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THREE LOST EBOLA FACTS AND PUBLIC HEALTH LEGAL PREPAREDNESS

ROBERT GATTER*

ABSTRACT

Three key facts about Ebola Transmission should drive policy designed to control the risk of transmission during a crisis.

- *Ebola—like HIV—is not easily transmissible human-to-human.*
- *Ebola has “dry” and “wet” symptoms, and only the wet symptoms threaten public health.*
- *A fever is Ebola’s canary in a coal mine; it provides timely warning of a coming threat.*

Yet, during the U.S. Ebola scare in 2014, these three facts were lost. Unnecessary quarantine, stigma, and burden on those exposed to Ebola resulted, including especially for those who volunteered to fight the disease at its source abroad. Tragically, the law permitted these injustices because lawyers, judges, and legal rules also lost track of these key Ebola facts. Thus, public health legal preparedness demands that we do more than clarify relevant legal standards; we must also prepare lawyers and judges to better account for key infectious disease facts during the next emergency.

* Professor of Law and Director, Center for Health Law Studies, Saint Louis University School of Law. Thank you to the editors of the Saint Louis University Journal of Health Law and Policy for their constant professionalism. This Article is dedicated to MC—artist, scientist, survivor, trail-blazer, daughter. Thank you especially to Lauren Pair, SLU Law Class of 2019, for her help on this Article.

I. INTRODUCTION

This is a story of a few important facts that got lost during and after the 2014 Ebola scare in America. Without them, hundreds of people were quarantined unnecessarily, and our best-qualified volunteers became reluctant to fight the disease at its source where it was growing into an ever-larger global threat.

Central to this story is a failure of law. Legal standards and procedures existed to account for these important facts, but government officials and courts did not deploy the law properly.

The law is not prepared for a public health crisis if lawyers, judges, and officials are not ready to preserve key facts. This Article examines missed opportunities for the law to get it right, and, in the process, identifies how our concept of public health legal preparedness needs to be strengthened. But first—the three essential facts of Ebola transmission that got lost.

II. THREE LOST FACTS ABOUT EBOLA

Fact #1: Ebola—like HIV—is not easily transmissible human-to-human.

An uninfected person must directly contact the bodily fluids of an infected person. This happens most often when an uninfected person touches the blood, vomit, or diarrhea of someone who is in the throes of the illness.¹

Nonetheless, several states acted in 2014 as if Ebola was as easily transmitted as the flu. They quarantined individuals who were exposed to, but who were not sick with, Ebola.² To make matters worse, two federal judges reviewing the quarantines imposed by officials in two states erroneously analogized Ebola transmission to the spread of smallpox, yellow fever, and cholera.³ Unlike Ebola, smallpox can be transmitted by coughing and sneezing.⁴

1. *Ebola Virus Disease*, WORLD HEALTH ORG. (Feb. 12, 2018), <https://www.who.int/en/news-room/fact-sheets/detail/ebola-virus-disease>.

2. Quarantine by definition is applied only to individuals who are not sick. *What Is the Difference Between Isolation and Quarantine?*, HHS.GOV, <https://www.hhs.gov/answers/public-health-and-safety/what-is-the-difference-between-isolation-and-quarantine/index.html> (last visited Feb. 16, 2019). Accordingly, the U.S. Department of Health and Human Services states, “Quarantine is used to separate and restrict the movement of *well* persons who may have been exposed to a communicable disease to see if they become ill.” *Id.* The HHS further explains that “[t]hese people may have been exposed to a disease and do not know it, or they may have the disease but do not show symptoms.” *Id.* Meanwhile, “[i]solation is used to separate ill persons who have a communicable disease from those who are healthy.” *Id.* This essay uses each of these terms in keeping with these descriptions.

3. *Liberian Cmty. Ass’n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048, at *10–11 (D. Conn. Mar. 30, 2017) (analogizing to a case involving the quarantine of a person unvaccinated for smallpox who was entering the U.S. from a location where smallpox infections were prevalent); *Hickox v. Christie*, 205 F. Supp. 3d 579, 592 (D.N.J. 2016).

4. *How Does Smallpox Spread?*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/smallpox/transmission/index.html> (last reviewed June 7, 2016).

Also unlike Ebola, yellow fever is spread by mosquitos, which carry it from an infected human to an uninfected human as the mosquitos feed.⁵ And again, unlike Ebola, cholera can infect water and food sources and spread to others when uninfected individuals drink infected water or eat infected food.⁶

Healthy people have a much easier time avoiding Ebola than they do avoiding these other diseases. It is easier to avoid another person's vomit, blood, or diarrhea than it is to avoid another person's cough or sneeze or to avoid mosquitos, water, or food.

The fact that Ebola is transmitted through direct contact with infected bodily fluids is well established. Not only is this the mode of transmission reported by authoritative public health organizations like the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO),⁷ but it is also borne out in descriptions of Ebola outbreaks dating back to 1976.⁸ More than 31,000 humans have been infected with Ebola worldwide since 1976.⁹ Any descriptions of the mode of human-to-human transmissions included with case counts are consistent with there being direct contact with the bodily fluids of someone very ill with Ebola or who had died recently of the disease.¹⁰ Meanwhile, there are not any accounts of human-to-human transmission of Ebola as a result of shaking hands with an infected person or being near an infected person who was coughing or sneezing.¹¹

5. See *Transmission of Yellow Fever Virus*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/yellowfever/transmission/index.html> (last updated Aug. 13, 2015).

6. *Cholera – Vibrio Cholerae Infection*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/cholera/general/index.html> (last reviewed May 11, 2018).

7. *Ebola Virus Disease*, *supra* note 1; *Ebola (Ebola Virus Disease)*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/transmission/index.html> (last reviewed Mar. 12, 2019).

8. See *generally 40 Years of Ebola Virus Disease Around the World*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/history/chronology.html> (describing all human cases and outbreaks of Ebola reported year by year from 1976 through 2018) (last reviewed Apr. 3, 2019).

9. See *id.*

10. *History of Ebola Virus Disease*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/history/summaries.html> (noting in many instances that human-to-human transmission occurred among caretakers of Ebola patients or bodies of the deceased) (last reviewed Sept. 18, 2018).

11. Robert Gatter, *Ebola, Quarantine, and Flawed CDC Policy*, 23 U. MIAMI BUS. L. R. 375, 395 (2015). There is a description of one unexplained human-to-human transmission of Ebola in 1976. See J. Burke, et al., *Ebola Haemorrhagic Fever in Zaire, 1976*, 56 BULL. WORLD HEALTH ORG. 271, 281 (1978). Investigators confirmed that all instances of Ebola transmission involved contact between an infected and an uninfected person when the infected person was in the throes of the illness except for one, about which investigators concluded that “the only possible source of infection was contact with a probable case 48 hours before the latter developed symptoms.” *Id.* This conclusion was reached as scientists and public health workers were still trying to identify and understand Ebola, including how it spreads. Given that no other case has been identified since that first outbreak in which a mode of transmission other than direct contact with the bodily fluids of an

Of course, some scientists—in the name of accuracy—remind us about “theoretical” risks of Ebola transmission that have yet to be ruled out through the scientific method, even if those risks have not materialized in the field of experience. For example, during the 2014 scare, a few Ebola scientists objected to the absolute statement that Ebola cannot be transmitted by coughing or sneezing.¹² One responded, “We can never say never,” and another highlighted that no study exists that affirmatively rules out the possibility of Ebola transmission by coughing or sneezing.¹³

A theoretical risk that cannot be ruled out is not necessarily a risk that we must account for. Whether we account for a particular risk depends on its significance, and this is true for theoretical risks that we cannot rule out definitively. To determine their significance, we must examine them in context. For example, Speaker of the House Paul Ryan says he cannot rule out the possibility of running for the presidency in the future, even though he has announced his retirement from elective politics.¹⁴ Meanwhile, Brett Favre at age forty-six would not rule out the possibility of coming out of retirement to be the backup quarterback in the National Football League (NFL) for the Dallas Cowboys.¹⁵ Because we can readily place these theoretical events in context, it is not difficult to appreciate that the chance of one of these actually happening is significant, while the probability of the other one approaches zero.

Here is some context about the theoretical risk of Ebola spreading through coughs and sneezes. As noted above, the number of reported cases of Ebola transmission as a result of coughing or sneezing over more than four decades of field experience and more than 31,000 recorded cases is zero.¹⁶ Reports from scientists that they cannot definitively rule-out coughing and sneezing as a mode of Ebola transmission must be understood in light of this overwhelming Ebola

infected person, it is quite possible that this one case conclusion is erroneous. Even if not, however, it is clearly an aberration as it is only one case that has not been repeated among 31,000 cases and over four decades of tracking Ebola. A 1 in 31,000 chance translates to a probability of about three one-thousandths of a percent or—written numerically—about 0.003 percent.

12. David Willman, *Some Ebola Experts Worry Virus May Spread More Easily Than Assumed*, L.A. TIMES (Oct. 7, 2014), <https://www.latimes.com/nation/la-na-ebola-questions-2014-1007-story.html>.

13. *Id.*

14. Lindsey McPherson, *Citing No Regrets About Retiring, Paul Ryan Bets Kevin McCarthy Will Replace Him*, ROLL CALL (July 12, 2018), <https://www.rollcall.com/news/politics/citing-no-regrets-retiring-ryan-bets-mccarthy-will-replace> (whereby Ryan says, “You never say never to such things . . .”).

15. See John Breech, *Brett Favre’s Willing to Be Cowboys’ Backup QB Under One Absurd Condition*, CBS SPORTS (Aug. 6, 2016), <https://www.cbssports.com/nfl/news/brett-favres-willing-to-be-cowboys-backup-qb-under-one-absurd-condition/> (noting Favre “kept a straight face during the entire interview, which means he probably seriously contemplated a return for about five seconds.”).

16. See Gatter, *supra* note 11.

field experience. The lack of even one report of such transmission in 31,000 cases over forty-two years is fabulously strong evidence that the risk of such transmission, if not zero, so closely approaches zero as to be a non-risk in practice. Thus, for the purposes of making and deploying law, the risk of Ebola transmission from a cough or a sneeze—like the risk of Brett Favre ever becoming an NFL quarterback again—should be treated as a non-risk.

Better than comparing Ebola and Favre is comparing Ebola and the human immunodeficiency virus (HIV) on this point. HIV is detectable in the saliva of those infected with HIV,¹⁷ but a variety of factors combine to make it so unlikely for transmission to result from direct contact with the saliva of an HIV-infected person that saliva “is not considered a body fluid through which HIV can be transmitted.”¹⁸ From this, a scientist might conclude that—in theory—saliva is a bodily fluid that could transmit HIV because it contains HIV. Yet, in practice, public health professionals do not identify coughing or sneezing as a mode of HIV transmission; the public does not generally worry that a person with HIV will transmit the virus by coughing or sneezing; and the government does not take any official action to prevent the transmission of HIV via a cough or a sneeze.¹⁹ Similarly, individuals and governments should not act as if Ebola can be transmitted in any way other than through direct contact with bodily fluids and should not act as if Ebola is like diseases communicated between humans by any other means.

Fact #2: Ebola has “dry” and “wet” symptoms, and only the wet symptoms threaten public health.

The “wet symptoms” are those that include a bodily fluid exiting the infected person—bleeding, coughing up blood, vomiting, and diarrhea.²⁰ These bodily fluids are contaminated with the Ebola virus, and it is direct contact with these bodily fluids that poses a substantial risk of transmission of the disease to an uninfected person.²¹ That is why the vast majority of those infected with Ebola

17. Stephanie A. Freel et al., *Characterization of Human Immunodeficiency Virus Type 1 in Saliva and Blood Plasma by V3-Specific Heteroduplex Tracking Assay and Genotype Analyses*, 75 J. VIROLOGY 4936, 4936 (2001).

18. *Saliva*, AIDSMAP (Apr. 7, 2009), <http://www.aidsmap.com/Saliva/page/1322841/>.

19. See, e.g., Karen Klinka, *AIDS, Virus Not Transmitted Like Common Cold, Flu Health Officials Dispel Misconceptions About Disease*, OKLAHOMAN (Nov. 12, 1991), <https://newsok.com/article/2375050/aids-virus-not-transmitted-like-common-cold-flu-health-officials-dispel-misconceptions-about-disease>.

20. *Frequently Asked Questions On Ebola Virus Disease*, WORLD HEALTH ORG., <https://www.who.int/csr/disease/ebola/faq-ebola/en/> (last updated May 2017); Gustavo E. Velásquez et al., *Time From Infection to Disease and Infectiousness for Ebola Virus Disease*, A Systematic Review, 61 CLINICAL INFECTIOUS DISEASES 1135, 1135 (2015).

21. *Ebola (Ebola Virus Disease)*, *supra* note 7.

are individuals who either (1) cared for someone with Ebola experiencing wet symptoms or (2) prepared someone for burial who died from Ebola.²²

Yet, Ebola also has “dry symptoms”—fever, headache, body aches, and nausea—that, by their nature, do not involve any bodily fluids.²³ Because human-to-human transmission of Ebola results from direct contact with infected bodily fluids,²⁴ and because Ebola’s dry symptoms do not include the release of infected bodily fluids,²⁵ it stands to reason that a person with Ebola who is experiencing only dry symptoms does not pose a significant risk of transmitting the disease to others nearby.

Ignoring the distinction between Ebola’s wet and dry symptoms leads to confusion and fear of the wrong symptoms and the wrong people. Consider the case of Dr. Craig Spencer. He was exposed to Ebola as a Doctors-Without-Borders volunteer while treating Ebola patients in Guinea in 2014.²⁶ As a volunteer, he wore protective equipment to treat those patients.²⁷ When Dr. Spencer returned to his home in New York City in mid-October 2014, he followed the self-monitoring guidelines for those exposed to Ebola, which were then in use by Doctors-Without-Borders and consistent with recommendations of the CDC.²⁸ The guidelines instructed him to take his temperature twice daily,²⁹ and he paid attention to any feelings of nausea, headache, or malaise.³⁰ For several days his temperature was normal, and he felt fine.³¹ When he recorded a raised temperature on his sixth day at home, he followed the instructions he had been given and called Doctors-Without-Borders, which in turn contacted New York’s public health officials, who promptly placed him into isolation at Bellevue Hospital based on his dry symptoms.³² Only after Dr. Spencer was in isolation in a hospital did he begin experiencing Ebola’s wet symptoms that pose a significant risk of transmission to others.³³ He received supportive care in isolation while his body fought the infection, and he

22. *Frequently Asked Questions On Ebola Virus Disease*, *supra* note 20.

23. *Id.*; Velásquez et al., *supra* note 20.

24. *Ebola (Ebola Virus Disease)*, *supra* note 7.

25. *See Ebola Virus Disease*, *supra* note 1.

26. Sydney Lupkin, *Ebola in America: Timeline of the Deadly Virus*, ABCNEWS (Nov. 17, 2014), <https://abcnews.go.com/Health/ebola-america-timeline/story?id=26159719>.

27. Craig Spencer, *Having and Fighting Ebola – Public Health Lessons from a Clinician Turned Patient*, 372 N. ENG. J. MED. 1089, 1090 (2015).

28. Sydney Lupkin, *New Jersey, New York, Illinois, Toughen Ebola Quarantine Rules After Doctor Case*, ABCNEWS (Oct. 24, 2014), <https://abcnews.go.com/Health/york-doctorebola-%20quarantine/story?id=26431431>.

29. *Id.*

30. *See Spencer*, *supra* note 27.

31. *Id.*

32. Lupkin, *supra* note 28.

33. *See Spencer*, *supra* note 27.

survived.³⁴ Because Dr. Spencer only experienced dry symptoms prior to his isolation from others, and because Ebola's dry symptoms—fever, body aches, headache, nausea, and malaise—do not pose a risk of transmitting the disease to others, Dr. Spencer did not put others at risk for Ebola.

To the public at large, however, Dr. Spencer was a villain for riding the New York subway and going out in public during the several days after he returned home and before he was hospitalized when, unbeknownst to anyone, he was infected with Ebola.³⁵ To them, Dr. Spencer's conduct was reckless because—as it happened—he could become symptomatic at any time and media outlets and health officials explained that, while asymptomatic individuals cannot spread Ebola, those experiencing symptoms can.³⁶ Here is what a physician said in his role as the ABC News Chief Health and Medical Editor: “Ebola is contagious when someone is symptomatic, []. A fever is the first symptom of Ebola, which means the virus is beginning to multiply in the patient's blood when a fever sets in Ebola is spread through close contact with an infected person, and it's not airborne.”³⁷ This physician made no distinction between Ebola's dry and wet symptoms and thus no distinction between the virtually zero risk of transmission posed by dry symptoms and the significant risk of transmission posed by wet symptoms. Instead, he links the risk of transmission to being “symptomatic,” identifies “a fever as the first symptom,” and says that transmission results from “close contact” with an “infected” person.³⁸ Unless a person hearing this report knows more about Ebola, she would be left with the erroneous impression that there is a significant risk of Ebola transmission if she gets close to a person whose only symptom is a fever.

Missing the distinction between Ebola's relatively benign dry symptoms and its quite dangerous wet symptoms was huge. Not only was it the difference between treating Dr. Spencer as a villain rather than a hero, it triggered an unfounded and draconian change in the quarantine policies of several states. The day after the news broke that Spencer experienced a fever and was isolated, New Jersey, New York, and Illinois announced new policies under which asymptomatic individuals exposed to Ebola would be quarantined.³⁹

34. *See id.*

35. Lupkin, *supra* note 28.

36. *Odds of Catching Ebola on the Subway and Other Handy Facts*, ABC NEWS (Oct. 24, 2014), <https://abcnews.go.com/Health/odds-catching-ebola-subway-handy-facts/story?id=26282017>.

37. *Id.*

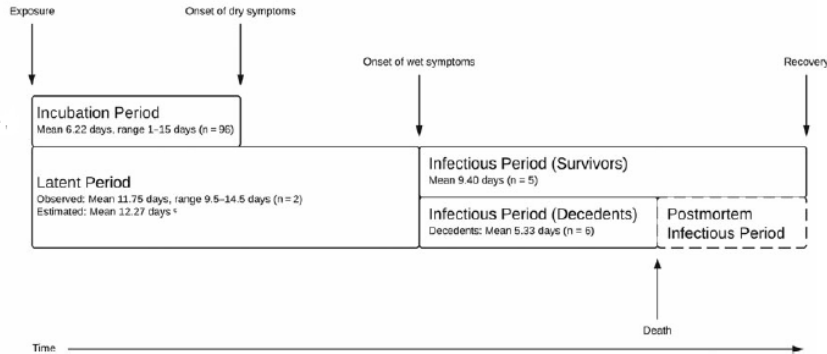
38. *Id.*

39. Lupkin, *supra* note 28.

Fact #3: A fever is Ebola’s canary in a coalmine; it provides timely warning of a coming threat.

If a person exposed to Ebola is, in fact, infected with the disease, she will experience non-infectious, dry symptoms for several days prior to the onset of infectious, wet symptoms.⁴⁰ Thus, the onset of dry symptoms in a person exposed to Ebola is useful to public health officials; it signals that it is time to isolate this person and, given the delay between the onset of dry and wet symptoms, officials have time to move the person into isolation without endangering others.

An experienced infectious disease specialist who treated Ebola patients in West Africa in 2014 and 2015 wrote in the *New England Journal of Medicine* about the risk of transmission that infected public health workers might present to others.⁴¹ He said, “[W]e now know that *fever precedes the contagious stage*, allowing workers who are unknowingly infected to identify themselves before they become a threat to their community.”⁴² A systematic review lends empirical support for this claim. The review mined published Ebola studies for case accounts that distinguished between the onset of dry and wet symptoms, found a dozen such accounts, and from that, surmised that dry symptoms precede wet symptoms by an average of six days.⁴³ The authors also provided the following timeline for the progression of the disease.⁴⁴



Dr. Spencer’s experience follows this timeline, and it demonstrates that health officials relied on the dry symptoms as an indicator that it was time to isolate him before he experienced the wet symptoms that posed a significant risk

40. Velásquez et al., *supra* note 20, at 1139 (reviewing available case reports that distinguish between the onset of dry and wet symptoms and concluding that dry symptoms precede wet symptoms by an average of six days).

41. Jeffrey M. Drazen et al., *Ebola and Quarantine*, 371 N. ENG. J. MED. 2029, 2029 (2014).

42. *Id.* (emphasis added).

43. Velásquez et al., *supra* note 20, at 1139.

44. *Id.* at 1138 fig.1.

of transmission to others. We can track his story from left to right across the timeline of Ebola's symptoms and infectiousness, above.⁴⁵

Dr. Spencer was infected with Ebola sometime during his deployment to West Africa.⁴⁶ Following the timeline, above, Spencer not only entered the "incubation period" at the time of his infection, but also the "latent period" in the sense that he was infected with Ebola but not yet infectious to others. During the "incubation period," he re-entered the U.S. and was out and about in his hometown of New York City before experiencing any symptoms, dry or wet.⁴⁷ Then, several days after returning home, he developed a fever.⁴⁸ According to the timeline, that marked the end of his "incubation period," because he experienced dry symptoms of Ebola. Importantly, however, Spencer remained in the "latent period" of Ebola's progression because—experiencing only dry symptoms that are not a mode of transmitting the disease—Spencer was not yet infectious to others.⁴⁹ At this stage, Spencer reported his condition to public health authorities, who promptly isolated him in anticipation of the next stage of his illness—the wet symptoms—that would pose a significant risk of transmission of Ebola to others.⁵⁰ Dr. Spencer left the "latent period" and entered the "infectious period" when he experienced the first wet symptoms, which was after he had been isolated in a special unit in a hospital.⁵¹

Again, the progression of Ebola in Dr. Spencer's case—including the several days delay between spiking a fever and experiencing the very first of the wet symptoms—was typical. Thus, a fever or other dry symptom, when experienced by a person who has been exposed to Ebola, is a reliable, non-infectious signal that the person will soon experience symptoms that pose a significant risk of disease transmission to others.⁵² Consequently, public officials must acknowledge, teach, and defend that Ebola's fever is a warning, not a threat.

45. *Id.*

46. See Lisa Schnirring, *Ebola Confirmed in NYC Doctor as WHO Warns About Mali*, *CTR. FOR INFECTIOUS DISEASE RES. AND POL'Y* (Oct. 24, 2014), <http://www.cidrap.umn.edu/news-perspective/2014/10/ebola-confirmed-nyc-doctor-who-warns-about-mali> (describing Spencer's infection as "linked to exposure in West Africa.").

47. See *id.* (noting that Spencer was screened by authorities at the airport when he re-entered the U.S.); see also Helen Ouyang, *The Doctor Who Got Ebola*, *N.Y. MAG.* (June 7, 2015), <http://nymag.com/intelligencer/2015/06/craig-spencer-after-ebola.html?gtm=top>m=bottom>.

48. Ouyang, *supra* note 47.

49. Velásquez et al., *supra* note 20, at 1138 fig.1.

50. Ouyang, *supra* note 47.

51. Velásquez et al., *supra* note 20, at 1138 fig.1; Ouyang, *supra* note 47.

52. See Velásquez et al., *supra* note 20, at 1139 (reviewing available case reports that distinguish between the onset of dry and wet symptoms and concluding that dry symptoms precede wet symptoms by an average of six days). Drazen et al., *supra* note 41.

Officials failed to do this in 2014⁵³ and continue this failure today. For example, the CDC's official explanation of Ebola transmission does not even distinguish between Ebola's dry and wet symptoms, let alone explain that Ebola's dry symptoms provide a non-infectious warning to move a person into isolation while there is still time to do so prior to the onset of the infectious symptoms.⁵⁴ About Ebola transmission, the CDC says: "[t]he Ebola virus CANNOT spread to others until a person develops signs or symptoms of [Ebola]."⁵⁵ The phrase "signs or symptoms" is then linked to a single list of all Ebola symptoms dry and wet, fever and bleeding.⁵⁶

If the CDC—the nation's foremost public health agency—does not explain that a fever is the canary in Ebola's coal mine, then we should not be surprised when that fact goes unacknowledged by others when making critical public health decisions. Indeed, this may explain why, at the peak of the Ebola scare, the CDC issued guidance that invited state health officials to quarantine asymptomatic individuals who had been exposed to Ebola.⁵⁷ It may also explain why several states, in late October 2014, adopted policies to quarantine even asymptomatic individuals who had recently traveled to a country where Ebola was widespread.⁵⁸ And it might also explain why two federal district courts, well after the scare had subsided, dismissed the lawsuits of several individuals who returned to or visited the U.S. from affected West African nations and who were quarantined in New Jersey and Connecticut even though they did not have even the dry symptoms of Ebola.⁵⁹

Consider, for example, the ruling of the federal district court in Connecticut in a lawsuit brought by a class of quarantined individuals, which included a Liberian family that had traveled to Connecticut to visit relatives in October 2014, never experienced any symptoms of Ebola, and yet were quarantined by

53. In late October 2014, when Craig Spencer developed a fever and was isolated, the CDC's website said of human-to-human transmission that, "You can only get Ebola from the body fluids of a person who is sick with or has died from Ebola . . ." without defining what it means to be "sick with" Ebola. *Facts About Ebola in the U.S.*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/pdf/infographic.pdf> (last visited Feb. 22, 2019).

54. See *Ebola (Ebola Virus Disease)*, *supra* note 7; *Signs and Symptoms*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/symptoms/index.html> (last reviewed May 22, 2018).

55. *Ebola (Ebola Virus Disease)*, *supra* note 7 (emphasis in original).

56. *Signs and Symptoms*, *supra* note 54.

57. See *Notes on the Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html> (last updated Dec. 27, 2017); see also Gatter, *supra* note 11, at 377.

58. See Lupkin, *supra* note 28; Gatter, *supra* note 11, at 394.

59. *Liberian Cmty. Ass'n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048, at *3-4, *14 (D. Conn. Mar. 30, 2017); *Hickox v. Christie*, 205 F. Supp. 3d 579, 584, 586 (D.N.J. 2016).

Connecticut officials in the basement of their relative's home for twenty-one days.⁶⁰ In 2016, well after the U.S. Ebola scare had ended, the class sued Connecticut's governor seeking damages under § 1983.⁶¹ The federal district court dismissed the claim, holding that state officials were protected by qualified immunity because, according to the court, the state's quarantine was reasonable.⁶²

The court's opinion demonstrates the irrationality that results when the distinction between Ebola's dry and wet symptoms is lost along with the fact that the dry symptoms provide a reliable warning that it is time to isolate the infected person prior to the onset of the wet symptoms that pose a significant threat to others. To justify the state's decision to quarantine individuals who traveled to Connecticut from a West African nation where Ebola was widespread, the court erroneously assumed that all of Ebola's symptoms threaten others and that those symptoms could arise without any warning, as demonstrated by this passage in the court's opinion:

While asymptomatic individuals cannot transmit Ebola, quarantining an individual during the incubation period is not arbitrary; it is substantially related to preventing any potential transmission of a highly infectious illness. *For instance, an asymptomatic individual could potentially become symptomatic during the incubation period and then transmit the illness to others prior to being isolated.*⁶³

The court is simply wrong. Quarantining someone exposed to Ebola to protect others from the risk of transmission posed by Ebola's first symptoms is quintessentially arbitrary because Ebola's first symptoms—the dry symptoms—do not pose a significant risk of transmission.⁶⁴ Even if the court was referring to wet symptoms in this passage, it failed to account for the fact that dry symptoms will precede wet symptoms and thereby warn officials that the wet symptoms will begin several days later,⁶⁵ which is plenty of time to isolate the exposed patient.

60. *Liberian Cmty Ass'n of Conn*, 2017 WL 4897048, at *5; *Hickox*, 205 F. Supp. 3d at 584.

61. *Liberian Cmty Ass'n of Conn*, 2017 WL 4897048, at *1.

62. *Id.* at *14.

63. *Id.* at *11 (emphasis added) (footnote omitted).

64. See *supra* notes 20–39 and accompanying text; Velásquez et al., *supra* note 20 (generally establishing that Ebola's dry symptoms occur during the "latent period" and prior to the "infectious period" of the disease).

65. Velásquez et al., *supra* note 20, at 1139 (reviewing available case reports that distinguish between the onset of dry and wet symptoms and concluding that dry symptoms precede wet symptoms by an average of six days); Drazen et al., *supra* note 41.

III. THE CONSEQUENCES OF LOSING THESE THREE KEY FACTS ABOUT EBOLA TRANSMISSION

Part II identified the following three facts about Ebola transmission.

- Ebola is not easily transmitted; like HIV, it requires direct contact with the bodily fluids of a person suffering Ebola's wet symptoms.⁶⁶
- The dry symptoms of Ebola—a fever, for example—do not pose a risk of transmission.⁶⁷
- Ebola's dry symptoms occur days before the dangerous wet symptoms, giving officials time to isolate the patient before there is a significant risk to others.⁶⁸

Because health officials, lawyers, and judges did not sufficiently articulate and defend these facts during the 2014 Ebola scare in the U.S., they were lost. And the consequences were grave. According to a report by the American Civil Liberties Union (ACLU) and the Yale Global Health Justice Partnership, states formally quarantined or informally coerced into self-quarantine at least 273 asymptomatic individuals whom officials suspected had been exposed to Ebola.⁶⁹ Many were health professionals who had volunteered to fight Ebola abroad so as to prevent its spreading farther.⁷⁰

There is evidence that government policies to order every public health worker returning from fighting Ebola abroad into a three-week quarantine chilled volunteerism among aid workers in 2014. Doctors-Without-Borders—faced with the prospect of losing volunteers who could not afford the additional time away from their homes and jobs—reduced the length of their volunteers' deployments by three weeks to account for the prospect of quarantine.⁷¹ Other medical aid organizations had difficulty recruiting volunteers after these state

66. *See supra* notes 1–19 and accompanying text.

67. *See supra* notes 20–39 and accompanying text.

68. *See supra* notes 40–64 and accompanying text.

69. AM. CIV. LIBERTIES UNION & YALE GLOB. HEALTH JUSTICE P'SHIP, FEAR, POLITICS, AND EBOLA: HOW QUARANTINES HURT THE FIGHT AGAINST EBOLA AND VIOLATE THE CONSTITUTION 29 (2015), https://www.aclu.org/sites/default/files/field_document/aclu-ebolareport.pdf [hereinafter ACLU Report]. The report notes that the actual count is likely much higher because many quarantines took place informally and because states have been secretive about such quarantines. *Id.* at 28–29.

70. *See id.* at 19, 25–27 (identifying that state Ebola quarantine policies were specifically aimed at returning health care workers and describing the experiences of three physicians in particular).

71. Jonathan Allen, *U.S. Quarantines 'Chilling' Ebola Fight in West Africa: MSF*, REUTERS (Oct. 30, 2014), <https://www.reuters.com/article/us-health-ebola-usa-msf/u-s-quarantines-chilling-ebola-fight-in-west-africa-msf-idUSKBN0IJ2PR20141031>; *see also* ACLU Report, *supra* note 69, at 31.

policies were announced in October 2014, with one experiencing a twenty-five percent reduction in its volunteer work force.⁷²

When volunteerism dropped in early November 2014, Ebola in three West African nations posed a tremendous global threat. The WHO declared a worldwide public health emergency only three months before in August.⁷³ The first of the three affected West African countries would not be declared Ebola-free until May 2015,⁷⁴ and it would be another thirteen months before WHO would declare the emergency over.⁷⁵ When volunteerism first dropped, there had been 13,241 Ebola infections and 4,950 deaths to that point in the epidemic, but these numbers would more than double before the epidemic's end, ballooning to 28,616 confirmed infections and 11,310 deaths.⁷⁶ We will never know how many of these infections and deaths would have been prevented had state quarantine policies not diminished the volunteer public health workforce.

In short, the moment when several states announced that they would quarantine everyone traveling to the U.S. from Liberia, Guinea, or Sierra Leone with or without symptoms of Ebola was the worst time to do so. When the U.S. is threatened by a growing epidemic in another part of the world, our policy should be to encourage greater volunteerism among public health and medical professionals. Like fighting a fire, the strategy for fighting the spread of a dangerous infectious disease is to mount a global response where the disease flares so as to contain it and prevent its spreading.⁷⁷ Announcing a policy of post-deployment quarantine for all returning people who volunteer to fight a large Ebola flare-up abroad will diminish the workforce available to contain the disease, which in turn, will give the epidemic a better opportunity to turn into a pandemic.

Losing these key facts about Ebola transmission also opened the door to the most invidious forms of discrimination.⁷⁸ For example, Nigerian students who applied to a community college in Texas were rejected in letters stating that the college was “not accepting international students from countries with confirmed

72. ACLU Report, *supra* note 69, at 31.

73. *Statement On the 1st meeting of the IHR Emergency Committee On the 2014 Ebola Outbreak in West Africa*, WORLD HEALTH ORG. (Aug. 8, 2014), <https://www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/>.

74. *The Ebola Outbreak in Liberia is Over*, WORLD HEALTH ORG. (May 9, 2015), <https://www.who.int/mediacentre/news/statements/2015/liberia-ends-ebola/en/>.

75. *Situation Report: Ebola Virus Disease*, WORLD HEALTH ORG. (June 10, 2016), https://apps.who.int/iris/bitstream/handle/10665/208883/ebolasitrep_10Jun2016_eng.pdf?sequence=1.

76. *Case Counts*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/case-counts.html> (last reviewed Mar. 8, 2019).

77. See ACLU Report, *supra* note 69, at 10.

78. Gatter, *supra* note 11, at 398; see ACLU Report, *supra* note 69, at 29–30.

Ebola cases.”⁷⁹ This happened despite the fact that there had been at least one confirmed case of Ebola in the U.S. at the time the college wrote its rejection letters.⁸⁰ In another example, Senegalese-American children in New York City were beaten and taunted by their school classmates, who yelled “Ebola!” while hitting them.⁸¹ In still other instances, the spouses and children of health professionals and government officials who traveled to West Africa were not permitted to go to work or attend school for fear that they had caught Ebola at home and could spread it in school or at work.⁸²

The irrational actions officials took and that courts failed to remedy when these three facts were lost may have signaled erroneously to the rest of society that someone exposed to Ebola, potentially exposed to Ebola, or who lives with someone who may have been exposed to Ebola poses a real threat to everyone. When the law permits irrational actions that contravene the scientific facts of Ebola transmission, it should not surprise us that schools, employers, co-workers, business owners, and neighbors follow the law’s lead.

Finally, a consequence of losing these key facts about Ebola transmission is bad legal precedent and erosion of what constitutes reasonable action by public health agencies. As referenced in Part II, two federal lawsuits were filed after the 2014 Ebola scare that sought compensation for the unjustified quarantine of a nurse in New Jersey and a family from Liberia that was visiting Connecticut on a visa.⁸³ Each case was brought under § 1983 against a state governor and state public health officials.⁸⁴ In each case, the defendants filed motions to dismiss based on qualified immunity, and each federal court granted those motions.⁸⁵ In so doing, the federal district courts in New Jersey and Connecticut ruled on the basis of just a few federal opinions addressing the constitutionality of quarantine, none of which involved Ebola.⁸⁶ From those cases, the federal district courts in New Jersey and Connecticut concluded that public health officials need only act reasonably and that it is reasonable to quarantine a person

79. *Texas College Rejects Nigerian Applicants, Cites Ebola Cases*, NBC NEWS (Oct. 15, 2014), <https://www.nbcnews.com/storyline/ebola-virus-outbreak/texas-college-rejects-nigerian-applicants-cites-ebola-cases-n226291>.

80. *See id.*

81. Elizabeth Barber, *2 Kids from Senegal Were Beaten Up in NYC by Classmates Yelling ‘Ebola’*, TIME (Oct. 27, 2014), <http://time.com/3542955/senegalkids-brothers-assaulted-ebola-bronx-tremont-school-new-york-city-pabe-amadou-drame/>.

82. Anemona Hartocollis & Nate Schweber, *Bellevue Employees Face Ebola at Work, and Stigma of It Everywhere*, N.Y. TIMES (Oct. 29, 2014), <https://www.nytimes.com/2014/10/30/nyregion/bellevue-workers-worn-out-from-treating-ebola-patient-face-stigma-outside-hospital.html>.

83. *Hickox v. Christie*, 205 F. Supp. 3d 579, 584 (D.N.J. 2016); *Liberian Cmty. Ass’n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048, at *1, *5 (D. Conn. Mar. 30, 2017).

84. *Hickox*, 205 F. Supp. 3d at 584; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *1.

85. *Hickox*, 205 F. Supp. 3d at 584; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *1.

86. *Hickox*, 205 F. Supp. 3d at 590–92; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *10.

exposed to a dangerous infectious disease for the duration of the disease's incubation period.⁸⁷ Because each of the two lawsuits concerned individuals who were exposed or at least potentially exposed to Ebola and quarantine orders that limited quarantine to Ebola's incubation period, the courts concluded the defendant-officials had acted reasonably and were immune from suit for compensation.⁸⁸

Even assuming that the courts adopted the right standard, their application of it stripped the "reason" right out of "reasonableness." Each court was content to treat all infectious diseases as similarly dangerous without taking account for the different ways diseases are transmitted from person to person.⁸⁹ Neither court accounted for the modes of Ebola transmission.⁹⁰ As a result, neither court could possibly determine what governmental actions are or are not based on reason. And now these two opinions are themselves precedent for future courts and cases. In this way, a consequence of Ebola's lost facts is that "reasonableness" is less likely to be treated as a meaningful check on public health action in the face of an infectious disease.

IV. HOW DID THE KEY FACTS ABOUT EBOLA TRANSMISSION GET LOST?

As explored next, the 2014 Ebola scare and its legal aftermath demonstrate that we were not prepared to deploy the law effectively in the face of public fear. This part examines evidence that lawyers and judges were not prepared to deploy the law quickly so as to more effectively protect those injured by unnecessary quarantine, to discipline state officials who violate the law while attempting to protect the public's health, or to establish valuable precedent.

While public fear of an ongoing outbreak likely caused officials in 2014 to ignore the facts of Ebola transmission when adopting and enforcing policies to quarantine individuals returning from countries where Ebola was widespread,⁹¹ such fear could not have been at play when two federal courts—years after the scare had ended—addressed two lawsuits brought by those who had been quarantined.⁹² Rather, the failure of these courts to account for these facts must

87. *Hickox*, 205 F. Supp. 3d at 593; *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *12.

88. *See Hickox*, 205 F. Supp. 3d at 593; *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *9.

89. *Hickox*, 205 F. Supp. 3d at 590–92 (relying on case law involving smallpox and a venereal disease); *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *10 (analogizing to case law involving smallpox).

90. *Hickox*, 205 F. Supp. 3d at 590–92; *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *10.

91. Wendy E. Parmet & Michael S. Sinha, *A Panic Foretold: Ebola in the United States*, 27 CRITICAL PUB. HEALTH 148, 152 (2017); Gatter, *supra* note 11; ACLU Report, *supra* note 68, at 25–27.

92. *Hickox*, 205 F. Supp. 3d at 584; *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *1.

have resulted from other factors, including the strategies used by the lawyers representing the plaintiffs.⁹³

Lawyers for individuals unjustifiably quarantined in Connecticut and New Jersey during the 2014 Ebola scare sued state officials in those states seeking compensation under § 1983 for federal constitutional violations.⁹⁴ Claims for civil damages under § 1983 are subject to the defense of qualified immunity.⁹⁵ Predictably, the officials from Connecticut and New Jersey who were named as defendants in those two lawsuits filed motions to dismiss based on their claimed qualified immunity.⁹⁶ “The doctrine of qualified immunity protects government officials ‘from liability for civil damages insofar as their conduct does not violate clearly established statutory or constitutional rights of which a reasonable person would have known.’”⁹⁷ For a time, the Supreme Court of the United States required that a court addressing the defense of qualified immunity must determine first whether the official had violated a right of the plaintiff’s that was guaranteed by federal law; if so, then a court must determine also whether the violated statutory or constitutional right was clearly established and whether it was a right about which a reasonable person would have known at the time the official violated it.⁹⁸ More recently, however, the Supreme Court receded from this position, ruling instead that a reviewing court, at its discretion, may make these two determinations in either order.⁹⁹

Thus, by suing for money damages under § 1983, lawyers for the individuals formerly quarantined by the States of Connecticut and New Jersey subjected their clients to two related risks. First is the general risk that the defendants would escape liability based on a qualified immunity defense. Second is the risk that the reviewing courts, rather than judge whether the defendants violated the constitutional rights of their clients, would address whether any constitutional right the defendants *may* have violated was “clearly established” and was a right about which a “reasonable person would know” at the time of the alleged violation.

This second risk was particularly relevant to lawsuits alleging that quarantines in 2014 were unconstitutional, because the controlling legal

93. This Article is critical of the strategies adopted by the lawyers representing the plaintiffs in *Hickox v Christie* and *Liberian Community Association of Connecticut v. Malloy* based on the public policy of legal standards and practices that force health officials and courts to account for the various modes of transmission of different infectious diseases. This article does not question that the lawyers representing the quarantined plaintiffs served their clients loyally, professionally, and in ways that met the relevant standard of care.

94. *Hickox*, 205 F. Supp. 3d at 584; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *1.

95. See, e.g., *Pearson v. Callahan*, 555 U.S. 223, 227 (2009).

96. *Hickox*, 205 F. Supp. 3d at 584, 593; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *1.

97. *Pearson*, 555 U.S. at 231 (quoting *Harlow v. Fitzgerald*, 457 U.S. 800, 818(1982)).

98. *Saucier v. Katz*, 533 U.S. 194, 201–02 (2001).

99. *Pearson*, 555 U.S. at 236.

standard was uncertain. Very few published federal court opinions existed then (and now) addressing the constitutionality of quarantine orders.¹⁰⁰ With so few data points from which to construct a bright-line rule about how broad constitutional principles apply to quarantine, a court is more easily justified in reaching the conclusion that any constitutional right is under developed or ambiguous and thus neither “clearly established” nor a right that a “reasonable person would have known.”¹⁰¹ Moreover, courts must account for the 1905 Supreme Court holding in *Jacobson v. Massachusetts*,¹⁰² and they have taken different positions on whether state quarantine orders are assessed under modern substantive due process jurisprudence or whether they are subject to a “reasonableness” standard unique to public health actions.¹⁰³ A court can take these differing positions as additional evidence that the right to be free of quarantine is somewhat unsettled and thus neither “clearly established” nor something about which a “reasonable person would have known.”¹⁰⁴

Other options existed during and after the U.S. Ebola scare for challenging the legality of Connecticut’s and New Jersey’s quarantine of asymptomatic individuals, including suing for damages under the Rehabilitation Act of 1973¹⁰⁵ and seeking judicial review under administrative law of the quarantine while it was ongoing.¹⁰⁶ These would have triggered more rigorous legal standards than those available under the federal constitution, which would reduce the likelihood that the key facts of Ebola transmission would get lost.

Section 504 of the Rehabilitation Act of 1973 prohibits disability discrimination.¹⁰⁷ It provides: “No otherwise qualified individual with a disability . . . shall, solely by reason of his or her disability, . . . be subjected to discrimination . . . under any program or activity conducted by any Executive

100. Indeed, the *Hickox* and *Liberian Cmty. Ass’n* Courts’ opinions each describe those handful of cases and thereby exhaust the federal case law on point. *Hickox*, 205 F. Supp. 3d at 590–92; *Liberian Cmty. Ass’n of Conn.*, 2017 WL 4897048, at *10.

101. *Pearson*, 555 U.S. at 231 (explaining the requirements for the qualified immunity defense).

102. *Jacobson v. Mass.*, 197 U.S. 11, 27–28 (1905) (upholding the requirement that individuals be vaccinated against smallpox on the grounds that it is reasonable action by public health authorities).

103. Scott Burris, *Rationality Review and the Politics of Public Health*, 34 VILL. L. R. 933, 960–70 (1989) (examining the different interpretations that courts and commentators have given to the Supreme Court’s application of the due process clause in the Fourteenth Amendment to the federal Constitution in 1905 opinion *Jacobson v. Massachusetts*, because the opinion pre-dates the development of modern substantive due process jurisprudence).

104. *Pearson*, 555 U.S. at 231 (explaining the requirements for the qualified immunity defense).

105. See *infra* notes 106–113 and accompanying text.

106. See *infra* notes 114–116 and accompanying text.

107. 29 U.S.C. § 794(a) (2012).

agency . . .” which is defined to include all state administrative agencies.¹⁰⁸ Additionally, it has been deemed to create a private right of action for damages for those who are victims of intentional discrimination.¹⁰⁹ Most notably, the Supreme Court in *School Board of Nassau County v. Arline* held that § 504 applies to actions taken against individuals who have or who are perceived to have a contagious disease.¹¹⁰ In such cases, courts must include findings of fact:

based on reasonable medical judgments given the state of medical knowledge, about (a) *the nature of the risk (how the disease is transmitted)*, (b) *the duration of the risk (how long is the carrier infectious)*, (c) *the severity of the risk (what is the potential harm to third parties)*, and (d) *the probabilities the disease will be transmitted and will cause varying degrees of harm.*¹¹¹

The Court’s specificity in describing the findings that a court must make when ruling on whether a state agency discriminates against a person perceived to have a contagious disease could have helped assure that a court accounts for the facts about Ebola’s mode of transmission and the relationship between Ebola’s infectious period and its wet and dry symptoms. Lawyers for the New Jersey plaintiff did not include a claim based on § 504 in their complaint.¹¹² While the complaint in the suit challenging Connecticut’s quarantine of asymptomatic individuals included a claim for disability discrimination under § 504,¹¹³ the claim was pled incorrectly and dismissed despite efforts of the

108. 29 U.S.C. § 794(a), (b)(1)(A).

109. “The remedies, procedures, and rights set forth in title VI of the Civil Rights Act of 1964 . . . shall be available to any person aggrieved by any act or failure to act by any recipient of Federal assistance or Federal provider of such assistance under section 794 of this title.” 29 U.S.C. § 794a(a)(2). The public health agencies of both Connecticut and New Jersey are recipients of federal assistance. ASS’N OF ST. & TERRITORIAL HEALTH OFFICIALS, *ASTHO PROFILE OF STATE AND TERRITORIAL PUBLIC HEALTH* 132, 162 (2017), <http://www.astho.org/Profile/Volume-Four/2016-ASTHO-Profile-of-State-and-Territorial-Public-Health/>. Additionally, U.S. Department of Justice guidance states that monetary damages are available to individuals who are victims of intentional discrimination under Title VI. *Section IX- Private Right of Action & Individual Relief Through Agency Action*, U.S. DEP’T JUST., <https://www.justice.gov/crt/fcs/T6Manual9> (last updated Jan. 26, 2017). Thus, individuals in Connecticut or New Jersey ordered into quarantine in a manner that violates the Rehabilitation Act’s prohibition against disability discrimination may sue for monetary damages so long as they claim the disability discrimination was intentional.

110. *Sch. Bd. of Nassau Cty. v. Arline*, 480 U.S. 273, 282, 289 (1987) (§ 504 applies to a public school board’s firing of a teacher with remitting and relapsing tuberculosis because a person with a contagious disease is “handicapped” under the statute; the case was remanded to district court for findings of fact relevant to whether the teacher was “otherwise qualified” to teach in the classroom).

111. *Id.* at 288 (emphasis added). The Court went on to say, “In making these findings, courts normally should defer to the reasonable medical judgments of public health officials.” *Id.*

112. Verified Complaint at 28–33, *Hickox v. Christie*, 205 F. Supp. 3d 578 (D.N.J. 2016) (No. 15-7647).

113. Trial Pleading at 43–45, *Liberian Cmty. Ass’n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048 (D. Conn. Mar. 30, 2017).

plaintiffs' lawyers to amend the complaint belatedly through its brief on the defendants' motion to dismiss.¹¹⁴

In some instances, lawyers representing asymptomatic individuals subject to a quarantine order might also take advantage of a so-called "hard look" standard for judicial review of agency actions. Under the federal Administrative Procedures Act, a court may set aside an agency action—including a quarantine order—if the action is arbitrary, capricious or an abuse of discretion.¹¹⁵ When applied to a federal agency's discretionary actions, this standard of review is relatively rigorous. While a court may not substitute its own judgment for that of the agency, the court must take a hard look at the logic used by the agency and assure that it is rational.¹¹⁶ The hard look is intended to be a "thorough, probing, in-depth review" of the agency's decision, which requires the reviewing court to assure that the agency rationally addressed every relevant factor and did not make a clear error of judgment in reaching its conclusion.¹¹⁷ Where a hard-look standard of review is available, a lawyer could use it to challenge a public health agency's judgment that an asymptomatic individual exposed to Ebola poses a significant risk of communicating the disease to others. In particular, those individuals could argue that, in order to account for every relevant factor in an in-depth and probing manner, a court must assess whether the agency considered each of the key facts about Ebola transmission when reaching its judgment.

Of course, the quarantine orders at issue in the Connecticut and New Jersey cases were issued by state—not federal—agencies.¹¹⁸ Consequently, lawyers for the quarantined individuals would have needed to identify the relevant state law analog to the federal hard-look review.¹¹⁹ A challenge of the New Jersey quarantine order based on such a standard of review may have been available, because the state Supreme Court has recognized judicial authority to set aside agency actions where "the agency clearly erred by reaching a conclusion that could not reasonably have been made upon a showing of the relevant factors."¹²⁰ Yet, there is significant variation among states as to the rigor applied by courts

114. *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *11 n.23.

115. 5 U.S.C. § 706(2)(A) (2012).

116. *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 415–16 (1971). This test is informally known as the "hard look" standard of review. MICHAEL ASIMOW & RONALD M. LEVIN, *STATE AND FEDERAL ADMINISTRATIVE LAW* 592 (3d ed. 2009).

117. *Overton Park*, 401 U.S. at 415–16.

118. *Hickox v. Christie*, 205 F. Supp. 3d 578, 586–87 (D.N.J. 2016); *Liberian Cmty. Ass'n of Conn.*, 2017 WL 4897048, at *4–5.

119. Hard look review might be available in Connecticut. *Envirotest Sys. Corp. v. Freedom of Info. Comm'n*, 757 A.2d 1202, 1204 (Conn. App. 2000) (explaining discretionary judgments of administrative agencies are given considerable weight by courts).

120. *Pub. Serv. Elec. & Gas Co. v. New Jersey Dep't of Env'tl. Prot.*, 501 A.2d 125, 129 (N.J. 1985).

reviewing discretionary state agency actions.¹²¹ Some state standards of review are quite deferential, while others have come closer to mimicking the federal hard-look probe.¹²²

Regardless of the claims used to challenge quarantines like those in Connecticut and New Jersey, lawyers are more likely to force courts to account for the key facts about Ebola transmission if they feature those facts in their complaints and briefs. A review of the pleadings in the Connecticut and New Jersey cases reveal that they were largely silent on the unique progression of Ebola that explained why quarantine was irrational unless and until an exposed individual developed a fever.¹²³

Ten pleadings, including eight briefs, were submitted to district or appellate courts in the Connecticut and New Jersey cases arguing that each state's quarantine of asymptomatic individuals during the Ebola scare was inappropriate and illegal.¹²⁴ Of those ten pleadings only one included all of the key facts about Ebola transmission.¹²⁵ Even that one brief did not address the several days of lag time between dry and wet symptoms, and it did not feature the key transmission facts by addressing them early in the brief, identifying all three facts in a single sentence starting at the bottom of page fifteen of that brief.¹²⁶ Nor did this brief highlight the facts in an easy-to-understand, hard-to-ignore context, such as comparing Ebola transmission to HIV transmission or including graphs or images that encapsulate or depict the facts. Rather, the brief states simply that "[a]symptomatic individuals cannot transmit the disease to

121. ASIMOW & LEVIN, *supra* note 116, at 598, 599.

122. *Id.*

123. See generally Verified Complaint, *Hickox v. Christie*, 205 F. Supp. 3d 578 (D.N.J. 2016) (No. 15-7647); Trial Pleading, *Liberian Cmty. Ass'n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048 (D. Conn. Mar. 30, 2017).

124. The relevant pleadings for *Hickox v. Christie* in the federal district court for the District of New Jersey include the plaintiff's complaint and her brief in opposition to the defendants' motion to dismiss. The pleadings for *Liberian Community Association of Connecticut v. Malloy* include the plaintiffs' complaint and brief in opposition to the defendants' motion to dismiss filed in the federal district court for the District of Connecticut as well as the plaintiffs' opening and reply appellate briefs and four amicus briefs filed in the federal Court of Appeals for the Second Circuit. The following three questions were addressed in the review of each of the briefs: (1) Does the brief state that Ebola is not transmitted by asymptomatic individuals? (2) Does the brief state that Ebola is not transmitted by individuals infected with Ebola who have dry symptoms such as fever? (3) Does the brief state that there is a lag time of several days between the onset of dry symptoms and wet symptoms?

125. Brief in Opposition to Motion to Dismiss Pursuant to Fed. R. Civ. P. 12(b)(6) on Behalf of Plaintiff, Kaci Hickox at 15–16, *Hickox v. Christie*, 205 F. Supp. 3d 578 (D.N.J. 2016) (No. 15-7647).

126. *Id.*

others, and, critically, fever precedes the contagious stage.”¹²⁷ Of the remaining seven briefs, only one other—an amicus brief—includes two of the key facts.¹²⁸

Advocates for rational quarantine increase the likelihood that the law will lose the key facts of Ebola transmission when those advocates fail to at least mention all of those facts in each of their pleadings. Of course, good advocacy may call for not only mentioning, but also highlighting these foundational facts. One sentence located fifteen pages into a brief is more easily missed by a judge than a sentence featured at the start of the brief and in brief headings. Indeed, this very Article begins with the three lost facts and uses an image to depict one of them. The reader should ask herself whether those facts are hard to ignore when featured in that way.

To this point, the Article has examined ways that lawyers can help assure that courts do not lose sight of the key facts of Ebola transmission when reviewing a legal challenge to the quarantine of asymptomatic individuals. Yet, courts also bear responsibility to assure that those facts are discovered and accounted for. That responsibility is inherent in even the most deferential standard of judicial review.¹²⁹ A court asked to address whether a public health agency has acted reasonably and without abusing its discretion need not simply defer to the expertise of the agency without requiring that the agency to identify and explain the logic the agency deployed to reach its conclusion that quarantine was appropriate. Additionally, a court is not failing to act with appropriate deference to the agency if the court requires the agency to explain how its determination about the risk posed by asymptomatic individuals exposed to Ebola is consistent with the best available medical and public health evidence about how the disease is transmitted from human-to-human. A court that does not make such a minimal inquiry is failing to assure that quarantine orders are “reasonable” whether or not lawyers for those quarantined adequately argue for such an inquiry.¹³⁰

In fact, a state trial court in Maine undertook such a minimal and nonetheless rigorous review when the State sought a temporary order to quarantine Kaci Hickox, a nurse and public health worker who returned to her home in Maine

127. *Id.*

128. Brief for *Amici Curiae* Mark Barnes and Leana Wen in Support of Appellants at 5–6, *Liberian Cmty. Ass’n of Conn. v. Malloy*, No. 3:16-cv-00201(AVC), 2017 WL 4897048 (D. Conn. Mar. 30, 2017) (“As CDC and medical experts had publicly stated, asymptomatic individuals cannot spread the Ebola virus, while fever precedes the stage at which Ebola is contagious, such that an individual can be isolated well before becoming a threat to others.”) (footnotes omitted).

129. *See supra* notes 106–116 and accompanying text.

130. Several jurisdictions are aided by bench books designed to guide courts through legal decision-making related to public health. *Public Health Law Bench Books*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/phlp/publications/topic/benchbooks.html> (last reviewed Oct. 31, 2018). A valuable future research question is whether those bench books instruct courts in cases challenging quarantine and isolation orders to make findings with respect to the modes of transmission for the particular infectious diseases at issue.

after returning to the U.S. from treating Ebola patients in West Africa in 2014.¹³¹ The record contained only the state's petition, which identified Ms. Hickox as one who was exposed to but was asymptomatic for Ebola.¹³² Nonetheless, the court, in carrying out its statutory duty to review the necessity of the order requested in the petition, identified a fundamental flaw in the state's logic; namely, that the petition sought to quarantine Hickox while also admitting that Hickox was asymptomatic and that only those experiencing symptoms of Ebola can transmit the disease to others.¹³³ As a result—and without any advocate arguing on behalf of Ms. Hickox—the court denied the petition to the extent that it sought an immediate quarantine.¹³⁴ If a state trial court in Maine can carry out such an inquiry during a claimed emergency, including hearing from only one party in the dispute, then certainly two federal district courts should have been able to make a similar inquiry more than a year after the Ebola scare had ended—regardless of any information provided or arguments made by advocates for the quarantined individuals.

V. CONCLUSION: RE-EXAMINING PUBLIC HEALTH LEGAL PREPAREDNESS?

The preceding parts demonstrate that lawyers and judges are not sufficiently prepared to deploy the law effectively even after a public health emergency, let alone during one. As a remedy, public health organizations, policy makers, and professional organizations for lawyers and judges, among others, must prioritize greater preparedness for public health crises. Specific steps should include:

- identifying and training a corps of lawyers in all fifty states who agree, on an emergency basis, to represent individuals subject to state public health orders during a disease epidemic or other population health scare;
- develop a legal go-team, perhaps through the CDC, that would support state and local public health officials during a public health scare;
- publish guides for lawyers identifying and comparing various claims that could be relevant in the representation of persons subject to public health orders during an emergency; and
- offer table-top public health exercises for judges and lawyers.

These strategies, at least in theory, fit under the concept of public health legal preparedness. As a practical matter, however, doing so will require a reconsideration of the concept.

131. Gatter, *supra* note 11, at 376.

132. Verified Petition for Public Health Order at 2, *Mayhew v. Hickox*, No. CV-2014-36 (Me. Dist. Ct., Fort Kent, Oct. 30, 2014).

133. Order Pending Hearing, *Mayhew v. Hickox*, No. CV-2014-36 (Me. Dist. Ct., Fort Kent, Oct. 31, 2014).

134. *See id.*

Public health legal preparedness is defined as “legal benchmarks essential to the preparedness of the public health system” to respond effectively to an emergency.¹³⁵ These legal benchmarks and standards fall into four categories: “laws and legal authorities,”¹³⁶ “competency in using laws effectively and wisely,”¹³⁷ “coordination of legally based interventions across jurisdictions and sectors,” and “information on public health laws and best practices.”¹³⁸ The concept emerged after September 11, 2001, and its practical focus has been on assuring that the legal authority of public health agencies is clear and that officials are trained on that authority in anticipation of a public health emergency.

The traditional focus on preparing public health officials for the legal challenges of responding to a public health emergency is necessary but insufficient. It is time to expand public health legal preparedness to prepare the lawyers and judges who must make important legal and factual judgments effectively and quickly during an emergency. This must include preparing them to deploy law in the context of fear and even panic.

135. Anthony D. Moulton et al., *What Is Public Health Legal Preparedness?*, 31 J. L. MED. & ETHICS 672, 674 (2003).

136. Described as the “statutes, regulations, ordinances, court rulings, and other authoritative statements by government bodies” that “are foundational to public health legal preparedness.” Georges C. Benjamin & Anthony D. Moulton, *Public Health Legal Preparedness: A Framework for Action*, 36 J. L. MED. & ETHICS 13, 14 (2008).

137. This component of public health legal preparedness demands that “[p]ublic health professionals . . . know the legal powers they have and how best to apply them.” *Id.* Additionally, it requires that “emergency responders, law enforcement officials, judges, hospital managers, and many others knowing the legal authorities held by public health officials as well as their own relevant legal powers and imitations.” *Id.*

138. “Information resources . . . include, for example, practitioner guides to the established public health laws of a given jurisdiction, updates on relevant new laws and court rulings, and science- or experience-based best practices in using laws to support public health interventions.” *Id.*

