jan. 2009), http://www.who.int/ihr/Intro_legislative_implementation.pdf [hereinafter *A Brief Introduction to Implementation in National Legislation*]. In addition to the IHR, it is worth noting that there are also various other international agreements dealing specifically with handling, disposition and transportation of human remains, including contagious human remains, such as (1) Council of Europe, Agreement on The Transfer Of Corpses, signed at Strasbourg, October 26th, 1973; (2) Pan American World Health Organization, XVII Pan American Sanitary Conference, XVIII Regional Committee Meeting, Resolution XXIX, adopted in Washington, October 7th, 1966, International Transportation Of Human Remains; and (3) International Arrangements Concerning the Conveyance of Corpses, signed at Berlin, February 10, 1937. These agreements and arrangements are similar to the U.S. regulations in that they require proof of the death, proof that the person did not die of a communicable disease, and appropriate preparation and shipment of the remains. For countries where these agreements are not in force, the standards set forth in these agreements have become common practice to combat the spread of disease. 7 U.S. DEP’T OF STATE, FOREIGN AFFAIRS MANUAL § 252 (2012), <https://fam.state.gov/fam/07fam/07fam0250.html> [hereinafter FOREIGN AFFAIRS MANUAL].

49. See *A Brief Introduction to Implementation in National Legislation*, *supra* note 48, at 5.

50. Lance Gable & Benjamin Mason Meier, *Complementarity in Public Health Systems: Using Redundancy As A Tool of Public Health Governance*, 22 ANNALS HEALTH L. 224, 224–26 (2013).

These competing claims have resulted in predictable confusion about the proper role for federal, state, and local governments in preparing for a public health emergency. This was most striking after Hurricane Katrina, when local, state, and federal preparedness and response efforts were heavily criticized as government entities battled uncertainties about jurisdictional authority and took turns blaming one another for shortcomings.

Benjamin E. Berkman et. al., *Assessing the Impact of Federal Law on Public Health Preparedness*, 4 ST. LOUIS U. J. HEALTH L. & POL’Y 155, 176 (2010).

“The public health authority of the states derives from the police powers granted by their constitutions and reserved to them by the Tenth Amendment to the U.S. Constitution.”⁵¹ The federal government’s authority in this area is based on the Commerce Clause, the Necessary and Proper Clause, and the General Welfare Clause under Article 1 of the U.S. Constitution.⁵² There has been some critique that the federal government’s role has intruded on individual state’s police powers.⁵³ Conversely, there have been calls for increased federalism because of the concern that variation among the state laws could hinder effective management of a public health crisis.⁵⁴ As a practical matter, because of funding from the federal government and also because of various federal laws and regulations, it is clear in the United States that the federal and state governments are critical actors involved in preventing the spread of infectious disease.⁵⁵

There are numerous federal codes, regulations, and guidelines dealing with the spread of infectious diseases,⁵⁶ particularly sections 264–65 of Title 42 of the U.S. Code⁵⁷ and Title 42, Part 70 of the Code of Federal Regulations.⁵⁸ The federal government exercises much of its authority for protecting the public from infectious disease through, among others, the Department of Homeland Security (DHS) and the Department of Health and Human Services (DHHS), including the U.S. Public Health Service (PHS) and the Centers for Disease Control and Prevention (CDC).⁵⁹ For example, in addition to federal authority to prevent

51. JARED P. COLE, CONG. RES. SERV., RL33201, FEDERAL AND STATE QUARANTINE AND ISOLATION AUTHORITY (2014), <https://fas.org/sgp/crs/homsec/RL33201.pdf>.

52. U.S. CONST. art. I, § 8, cl. 1, 3, 18.

53. Berkman et al., *supra* note 50, at 157.

54. *See, e.g.*, Gable & Meier, *supra* note 50, at 225.

55. *See* Berkley, *supra* note 4.

56. *See, e.g.*, Berkman et al., *supra* note 50, at 158 (“The last decade has been marked by increasing federalization of public health preparedness and response—an area that was traditionally handled almost exclusively at the state and local level.”); *see generally Selected Federal Legal Authorities Pertinent to Public Health Emergencies*, CDC, 7–10, <http://www.cdc.gov/phlp/docs/ph-emergencies.pdf> (last updated Aug. 2014) (listing various statutes, regulations, and executive orders governing the control of communicable diseases in the United States).

57. 42 U.S.C. §§ 264–65 (2012).

58. 42 C.F.R. pt. 70 (2015).

59. The U.S. Department of Homeland Security is responsible for two national laboratories dedicated to research on infectious diseases. The National Bio and Agro-Defense Facility focuses on zoonotic and animal diseases. *National Bio and Agro-Defense Facility*, U.S. DEP’T HOMELAND SEC., <https://www.dhs.gov/science-and-technology/national-bio-and-agro-defense-facility> (last visited Sept. 13, 2016). The National Biodefense Analysis and Countermeasures Center focuses on infections that have bioweapon potential. *See National Biodefense Analysis and Countermeasures Center*, U.S. DEP’T HOMELAND SEC., <http://www.dhs.gov/science-and-technology/national-biodefense-analysis-and-countermeasures-center> (last visited Sept. 13, 2016); *see also Disaster Mortuary Operational Response Teams (DMORTs)*, PUB. HEALTH EMERGENCY, <http://www.phe.gov/preparedness/responders/ndms/teams/pages/dmort.aspx> (last updated Sept. 25, 2015).

communicable diseases entering the United States through borders or points of entry,

[w]henver the Director of the Centers for Disease Control and Prevention determines that the measures taken by health authorities of any State or possession (including political subdivisions thereof) are insufficient to prevent the spread of any of the communicable diseases from such State or possession to any other State or possession, he/she may take such measures to prevent such spread of the diseases as he/she deems reasonably necessary⁶⁰

These rules regulating the spread of disease cannot, however, run afoul of the U.S. Constitution.⁶¹

The First Amendment of the U.S. Constitution guarantees the free exercise of religion.⁶² In addition, the Restoration of Freedom of Religion Act of 1993 (RFRA) provides certain religious exemptions from federal laws for religious beliefs.⁶³ Many states have their own version of RFRA or other laws, including religious freedom provisions in their state constitutions.⁶⁴ All of these religious rights must be analyzed in light of the state's interest in protecting the public from deadly infectious diseases. Generally, the government needs a compelling reason for burdening a person's exercise of religion and must prove there is not a less restrictive alternative that would carry out the government's interest.⁶⁵

In a New Jersey case, where the State tried to control the spread of tuberculosis ("TB"), a prisoner challenged a mandated TB test—the Mantoux test—arguing that it infringed on his Christian Science beliefs which violated the RFRA.⁶⁶ The Mantoux test required a subcutaneous injection, which the prisoner claimed violated the tenets of his faith forbidding "intrusive,

60. 42 C.F.R. § 70.2 (2015).

61. See generally *Marbury v. Madison*, 5 U.S. (1 Cranch) 137, 180 (1803) (stating "that a law repugnant to the Constitution is void").

62. "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof" U.S. CONST. amend. I.

63. 42 U.S.C. § 2000bb-1 (2012).

64. See Eugene Volokh, *Religious Law (Especially Islamic Law) in American Courts*, 66 OKLA. L. REV. 431, 441 (2014).

65. Christopher C. Lund, *Religious Liberty After Gonzales: A Look at State RFRA's*, 55 S.D. L. REV. 466, 478 (2010) ("Though all of the sixteen state RFRA's adopt a compelling-interest test, they differ in what they require as a threshold—that is, they differ in what a plaintiff must initially show in order to trigger the government's obligation to demonstrate a compelling interest.")

66. *Karolis v. New Jersey Dep't of Corr.*, 935 F. Supp. 523, 524 (D.N.J. 1996). In *Karolis*, the prisoner also claimed that requiring the Mantoux test violated his free exercise rights under the First Amendment. The court held that:

While free exercise claims brought by prison inmates under RFRA are subject to the strict compelling interest test, free exercise claims brought outside RFRA are subject only to a "reasonableness" test . . . [i]f the State meets the RFRA standards in requiring the Mantoux test, then it clearly meets the "reasonably related" standard.

Id. at 530 (citations omitted).

procedures.”⁶⁷ The District Court of New Jersey agreed that the prisoner had demonstrated a substantial burden on his free exercise of religion.⁶⁸ However, the court noted that the State had “a compelling state interest in preventing the spread of TB in its prisons by detection at the earliest possible opportunity.”⁶⁹ The court recognized that “TB is a highly contagious disease that is likely to have devastating and far-reaching effects, unless the infection is held in check by an aggressive tracking program.”⁷⁰ Notwithstanding the State’s compelling interest, the prisoner argued that he should not be forced to submit to the Mantoux test because there were other medically approved, less restrictive methods for TB testing, such as annual x-rays or periodic sputum samples.⁷¹ The court was not persuaded that these alternatives, which only detected active TB, would satisfy the government’s interest in also detecting latent TB infections, which would be diagnosed by the Mantoux test.⁷² Accordingly, the court concluded that, although the prisoner’s religious beliefs were substantially burdened by the administration of the Mantoux test, the State had a compelling interest in preventing the spread of TB and the Mantoux test was the least restrictive means of doing so.⁷³ Thus, the State’s required Mantoux test was enforceable despite religious objections.

Preventing the spread of highly infectious disease would almost invariably be a compelling interest.⁷⁴ In the 1905 case of *Jacobson v. Massachusetts*,⁷⁵ involving a smallpox vaccination, the U.S. Supreme Court recognized that a state may use its police power to enact “health laws of every description” to “protect the public health and public safety.”⁷⁶ The *Jacobson* Court stressed that the government regulation was designed to “suppress the evils of a smallpox epidemic that imperilled an entire population.”⁷⁷ In a subsequent case, *Prince*

67. *Id.* at 526.

68. *Id.* at 527.

69. *Id.* at 528.

70. *Id.* at 530.

71. *Id.* at 528.

72. *Id.*

73. *Id.* at 531.

74. See Elizabeth B. Cooper, *Social Risk and the Transformation of Public Health Law: Lessons from the Plague Years*, 86 IOWA L. REV. 869, 946 (2001).

The legal evidence suggests that the relationship between religious freedom and public health is multidimensional. Frequently, whether religious freedom is subordinate to considerations of public health is a matter which concerns the rights of others who are not directly party to the claims of religious liberty. In other words, the relationship involves the right of the individual to religious liberty and, in relation to others, their right to health.

Heather Payne & Norman Doe, *Public Health and the Limits of Religious Freedom*, 19 EMORY INT’L L. REV. 539, 554 (2005); see also *Karolis*, 935 F. Supp. at 527–28.

75. 197 U.S. 11 (1905) (internal quotation marks omitted).

76. *Id.* at 25.

77. *Id.* at 30–31.

v. Massachusetts,⁷⁸ the Supreme Court stated that “[t]he right to practice religion freely does not include liberty to expose the community . . . to communicable disease”⁷⁹

Government-imposed restrictions during a pandemic may infringe upon religious practices. An individual may challenge those restrictions, asserting the Free Exercise Clause or the federal or state RFRA. In light of *Jacobson, Prince*, and other authorities, such a challenge would almost invariably be unsuccessful because of a state’s compelling interest in curtailing the spread of contagious diseases.⁸⁰ Thus, a court is unlikely to mandate the government accommodate a religious practice during a public health emergency.

Could a state voluntarily accommodate religious concerns even if not mandated to do so? The Supreme Court has sanctioned voluntary religious accommodations, as long as they comply with the limits of the Establishment Clause.⁸¹ In his treatise on religion and American law, the eminent Professor Boris I. Bittker noted that such discretionary accommodations “can be employed prospectively by governments to ‘avoid conflicts between [the] secular and religious activities’ of their citizens . . . or [they] can be instituted responsively to eliminate or lessen a conflict that is presently occurring.”⁸² Thus, voluntary accommodations are unlikely to be restricted by the Establishment Clause.

C. *Religious and Cultural Practices and Accommodations*

Voluntary accommodations to government-mandated restrictions on religious and cultural practices may be beneficial in garnering community support during a public health emergency. There are several examples where voluntary accommodations to government mandates restricting religious and cultural practices during a public health crisis helped or could have helped contain the spread of infectious disease. A recent example dealt with religious death rituals of victims during the West Africa Ebola crisis.⁸³ Another example occurred in the United States when Navajo cultural practices regarding the dead delayed attempts to identify and contain the Sin Nombre virus.⁸⁴

78. 321 U.S. 158 (1944).

79. *Id.* at 166–67.

80. This assumes the least restrictive alternative is used. *See Jacobson*, 197 U.S. at 38 (“So far as [a State’s actions] can be reached by any government, they depend, primarily, upon such action as the State in its wisdom may take; and we do not perceive that this legislation has invaded any right secured by the Federal Constitution.”).

81. BORIS I. BITTKER ET AL., *RELIGION AND THE STATE IN AMERICAN LAW* 276–77 (2015).

82. *Id.*

83. *See* Carrie F. Nielsen et al., *Improving Burial Practices and Cemetery Management During an Ebola Virus Disease Epidemic – Sierra Leon, 2014*, 64 *MORBIDITY & MORTALITY WKLY. REP.* 20, 20 (2015), <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a6.htm>.

84. *See Tracking A Mystery Disease: The Detailed Story of Hantavirus Pulmonary System (HPS)*, CDC, <http://www.cdc.gov/hantavirus/hps/history.html> (last updated Aug. 29, 2012).

Before turning to the critical review of the lessons learned during the West Africa Ebola public health crisis, it is important to discuss generally how infections are transmitted from cadavers. Dead bodies can and do transmit infections to humans.⁸⁵ Knowledge that cadavers can be deadly precedes our awareness of germ theory by thousands of years.⁸⁶ The earliest evidence of the recognition that dead bodies spread disease is reflected in ancient Greek accounts of purposely dropping cadavers into water supplies of their adversaries.⁸⁷ Medieval armies also catapulted cadavers into enemy fortresses.⁸⁸ These communities recognized not only that the bodies themselves could be dangerous, but that clothing and materials from the deceased could be contagious as well.⁸⁹

85. See Navin Paul & Mini E. Jacob, *An Outbreak of Cadaver-Acquired Chickenpox in a Health Care Setting*, 43 CLINICAL INFECTIOUS DISEASES 599, 599 (2006). Fortunately, other than at a funeral service or a scene of an accident, many people in the United States rarely encounter a dead body.

86. *Compare Germ Theory*, ENCYCLOPAEDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/230610/germ-theory> (last visited Sept. 13, 2016) (discussing European scientists' development of germ theory and surgical practices in the Nineteenth century), with Daniel J. Dire, *CBRNE—Biological Warfare Agents*, MEDSCAPE, <http://emedicine.medscape.com/article/829613-overview> (last updated Mar. 23, 2016) (illustrating how ancient civilizations utilized microorganisms in biological warfare against adversaries).

87. Dire, *supra* note 86.

88. James W. Martin et al., *History of Biological Weapons: From Poisoned Darts to Intentional Epidemics*, in MEDICAL ASPECTS OF BIOLOGICAL WARFARE 2 (Zygmunt F. Dembek ed., 2007).

89. See, e.g., Russell Hopley, *Contagion in Islamic Lands: Responses from Medieval Andalusia and North Africa*, 10 J. EARLY MOD. CULTURAL STUD. 45, 55 (2010); cf. Dire, *supra* note 86 (noting that Scythian archers “infected their arrows by dipping them in decomposing bodies” as a warfare tactic).

Ibn al-Khatib, a polymath historian who served as vizier at the Nasrid court in Granada, seems particularly eager to dispel any disavowal of contagion. He makes the following argument in his treatise: If one asks “How can you admit the assertion, there is infection, when the revealed word (ash-shar) denies this?” we answer that infection exists, is confirmed by experience, research, insight and observation, and through constantly recurring accounts. These are the elements of proof. For him who has treated or recognized this case, it cannot remain concealed that mostly the man who has had contact with a patient infected with this disease must die, and that, on the other hand, the man who has had no contact remains healthy. So it is with the appearance of the illness in a house or quarter because of a garment or a vessel. Even an earring can destroy him who puts it in his ear, and all the inhabitants of his house.

Id. (alteration in original); see also *Ebola (Ebola Virus Disease): Q&As on Transmission*, CDC, <http://www.cdc.gov/vhf/ebola/transmission/qas.html> (last updated Nov. 24, 2015) (“Ebola on dry surfaces, such as doorknobs and countertops, can survive for several hours; however, virus in bodily fluids (such as blood) can survive up to several days at room temperature.”).

When a death occurs from a contagious infectious disease, the pathogens on the cadaver can pose a public health threat.⁹⁰ The risk of infection is heightened when religious practices call for close contact with the corpse, such as when religious leaders and family members lay hands on the dead.⁹¹ Moreover, certain occupations regularly put workers in contact with contagious cadavers. These higher risk occupations include medical practitioners (most notably pathologists, other physicians, and nurses), forensic scientists, mortuary attendants and embalmers, funeral directors, cleaning staff at hospitals or treatment centers, emergency services personnel, human anatomy professors and students, transplant surgeons and staff, archaeologists, and construction workers.⁹² The work of these occupationally at-risk individuals can be affected, and potentially made more hazardous, by the religious beliefs of the families of the deceased or the religious beliefs and practices of the workers themselves.⁹³

Deaths from infectious diseases are different from other mass casualties not involving infectious agents. Although both scenarios are tragic, the concerns regarding the spread of disease from human remains in the two are very different. In most natural non-infectious catastrophes (for example, hurricanes, floods, and earthquakes), cadavers pose only a limited health threat because most of the common commensal organisms on the body die quickly as the

90. See Janelle A. Anderson et al., *Confirming Mycobacterium Tuberculosis Transmission from a Cadaver to an Embalmer Using Molecular Epidemiology*, 43 AM. J. INFECTION CONTROL 543, 543–45 (2015) (discussing the public health aspects of tuberculosis pathogens among funeral workers).

91. Religions: *Pentecostalism*, BBC, http://www.bbc.co.uk/religion/religions/christianity/subdivisions/pentecostal_1.shtml (last updated July 2, 2009); see also Nielsen et al., *supra* note 83, at 20.

92. There is data that indicates that DNA can survive up to \approx 1 million years in cold environments. Eske Willerslev & Alan Cooper, *Ancient DNA*, 272 PROCEEDINGS BIOLOGICAL SCI. 3, 3 (2005). Also, there is ample historical data indicating that historical relics can transmit deadly diseases. Andrea M. McCollum et al., *Poxvirus Viability and Signatures in Historical Relics*, 20 EMERGING INFECTIOUS DISEASES 177, 178, 182 (2014). Anthropologists unearthing dead bodies may encounter victims from infections, some of which can survive for thousands of years. See Katherine Haddon, *Burial Site Unearthed at City of London Financial District*, BUS. WORLD (Mar. 26, 2015), <http://www.bworldonline.com/content.php?section=Opinion&title=burial-site-unearthed-at-city-of-london-financial-district&id=105062> (construction workers unearthed victims of the Great Plague as identified by anthropologists who were called to the site); see also Christopher S. Kovacs, Jr. et al., *Selecting Suitable Solid Organ Transplant Donors: Reducing the Risk of Donor-Transmitted Infections*, 4 WORLD J. TRANSPLANT. 43, 44–47 (2014) (noting that transplant patients have a higher risk of bacterial infections); see also Anderson et al., *supra* note 90, at 543–44 (highlighting that funeral employees and embalmers were susceptible to the risk of infection). Similarly, veterinarians, hunters, and others who deal directly with animals can also be affected by handling animal carcasses, particularly from those that carry zoonotic diseases, such as Ebola or Anthrax.

93. Nielsen et al., *supra* note 83, at 26.

internal temperature drops and the body desiccates.⁹⁴ Moreover, research reveals that, generally, cadavers from natural disasters are no more likely to spread disease than cadavers from deaths in everyday life.⁹⁵ By contrast, the risk of infection from cadavers becomes very high when there is a natural or deliberate outbreak of an infectious disease.⁹⁶ Cadavers become serious public health threats when the deaths resulted from highly lethal contagious pathogens, particularly pathogens resistant to environmental alterations or those that are found in very high concentrations. The greatest risk of all is from lethal pathogens where cadavers contain high levels of contagious pathogen on the surface.⁹⁷

Ebola, and its close relative Marburg, are both perfect examples of highly contagious pathogens that exist in high concentrations on the surface of cadavers— both human and animal.⁹⁸ “Ebola virus is transmitted principally by direct physical contact with an infected person or their body fluids during the later stages of illness or after death.”⁹⁹

Beyond Ebola, many of the pathogens that cause rashes, such as chickenpox, have active pathogens in the rash. The body of someone who dies with a contagious rash is highly dangerous and can cause infection even among those persons wearing basic infection-control equipment.¹⁰⁰ Similarly, there is also a high risk if someone dies from an infection that releases a high concentration of contagious bodily fluid, for example, someone who dies of cholera and is covered with diarrheal fluids.¹⁰¹ In addition, when a person dies from an infectious disease, the cadaver may have fleas, lice,¹⁰² or other vectors that could transfer to a living person in close proximity to the cadaver, bite that person, and transmit the deadly infection.

94. Claude de Ville de Goyet, *Stop Propagating Disaster Myths*, 356 LANCET 762, 762 (2000).

95. Sarah Tomkins, *Priam's Lament: The Intersection of Law and Morality in the Right to Burial and Its Need for Recognition in Post-Katrina New Orleans*, 12 U. D. C. L. REV. 93, 106–07 (2009).

96. Deliberate outbreaks may occur from bioterrorism, biowarfare, or biocrimes. See Martin et al., *supra* note 88, at 15.

97. See Nielsen et al., *supra* note 83, at 26 (noting that improper burial practices “might have contributed to ongoing Ebola virus transmissions”).

98. See *id.* at 20; *Marburg Outbreak Prompts CDC to Update Guidance*, 11 No. 12 OSHA GUIDE FOR HEALTH CARE FACILITIES NEWSL. 3 (July 2015) (“[T]he risk of person-to-person transmission of viral hemorrhagic fever (VHF) [Marburg] is greatest during the latter stages of the illness when viral loads are highest.”).

99. See Nielsen et al., *supra* note 83, at 20.

100. Paul & Jacob, *supra* note 85, at 599–601.

101. See *Cholera (Vibrio cholera infection)*, CDC, <http://www.cdc.gov/cholera/general> (last updated Nov. 6, 2014).

102. Pierre-Edouard Fournier et al., *Human Pathogens in Body and Head Lice*, 8 EMERGING INFECTIOUS DISEASES 1515, 1515–17 (2002).

Even in cases where the body does not have surface pathogens or vectors, the body must be handled with extreme care if the person had a serious contagious infection at death. Handling a dead body often causes the release of fluids and air from the lungs, such that even cadavers that do not have high concentrations of pathogens on the skin can release deadly pathogens in sufficient quantity to spread disease if the body is not handled carefully.¹⁰³

Multiple studies demonstrate that certain pathogens, such as the bacterium that causes tuberculosis, survive in and on the body, and even survive the process of embalming the body—in fact, pathogens can stay viable and infectious for over a month after the embalming.¹⁰⁴ This long viability period extends far beyond the time when most families have claimed the body for services, which can include open caskets that carry the risk of potential transmission from contact with the cadaver during the funeral.¹⁰⁵ The following table lists some of the infectious diseases that are known to be transferrable from cadavers.

Table 1: Examples of Contagious Pathogens Transmitted from Dead Bodies to Living Persons

INFECTIOUS AGENT	DISEASE	WHEN DEADLY— CAUSE OF DEATH (MOST COMMON)
Prions ¹⁰⁶	Transmissible spongiform encephalopathy	Rapidly progressive dementia
Ebola ¹⁰⁷	Ebola virus disease	Hemorrhagic fever
Marburg ¹⁰⁸	Marburg virus disease	Hemorrhagic fever

103. Janine C. Correia et al., *Assessing the survival of Mycobacterium tuberculosis in unembalmed and embalmed human remains*, 27 *CLINICAL ANATOMY* 304, 304 (2014).

104. *Id.* at 304, 307. Multiple studies reveal that even bodies that have been embalmed can transmit many different pathogens. See Deniz Demiryürek et al., *Infective Agents In Fixed Human Cadavers: A Brief Review And Suggested Guidelines*, 269 *ANATOMICAL REC.* 194, 194–95 (2002).

105. See Demiryürek et al., *supra* note 104, at 194–95; see also Tanya D. Marsh, *Rethinking the Law of the Dead*, 48 *WAKE FOREST L. REV.* 1327, 1336 (2013).

106. Nicholas J. Hardin, *Infection at Autopsy: A Guide for Pathologists and Autopsy Personnel*, 6 *CURRENT DIAGNOSTIC PATHOLOGY* 75, 75, 77 (2000) (recommending medical professionals wipe down autopsy tables with sodium hydroxide to protect themselves from spongiform encephalopathy transmitted by prions).

107. Peter B. Jahrling et al., *Viral Hemorrhagic Fevers*, in *MEDICAL ASPECTS OF BIOLOGICAL WARFARE* 272–73 (Zygmunt F. Dembek, ed., 2007); Peter H. Kilmarx et al., *Ebola Virus Disease in Health Care Workers – Sierra Leone 2014*, 63 *MORBIDITY & MORTALITY WKLY. REP.* 1168, 1169–70 (2014).

108. P. Gedigk et al., *Die Pathologische Anatomie Der „Marburg-Virus“ Krankheit [The Pathological Anatomy of the Marburg Virus Disease]*, 52 *VERHANDLUNGEN DER DEUTSCHEN*

Hepatitis A ¹⁰⁹	Hepatitis	Liver failure
Hepatitis B Virus ¹¹⁰	Hepatitis	Liver failure
Hepatitis C Virus ¹¹¹	Hepatitis	Liver failure
HIV ¹¹²	AIDS	Total immune failure
Nipah virus ¹¹³	Nipah encephalitis	Encephalitis
Varicella-zoster virus ¹¹⁴	Chickenpox	Pneumonia/Encephalitis (uncommon)
Variola sp. ¹¹⁵	Smallpox	Multiorgan failure
Yellow Fever virus ¹¹⁶	Yellow Fever	Liver failure
Lyssavirus Rabies virus ¹¹⁷	Rabies	Neurologic failure
Poliovirus ¹¹⁸	Polio	Paralysis of respiratory muscles

GESELLSCHAFT TOR PATHOLOGIE [CONFERENCES ON THE GERMAN PATHOLOGY SOCIETY] 317, 320 (1968).

109. JM Conly & BL Johnston, *Natural Disasters, Corpses, and the Risk of Infectious Diseases*, 16 CAN. J. OF INFECTIOUS DISEASES AND MED. MICROBIOLOGY 269, 269 (2005); *Viral Hepatitis – Hepatitis A Information: Hepatitis A Questions and Answers for the Public*, CDC, <http://www.cdc.gov/hepatitis/hav/afaq.htm> (last visited Aug. 30, 2016).

110. Kent A. Sepkowitz, *Occupationally Acquired Infections in Health Care Workers, Part II*, 126 ANNALS OF INTERNAL MED. 917, 918–19 (1996); D. Wong, *Infection Hazards of Human Cadavers*, WONG’S VIROLOGY ONLINE, <http://virology-online.com/general/Safety11.htm>; *Know Hepatitis B – Know Hepatitis B Questions and Answers*, CDC, <http://www.cdc.gov/know/hepatitisb/faqs.htm> (last updated June 19, 2013).

111. Mouna Lazrek et al., *Detection of Hepatitis C Virus Antibodies and RNA Among Medicolegal Autopsy Cases in Northern France*, 55 DIAGNOSTIC MICROBIOLOGY INFECTIOUS DISEASES 55, 55–56 (2006); *Viral Hepatitis – Hepatitis C Information: Hepatitis C FAQs for the Public*, CDC, <http://www.cdc.gov/hepatitis/hcv/cfaq.htm> (last updated May 23, 2016).

112. Mahlon D. Johnson et al., *Autopsy Risk and Acquisition of Human Immunodeficiency Virus Infection: A Case Report and Reappraisal*, 121 ARCHIVES OF PATHOLOGY & LABORATORY MED. 64, 64–65 (1997).

113. Hossain M.S. Sazzad et al., *Nipah Virus Infection Outbreak with Nosocomial and Corpse-to-Human Transmission, Bangladesh*, 19 EMERGING INFECTIOUS DISEASES 210, 210, 213–14 (2013).

114. Paul & Jacob, *supra* note 85, at 599–600.

115. T.D. Healing et al., *The Infection Hazards of Human Cadavers*, 5 COMMUNICABLE DISEASE REP. REV. R61, R61–R62, R64 (1995); Oliver Morgan, *Infectious Disease Risks from Dead Bodies Following Natural Disasters*, 15 PAN. AM. J. PUB. HEALTH 307, 308–09 (2004).

116. Healing et al., *supra* note 115, at R61–R62; Wong, *supra* note 110; *Yellow Fever*, CDC, <https://cdc.gov/yellowfever/index.html> (last updated July 12, 2016).

117. *See* Wong, *supra* note 110; *see also Rabies*, CDC, <http://www.cdc.gov/rabies/index.html> (last updated Apr. 18, 2016).

118. *See* Healing et al., *supra* note 115, at R61–R62; *see also Global Health – Polio: What is Polio?*, CDC, <https://www.cdc.gov/polio/about/> (last updated Oct. 15, 2014).

Morbillivirus measles ¹¹⁹	Measles	Pneumonia
Rubulavirus mumps ¹²⁰	Mumps	Viral meningitis
Rotavirus ¹²¹	Rotavirus diarrhea	Dehydration
Venezuelan equine encephalitis virus ¹²²	Venezuelan equine encephalitis (VEE)	Encephalitis
<i>Mycobacterium tuberculosis</i> ¹²³	Tuberculosis	Respiratory failure
<i>Shigella</i> ¹²⁴	Shigellosis (bacillary dysentery)	Dehydration
<i>Salmonella</i> ¹²⁵	Typhoid or Paratyphoid fever	Dehydration
<i>Escherichia coli</i> ¹²⁶	Diarrhea, can be hemorrhagic	Dehydration
<i>Campylobacter enteritis</i> ¹²⁷	Traveler's diarrhea or food poisoning	Dehydration

119. See Healing et al., *supra* note 115, at R61-R62; see also Measles (Rubeola): *Complications of Measles*, CDC, <http://www.cdc.gov/measles/about/complications.html> (last updated Feb. 17, 2015).

120. See Healing et al., *supra* note 115, at R61–R62; see also Mumps: *For Healthcare Providers*, CDC, <http://www.cdc.gov/mumps/hcp.html> (last updated Aug. 11, 2016).

121. See Morgan, *supra* note 115, at 307–08; see also CDC Features: *Prevent Rotavirus*, CDC, <http://www.cdc.gov/features/rotavirus/> (last updated Nov. 17, 2015).

122. Ellen Jo Baron & J. Michael Miller, *Bacterial and Fungal Infections Among Diagnostic Laboratory Workers: Evaluating the Risks*, 60 DIAGNOSTIC MICROBIOLOGY & INFECTIOUS DISEASE 241, 242 (2008); *Eastern Equine Encephalitis: Symptoms & Treatment*, CDC, <http://www.cdc.gov/easternequineencephalitis/tech/symptoms.html> (last updated Apr. 5, 2016).

123. See SS Bakhshi, *Code of Practice for Funeral Workers: Managing Infection Risk and Body Bagging*, 4 COMMUNICABLE DISEASE & PUB. HEALTH 283, 283–84 (2001); see also Timothy J. Kappel et al., *The Viability of Mycobacterium Tuberculosis in Formalin-Fixed Pulmonary Autopsy Tissue: Review of the Literature and Brief Report*, 27 HUMAN PATHOLOGY 1361, 1361 (1996); see also Kurt Nolte, *Survival of Mycobacterium Tuberculosis Organisms for 8 Days in Fresh Lung Tissue from an Exhumed Body*, 36 HUMAN PATHOLOGY 915, 915–16 (2005).

124. See Baron & Miller, *supra* note 122, at 242–44; see also Susan S. Davidson & William Benjamin, Jr., *Risk of Infection and Tracking of Work-Related Infectious Diseases in the Funeral Industry*, 34 AM. J. OF INFECTION CONTROL 655, 655–56 (2006).

125. See Christopher M. Parry et al., *Typhoid Fever*, 347 NEW ENGL. J. MED. 1770, 1774 (2002); see also David L. Sewell, *Laboratory Acquired Infections*, 22 CLINICAL MICROBIOLOGY NEWSLETTER 73, 73–74 (2000).

126. See Sepkowitz, *supra* note 110, at 922; see also *E. Coli Enteritis*, MEDLINEPLUS, <https://medlineplus.gov/ency/article/000296.htm> (last updated Aug. 23, 2016).

127. Morgan, *supra* note 115, at 308; *Campylobacter Infection*, MedlinePlus, <https://medlineplus.gov/ency/article/000224.htm> (last updated Aug. 23, 2016).

<i>Vibrio cholerae</i> ¹²⁸	Cholera	Dehydration
<i>Yersinia pestis</i> ¹²⁹	Plague	Gram Negative Shock
<i>Bacillus anthracis</i> ¹³⁰	Anthrax	Pneumonia/Sepsis
<i>Rickettsia prowazekii</i> ¹³¹	Epidemic typhus	Neurologic failure
<i>Rickettsia typhi</i> ¹³²	Endemic typhus	Neurologic failure
<i>Francisella tularensis</i> ¹³³	Tularemia	Pulmonary tularemia
<i>Neisseria meningitidis</i> ¹³⁴	Meningococcal disease	Neurologic failure/Sepsis
<i>Leptospira sp.</i> ¹³⁵	Leptospirosis	Multi-organ failure/ hemodynamic collapse
<i>Chlamydophila psittaci</i> ¹³⁶	Psittacosis	Pneumonia/Meningitis/E ncephalitis
<i>Corynebacterium diphtheriae</i> ¹³⁷	Diphtheria	Toxin induced damage to brain, heart, and throat (cannot breathe)

128. Healing et al., *supra* note 115, at R62-R63; Media Centre: *Cholera*, WHO, <http://www.who.int/mediacentre/factsheets/fs107/en/> (last updated July 2015).

129. Érika de Cássia Vieira da Costa et al., *Seroprevalence of Hantavirus and Yersinia Pestis Antibodies in Professionals from the Plague Control Program*, 46 REVISTA DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL 490, 490–91 (2013).

130. See Healing et al., *supra* note 115, at R62–R64.

131. See Robert M. Pike, *Laboratory-Associated Infections: Summary and Analysis of 3921 Cases*, 13 HEALTH LAB. SCI. 105, 108–09 (1976).

132. See *id.*

133. See Baron & Miller, *supra* note 122, at 242; see also WHO Guidelines on Tularemia, WHO 9 (2007), <http://www.cdc.gov/tularemia/resources/whotularemiamanual.pdf>.

134. See Healing et al., *supra* note 115, at R62, R64; see also *Epidemiology and Prevention of Vaccine-Preventable Diseases: Meningococcal Disease*, CDC, <http://www.cdc.gov/vaccines/pubs/pinkbook/mening.html> (last updated July 24, 2015).

135. See Healing et al., *supra* note 115, at R62; see also Anne Spichler et al., *Using Death Certificates Reports to Find Severe Leptospirosis Cases, Brazil*, 13 EMERGING INFECTIOUS DISEASES 1559, 1559–60 (2007).

136. See Baron & Miller, *supra* note 122, at 242; see also *Compendium of Measures To Control Chlamydia Psittaci Infection Among Humans (Psittacosis) and Pet Birds (Avian Chlamydiosis)*, 1998, 47 MORBIDITY & MORTALITY WKLY. REP. 1, 1–3 (1998).

137. See Healing et al., *supra* note 115, at R62; see also *Diphtheria*, CDC, <https://www.cdc.gov/diphtheria/> (last updated Jan. 15, 2016).

<i>Borrelia recurrentis</i> ¹³⁸	Relapsing fever	Neurologic Failure/hepatic failure/myocarditis/ Bronchopneumonia
<i>Bordetella pertussis</i> ¹³⁹	Whooping cough	Pneumonia/encephalopathy/seizures
<i>Clostridium tetani</i> ¹⁴⁰	Tetanus	Neurologic over-activity
<i>Coxiella burnetii</i> ¹⁴¹	Q fever	Pneumonia/Hepatitis/ Meningitis
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) ¹⁴²	MRSA	Pneumonia/Sepsis
<i>Streptococcus pyogenes</i> ¹⁴³	Streptococcal sore throat, Scarlet fever, Impetigo, etc.	Pneumonia/Sepsis/ Necrotizing fasciitis/Toxic Shock syndrome, etc.
<i>Mycobacterium leprae</i> ¹⁴⁴	Leprosy	Progressive debilitation
<i>Brucella</i> ¹⁴⁵	Brucellosis	Sepsis
<i>Aspergillus species</i> ¹⁴⁶	Aspergillosis	Fungal Pneumonia

138. See Healing et al., *supra* note 115, at R61–R62; see also *Relapsing Fever*, N.Y. TIMES, <http://www.nytimes.com/health/guides/disease/relapsing-fever/overview.html> (last reviewed Nov. 10, 2012).

139. See Healing et al., *supra* note 115, at R62; see also *Pertussis (Whooping Cough)*, CDC, <https://www.cdc.gov/pertussis/> (last updated Jan. 26, 2016).

140. See Healing et al., *supra* note 115, at R62; see also *Tetanus – the Disease*, WHO, <http://www.who.int/immunization/topics/tetanus/en/index1.html> (last visited Sept. 15, 2016).

141. See Baron & Miller, *supra* note 122, at 241–42; see also *Q Fever – California, Georgia, Pennsylvania, and Tennessee, 2000-2001*, 51 MORBIDITY & MORTALITY WKLY. REP. 924, 924 (2002).

142. See Davidson & Benjamin, Jr., *supra* note 124, at 655–56; see also *Invasive Staphylococcus Aureus Infections Associated with Pain Injections and Reuse of Single-Dose Vials – Arizona and Delaware, 2012*, 61 MORBIDITY & MORTALITY WKLY. REP. 501, 501–02 (2012).

143. See Davidson & Benjamin, Jr., *supra* note 124, at 655–56; see also Theresa L. Lamagni et al., *Predictors of Death after Severe Streptococcus Pyogenes Infection*, 15 EMERGING INFECTIOUS DISEASES 1304, 1304 (2009).

144. See Healing et al., *supra* note 115, at R62; see also Didier Pin et al., *Mycobacterium Species Related to M. Leprae and M. Lepromatosis from Cows with Bovine Nodular Theilitis*, 20 EMERGING INFECTIOUS DISEASES 2111, 2111, 2114 (2014).

145. See Bakhshi, *supra* note 123, at 283–84; see also Baron & Miller, *supra* note 122, at 241–42; see also Sewell, *supra* note 125, at 73–74.

146. See Kovacs, Jr. et al., *supra* note 92, at 49 (indicating that fungal infections of Aspergillosis have been documented when transferring organs between the critically ill donor and recipient); see also *Aspergillosis Overview*, N.Y. TIMES, <http://www.nytimes.com/health/guides/disease/aspergillosis/overview.html?print=1> (last visited Sept. 15, 2016).

<i>Histoplasma capsulatum</i> ¹⁴⁷	Histoplasmosis	Fungal Pneumonia
<i>Coccidioides sp.</i> ¹⁴⁸	Coccidioidomycosis	Fungal Pneumonia
<i>Blastomyces dermatitidis</i> ¹⁴⁹	Blastomycosis	ARDS (Acute Respiratory Distress Syndrome)
<i>Plasmodium falciparum</i> ¹⁵⁰	Malaria	Cerebral Malaria, anemia/hemodynamic failure, or renal failure
<i>Entamoeba histolytica</i> ¹⁵¹	Amebic dysentery	Dehydration or Intestinal obstruction

From a scientific and safety perspective, anyone handling the cadaver of a person who died from an infectious disease should use appropriate personal protective equipment (PPE), be well trained in the procedure of using PPE, and use work space precautions such as ultraviolet germicidal irradiation.¹⁵² These ideal scientific practices, however, are often in direct conflict with religious beliefs and potentially violate moral values and cultural customs.

1. Lesson Learned: West Africa Ebola Crisis

The post-mortem handling of Ebola patients played a major role in a significant increase in the number of Ebola infections in the West Africa outbreak.¹⁵³ These additional Ebola infections were primarily attributed to family and community members performing certain religious rites over the

147. See Sewell, *supra* note 125, at 75; see also Sanjay G. Revanker & Jack D. Sobel, *Histoplasmosis*, MERCK MANUALS, <http://www.merckmanuals.com/professional/infectious-diseases/fungi/histoplasmosis> (last modified Jan. 2014).

148. See Sewell, *supra* note 125, at 75; see also *Fungal Pneumonia: A Silent Epidemic Coccidioidomycosis (Valley Fever)*, CDC, 2 (Dec. 2012), <http://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf>.

149. See Sewell, *supra* note 125, at 75; see also Jason J. Emer & Joel B. Spear, *Primary Cutaneous Blastomycosis as a Cause of Acute Respiratory Distress Syndrome*, 2 J. CLINICAL & AESTHETIC DERMATOLOGY 22, 22 (2009).

150. *DPDx – Laboratory Identification of Parasitic Diseases of Public Health Concern: Malaria*, CDC, <http://www.cdc.gov/dpdx/malaria/> (last updated Nov. 29, 2013).

151. *DPDx - Laboratory Identification of Parasitic Diseases of Public Health Concern: Amebiasis*, CDC, <http://www.cdc.gov/dpdx/amebiasis/index.html> (last updated Nov. 29, 2013).

152. Chetan Jinadatha et al., *Disinfecting Personal Protective Equipment with Pulsed Xenon Ultraviolet as a Risk Mitigation Strategy for Health Care Workers*, 43 AM. J. INFECTION CONTROL 412, 413 (2015).

153. *New WHO Safe and Dignified Burial Protocol - Key to Reducing Ebola Transmission*, WHO (Nov. 7, 2014), <http://www.who.int/mediacentre/news/notes/2014/ebola-burial-protocol/en/>.

deceased.¹⁵⁴ Persons who die of Ebola have very high levels of the Ebola virus on their skin and in any leaked bodily fluids,¹⁵⁵ putting anyone who comes in close contact to these bodies in grave danger.¹⁵⁶ Additionally, the virus may remain contagious on the decedent's personal belongings. Thus, when family members either touch the body or distribute the decedent's personal property, they can contaminate themselves and others.

The need for community buy-in and respect for religious beliefs became evident during the West Africa Ebola crisis.¹⁵⁷ A case in Guinea provides an example. In June 2014, a pregnant Guinean woman died of Ebola; unfortunately, this was not surprising given that pregnant women are among the most vulnerable to Ebola.¹⁵⁸ What was surprising was the heated quarrel that followed her death. Mourners refused to allow the “[d]ead body management’ team[s]” of outsiders to bury her Ebola-infected corpse.¹⁵⁹ The community members shouted that she had to be “saved from eternal wandering” where her spirit would haunt the village; she needed to reach the village of the dead and, to do this, her fetus had to be removed from her body, she had to be properly washed, and prayers had to be recited over her prepared corpse.¹⁶⁰ Notably, their traditional Kissi culture requires that a woman not be buried with her fetus because burying a woman with her fetus still inside would disturb the world's natural cycles. The Kissi believe that the failure to remove the fetus would alter the natural beginning and ending cycle among humans, animals, and plants.¹⁶¹ In the Kissi belief system, no risk from Ebola was worth the far greater risk of altering the order of the universe.¹⁶²

154. See *id.* (Statement of Dr. Pierre Formenty) (“At least 20% of new Ebola infections occur during burials of deceased Ebola patients.”).

155. See Nielsen et al., *supra* note 83, at 20; see also Joseph Prescott et al., *Postmortem Stability of Ebola Virus*, 21 EMERGING INFECTIOUS DISEASES 856, 857 (2015).

156. See Nielsen et al., *supra* note 83, at 20; see also Prescott et al., *supra* note 155, at 857.

157. During the recent West Africa Ebola crisis, it became evident that it is extremely difficult to deal with the conflict between religious practices and modern scientific preventive measures because the affected community is comprised of people with illiteracy rates of thirty to seventy-nine percent. *Statistics at a Glance: Guinea*, UNICEF, http://www.unicef.org/infobycountry/guinea_statistics.html (last updated Dec. 26, 2013); *Statistics at a Glance: Liberia*, UNICEF, http://www.unicef.org/infobycountry/liberia_statistics.html (last updated Dec. 27, 2013).

158. Erika Check Hayden, *Ebola's Lasting Legacy*, 519 NATURE 24, 25 (2015); Amy Maxmen, *How the Fight Against Ebola Tested a Culture's Traditions*, NAT'L GEOGRAPHIC (Jan. 30, 2015), <http://news.nationalgeographic.com/2015/01/150130-ebola-virus-outbreak-epidemic-sierra-leone-funerals/>.

159. See Maxmen, *supra* note 158; see also Gail Sullivan & Justin Moyer, *In Traumatized Liberia, Sierra Leone and Guinea, Ebola Chaos*, WASH. POST (Aug. 8, 2014), <http://www.washingtonpost.com/news/morning-mix/wp/2014/08/08/in-traumatized-liberia-and-sierra-leone-ebola-chaos/>.

160. Maxmen, *supra* note 158.

161. *Id.*

162. *Id.*

The WHO's team of scientists and doctors was frustrated. The woman's body was oozing a myriad of deadly virus, such that opening her body to extract the fetus would put everyone involved at an extreme risk of Ebola even though they were wearing PPE.¹⁶³ The team was aware that a dead body from someone who dies of Ebola has the highest levels of the virus.¹⁶⁴ The team's concern was that the unbelievably high concentrations of Ebola virus on the deceased pregnant woman would contaminate their PPE to inordinate levels if they were to extract the fetus, making later removal of the PPE extremely hazardous.¹⁶⁵

Because the Kissi were preventing the team's access to the woman's body for burial, the district medical offices solicited the help of anthropologist Julienne Anoko, who "knew there must be ways to make reparations to the spirits for ceremonies that could not be performed as tradition demanded."¹⁶⁶ Anoko "found a very old man whose grandfather was one of the ritualists in charge of reparations, . . . '[h]e had inherited the reparation ritual . . .'"¹⁶⁷ The elder explained the ritual, which required "a goat, 12 yards of white tissue, salt, oil, and rice."¹⁶⁸ Anoko astutely provided each item and was relieved when, at sunset, "she watched the ceremony begin with the distribution of smooth kola nuts, symbols of respect."¹⁶⁹ While the ceremony was ongoing, elsewhere, "burial workers in sweltering hot Tyvek suits hygienically laid the pregnant woman to rest."¹⁷⁰

Another example from the West Africa Ebola crisis occurred in 2014 when Liberian President Ellen Johnson Sirleaf decreed that the bodies of Ebola victims were to be cremated.¹⁷¹ Many people became so distressed that they kept their sick relatives home.¹⁷² This led to a huge surge in Ebola cases in Liberia.¹⁷³ If

163. See Katharina Bögel & Eva-Maria Schwienhorst, *Cultural Awareness in Times of Ebola*, MEDICAL PEACE WORK, 7, 16 (2015), http://www.medicalpeacework.org/fileadmin/user_upload/Case_Studies/MPW3_15_06.pdf (recounting the story of how the Kissi tribe became upset when international health care workers wearing PPE did not respect the Kissi burial traditions because a deceased tribal woman had Ebola).

164. See *id.*

165. See *id.* at 5, 7, 16 (explaining that the handling of human remains should be kept to a minimum, and thus removal of the fetus would create too much contact with the contaminated body).

166. Maxmen, *supra* note 158.

167. *Id.*

168. *Id.*

169. *Id.*

170. *Id.*

171. *Ebola Cremation Ruling Prompts Secret Burials in Liberia*, THE GUARDIAN (Oct. 24, 2014, 2:31 PM), <http://www.theguardian.com/world/2014/oct/24/ebola-cremation-ruling-secret-burials-liberia>.

172. *Id.*

173. *Id.* (noting that the number of bed spaces at the Ebola treatment center doubled).

the Ebola victim died, the relatives performed secret burials.¹⁷⁴ Pursuant to traditional practices, in preparation for the burials, the relatives would wash and dress the bodies.¹⁷⁵ These clandestine burials, using traditional unsafe practices, led to even more infections.¹⁷⁶ Recognizing that the only way to stop the practice of secret burials was to, once again permit burials, with certain precautions. The government devised a safer burial system using specially trained burial teams that attempted to respect some of the religious and cultural traditions.¹⁷⁷ In Sierra Leone, a similar issue arose when President Ernest Bai Koroma “advised citizens to put aside their normal cultural activities, especially those dealing with burial rites.”¹⁷⁸ He expressly banned private burials, and this ban, combined with the ban on Christmas celebrations, led to major protests.¹⁷⁹ In a story reporting events from Sierra Leone, Dr. Angela Dunn discussed the need for cultural sensitivity with regard to burial practices.¹⁸⁰ She explained that “prevention and control is crucial in containing the Ebola epidemic”¹⁸¹ She noted that to implement effective Ebola infection prevention and control measures, “the local culture needs to be considered.”¹⁸² Dunn reports that, in Sierra Leone, rituals and burial practices “are mostly determined by religion, local traditions, and secret societies. Fear of the consequences of not following these customs can be more powerful than the fear of Ebola.”¹⁸³ In Sierra Leone, it is believed “that keeping traditional burial practices not only allows the deceased to pass on to a greater existence, but it also ensures that the village will be protected from hardships.”¹⁸⁴ Moreover, “if the burial practices are disregarded, the deceased will be forced to wander the Earth tormenting the village with misfortunes.”¹⁸⁵

174. *Id.*

175. Helene Sandbu Ryeng, *A Safe Burial for an Ebola Victim in Liberia*, UNICEF, http://www.unicef.org/infobycountry/liberia_79760.html (last updated Feb. 9, 2015).

176. *Id.*

177. *Id.* (describing how the local community donated a parcel of land to be used as a cemetery).

178. Mohamed Massaquoi, *In Kailahun: Bondo Women Demand Right to Bury Head Sowie*, CONCORD TIMES (Jan. 27, 2015), <http://slconcordtimes.com/in-kailahun-bondo-women-demand-right-to-bury-head-sowie/>.

179. *Id.*; see also *Sierra Leone Bans Christmas Celebrations, Cites Ebola*, VOICE OF AM. (Dec. 13, 2014), <http://www.voanews.com/content/sierra-leone-bans-public-christmas-celebrations/2557792.html>.

180. See Angela C. Dunn, CDC Responder Stories: *Stories from the Field: Infection Prevention & Control – Sierra Leone*, CDC, <http://www.cdc.gov/vhf/ebola/hcp/stories-angela-dunn.html> (last updated Mar. 31, 2015).

181. *Id.*

182. *Id.*

183. *Id.*

184. *Id.*

185. *Id.*

In accordance with IHR, the WHO declared the West Africa Ebola outbreak a public health emergency of international concern and issued temporary recommendations on August 8, 2014.¹⁸⁶ The temporary recommendations recognized the risk from burial practices. The WHO expressly provided that States with Ebola transmission “should ensure funerals and burials are conducted by well-trained personnel, with provision made for the presence of the family and cultural practices, and in accordance with national health regulations, to reduce the risk of Ebola infection.”¹⁸⁷

Because of the continuing concerns regarding burial rituals, the WHO developed a twelve-step protocol for culturally sensitive safe burials.¹⁸⁸ The protocol, issued in October 2014, was “[d]eveloped by an interdisciplinary team at [the] WHO, in partnership with the International Federation of Red Cross and Red Crescent Societies (IFRC) and faith-based organizations including the World Council of Churches, Islamic Relief, Caritas Internationalis and World Vision”¹⁸⁹ The twelve-step protocol provides more specific guidance for culturally sensitive burials.¹⁹⁰ The guide cautions that before proceeding with the protocol, the burial team should obtain the deceased family’s agreement. In addition, those managing the burial must fully apprise the family of the decedent about the burial procedure and inform them of their “religious and personal rights to show respect for the deceased” before beginning the burial process.¹⁹¹ The protocol further provides that the burial team should include a religious representative and a communicator, who are to work together with the family to decide how to conduct a dignified burial in the particular social and religious context.¹⁹² With respect to Christian and Muslim decedents, the WHO’s twelve-step protocol includes specific procedures for their dignified burial. For example, to avoid religious rituals of washing or otherwise touching the body, the protocol provides that Christian burial procedures may include safe religious

186. *Statement on the 1st Meeting of the IHR Emergency Committee on the 2014 Ebola Outbreak in West Africa*, WHO (Aug. 8, 2014), <http://who.int/mediacentre/news/statements/2014/ebola-20140808/en/>.

187. *Id.* The WHO also provided that, for States with Ebola transmission, “[t]he cross-border movement of the human remains of deceased suspect, probable or confirmed EVD [Ebola Virus Disease] cases should be prohibited unless authorized in accordance with recognized international biosafety provisions.” *Id.*

188. *Field Situation: How to Conduct Safe and Dignified Burial of a Patient Who Has Died from Suspected or Confirmed Ebola Virus Disease*, WHO, 1–17 (Oct. 2014), http://apps.who.int/iris/bitstream/10665/137379/1/WHO_EVD_GUIDANCE_Burials_14.2_eng.pdf [hereinafter *Field Situation*]. Unfortunately, the WHO protocol was not issued until November 2014, eleven months after the start of the outbreak.

189. *New WHO Safe and Dignified Burial Protocol - Key to Reducing Ebola Transmission*, *supra* note 153.

190. *Field Situation*, *supra* note 188, at 1.

191. *Id.* at 1.

192. *See id.* at 2.

rites, such as sprinkling blessed water over the body and reading scripture.¹⁹³ As to burials of Muslim decedents, instead of an ablution, which is normally performed with water, the protocol provides for a dry ablution.¹⁹⁴ In addition, rather than using dark-colored body bags, the Muslim protocol uses white body bags, which could represent the burial shroud if permitted by the Imam.¹⁹⁵

To continue the coordination and assess preparedness the WHO convened a meeting in Geneva, Switzerland in January 2015 that included more than 150 participants and subsequently published a report titled “Ebola Virus Disease Preparedness: Taking Stock and Moving Forward” (“Taking Stock Report”).¹⁹⁶ In addition to discussing the immediate need for technical and financial support, infrastructure, training, and other resources, the participants discussed the importance of community engagement and communication. They listed the following key points:

- Community engagement is the corner stone to the response to the EVD [Ebola Virus Disease] outbreak. Without effective community engagement, contact tracing and breaking chains of transmission is extremely difficult.
- . . .
- The critical nature of communications with communities, especially in countries where communications is through the spoken word was highlighted. Many of the cultural practices which have enabled the transmission of EVD have been curtailed during the emergency, but it is felt that these changes, such as changes in funeral practices, should be maintained in the long term, as it is uncertain where this disease may recur.¹⁹⁷

Significantly, with regard to burial practices, the Taking Stock Report provides key recommendations and action points for safe burials as follows:¹⁹⁸

RECOMMENDATIONS	ACTION POINTS
<ul style="list-style-type: none"> • Increase capacity for dead body management • Establish teams in charge of safe burials 	<ul style="list-style-type: none"> • Consider research on local customs and funeral rites and anthropological studies recommended to understand local culture.

193. *Id.* at 6.

194. *Id.* at 7–8.

195. *Id.* at 7. Unfortunately, during the early stages of the West Africa Ebola crisis, the only body bags that were available on site were the dark-colored bags, not the white body bags, which created significant issues.

196. *Ebola Virus Disease Preparedness: Taking Stock and Moving Forward*, WHO, 5 (Jan. 16, 2015), <http://www.who.int/csr/resources/publications/ebola/preparedness-meeting-report/en/>.

197. *Id.* at 9.

198. *Id.* at 26.

<ul style="list-style-type: none"> • Update safe burial protocols with regard to religious practice • Identify safe burials sites 	<ul style="list-style-type: none"> • Disseminate existing guidelines or articles. • Train and equip National teams to perform safe burials activities
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Additionally, the CDC issued several guidelines on practices for preventing the spread of Ebola in West Africa.¹⁹⁹ The CDC's guidelines are not as detailed as the WHO's twelve-step protocol for culturally sensitive burials. The CDC guidelines do, however, mention some steps for safe, respectful burials. For example, the December 2014 pamphlet titled "Ebola Must Go: Bury All Dead Bodies Safely" notes that government-imposed safe burial practices may be "very difficult for the family and the community" and that safe burial teams "will talk to the family members about the different ways they can pay respect without touching the body."²⁰⁰ The pamphlet further provides that, as part of the process, a religious leader can attend the burial.²⁰¹ In addition, specifically in regards to the Ebola outbreak in Sierra Leone, the CDC published an important report documenting the need for "plans to effectively and safely handle the bodies of persons who have died from Ebola, and to execute these plans in a dignified and respectful manner that honors the deceased, their families, and their communities."²⁰² The report notes that "[r]apidly scaling up of safe, dignified burial practices and focusing on increasing community acceptance of safe burials during an Ebola epidemic could interrupt transmission substantially."²⁰³

Unlike the guidelines for West Africa, the CDC's guidelines for the United States do not appear to include specific protocols for culturally sensitive burials. What might be the reason for the difference between the CDC's West Africa guidelines and the U.S. guidelines? One reason could be discerned from the part of the CDC's website dedicated to Ebola. The CDC's Ebola website provides that most of the Ebola deaths in the United States "would likely occur within a hospital setting."²⁰⁴ Accordingly, its guidance on safe handling of Ebola victims

199. *Interim Guidance for Managing Patients with Suspected Viral Hemorrhagic Fever in U.S. Hospitals*, CDC, 2–3 (May 19, 2005), <http://www.cdc.gov/vhf/ebola/pdf/vhf-interim-guidance.pdf>.

200. *Ebola Must Go: Bury All Dead Bodies Safely*, CDC, 4 (Dec. 23, 2014), <http://www.cdc.gov/vhf/ebola/pdf/bury-body-safely.pdf>.

201. *Id.* at 8.

202. Nielsen et al., *supra* note 83, at 27.

203. *Id.* (citation omitted).

204. Ebola (Ebola Virus Disease): *Guidance for Safe Handling of Human Remains of Ebola Patients in U.S. Hospitals and Mortuaries*, CDC, <http://www.cdc.gov/vhf/ebola/healthcare-us/hospitals/handling-human-remains.html> (last updated Feb. 11, 2015).

in the United States is directed to “[p]ersonnel who perform postmortem care in U.S. hospitals and mortuaries.”²⁰⁵ Perhaps because of the assumption that deaths in the United States would occur in hospitals, the CDC guidelines do not specifically include the culturally sensitive protocols suggested by the WHO. Another reason why the CDC’s guidelines for the United States might not expressly specify culturally sensitive burial protocols is because the CDC generally defers to the individual states for such matters.²⁰⁶

This deference to the individual states is also evident in earlier policies of the CDC. For example, recognizing the frontline role of the individual states in public health emergencies, after 9/11 and following the anthrax exposures in the fall of 2001, the CDC turned to the Centers for Law and the Public’s Health, a collaboration between Johns Hopkins and Georgetown Universities, to draft a model act that states could adopt to assist in the “prevention, detection, management, and containment of public health emergencies[,]” including bioterrorism and epidemics.²⁰⁷ The final draft of the Model State Emergency Health Powers Act (MSEHPA) was released on December 21, 2001.²⁰⁸

The preamble to MSEHPA provides that it attempts to strike a balance to “contain emergency health threats without unduly interfering with civil rights and liberties.”²⁰⁹ Despite some criticism, a majority of states have adopted at least some of the provisions of MSEHPA.²¹⁰ The MSEHPA framework is meant to apply in times of a “public health emergency.”²¹¹ MSEHPA provides that the term “public health emergency” includes “an occurrence or imminent threat of an illness or health condition that: (1) is believed to be caused by . . . (i) bioterrorism; [or (ii)] the appearance of a novel or previously controlled or eradicated infectious agent or biological toxin,” where there is a high probability of “a large number of deaths[,]” “a large number of serious or long-term

205. *Id.*

206. COLE, *supra* note 51, at 6.

207. *The Model State Emergency Health Powers Act: A Draft for Discussion Prepared by the Center for Law and the Public’s Health at Georgetown and Johns Hopkins Universities*, CDC, 8 (Dec. 21, 2001), <http://www.publichealthlaw.net/MSEHPA/MSEHPA.pdf> [hereinafter *MSEHPA*].

208. *Id.* at 1.

209. *Id.* at 9.

210. “The extent to which [MSEHPA’s] provisions were incorporated into each state’s laws varies.” Ctr. for L. & Pub.’s Health, *Model State Emergency Health Powers Act Legislative Surveillance Table 1*, <http://www.publichealthlaw.net/MSEHPA/MSEHPA%20Surveillance.pdf> (last visited Sept. 19, 2016) [hereinafter *Legislative Surveillance Table*]. Some of the variations are purely semantic, where others may be more substantive. Most of the state statutes have not been put to the test regarding their effectiveness in terms of highly infectious disease. Thus, it is important that states use every instance to learn from various incidents, whether in the United States or abroad, to insure that their versions adapt to new developments.

211. *MSEHPA*, *supra* note 207, at 6.

disabilities[,]” or “widespread exposure to an infectious or toxic agent that poses a significant risk of substantial future harm”²¹²

MSEHPA includes a provision dealing specifically with the safe disposal of human remains during public health emergencies.²¹³ Section 504 of MSEHPA provides in relevant part:

Section 504 SAFE DISPOSAL OF HUMAN REMAINS. The public health authority may exercise, for such period as the state of public health emergency exists, the following powers regarding the safe disposal of human remains—

- (a) ADOPT MEASURES. To adopt and enforce measures to provide for the safe disposal of human remains as may be reasonable and necessary to respond to the public health emergency. Such measures may include, but are not limited to, the embalming, burial, cremation, interment, disinterment, transportation, and disposal of human remains.
- (b) POSSESSION. To take possession or control of any human remains.
- (c) DISPOSAL. To order the disposal of any human remains of a person who has died of a contagious disease through burial or cremation within twenty-four (24) hours after death. To the extent possible, religious, cultural, family, and individual beliefs of the deceased person or his or her family shall be considered when disposing of any human remains.²¹⁴

Notwithstanding MSEHPA, states are not consistent in terms of their laws for handling infectious human remains.²¹⁵ Not all states adopted MSEHPA.²¹⁶ Even states that adopted many of MSEHPA’s other provisions did not adopt

212. *Id.* at 11.

213. *Id.* at 23–24.

214. *Id.* (emphasis added).

215. *Compare id.* (delineating a model statute with separate and distinct provisions for the process of disposing of infectious remains), with 77 ILL. ADMIN. CODE § 690.1200 (2016) (adding a precaution not included in the MSEHPA that “the body shall be labeled ‘infection hazard,’ or with an equivalent term to inform persons having subsequent contact with the body, including any funeral director or embalmer, to take suitable precautions”), and N.H. CODE ADMIN. R. ANN. FRL. § 801.13 (2016) (requiring a crematory only to accept delivery of a body that dies of an infectious disease unless it is delivered by “(1) A funeral director; (2) The next-of-kin; or (3) A designated agent”).

216. *See Legislative Surveillance Table, supra* note 210, at 2–4 (providing a chart showing which states have adopted the different provisions of MSEHPA and demonstrating that twelve states have still not adopted any of the provisions). The Legislative Surveillance Table may not reflect subsequent adoptions.

section 504.²¹⁷ Moreover, some states that adopted the general provision of section 504 did not adopt section 504(c) dealing with the disposal of infectious human remains within twenty-four hours or they omitted the qualifying language concerning respect for religious beliefs.²¹⁸

For example, South Carolina and Wyoming appear to have provisions similar to section 504 of MSEHPA, giving the state health authorities significant latitude for the safe disposal of human remains during public health emergencies and allowing for disposal within twenty-four hours.²¹⁹ Neither, however, includes the language in section 504(c) accommodating religious beliefs.²²⁰ Although Ohio's statute provides for disposal within twenty-four hours, it varies significantly from MSEHPA with regard to religious accommodations.²²¹ Ohio's statute expressly prohibits a public or church funeral for a person who died from a communicable disease and forbids taking the cadaver "into any church, chapel, or other public place."²²² By contrast, a few states: Iowa, New Jersey, New Mexico, Oklahoma, and Oregon, expressly track the language of section 504(c) providing for accommodation of religious beliefs.²²³ Even if a state's version of MSEHPA does not specifically include the religious consideration provision, other laws in those states may afford the surviving family members similar consideration for their religious beliefs and permit them to perform religious death rituals as long as they comply with medically-approved protocols.

2. Lesson Learned: Sin Nombre Outbreak

Another concern is the potential risk posed by death from an unknown infection. When someone dies of symptoms that are clearly from an infection, but the infectious agent has not been identified prior to death, there is a serious risk that the death was caused by a pathogen not previously recognized by

217. *Id.* at 3 (showing that only thirteen states have adopted section 504 of the MSEHPA). The Legislative Surveillance Table may not reflect subsequent adoptions.

218. Some statutes have a twenty-four hour timeline, but do not include any religious accommodations. *See* OHIO REV. CODE ANN. § 3707.19 (West 2016); S.C. CODE ANN. § 44-4-320 (2016); WYO. STAT. ANN. § 35-1-241 (2016).

219. S.C. CODE ANN. § 44-4-320(A)(1)–(2) (2016); WYO. STAT. ANN. § 35-1-241(a)(i), (iii) (2016).

220. *See* S.C. CODE ANN. § 44-4-320 (2016); WYO. STAT. ANN. § 35-1-241 (2016).

221. OHIO REV. CODE ANN. § 3707.19 (West 2016).

222. *Id.*

223. *Compare id.* ("No public or church funeral shall be held in connection with the burial of such person, and the body shall not be taken into any church, chapel, or other public place.") *with* IOWA CODE § 135.144 (2016), N.J. STAT. ANN. § 26:13-7 (West 2016), N.M. STAT. ANN. § 12-10A-6 (2016), OKLA. STAT. ANN. tit. 63, § 6502 (West 2016), *and* OR. REV. STAT. § 433.449 (2016) ("To the extent practicable, religious, cultural, family and individual beliefs of the deceased person or the deceased person's family shall be considered when disposing of any human remains.").

medicine, a pathogen not known in the territory where the person died (newly imported), or a pathogen not properly analyzed prior to the death.²²⁴ The pathogen that caused such death, particularly if the pathogen is a novel infectious agent or a recently imported contagious agent, needs to be identified immediately.

In late May 1993, the laboratories at the CDC and the Armed Forces Institute in Washington (AFIP), as well as several other government laboratories, received word of a cluster of patients dying of an unknown respiratory illness in the Four Corners region of the United States.²²⁵ The statement noted that there were sporadic reports of individuals with an acute respiratory disease that included fever, headache, muscle aches, and cough that quickly deteriorated into respiratory failure and death.²²⁶ Laboratory studies showed that they were negative for typical bacterial and viral pathogens; even tests for *Yersinia pestis* (i.e., the plague) were negative.²²⁷

These sporadic cases were overlooked until May 1993, when a particular event brought the illness to medical attention. Merrill Bahe, a physically fit otherwise healthy nineteen-year-old Navajo man was rushed to the Indian Medical Center emergency room in Gallup, New Mexico, suffering from shortness of breath.²²⁸ Bahe had been driving with his sister-in-law to Gallup to attend the funeral of his fiancée, Florena Woody.²²⁹ “Early in the 55-mile trip . . . Bahe too began gasping for breath. His sister-in-law stopped the car and called 911, then administered CPR until an ambulance rushed him to the Gallup Indian Medical Center.”²³⁰ Despite the best efforts in the emergency room, it was too late and Bahe was dead.²³¹

Bahe’s quick death was alarming because he was young and an exceptionally healthy athlete – a star runner.²³² More alarming, however, was that his fiancée had died five days earlier after presenting similar symptoms.²³³ Woody, a twenty-one year old Navajo woman, went to the Gallup Indian Medical Center emergency room complaining of flu-like symptoms and sudden, severe

224. “These transmissions tax the health care system and the knowledge of physicians in the home country to whom the new microbe may be unknown, and diagnosis and treatment more difficult.” Cohen, *supra* note 4.

225. William Plummer, *The Death Bug*, PEOPLE MAG. (June 21, 1993), <http://www.people.com/people/archive/article/0,,20110656,00.html>.

226. *Id.*

227. *Id.*; see also *Outbreak of Acute Illness – Southwestern United States, 1993*, 42 MORBIDITY & MORTALITY WKLY. REP. 421, 421 (1993).

228. Plummer, *supra* note 225.

229. *Id.*

230. *Id.*

231. *Id.*

232. *Id.*

233. *Id.*

shortness of breath.²³⁴ Her lungs were full of fluid and she died of respiratory failure shortly thereafter.²³⁵ Dr. Bruce Tempest, the chief of medicine at Gallup Indian Medical Center, knew of Woody's death, and was on call when Bahe was brought in to the emergency room.²³⁶

When Tempest learned of an earlier similar death at the Gallup hospital and two others in Arizona, he was puzzled. He ordered tests to determine whether Bahe had succumbed to plague, which is endemic to the [Four Corners]. When results came back negative, Tempest contacted Dr. Gary Simpson, the [New Mexico Department of Health's] medical director for infectious diseases.²³⁷

According to traditional Navajo belief, those who are living are not to talk about a recently deceased person until at least four days after that person's death to ensure that person's safe journey to the next world.²³⁸ Despite the immediate threat of an unknown deadly infection in the Four Corners area, adherence to the Navajo religious beliefs thwarted information gathering by scientists and the media.²³⁹

"News of deaths from the mystery disease traveled quickly" and soon more and more cases were recognized.²⁴⁰ No one knew the cause and people became afraid of contagion from each other.²⁴¹ Meanwhile other cases were quickly reported to the New Mexico Department of Health, Arizona Department of Health Services, Colorado Department of Health, and Utah Department of Health.²⁴² By June 7, 1993, they had identified twenty-four cases, including persons from all of the four corner states (New Mexico, Arizona, Utah, and Colorado), with a fifty percent mortality rate.²⁴³

Fortunately, Dr. Bruce Tempest's recognition that something suspicious was going on led to autopsies of both Bahe and Woody.²⁴⁴ Woody's lungs at autopsy were twice the normal weight.²⁴⁵ Tissue and serum samples were sent to the CDC in Atlanta, the U.S. Army Medical Research Institute of Infectious

234. *See id.*

235. *Id.*

236. *Id.*

237. *Id.*

238. *Id.*

239. *Id.*

240. *Id.*

241. *Id.*

242. *Outbreak of Acute Illness – Southwestern United States, 1993*, *supra* note 227, at 421.

243. *Id.*

244. Steve Sternberg, *Tracking a Mysterious Killer Virus in the Southwest*, WASH. POST (June 14, 1994), <https://www.washingtonpost.com/archive/lifestyle/wellness/1994/06/14/tracking-a-mysterious-killer-virus-in-the-southwest/5e074ccd-7d88-41c0-9dc4-c0edcc1cd16e/>.

245. Denise Grady, *Death at the Corners*, DISCOVER MAG. (Dec. 1, 1993), <http://discovermagazine.com/1993/dec/deathatthecorner320>.

Diseases (USAMRIID) in Maryland, and the AFIP in DC. It took a month, but by June studies had demonstrated that there was a cross-reaction with Hantan viruses and the CDC published its first report of the event, although they had not yet identified the species.²⁴⁶ The studies permitted special cloning and sequencing of virus ribonucleic acid (RNA) from human autopsy tissues, revealing that all three of the RNA segments were from a new virus unlike those of any known Hantavirus.²⁴⁷ “[T]he [USAMRIID] isolated the virus from specimens from [the autopsy of] a person in New Mexico and from a rodent in California.”²⁴⁸ We now have evidence that the Sin Nombre virus has been in the United States for decades. Studies on stored autopsy tissues using the CDC tests have confirmed that a thirty-eight year old Utah man had died of the disease in 1959.²⁴⁹ Curiously, although the medical community was not aware of the Sin Nombre virus until 1993, the Navajo tribe had recognized a similar disease in their medical traditions and even recognized its association with mice.²⁵⁰ The virus eventually received the name of Sin Nombre virus.

The four-day Navajo delay period might have been avoided if anthropologists or others had been consulted during the initial period of the investigation. The anthropologists could have suggested that the Navajo community talk about members who had died previously (albeit not within the four days) in order to glean valuable information from those earlier deaths. Such information might have been helpful in preventing spread of the previously unknown disease.

The Sin Nombre outbreak highlights the challenges involving cultural beliefs in conflict with best public health practices and the need to work with the affected community. It also emphasizes the importance of testing for unknown infectious causes. When someone presents an unknown, though clearly infectious disease, it may be necessary to collect fluids and tissues and perform tests to establish if the infection results from a new pathogen, a highly contagious pathogen, or a pathogen newly introduced into a community.²⁵¹

MSEHPA contains specific provisions regarding testing and autopsies. Further, section 606 of MSEHPA provides:

246. *Id.*; see also *Tracking a Mysterious Disease: The Detailed Story of Hantavirus Pulmonary Syndrome (HPS)*, CDC, <http://www.cdc.gov/hantavirus/hps/history.html> (last reviewed Aug. 29, 2012) [hereinafter *Tracking a Mysterious Disease*] (describing the origin of the name of the virus). It was originally named the Muerto Canyon virus, but because of cultural beliefs and protests by the Navajo, several other names were proposed, none of which were accepted by the Navajo, with the result that the virus eventually received the name, “Sin Nombre” virus.

247. Grady, *supra* note 245.

248. *Hantavirus Pulmonary Syndrome – United States 1993*, 43 MORBIDITY & MORTALITY WKLY. REP. 45, 45 (1994).

249. *Tracking a Mysterious Disease*, *supra* note 246.

250. *Id.*

251. *Id.*

Section 606 COLLECTION OF LABORATORY SPECIMENS; PERFORMANCE OF TESTS. The public health authority may, for such period as the state of public health emergency exists, collect specimens and perform tests on living persons as provided in Section 602 and also upon deceased persons and any animal (living or deceased), and acquire any previously collected specimens or test results that are reasonable and necessary to respond to the public health emergency.²⁵²

While the term “autopsy” does not appear in section 606, that section would most likely be interpreted to include the authority to perform an autopsy. This interpretation can be gleaned from the term “tests” and the term “specimens.” The term “tests” is defined in section 104(p) of MSEHPA as including “any diagnostic or investigative analyses necessary to prevent the spread of disease or protect the public’s health, safety, and welfare.”²⁵³ The term “specimens” includes “blood, sputum, urine, stool, other bodily fluids, wastes, tissues, and cultures necessary to perform required tests.”²⁵⁴

New Jersey’s version of section 606 expressly allows the authorities to “perform an autopsy” when “there is a need to investigate any human deaths related to [a] public health emergency”²⁵⁵ Section 606 does not appear to have been adopted by many states. Other states, such as Delaware and South Carolina, appear to have adopted section 606 of MSEHPA without significant modification.²⁵⁶

Unlike section 504(c) of MSEHPA, which takes into account religious considerations when disposing of human remains, section 606 does not include any similar provision for accommodating religious beliefs.²⁵⁷ Autopsies and

252. MSEHPA, *supra* note 207, at 31 (emphasis added).

253. *Id.* at 11.

254. *Id.*

255. N.J. STAT. ANN. § 26:13-7 (West 2016).

256. Compare MSEHPA, *supra* note 207, at 31–32 (providing that a public health authority may collect specimens and perform tests upon a deceased person to respond to a public health emergency), with DEL. CODE ANN. tit. 20, § 3138 (West 2016) (authorizing public health officials to perform tests on deceased persons during a public health emergency), and S.C. CODE ANN. § 44-4-550 (2016) (adopting substantially the same provision of Section 606 of the MSEHPA permitting health officials to test and acquire specimens from deceased persons to respond to a public health emergency).

257. For a discussion of section 504(c) of MSEHPA, see *supra* notes 213–23 and accompanying text. Iowa’s version of MSEHPA combines the provisions regarding disposal of human remains and testing in one statutory section, which allows for accommodating religious beliefs as follows:

If a public health disaster exists, the department, in conjunction with the governor, may do any of the following . . .

2. Adopt and enforce measures to provide for the identification and safe disposal of human remains, including performance of postmortem examinations, transportation, embalming, burial, cremation, interment, disinterment, and other disposal of human

other testing, however, may conflict with a number of religious beliefs and practices.

Apart from MSEHPA, some states have laws dealing with autopsies that include provisions regarding religious objections. For example, in Louisiana, a coroner may perform an autopsy where a death results from a virulent contagious disease.²⁵⁸ If the decedent's family objects on religious grounds, the statute provides that the coroner should not perform the autopsy "unless the coroner finds that the facts surrounding the death require that an autopsy be performed in the interest of the public safety, public health, or public welfare."²⁵⁹ Similarly, Rhode Island law provides that "in the absence of a compelling public necessity, no dissection or autopsy shall be performed over the objection of a surviving relative or friend of the deceased that the procedure is contrary to the religious belief of the decedent."²⁶⁰ A "compelling public necessity" under the statute is found when "discovery of the cause of death is necessary to meet an immediate and substantial threat to the public health and that a dissection or autopsy is essential to ascertain the cause and/or manner of death"²⁶¹

Even if a state does not have a statute explicitly requiring consideration of religious objections before the state can perform an autopsy, a state's Restoration of Freedom of Religion Act may require a similar examination of the state's compelling interest.²⁶² A state's interest in testing for and diagnosing a pathogen that may cause a pandemic would likely override any religious objections to an autopsy.

III. SURVIVORS' RIGHTS TO HUMAN REMAINS AND THE IMPORT OF RELIGIOUS AND CULTURAL BELIEFS

During a public health emergency, laws may permit governmental authorities to disregard survivors' wishes regarding the deceased.²⁶³ Religious and cultural beliefs surrounding death are, however, deeply ingrained in many communities. Death rituals are viewed as critical for the survivors and for the deceased's safe transfer into the afterlife. Prohibiting families from performing such rites is

remains. To the extent possible, religious, cultural, family, and individual beliefs of the deceased person or the deceased person's family shall be considered when disposing of any human remains.

IOWA CODE § 135.144 (2016).

258. LA. REV. STAT. ANN. § 13:5713(A)(13) (2016).

259. *Id.* § 13:5713(D).

260. R.I. GEN. LAWS § 23-4-4.1(a) (2016).

261. *Id.* § 23-4-4.1(b)(1)(ii).

262. For a discussion of restoration of freedom of religion acts and a state's interest in preventing the spread of contagious disease, *see supra* notes 63–80 and accompanying text.

263. *See MSEHPA, supra* note 207, at 6.

viewed as an insult and places the decedent, the decedent's family, and the decedent's community in spiritual peril.²⁶⁴

The cultural imperative to bury one's dead is rooted in thousands of years of civilization. The description, in the Iliad, of King Priam infiltrating the Greek camp at night, to beg Achilles to return his son Hector's body for burial is still considered one of the most powerful scenes in western literature.²⁶⁵

There are several scholars whose works include thoughtful pieces on the "law of the corpse" or the "law of the body."²⁶⁶ Their separate works inform much of the discourse on rights to the handling or disposition of human remains. Professor Radhika Rao notes that the "law of the body is currently in a state of confusion and chaos. Sometimes the body is characterized as property, sometimes it is classified as quasi-property, and sometimes it is not conceived as property at all, but rather as the subject of privacy rights."²⁶⁷

Courts are often faced with deciding difficult issues regarding survivors' rights to human remains. In 2014, a court was asked to decide whether human remains are "property" for purposes of partition. In *Wilson v. Wilson*,²⁶⁸ a father petitioned a Florida court to declare the ashes of his deceased son as "property."²⁶⁹ The mother objected to partitioning her son's remains on religious grounds, arguing "the next of kin have only a limited possessory right to the remains for disposition purposes."²⁷⁰ In a well-reasoned opinion, the court agreed with the mother and stated "[c]ommon law, our supreme court, and this Court have always held that a decedent's remains are not property."²⁷¹ The *Wilson* court analyzed this issue by "traveling back in history to reflect on how deceased bodies and ashes have been viewed over time."²⁷² It noted that Sir

264. See Rutty, *supra* note 35, at 41–45.

265. *Emeagwali v. Brooklyn Hosp. Ctr.*, No. 29765/98, 2006 WL 435813, at *4 (N.Y. Sup. Ct. Feb. 22, 2006).

266. See, e.g., R. Alta Charo, *Skin and Bones: Post-Mortem Markets in Human Tissue*, 26 NOVA L. REV. 421, 425–29 (2002); Mary L. Clark, *Keep Your Hands Off My (Dead) Body: A Critique of the Ways in Which the State Disrupts the Personhood Interests of the Deceased and His or Her Kin in Disposing of the Dead and Assigning Identity in Death*, 58 RUTGERS L. REV. 45, 47 (2005); Ann M. Murphy, *Please Don't Bury Me Down in That Cold Cold Ground: The Need for Uniform Laws on the Disposition of Human Remains*, 15 ELDER L.J. 381, 401 (2007); Radhika Rao, *Property, Privacy, and the Human Body*, 80 B.U. L. REV. 359, 363 (2000); Eloisa C. Rodriguez-Dod, *Ashes to Ashes: Comparative Law Regarding Survivors' Disputes Concerning Cremation and Cremated Remains*, 17 TRANSNAT'L L. & CONTEMP. PROBS. 311, 312 (2008); Marsh, *supra* note 105, at 1327–28.

267. Rao, *supra* note 266, at 363; see also Charo, *supra* note 266, at 425–29 (describing some of the history governing the development of the law in this area).

268. 138 So. 3d 1176 (Fla. Dist. Ct. App. 2014).

269. *Id.* at 1177.

270. *Id.*

271. *Id.* at 1178 (citation omitted).

272. *Id.* at 1177.

William Blackstone, in 1753, in discussing the law in this area, stated that “the heir has a property in the monuments and escutcheons of his ancestors, yet he has none in their bodies or ashes; nor can he bring any civil action against such as indecently at least, if not impiously, violate and disturb their remains, when dead and buried.”²⁷³ The *Wilson* court continued its review of the development of the law in this area by observing that the “historical basis for this thinking was derived in part from the English view that ‘the secular tribunals would protect the monument, the winding-sheet, the grave-clothes, even down to the ribbon (now extant) which tied the *queue*; but the Church would guard the skull and bones.’”²⁷⁴ The *Wilson* court then jumped forward in the historical development of the law of remains. It noted that, in 1986, the Florida Supreme Court articulated that “[a]ll authorities generally agree that the next of kin have no property right in the remains of a decedent[,]”²⁷⁵ but rather have a limited right to “possession of the body . . . for the purpose of burial, sepulture or other lawful disposition”²⁷⁶ The court also relied on a 2001 Florida Supreme Court case, which stated that survivors’ entitlement to possession of the remains for purposes of burial or other disposition “is not a property right, nor does it make the remains ‘property.’”²⁷⁷

In *Wilson*, the court was only faced with the issue of whether human remains are property and did not need to address whether survivors may have other potential rights, such as tort claims.²⁷⁸ In the United States, the development of the law with regard to survivors’ other rights to human remains can also be traced back more than a century.

In *Larson v. Chase*,²⁷⁹ a Minnesota Supreme Court case decided in 1891, in which a wife brought a claim “for damages for the unlawful mutilation and dissection of the body of [her] deceased husband[,]” the court had to determine whether the wife’s cause of action could be maintained.²⁸⁰ The defendant contended that the wife’s claim for mental anguish did not provide sufficient grounds for a cause of action because “a dead body is not property and that mental anguish and injury to the feelings, independent of any actual tangible injury to person or property” is not actionable.²⁸¹ In analyzing this issue, the Supreme Court of Minnesota explained that “the English common-law authorities are not very helpful or particularly in point” for purposes of

273. *Id.* at 1177–78 (quoting 1 WILLIAM BLACKSTONE, COMMENTARIES *429).

274. *Id.* at 1178 (quoting *In re Widening of Beekman St.*, 4 Bradf. Sur. 503, 522 (N.Y. Sur. Ct. 1857)).

275. *Id.* (quoting *State v. Powell*, 497 So. 2d 1188, 1191 (Fla. 1986)).

276. *Id.* at 1178 (citing *Kirksey v. Jernigan*, 45 So. 2d 188, 189 (Fla. 1950)).

277. *Id.* (citing *Crocker v. Pleasant*, 778 So. 2d 978, 988 (Fla. 2001)).

278. *Id.* at 1177.

279. 50 N.W. 238 (Minn. 1891).

280. *Id.* at 238.

281. *Id.*

determining rights to dead bodies in the United States because, in England, “the ecclesiastical courts assumed exclusive jurisdiction of such matters.”²⁸² The English common law “refused to recognize the idea of property in a corpse, and treated it as belonging to no one unless it was the church.”²⁸³ Because of the absence of ecclesiastical courts in the American colonies, the courts used common law principles to develop the parameters of rights concerning the body.²⁸⁴

The *Larson* court’s pragmatic opinion, however, sidesteps the debate over the property concept by noting:

But this whole subject [i]s only obscured and confused by discussing the question whether a corpse is property The important fact is that the custodian of [i]t has a legal right to its possession for the purposes of preservation and burial, and that any [i]nterference with that right by mutilating or otherwise disturbing the body is an actionable wrong.²⁸⁵

Accordingly, the *Larson* court found that the surviving spouse, as the person entitled “to the possession and custody of [the body] for purposes of decent burial[,]” has “legal rights to . . . it which the law recognizes and will protect.”²⁸⁶

Numerous courts since *Larson* have agreed that such rights to bring actions for disturbance of human remains before burial exist, such that “[i]nterference with immediate possession of the body of the decedent, even if only for a matter of minutes, may trigger liability.”²⁸⁷ In a recent New York case, *Emeagwali v. Brooklyn Hospital Center*,²⁸⁸ parents sued a hospital for improper disposition of the body of their stillborn daughter, arguing that the hospital deprived “them of a chance to conduct a religious burial ceremony for [their] child and causing emotional distress.”²⁸⁹ The court recognized that it is “well settled that next of kin have the absolute right to possession of a decedent’s body for the preservation and burial of same and that damages will be awarded against any person who unlawfully interferes with the that right or improperly deals with the decedent’s body.”²⁹⁰ The question for the court was whether this right also applied when the body was that of a stillborn fetus.²⁹¹ The court noted that there was some conflicting testimony as to whether the fetus in this case was briefly alive upon delivery or stillborn, but determined that the parents’ rights were not

282. *Id.*

283. *Id.*

284. Charo, *supra* note 266, at 426.

285. *Larson*, 50 N.W. at 239.

286. *Id.*

287. Tomkins, *supra* note 95, at 102.

288. No. 29765/98, 2006 WL 435813 (N.Y. Sup. Ct. Feb. 22, 2006).

289. *Id.* at *1.

290. *Id.* at *4 (citations omitted). This is also known as the right of sepulcher. *Id.* at *2.

291. *Id.* at *1.

dependent on whether the fetus was ever alive after delivery.²⁹² The New York court found the reasoning of a similar Connecticut case compelling. In the Connecticut case, the plaintiff went into pre-mature labor at nineteen weeks and delivered a non-viable stillborn fetus.²⁹³ Without the mother's consent, the hospital performed a post-mortem pathology involving dissection.²⁹⁴ In this case, although the fetus was clearly not born alive, the court found that the mother had an actionable claim.²⁹⁵ The court reasoned that, even though the fetus was not born alive, "the mother nonetheless retains a quasi-property right in the body because fetuses, stillborn or not, have symbolic importance vastly different from that of ordinary tissue due to the physical presence mothers feel in their body and the hopes and dreams she had for its future."²⁹⁶

The development of these quasi-property rights to the body, coupled with increasing respect for individual autonomy, has led to state laws allowing the decedent to direct the disposition of the decedent's own remains. Generally, if there are such instructions from the decedent, those instructions govern. Absent any direction from the decedent, state law will generally defer to the decedent's survivors for instructions for the handling and disposition of the body.²⁹⁷

These decedent's directives as to final disposition, and the rights of survivors to possession of the decedent's body for purposes of burial or other disposition and actions for interference with those rights, are, however, subject to important qualifications. Professor R. Alta Charo explains that even as these rights were developing, "[t]he family's interest in the dead body was subject to various interests of the state government, including concern for public sensibility, [and] promotion of public health"²⁹⁸ Similarly, Professor Mary L. Clark recognizes that the interests of survivors in the disposition of a decedent's remains may be subject to a "valid countervailing state interest, where such interests may include concerns for public health, nuisance, or the full and proper conduct of criminal investigations, which may well necessitate autopsies or exhumations contrary to the wishes of the individuals involved."²⁹⁹ These important qualifiers are critical today in light of the need to stem the spread of deadly infectious disease.

292. *Id.* at *9–*10.

293. *Id.* at *5.

294. *Id.*

295. *Id.* (citing *Janicki v. Hospital of St. Raphael*, 744 A.2d 963 (Conn. Super. Ct. 1999)).

296. *Id.* (citing *Janicki*, 744 A.2d at 963).

297. Murphy, *supra* note 266, at 401.

298. Charo, *supra* note 266, at 427.

299. Clark, *supra* note 266, at 47.

IV. PROPOSAL AND CONCLUSION

How would U.S. citizens react if they had neighbors becoming ill every day? Would they turn to their pastors, rabbis, or clerics? In times of crises, would more people rely on their faith? Would they halt their religious practices? Would religious followers allow for government mandated health measures or insist on their traditions? Would they take their loved ones to hospitals when infected with pathogens or would they try to keep them home? Would they attempt home treatments and burials?³⁰⁰ Would they trust the federal government? Would they trust state or local government? Are the various laws clear, consistent, and culturally sensitive such that they may be readily and effectively applied, especially in times of public health emergencies? Addressing all of these difficult and nuanced questions require thinking in expansive ways for solutions.

All too often societies wait for a disaster or a critical event to unfold before taking action or adopting laws and regulations to reduce the risk from such events.³⁰¹ People may overreact and not easily relinquish long-standing cherished cultural and religious beliefs. A lesson learned from the West Africa Ebola crisis is that, without trust and respect, the community will not heed critical medical advice and will often turn to religious beliefs in preference to scientific principles.³⁰²

Governments have a critical role to play in preventing pandemics. Prior to the next pandemic, governments should be prepared to implement medically sound measures that are acceptable to different communities. The need to understand religious and cultural beliefs and rituals of the community that are likely to hinder the goals of curtailing infections is a necessary predicate to developing a system that is adaptable, acceptable to the community, and scientifically sound. With the help of historians, anthropologists, ethicists, religious leaders, epidemiologists, and thoughtful interdisciplinary effort, the goal of devising scientifically valid systems that nevertheless have better chances of acceptance should be easier to reach. This is not revolutionary.

There is evidence that religious leaders, during various historical instances of disease outbreak, were sensitive to the need to protect their communities from infectious disease and allowed variations to traditional practices. For example, in the Middle Ages, during the time of the black plague, rabbinical leaders allowed changes to usual burial procedures for those who died of the contagious disease.³⁰³ Similarly, a Muslim medical treatise authored during the black plague instructed the community in the most effective means of avoiding the

300. Home funerals are becoming more popular, something that could be of great risk during an outbreak of a highly communicable deadly disease. *See generally* Marsh, *supra* note 105.

301. Berkley, *supra* note 4.

302. Paye-Layleh, *supra* note 6.

303. AVRAHAM STEINBERG, ENCYC. OF JEWISH MED. ETHICS 538 (2003).

plague and served “as a guidebook designed to show physicians in Granada the path by which accommodation with religious orthodoxy could be reached.”³⁰⁴

In modern times, there are instances of religions dispensing with certain required rituals during pandemics. A recent article analyzes how certain Catholic sacraments can be provided logistically under canon law when patients are infected with Ebola or other highly contagious diseases.³⁰⁵ The article explains that these sacraments generally require the clergy and lay ministers to come in close contact with the patient.³⁰⁶ The authors sought input from “bishops, priests, a canon lawyer, an epidemiologist, a physician, the CDC, and others” to determine how pastoral visits could occur given the isolation policies for these patients and the risks to the pastors and lay ministers.³⁰⁷ In regard to the Sacrament of Anointing of the Sick, for example, although the normal procedure requires a priest to use his own hand to anoint the patient’s forehead and hands with oil while saying the prescribed prayers, in grave circumstances, a priest may use an instrument rather than his hands.³⁰⁸ The authors concluded that, “with the approval of local, state, and federal health officials, pastoral care, including provision of the sacraments, is possible. It would require proper training, proper equipment and policies, and a significant commitment of time.”³⁰⁹ The authors further recognized that priests and ministers would be at some risk, but the risks “seem reasonable given the inestimable benefits of receiving the sacraments during critical illness.”³¹⁰

These examples of religion accommodating science and medicine during pandemics demonstrate needed flexibility and adaptability by religious leaders. Similarly, secular laws need to be flexible and accommodate religious practices that are medically sound in order to insure that emergency measures will be accepted by the community in times of crises. It is important that laws include rapid consultation with recognized experts in contagious disease threats, whatever the threat is, and regulations be based on the best available scientific understanding of the nuances of the particular threat agent. However, that is not enough; it is equally critical that the recommendations based on science are also either already within the scope of what will be culturally and religiously acceptable to the population at risk, or be adaptable within that cultural, spiritual, and social framework—underscoring the need for an interdisciplinary, proactive approach to the development of laws, regulations, and plans.

304. Hopley, *supra* note 89, at 59.

305. Stephen E. Hannan & Benedict T. Nguyen, *Pastoral Care of Patients with Ebola Virus Disease: A Medical and Canonical Opinion About Pastoral Visits to Patients with Contagious and Highly Fatal Diseases*, 82 LINACRE Q. 170, 170–78 (2015).

306. *Id.* at 172, 174, 176.

307. *Id.* at 170.

308. *Id.* at 176 (citing 1983 CODE c.1000, § 2).

309. *Id.* at 170.

310. *Id.*

To achieve these goals, leaders and policymakers should support anthropological studies on local cultures, research identifying religious practices surrounding the care of gravely ill community members and death rituals, provide training, and equip teams for dignified and safe handling of severely contagious patients and human remains. In addition, policymakers should reach out to religious and other community leaders to educate those communities more effectively on public health issues, foster trust, and enhance lines of communication with the goal of curtailing the spread of highly infectious diseases.

If the United States does not act preemptively, it will likely find itself in a situation where it will be important to ask if the government failed to engage in appropriate planning and mitigation efforts that would have reduced disaster vulnerability when a contagious disease crisis arises. A recent critique of governmental responses to the Zika outbreak admonishes that the “lesson of SARS, avian flu, swine flu and Ebola is that political resolve and funding flourish after a threat has exploded—and shrivel once the immediate danger abates.”³¹¹

Latitude is warranted when governments are under the pressures and demands of a public health emergency. However, prior to such emergencies, the government is expected to plan by continually assessing and updating its laws, regulations, and procedures.³¹² Preparedness is key.

311. Scott Gottlieb, *Applying to Zika the Forgotten Lessons of Ebola*, WALL ST. J. (Feb. 10, 2016, 7:16 PM), <http://www.wsj.com/articles/applying-to-zika-the-forgotten-lessons-of-ebola-1455063383>.

312. See Susan S. Kuo, *Disaster Tradeoffs: The Doubtful Case for Public Necessity*, 54 B.C. L. REV. 127, 140, 181–82 (2013). What makes planning for a contagious disease outbreak difficult is that each disease has its own nuances in terms of determining when people are at risk for infection; how long they are at risk; which individuals are and are not at risk; how dangerous the infection is; how it is transmitted, particularly if the dead are key sources of transmission; if there is or is not an effective vaccine and/or treatment; and many other variables. Thus, plans, laws, regulations, and procedures that are perfectly adequate for one kind of outbreak could fail miserably under other conditions. The spread of infectious disease is particularly difficult to contain in areas lacking basic medical supplies and infrastructure, which argues for either building sustainable capacity in all at-risk places or having the ability to rapidly surge medical capacity when an outbreak starts. The plans, procedures, and recommendations the CDC provided prior to the nurses in Dallas becoming ill with Ebola failed because they were not the ideal plans, procedures, or recommendations for Ebola patients being managed using sophisticated western medical devices that could and did aerosolize the virus. The CDC recommendations had to be, and eventually were, amended to adjust to the science and the evidence that revealed that the original recommendations were insufficient for the risk at hand.