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Ebola, Quarantine, and Flawed CDC Policy

Robert Gatter*

The CDC's Interim Guidance for Monitoring and Movements of Persons with Potential Ebola Virus Exposure is deeply flawed because it disregards the science of Ebola transmission. It recommends that officials quarantine individuals exposed to the virus but who do not have any symptoms of illness, ignoring the fact that only those with Ebola symptoms can communicate the virus to others. Consequently, any quarantine order based on the Guidance is surely unconstitutional and illegal under most states' public health statutes—as exemplified by the State of Maine's failed petition to quarantine Nurse Kaci Hickox in October 2014. This article examines the Guidance and events surrounding its creation to explore why the CDC issued quarantine recommendations that lack scientific foundation. It also catalogues the costs of doing so, concluding that the Guidance undermines rather than serves population health.

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My approach is to figure out what works, get it done and base it all on data.

Tom Frieden, MD, M.P.H.
Director, CDC

INTRODUCTION

Remember Kaci Hickox? She is the nurse who volunteered to treat Ebola patients in a disease-stricken West African nation, and then dominated the news when she fought against efforts by two states to quarantine¹ her after she returned home symptom-free.

You might remember how she stood up to New Jersey Governor Chris Christie, who had mandated the quarantine of everyone who treated Ebola patients, even those who could not transmit Ebola to others because they did not have any symptoms of the disease.² Christie applied this mandate to Hickox when she returned to the U.S. through Newark Liberty International Airport.³ When New Jersey's policy was criticized on the grounds that it ignored the science of Ebola transmission, Christie claimed he was acting "out of an abundance of caution."⁴ Hickox, sounding more like a seasoned politico than a nurse, quipped that the governor seemed to be acting "out of an abundance of politics."⁵

Almost certainly, you would recognize two famous photos of her. One is a quarantine-selfie taken from a tent erected in a parking lot of the Newark hospital where she was being held against her will.⁶ In the

¹ Throughout this article, I use the word "quarantine" to include both the *complete* separation of one exposed to Ebola from those who have not been exposed (*e.g.*, the kind of quarantine imposed by New Jersey on Kaci Hickox) and the *near-complete* separation of one exposed to Ebola from those who have not been exposed, which allows the person exposed to be with others so long as she is not within three feet of any non-exposed person (*e.g.*, the kind of quarantine that Maine sought to impose on Kaci Hickox).

² Leslie Savan, *Nurse Kaci Hickox Takes on Bully Governors Christie, Cuomo and LePage*, THE NATION (Oct. 29, 2014, 4:58 PM), <http://www.thenation.com/blog/186681/nurse-kaci-hickox-takes-bully-governors-christie-cuomo-and-lepage#>.

³ Anemona Hartocollis & Emma G. Fitzsimmons, *Tested Negative, Nurse Criticizes Her Quarantine*, N.Y. TIMES, Oct. 26, 2014, at A1.

⁴ Susan Cornwall, *Maine Nurse Sees Ebola Quarantines as 'Abundance of Politics'*, REUTERS (Nov. 2, 2014, 2:14 PM), <http://www.reuters.com/article/2014/11/02/us-health-ebola-usa-idUSKBN0IM0PR20141102>.

⁵ *Id.*

⁶ See Frank Rosario & Joe Tacopino, *Ebola Nurse's Quarantine Hell*, N.Y. POST (Oct. 27, 2014, 1:27 AM), available at <http://nypost.com/2014/10/27/ebola-nurse-gets-prison-treatment-in-quarantine-hell/>.

photo, Hickox is wearing a patient's gown, and we see that the Spartan shelter behind her is a makeshift hospital room.⁷ The second photo was taken a week or so later after Nurse Hickox had returned to her home in Fort Kent, Maine. In it, she is riding a bike in front of her house, indicating that she would not quarantine herself voluntarily despite a request by Maine health officials that she do so for another two weeks until the incubation period for the Ebola virus expired.⁸

You might even remember that, following this defiant bike ride, the State of Maine petitioned a court for a quarantine order against Hickox.⁹ The Court rejected the petition as unnecessary to safeguard the public's health because Hickox was symptom-free, and only those with Ebola symptoms pose a risk of transmission.¹⁰

Unnoticed or forgotten during this time was the *Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure* (the "*Guidance*").¹¹ It is authored by the Centers for Disease Control and Prevention ("CDC"), the most authoritative public health agency in the country, if not the world. The CDC released the *Guidance* publically on October 29, 2014,¹² the day before the State of Maine filed its petition for a quarantine order.¹³

The *Guidance* recommends that state and local health agencies monitor and effectively quarantine even *asymptomatic* individuals, who, like Hickox, were exposed directly to the Ebola virus while in countries where the disease is widespread and while wearing appropriate protective equipment.¹⁴

Maine's health officials and lawyers attached the *Guidance* to the State's petition.¹⁵ The petition correctly assessed that the *Guidance* placed Nurse Hickox in the category of having "some risk" of becoming

⁷ See *id.*

⁸ *Nurse Defies Ebola Quarantine in Maine, Rides Bike*, CBS NEWS (Oct. 30, 2014, 1:52 PM), <http://www.cbsnews.com/news/ebola-nurse-kaci-hickox-defies-quarantine-in-maine-goes-on-bike-ride/>.

⁹ See Verified Petition for Public Health Order, *Mayhew v. Hickox*, No. 2014-36 (Me. Dist. Ct. Oct. 30, 2014) [hereinafter *Petition*], http://courts.maine.gov/news_reference/high_profile/hickox.shtml.

¹⁰ Order Pending Hearing at 3, *Mayhew v. Hickox*, No. 2014-36 (Me. Dist. Ct. Oct. 31, 2014) [hereinafter *Order Pending Hearing*], http://courts.maine.gov/news_reference/high_profile/hickox.shtml.

¹¹ See CDC, INTERIM U.S. GUIDANCE FOR MONITORING AND MOVEMENT OF PERSONS WITH POTENTIAL EBOLA VIRUS EXPOSURE (December 24, 2014) [hereinafter *GUIDANCE*]. The *Guidance* has been updated and amended by CDC since its initial publication.

¹² See *id.*

¹³ See *Petition*, *supra* note 9.

¹⁴ See *GUIDANCE*, *supra* note 11, at 9 (referencing table addressing "some risk" category and "asymptomatic" clinical criteria).

¹⁵ See *Petition*, *supra* note 9, Exhibit A.

ill with Ebola herself,¹⁶ and it sought an order that was based nearly word-for-word on the relevant recommendations of the *Guidance*.¹⁷

So how could a court reject Maine's petition? After all, it was based not only on the recommendation of the State's chief health officer, but also on the express recommendations of the nation's leading public health agency. How can a state judge, without any public health expertise, rule that a quarantine order grounded squarely on the recommendations of the CDC was not necessary to protect the public against the spread of Ebola?

The answer is as shocking as it is simple. The recommendations in the CDC's *Guidance* lack a basis in the science of Ebola transmission. Nobody can transmit Ebola to another person unless and until symptoms of the disease appear.¹⁸ The CDC, itself, says so. According to the agency's educational materials for the public, an individual "can only get Ebola from [t]ouching the blood or body fluids of a person who is sick with or has died from Ebola."¹⁹ So, even if we knew that an individual was infected with Ebola, that person would not pose any risk of transmission to anyone until after the virus had incubated fully and after the person began experiencing symptoms of the illness. Given this fact, quarantining someone who, like Hickox, does not display any symptoms of illness does not serve a public health purpose; instead, it unnecessarily separates from others a person who poses no health risk to the community, no matter how likely it is that such a person develops symptoms in the future.

Accordingly, the *Guidance*'s recommendation to severely restrict an asymptomatic person's contact with others is irrational because it contradicts the science. The CDC's recommended restrictions, as applied to Nurse Hickox, so clearly lacked a foundation in the scientific facts about Ebola transmission that the Maine court had no choice but to disregard the CDC's *Guidance*, and thus reject that portion of the State's petition.

The real question is why the CDC included these recommendations in the *Guidance* in the first place. It is unfathomable that the CDC's experts were not aware that the agency's recommended public health actions lacked a basis in the science of Ebola transmission. There must

¹⁶ *Id.* ¶¶ 25-27.

¹⁷ Compare *id.* ¶ 35 with GUIDANCE, *supra* note 11, at 9 (showing recommended "public health action" for "asymptomatic" individuals in the "some risk" category).

¹⁸ See *Facts about Ebola in the U.S.*, CDC, <http://www.cdc.gov/vhf/ebola/pdf/infographic.pdf> (last visited Mar. 15, 2015); see also *Review of Human-to-Human Transmission of Ebola Virus*, CDC, <http://www.cdc.gov/vhf/ebola/transmission/human-transmission.html> (last visited Mar. 16, 2015).

¹⁹ See CDC, *Facts about Ebola in the U.S.*, *supra* note 18.

be some other explanation, such as political pressure to stop the rising tide of fear, or perhaps the CDC silently suspected that this strain of the virus was more easily transmissible than earlier strains with which experts had experience.

This article argues that, regardless of its reasons, the CDC may have fundamentally damaged its credibility, and that of health officials everywhere, by issuing recommendations in its *Guidance* that are unsupported by science. The price of doing so is the erosion of public health authority, which, ultimately, erodes population health.

A. THE CDC'S *GUIDANCE*

The real protagonists of this story are not Nurse Hickox or Governor Christie. Rather, they are the CDC and its Ebola *Guidance*. The *Guidance* creates a matrix of recommendations²⁰ for public health officials about whether to monitor or restrict the movements of individuals exposed to the Ebola virus and, if so, to what degree.²¹ The matrix first divides individuals into four categories based on the likelihood that they will become sick with Ebola—high risk, some risk, low risk, and no identifiable risk.²² Again, these categories refer to the risk that the individual will become sick with Ebola, *not* the far more relevant risk that an individual will infect someone else. In other words, the matrix is flawed from the outset because it is based on the risk of illness, and not on the risk of transmission.

The *Guidance* further sub-divides each of these risk categories based on whether an individual has symptoms of illness or is asymptomatic.²³ Thus, the *Guidance* creates eight categories and eight corresponding sets of recommendations with respect to monitoring or restricting the movements of individuals. For example, there are recommendations for those who are deemed to be at “high risk” for becoming sick with Ebola and who also have certain clinical symptoms; another set for those who are deemed to be at “high risk” for becoming sick with Ebola but who are asymptomatic; another set for those who are deemed to be at “some

²⁰ The *Guidance* is exactly that—guidance. It is a recommendation or a statement of policy that is issued by the CDC, as a federal agency. As such, it is exempt from even informal, notice-and-comment rule-making procedures. See 5 U.S.C. § 553(b) (2014). Consequently, the *Guidance* does not have the force of law. See e.g., *Prof'ls and Patients for Customized Care v. Shalala*, 56 F.3d 592 (5th Cir. 1995).

²¹ See *GUIDANCE*, *supra* note 11.

²² *Id.* at 9-12.

²³ *Id.*

risk” and have certain clinical symptoms; and still another for those who are deemed to be at “some risk,” but who are symptom-free, and so on.²⁴

The monitoring recommendations that correspond with each category range from no monitoring to active monitoring (where public health authorities regularly inquire about the individual’s temperature and other clinical symptoms) to direct active monitoring (where public health officials directly observe the individual and determine what, if any, clinical symptoms exist).²⁵ The *Guidance* recommends direct active monitoring for all asymptomatic individuals in the “high risk” and “some risk” categories.²⁶ “High risk” individuals include those who have had direct contact with the blood or bodily fluids of someone sick with Ebola, those who have lived with a person sick with Ebola, and those who have handled the body of someone who died from Ebola.²⁷ Those with “some risk” of contracting Ebola include individuals who, while in countries where Ebola is widespread, have had direct contact with someone sick with Ebola while wearing personal protective equipment, as well as those who have had prolonged contact with a person sick with Ebola in the patient’s home, in a health care facility, or in a community setting.²⁸ The *Guidance* recommends only active monitoring for asymptomatic individuals in the “low risk” category, which includes those who have been in a country with widespread Ebola within the past twenty-one days, but who had no known exposures; those who have had brief direct contact (*e.g.*, shaking hands) with a person with Ebola, while the person was in the early stage of the disease; those who have had brief proximity (*e.g.*, briefly being in the same room) with a person with Ebola, while the person was symptomatic; those who come into direct contact with a person sick with Ebola, while wearing personal protective equipment while in countries without widespread Ebola; and those who have traveled on an aircraft with a person with Ebola, while the person was symptomatic.²⁹ Finally, no monitoring at all is recommended for those who have had no known exposure and are experiencing no symptoms of any illness.³⁰

²⁴ *Id.*

²⁵ *See id.* at 2 (distinguishing active and direct active monitoring).

²⁶ *Id.* at 9.

²⁷ *Id.* at 9.

²⁸ *Id.* at 10.

²⁹ *Id.* at 11 (recommending, as an exception, direct active monitoring for individuals who have traveled on an aircraft and sat within three feet of someone who was symptomatic with Ebola).

³⁰ *Id.* at 12. Of course, monitoring recommendations only apply to those who are asymptomatic because the purpose of monitoring is to determine if and when a person without symptoms of Ebola becomes symptomatic for the disease. Once a person has Ebola symptoms, monitoring gives way to isolation and treatment.

Central to this story, however, are recommendations in the *Guidance* for restricting the movements of asymptomatic individuals in the “high risk” and “some risk” categories, which are so substantial that they closely resemble a complete quarantine.³¹ They include:

- [E]xclusion from long-distance commercial conveyances (aircraft, ship, train, bus) or local public conveyances (e.g., bus, subway);
- Exclusion from public places (e.g., shopping centers, movie theaters), and congregate gatherings;
- Exclusion from workplaces for the duration of a public health order, unless approved by the state or local health department (telework is permitted);
- Non-congregate public activities while maintaining a 3-foot distance from others may be permitted (e.g., jogging in a park); . . .
- Any travel will be coordinated with public health authorities to ensure uninterrupted direct active monitoring;
- Federal public health travel restrictions (Do Not Board) may be implemented based on an assessment of the particular circumstance³²

No movement restrictions are recommended under the *Guidance* for either the “low risk” or “no risk” categories.³³

In short, the *Guidance* recommends that individuals in the “high risk” and “some risk” categories be restricted from traveling, working, going to public places, or otherwise coming within three feet of another person. The only thing separating such a person from someone who is “quarantined” appears to be that the “patient” may go for a walk or jog in a location so isolated as to not risk coming within three feet of someone else and may drive to that isolated jogging spot alone if public health officials are notified of the plan. In essence, this is house-arrest with limited solo-driving and solo-jogging privileges.

³¹ The *Guidance* distinguishes between controlling movement and quarantining individuals by giving these actions separate definitions. See GUIDANCE, *supra* note 11, at 3. Oddly, the *Guidance* defines “quarantine” and then never uses that term outside of the definition section of the document.

³² GUIDANCE, *supra* note 11, at 9-10.

³³ *Id.* at 11-12.

These are the restrictions that the State of Maine sought to impose on Kaci Hickox based upon a straight-forward application of the *Guidance*.³⁴ At the time, she fell into the “some risk” category because she had come into direct contact with several people sick with Ebola while she was in Sierra Leone (a country where Ebola was widespread), and while she was wearing personal protective equipment.³⁵ Moreover, at the time of Maine’s petition, Nurse Hickox did not have any symptoms of Ebola, but she was still within the twenty-one day incubation period of the virus.³⁶ Within the structure of the *Guidance*’s matrix, she fell into the category for asymptomatic individuals who have “some risk” of becoming sick with Ebola themselves. Correspondingly, the *Guidance* recommended that she be subject to direct active monitoring and that her movements be restricted such that she would not come within three feet of another person for the remainder of the incubation period.

As described next, the restrictions on movements for asymptomatic individuals recommended by the *Guidance* do not have a basis in the science of Ebola transmission. Accordingly, they violate a fundamental principle of public health practice and public health law that actions taken to protect population health be based in scientific fact.

B. THE SCIENCE OF EBOLA TRANSMISSION

Ebola is a hemorrhagic fever virus, which means that it infects and overwhelms vascular cells, causing them to burst and bleed.³⁷ By severely damaging the vascular system, the illness undermines the body’s ability to regulate itself or mount an effective immune response, resulting in multi-organ system failure and death.³⁸ Ebola is a particularly lethal hemorrhagic fever, causing death in fifty to ninety percent of those it infects.³⁹

³⁴ See Petition, *supra* note 9, ¶ 35.

³⁵ *Id.* ¶¶ 26-29.

³⁶ *Id.* ¶ 26.

³⁷ See *Viral Hemorrhagic Fevers: Fact Sheet*, CDC, http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/Fact_Sheets/Viral_Hemorrhagic_Fevers_Fact_Sheet.pdf; Nat’l Inst. of Health, *Hemorrhagic Fevers*, MEDLINEPLUS, <http://www.nlm.nih.gov/medlineplus/hemorrhagicfevers.html> (last visited Mar. 12, 2015); Ruth Tam, *This is How You Get Ebola, As Explained by Science*, PBS NEWSHOUR (Sept. 30, 2014, 8:24 PM), <http://www.pbs.org/newshour/updates/know-enemy/>; Meghana H. Raykar et al., *Ebola Virus Disease*, 3 PHARMTECHMEDICA 493, 493 (July-Aug. 2014).

³⁸ Raykar, *supra* note 37, at 493.

³⁹ See *id.*

The virus is not easily transmitted from one human to another. Unlike an influenza or cold virus, it is not airborne,⁴⁰ meaning that it does not “hang in the air” for long periods of time, and so it cannot be breathed in by another person.⁴¹ Instead, it is only spread as a result of contact with the bodily fluids of one who is in the throes of the illness. The CDC says that Ebola is transmitted:

through direct contact (through broken skin or mucous membranes in, for example, the eyes, nose, or mouth) with:

- blood or body fluids (including but not limited to urine, saliva, sweat, feces, vomit, breast milk, and semen) of a person who is sick with Ebola
- objects (like needles and syringes) that have been contaminated with the virus
- infected fruit bats or primates (apes and monkeys)

Ebola is not spread through the air, by water, or in general, by food.⁴²

These limited routes of communication explain why those infected with Ebola are health care workers who have cared for sick and dying Ebola patients in hospitals, or family members and others who have cared for sick and dying Ebola patients in their homes, or those who have prepared for burial the bodies of deceased Ebola victims.⁴³

Meanwhile, individuals exposed to the Ebola virus, but who do not yet have symptoms of the illness, have never transmitted the virus to others. Since 1976, when Ebola was first discovered in humans, there have been twenty-five reported outbreaks, including the 2014 epidemic,

⁴⁰ See *Ebola Transmission*, CDC, <http://www.cdc.gov/vhf/ebola/transmission/> (last visited Mar. 12, 2015).

⁴¹ See *What We Know about Transmission of the Ebola Virus Among Humans*, WHO (Oct. 6, 2014), <http://www.who.int/mediacentre/news/ebola/06-october-2014/en/>; Tom Howell Jr., *CDC Throws Cold Water on Talk of ‘Airborne’ Ebola Transmission*, WASH. TIMES (Dec. 1, 2014), available at <http://www.washingtontimes.com/news/2014/dec/1/cdc-dismisses-talk-airborne-ebola-transmission/>. While there has been speculation about the possibility that the current strain of Ebola circulating in West Africa could mutate so as to become airborne, see e.g., Michael T. Osterholm, *What We’re Afraid to Say About Ebola*, N.Y. TIMES, Sept. 12, 2014, at A31, there is no evidence that the current strain is airborne.

⁴² *Ebola Transmission*, *supra* note 40.

⁴³ See *id.*; Tam, *supra* note 37, at 4.

which is the largest.⁴⁴ From those outbreaks there have been 16,242 confirmed cases of human Ebola infection,⁴⁵ and that number could be closer to 25,000 once additional suspected and probable cases are confirmed.⁴⁶ *Not one of these cases has resulted from contact with a person who did not have symptoms of the illness. Not one.*

No wonder the CDC, in its public education materials, identifies “[t]ouching the blood or body fluids of a person who is sick with or has died from Ebola” as the “only” way to become infected with the virus.⁴⁷ An editorial in the *New England Journal of Medicine*, criticizing the policy of quarantining health care workers who treat Ebola patients in West Africa, put a finer point on the power of our experience with the virus to explain how it is transmitted.

Health care professionals treating patients with this illness have learned that transmission arises from contact with bodily fluids of a person who is symptomatic—that is, has a fever, vomiting, diarrhea, and malaise. We have very strong reason to believe that transmission occurs when the viral load in bodily fluids is high, on the order of millions of virions per microliter. *This recognition has led to the dictum that an asymptomatic person is not contagious; field experience in West Africa has shown that conclusion to be valid.*⁴⁸

Ebola can incubate inside the body of a person it infects for as long as twenty-one days without the person experiencing even a fever,⁴⁹ let alone the bleeding, vomiting, and diarrhea that poses a risk to others.⁵⁰

⁴⁴ See A. Elisha & B. Adegboro, *Ebola Virus Diseases*, 15(3) AFR. J. CLN. & EXPER. MICROBIO. 117, 117-118 (2014).

⁴⁵ 2,387 cases resulted from the first twenty-four outbreaks, which is just the sum of the confirmed cases reported by WHO for those previous cases. See *id.* Another 13,855 confirmed cases have resulted from the current outbreak in three West African nations. *2014 Ebola Outbreak in West African—Case Counts*, CDC (Mar. 12, 2015), <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html> [hereinafter *Case Counts*]. The sum of the confirmed case counts from the 2014 outbreak and those from the prior twenty-four outbreaks is 16,242.

⁴⁶ See *Case Counts*, *supra* note 45 (reporting 22,525 suspected, probable and confirmed cases).

⁴⁷ See CDC, *Facts about Ebola in the U.S.*, *supra* note 18.

⁴⁸ Jeffrey M. Drazen et al., *Ebola and Quarantine*, 371 N. ENG. J. MED. 2029, 2029 (2014) (emphasis added).

⁴⁹ Raykar et al., *supra* note 37, at 494 (Ebola incubation period is two to twenty-one days).

⁵⁰ Drazen et al., *supra* note 48, at 2029 (“[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. This understanding is based on more

That is why a person infected with—but asymptomatic for—Ebola is not infectious to others. In short, somewhere between 16,242 and 25,000 Ebola cases over nearly forty years reveal, without exception, that one who is infected with the virus is not contagious until signs of sickness appear.

Given these facts about Ebola transmission, the *Guidance*'s recommendation that health officials prohibit a person who does not have symptoms of the illness from coming within three feet of another person for the twenty-one day incubation period of the virus is plainly irrational. It guards against a form of transmission, the risk of which is so infinitesimally small as to be unprecedented in the decades-long human history of this virus. Moreover, in doing so, the *Guidance* ignores conclusions that can be drawn reliably from thousands—even tens of thousands—of cases.

It should come as no surprise then that the state court judge in Maine summarily denied the petition seeking an order to quarantine Nurse Hickox, which was based on the scientifically unfounded recommendation in the CDC's *Guidance* to separate from others individuals who are not contagious. As the next section explains, any public health official ordering the quarantine of an asymptomatic person exposed to Ebola is almost surely violating state quarantine law and is certainly violating the federal Constitution.

C. THE LAW

Every state, as a vestige of its original sovereignty, retains its police power,⁵¹ which authorizes states to protect the health, safety, and welfare of its citizenry by, among other things, enacting quarantine laws.⁵² In fact, every state has enacted some form of quarantine law.⁵³ As a condition of quarantining an individual, states' laws typically require

than clinical observation: the sensitive blood polymerase-chain-reaction (PCR) test for Ebola is often negative on the day when fever or other symptoms begin and only becomes reliably positive 2 to 3 days after symptom onset.”).

⁵¹ See *Jacobson v. Massachusetts*, 197 U.S. 11, 25 (1905) (“the police power [is] a power which the State did not surrender when becoming a member of the Union under the Constitution”).

⁵² See *id.* (explaining that the police power includes the authority of a state to regulate for the purpose of protecting the public health and safety, and it includes the power to enact quarantine laws).

⁵³ See TRUST FOR AM. HEALTH, STATE QUARANTINE AND ISOLATION LAWS (2004), <http://healthyamericans.org/reports/bioterror04/Quarantine.pdf>; see also MODEL STATE EMERGENCY HEALTH POWERS ACT (2001), <http://www.publichealthlaw.net/MSEHPA/MSEHPA.pdf>.

public health officials to obtain a court order authorizing such action.⁵⁴ Moreover, states' laws commonly prohibit a court from issuing a quarantine order unless the state puts forth evidence that the person who would be subject to the order poses a health risk to the population and that it is necessary to quarantine that person in order to protect the public from this risk.⁵⁵

By recommending that state and local health officials quarantine individuals exposed to Ebola but who show no signs of illness, the *Guidance* is setting up health officials for failure under many states' laws. As established above, a person exposed to Ebola who has no symptoms of the disease cannot infect others with the virus, not even if we somehow knew that the person was incubating the virus. Consequently, asymptomatic individuals do not "pose a risk" of spreading Ebola to others, and, therefore, it is not "necessary" to quarantine those individuals in order to protect the public's health. Because the burden falls on the state to establish the existence of a "risk" of contagion as well as the "necessity" of quarantine, health officials simply cannot prevail when pursuing an order to quarantine an asymptomatic person exposed to Ebola.

This is exactly why a judge in Maine denied the State's petition to quarantine Kaci Hickox. Under Maine law, a court may not issue a quarantine order unless, "based upon clear and convincing evidence, the court finds that a public health threat exists . . . ," and, even then, the court may order only "the least restrictive measures necessary to effectively protect the public health."⁵⁶ In Hickox's case, health officials admitted in the petition that "[i]ndividuals infected with Ebola Virus Disease who are not showing symptoms are not yet infectious,"⁵⁷ and that Nurse Hickox showed no symptoms.⁵⁸ Given Maine law and these facts, the Court had no choice but to reject the portion of the petition seeking to prohibit Nurse Hickox from coming within three feet of anyone else for the remainder of the twenty-one day incubation period. The judge wrote: "According to the information presented to the court, Respondent [Hickox] currently does not show any symptoms of Ebola

⁵⁴ See *id.*; see TRUST FOR AM. HEALTH, *supra* note 53, at 14. In some states, health officials must obtain an initial temporary quarantine order from a court, which can be obtained on an *ex parte* basis, *e.g.*, ME. REV. STAT. tit. 22, § 250-2 (2014), while in other states, health officials may act initially on their own authority to quarantine an individual temporarily so long as officials pursue a court order in support of the quarantine within a short period of time, *e.g.*, MODEL STATE EMERGENCY HEALTH POWERS ACT § 605.

⁵⁵ MODEL STATE EMERGENCY HEALTH POWERS ACT § 605; TRUST FOR AM. HEALTH, *supra* note 53.

⁵⁶ ME. REV. STAT. tit. 22, § 812-1 (2014).

⁵⁷ Petition, *supra* note 9, ¶ 14.

⁵⁸ See *id.* ¶ 27.

and is therefore *not* infectious.”⁵⁹ Consequently, the court held that “[t]he State has not met its burden at this time to prove by clear and convincing evidence that limiting Respondent’s movements to the degree requested is ‘necessary to protect other individuals from the dangers of infection’”⁶⁰

Even if health officials or a court were to issue an order under a state’s law prohibiting an asymptomatic individual from coming within three feet of another person, it would almost certainly be set aside as violating the Due Process Clause of the 14th Amendment to the federal Constitution. The clause provides that “[n]o State shall . . . deprive any person of . . . liberty . . . without due process of law”⁶¹ The Supreme Court of the United States has interpreted this language to protect individuals from deprivations of liberty by a state where such state action lacks sufficient substantive justification; the purpose is to prevent governments from acting arbitrarily.⁶² In particular, when state action deprives someone of a “fundamental liberty interest,” the state carries a burden to prove that its action is “narrowly tailored to serve a compelling state interest.”⁶³ Fundamental liberty interests are those that are “‘deeply rooted in this Nation’s history and tradition,’ . . . and ‘implicit in the concept of ordered liberty,’ such that ‘neither liberty nor justice would exist if they were sacrificed,’”⁶⁴ and they include freedom from physical restraint or confinement⁶⁵ for the purpose of protecting the public’s health.⁶⁶

As applied here, there is no doubt that prohibiting an asymptomatic individual from traveling, working, being in public places, or otherwise coming within three feet of another person imposes a substantial physical restraint on that individual to the point of constituting confinement. In other words, such a prohibition deprives the individual of a fundamental liberty interest. Thus, the state would be required to prove that such a

⁵⁹ Order Pending Hearing, *supra* note 10, at 3.

⁶⁰ *Id.*

⁶¹ U.S. CONST. amend. XIV.

⁶² *See* *Wolff v. McDonnell*, 418 U.S. 539, 558 (1974) (“The touchstone of due process is protection of the individual against arbitrary action of government.”).

⁶³ *Reno v. Flores*, 507 U.S. 292, 301-02 (1993).

⁶⁴ *Washington v. Glucksberg*, 521 U.S. 702, 703 (1997) (quoting *Palko v. Connecticut*, 302 U.S. 319, 325 (1937)).

⁶⁵ *See id.* at 719; *see also* *Foucha v. Louisiana*, 504 U.S. 71, 80 (1992) (addressing claims of an insanity acquittee to be discharged from confinement, the Court said “[f]reedom from bodily restraint has always been at the core of the liberty protected by the Due Process Clause from arbitrary governmental action.”).

⁶⁶ *See e.g.*, *Best v. St. Vincent Hosp.*, No. 03-0365, 2003 WL 21518829 (S.D.N.Y. 2003) (applying strict scrutiny to New York City’s action to isolate a tuberculosis patient until he completed treatment), *aff’d in part, vacated in part, remanded in part sub nom* *Best v. Bellvue Hosp.*, 115 Fed. Appx. 459 (2d. Cir. 2004).

physical restraint is narrowly tailored to serve the state's compelling interest in protecting the public from the spread of Ebola. A quarantine order is not "narrowly tailored" to the state's interest if there exists a less restrictive alternative that will also serve the state's interest in preventing the spread of an infectious disease.⁶⁷ Where the government's interest is in protecting the public from becoming infected with Ebola by a person who has been exposed to the virus but who does not have any symptoms of illness, there are far less restrictive alternatives to a near-absolute quarantine. An asymptomatic person is not infectious to others, so the state's interest is served by regularly monitoring to determine whether and, if so, when the person develops symptoms of illness, which would indicate that the individual had become infectious and must be isolated from others.⁶⁸ Because the public's health can be protected from the spread of Ebola in the case of an asymptomatic person by court-ordered monitoring, which is much less restrictive than a near-absolute quarantine, a federal court would surely rule that quarantining an asymptomatic person is not narrowly tailored to serve the state's interest in preventing the spread of this virus. Consequently, the order would be set aside as unconstitutional.

In the end, both the science and the law quite clearly indicate just how poorly conceived the movement restrictions recommended in the *Guidance* really are. They cannot be justified by the science of Ebola transmission, and so they cannot be enforced by law. The CDC has highly skilled scientists who specialize in infectious diseases, and it has many highly skilled lawyers. It is extraordinarily unlikely, then, that the agency was not aware of the substantial shortcomings of the *Guidance*

⁶⁷ See *id.* at *7-8 (quoting *Shelton v. Tucker*, 364 U.S. 479, 488 (1960)) ("Even [when] the governmental purpose [is] legitimate and substantial, that purpose cannot be pursued by means that broadly stifle fundamental personal liberties when the end can be more narrowly achieved. The breadth of legislative abridgment must be viewed in the light of less drastic means for achieving the same basic purpose.").

⁶⁸ In making the determination that quarantine is not narrowly tailored to the state's interest in preventing the spread of Ebola, a federal court is likely to defer to the judgments of health officials only if they are based on current 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.

Sch. Bd. of Nassau Cnty., Fla. v. Arline, 480 U.S. 273, 274 (1987). Although *Arline* concerned a claim of disability discrimination under the Rehabilitation Act, the Court's logic about the standard of review it would apply to medical findings concerning the transmission of contagious diseases is applicable in the realm of substantive due process. See Scott Burris, *Rationality Review and the Politics of Public Health*, 34 VILL. L. REV. 933, 937-42 (1989).

when applied to asymptomatic individuals who have been exposed to Ebola. What then explains the CDC's decision to include in its *Guidance* that those individuals be subject to such extreme restrictions on their movements? That question is addressed in the next section.

D. THE *GUIDANCE* IN CONTEXT

The short and recent history of Ebola in America is one of mounting fear and finger-pointing at the CDC. It began in September 2014, when Thomas Eric Duncan, a Liberian visiting family in Dallas, Texas, was diagnosed with Ebola.⁶⁹ It peaked a month later when a physician, Craig Spencer, who had treated Ebola patients in West Africa was admitted to a New York City hospital with the disease after having spent the previous week out among New Yorkers eating in restaurants, bowling, and riding the subway.⁷⁰ In between, two nurses contracted Ebola as a result of caring for Duncan in a Dallas hospital, despite efforts to follow CDC protocol.⁷¹ Moreover, one of the nurses traveled on a commercial flight while she had a low-grade fever indicating the onset of Ebola symptoms, and the CDC did not prohibit her from doing so even after the nurse notified the CDC of her fever.⁷² Each of these events belied statements from CDC Director Tom Frieden that the U.S. was prepared to “stop Ebola in its tracks” when it entered the country.⁷³ Consequently, the CDC and its director came under fire for its missteps and perceived failure to protect Americans adequately.⁷⁴

The CDC issued its *Guidance* in the heat of these events and criticism. Accordingly, we cannot fully appreciate the rationale for the seemingly unscientific recommendations the *Guidance* makes without analyzing them in this context. Doing so allows for an educated guess that the CDC recommended the quarantine of non-infectious individuals both because it could not rule out the theoretical possibility that an asymptomatic person incubating Ebola could infect another person and, more importantly, because the agency could not take the political

⁶⁹ Sydney Lupkin, *Ebola in America: Timeline of the Deadly Virus*, ABC NEWS (Nov. 17, 2014, 11:01 AM), <http://abcnews.go.com/Health/ebola-america-timeline/story?id=26159719> [hereinafter Lupkin, *Timeline*].

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ Tom Frieden, *Why U.S. Can Stop Ebola in its Tracks*, CNN (Oct. 2, 2014, 5:43 PM), <http://www.cnn.com/2014/10/02/opinion/frieden-ebola-first-patient/>.

⁷⁴ See, e.g., Jennifer Haberkorn & Lauren French, *CDC Director in Hot Zone at Ebola Hill Hearing*, POLITICO (Oct. 16, 2014, 8:20 PM), <http://www.politico.com/story/2014/10/hearing-will-have-public-health-officials-grilled-on-ebola-111943.html>.

embarrassment of yet another mistake. All of this is described in greater detail in this section, which proceeds chronologically through the key events.

1. Thomas Eric Duncan

Thomas Eric Duncan arrived in the U.S. on September 20, 2014, to reunite with and marry the mother of his 16-year-old son.⁷⁵ Shortly before leaving Liberia, he had helped transport a sick, pregnant woman to and from a local hospital.⁷⁶ At one point, he carried her from his car to her house.⁷⁷ She died from Ebola the next morning, but it is unclear whether Duncan understood what she had died from when he left for the U.S. four days later.⁷⁸ He was screened by officials before boarding his international flight.⁷⁹ At the time, his temperature was normal.⁸⁰ He also reported, errantly, that he had not had any recent contact with an Ebola victim.⁸¹

On September 25, Duncan went to Texas Presbyterian Hospital in Dallas, where he told a nurse that he had a fever and that he had recently traveled to the U.S. from Liberia.⁸² Based on this information alone, his treating physician should have recognized the possibility of an Ebola infection and isolated him. Instead, the physician at the hospital sent him home with some antibiotics.⁸³ Duncan's symptoms progressed, and he returned to the hospital much sicker several days later.⁸⁴ He was then admitted and isolated, and the diagnosis of Ebola was first made on September 28.⁸⁵ On October 8, Duncan died.⁸⁶

When the news reported that Ebola had entered the U.S. and that the country's first Ebola patient was being treated in a Dallas hospital, Dr. Tom Frieden held a press conference where he famously said, "We will

⁷⁵ Anna Almendrala, *What We Know About Thomas Eric Duncan, The First Ebola Patient Diagnosed in the U.S.*, HUFFINGTON POST (Oct. 14, 2014, 2:51 PM), http://www.huffingtonpost.com/2014/10/06/thomas-eric-duncan-dallas-ebola-patient-us_n_5942150.html.

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ Alana Horowitz et al., *Thomas Eric Duncan Dead; Dallas Ebola Patient Had Been Critically Ill*, HUFFINGTON POST (Oct. 8, 2014, 11:20 AM), http://www.huffingtonpost.com/2014/10/08/thomas-eric-duncan-dead-ebola-dallas_n_5952502.html.

⁸⁵ Almendrala, *supra* note 75.

⁸⁶ Horowitz, *supra* note 84.

stop it in its tracks, because we've got infection control in hospitals and public health that tracks and isolates people if they get symptoms."⁸⁷ As events unfolded, however, it became apparent that infection control in the hospital treating Duncan was not working as it should.

2. Nurses Pham and Vinson

Nina Pham and Amber Vinson are nurses at the hospital that treated Thomas Eric Duncan.⁸⁸ Both cared for him while he was in the throes of the illness, changing his sheets, washing him, and mopping his floors.⁸⁹ They each wore protective gear including gloves, suits, and masks, and they used a buddy system both to put on and take off their equipment each shift.⁹⁰ Neither can identify a time when they breached CDC protocol for the use of personal protective equipment by health care workers treating Ebola patients.⁹¹ At most, they noted that the hospital did not initially have the head gear and positive-pressure suits used by caretakers at Emory University.⁹²

Despite their best efforts to follow then-current CDC protocol, both Nurse Pham and Nurse Vinson became infected with Ebola. Nurse Pham was the first to develop a fever on October 11, and she went straight to the hospital after notifying public health officials.⁹³ Nurse Vinson entered the hospital three days later, also with a fever.⁹⁴ Each was later transferred to other facilities more experienced in the care of Ebola patients. Pham went to the National Institutes of Health in Maryland, and Vinson went to Emory University Hospital.⁹⁵ Both were nursed through their illnesses, survived, and were discharged.⁹⁶

The CDC was criticized intensely as soon as the nurses were diagnosed with Ebola.⁹⁷ Dr. Frieden had assured America that hospitals were prepared to prevent the spread of Ebola, and yet two nurses were

⁸⁷ Mikayla Bouchard, *CDC Head Frieden on Ebola in America: 'We Will Stop It In Its Tracks'*, ABC NEWS (Oct. 5, 2014, 2:18 PM), <http://abcnews.go.com/Health/cdc-head-frieden-ebola-america-stop-tracks/story?id=25975221>.

⁸⁸ *How Did Dallas Nurses Catch Ebola?*, BOS. GLOBE (Oct. 15, 2014), available at <http://www.bostonglobe.com/news/nation/2014/10/15/how-did-dallas-nurses-catch-ebola/x8olat9b0m4dRKSyXkVtUM/story.html>.

⁸⁹ *Id.*; see also *The Ebola Warriors*, DALL. MORNING NEWS (Dec. 28, 2014), available at <http://res.dallasnews.com/interactives/texan-of-the-year-2014/>.

⁹⁰ DALL. MORNING NEWS, *supra* note 89.

⁹¹ BOS. GLOBE, *supra* note 88.

⁹² DALL. MORNING NEWS, *supra* note 89.

⁹³ *Id.*

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ See *id.*

⁹⁷ Haberkorn & French, *supra* note 74.

infected. Moreover, in what could be viewed as an admission that the agency's Ebola infection-control policies and procedures were insufficient, the CDC issued a new protocol instructing health care workers how to best protect themselves from infection when caring for Ebola patients, which called for enhanced forms of personal protective equipment.⁹⁸

To make matters worse, the CDC did not stop Nurse Vinson from boarding a commercial flight even after she informed the agency that she had a low-grade fever a day after Nurse Pham had been hospitalized with then-suspected Ebola.⁹⁹ Later, CDC officials admitted that the agency should have instructed Vinson not to board the plane when she reported a slight fever.¹⁰⁰ As result of this blunder, the CDC contacted each of the more than 130 passengers on that flight to determine which of them, if any, required active monitoring.¹⁰¹ All of this happened at a time when health officials were already monitoring more than 100 other Americans who had treated, lived with, or otherwise come into contact with Thomas Eric Duncan or any other U.S. victim of Ebola.¹⁰²

At this point, Congress, if not the public, lost confidence in the CDC's ability to protect Americans. Some Republican legislators called for Dr. Frieden's resignation as Director of the CDC.¹⁰³ The Speaker of the House urged the Obama Administration to restrict air travel to the U.S. from the West African nations where Ebola was widespread.¹⁰⁴ One Republican Senator announced that he would bypass the Administration and introduce a bill to ban the issuance of visas to foreign nationals from any of those West African nations.¹⁰⁵ Even Democrats were highly

⁹⁸ Lisa Schnirring, *CDC Unveils New PPE Guidance for Ebola*, UNV. OF MINN. CRT. FOR INFECTIOUS DISEASE RESEARCH & POLICY (Oct. 20, 2014), <http://www.cidrap.umn.edu/news-perspective/2014/10/cdc-unveils-new-ppe-guidance-ebola>; *CDC Tightened Guidance for U.S. Healthcare Workers on Personal Protective Equipment for Ebola*, CDC (Oct. 20, 2014), <http://www.cdc.gov/media/releases/2014/fs1020-ebola-personal-protective-equipment.html>.

⁹⁹ Haberkorn & French, *supra* note 74; *see also* Lupkin, *Timeline*, *supra* note 69.

¹⁰⁰ Will Dunham, *U.S. Lawmakers Blast Government's Ebola Response, Urge Travel Ban*, REUTERS (Oct. 16, 2014, 7:33 PM), <http://www.reuters.com/article/2014/10/16/us-health-ebola-usa-idUSKCN0I517E20141016>.

¹⁰¹ *See* Timothy Williams, *Ebola-Infected Health Worker in Dallas Took a Flight on Monday*, N.Y. TIMES (Oct. 15, 2014), *available at* <http://www.nytimes.com/2014/10/16/us/ebola-infected-dallas-health-worker-was-on-flight.html>.

¹⁰² *See id.*

¹⁰³ *See* Dunham, *supra* note 100.

¹⁰⁴ *Id.*

¹⁰⁵ Press Release, Office of U.S. Sen. Marco Rubio, *Rubio Announces Legislation to Impose Temporary Visa Ban on Ebola Affected Countries* (Oct. 20, 2014), <http://www.rubio.senate.gov/public/index.cfm/2014/10/rubio-announces-legislation-to-impose-temporary-visa-ban-on-ebola-affected-countries>.

critical. The ranking Democrat on a House subcommittee before which Dr. Frieden testified said, “It would be an understatement to say that the response to the first U.S.-based patient with Ebola has been mismanaged, causing risk to scores of additional people.”¹⁰⁶

3. Dr. Craig Spencer and Nurse Kaci Hickox

Things went from bad to worse on October 23, 2014, when it was reported that a physician, Craig Spencer, who had treated Ebola patients in West Africa, was admitted to Bellevue Hospital in New York City after reporting to health officials that he had developed a fever and gastrointestinal symptoms.¹⁰⁷ Dr. Spencer had returned to his home in New York from Guinea six days earlier.¹⁰⁸ During those six days, he had not been monitored by health officials¹⁰⁹; rather, he had been taking his own temperature twice a day and watching for any sign of a fever, which was consistent with the instructions he had been given by Doctors Without Borders—the medical relief organization through which he had volunteered to treat Ebola patients in Guinea.¹¹⁰

Alarming to many, however, was that Dr. Spencer, while infected with Ebola, had been out in public in New York City during those six days before he experienced symptoms of the illness.¹¹¹

[H]e traveled to Manhattan’s Highline Park and a popular restaurant called The Meatball Shop on Tuesday. The next day, he took a 3-mile run along Riverside Park and traveled on the subway to Brooklyn,

¹⁰⁶ Dunham, *supra* note 100.

¹⁰⁷ Lupkin, *Timeline*, *supra* note 69.

¹⁰⁸ *See id.*

¹⁰⁹ Dr. Spencer entered the country through JFK International Airport on Oct. 17, 2014, Sydney Lupkin, *New Jersey, New York, Illinois, Toughen Ebola Quarantine Rules After Doctor Case*, ABC NEWS (Oct. 24, 2014), <http://abcnews.go.com/Health/york-doctor-ebola-quarantine/story?id=26431431> [hereinafter Lupkin, *States Toughen*], which was five days before CDC instituted a new policy of requiring that all travelers entering the U.S from any West African nation where Ebola was widespread be monitored by public health officials. *See* CDC Press Release, CDC Announces Active Post-Arrival Monitoring for Travelers from Impacted Countries (Oct. 22, 2014), <http://www.cdc.gov/media/releases/2014/p1022-post-arrival-monitoring.html>. Thus, Dr. Spencer was not subject to this new policy having entered the country before it had been announced. This change in policy occurred the day before Dr. Spencer experienced his first symptoms and was admitted to the hospital with Ebola.

¹¹⁰ Lupkin, *States Toughen*, *supra* note 109.

¹¹¹ *Id.*

where he went bowling. He was fatigued, but had no fever, officials said.¹¹²

On October 24, the day after Craig Spencer entered the hospital with Ebola and in direct response to the public fear his story triggered, several states took matters into their own hands. Rather than follow the CDC's lead of permitting travelers returning home from West Africa to go out in public even if they had had contact with someone sick with Ebola, New Jersey, New York, and Illinois instituted policies to quarantine all such travelers—regardless of symptoms—until the twenty-one day incubation period for Ebola had elapsed for each of them.¹¹³ Governors Christie and Cuomo defended their tough new policies, saying “[w]e are no longer relying on C.D.C. standards” because a “voluntary Ebola quarantine is not enough.”¹¹⁴

Nurse Hickox landed at Newark Liberty International Airport the very day after New Jersey instituted its new policy of mandatory quarantine.¹¹⁵ She became the first person subjected to mandatory quarantine of travelers from an Ebola-ridden country.¹¹⁶ It triggered a stand-off between the Obama Administration, which rebuked states that instituted mandatory quarantine for overreacting and potentially undermining Ebola relief efforts, and the governors of those states, who raised concerns that the federal government's response to Ebola was insufficient to protect the public's health.¹¹⁷ As described in the introduction to this article, New Jersey officials released Hickox from her quarantine two days later on October 27, after she agreed to travel by private means directly to her home state of Maine, where, as we know, she then fought the efforts of that state to quarantine her.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ Marc Santora, *First Patient Quarantined Under Strict New Policy Test Negative for Ebola*, N.Y. TIMES (Oct. 24, 2014), available at <http://www.nytimes.com/2014/10/25/nyregion/new-york-ebola-case-craig-spencer.html?hp&action=click&pgtype=Homepage&version=LedeSum&module=a-lede-package-region®ion=top-news&WT.nav=top-news>.

¹¹⁵ Sam Frizell, *First Ebola Worker Quarantined Under New Policy Tests Negative*, TIME (Oct. 25, 2014), available at <http://time.com/3538834/ebola-quarantine-new-york/>.

¹¹⁶ *Id.*

¹¹⁷ See David Martosko, *Chris Christie Insists He DIDN'T Do U-turn Under Pressure From Obama After Ebola Nurse is Allowed to Leave New Jersey Hospital Quarantine Tent to Return to Maine*, DAILY MAIL (Oct. 25, 2014), available at <http://www.dailymail.co.uk/news/article-2808178/Obama-forces-Chris-Christie-U-turn-allow-Ebola-nurse-leave-quarantine-tent.html> (“Illinois has since adopted this policy, so has now the state of Maryland.” [Gov. Christie] said. “So I’m telling you guys this is going to become a national policy eventually. Eventually the CDC will come around.”).

4. Theoretical Risks of Transmission

During this same timeline, news outlets reported that scientists had not ruled out the possibility that Ebola is transmissible through coughing and sneezing.¹¹⁸ Nor could they rule out the possibility that asymptomatic individuals might shed some virus cells before developing significant symptoms.¹¹⁹ These reports were based on statements from scientists that laboratory data had not eliminated the theoretical risk of Ebola transmission through a cough or sneeze droplet or the theoretical risk that an asymptomatic person with a non-zero viral load could transmit Ebola to another person. Moreover, there is at least one coincidence suggesting that the CDC felt compelled to account for these statements about theoretical risks from scientists. The agency, at about the same time that it issued its *Guidance*, also updated its web-based FAQs concerning Ebola transmission via coughing or sneezing.¹²⁰ The new version clarified that “[t]here is no evidence indicating that Ebola virus is spread by coughing or sneezing,”¹²¹ which is different from saying definitively that the virus cannot be spread that way.

All of this together describes the context in which the CDC made its recommendation in the *Guidance* to severely restrict the movements of asymptomatic individuals like Nurse Hickox. The agency acted in the midst of fear that, without mandatory quarantine, health care workers incubating Ebola, like Craig Spencer, would be out in public and somehow spread the virus. It acted in the midst of fear that Kaci Hickox might be another Craig Spencer. Furthermore, it issued the *Guidance* at a time when public attention was focusing on theoretical rather than actual risks, and when confidence in the CDC was at a low point given the mistakes and policy shifts it had made during the crisis.

Viewed from this perspective, it seems plausible that the CDC would issue a policy to account for theoretical risks that science had yet to rule-out, and not simply the known risks that science and field experience confirmed as true. With its credibility substantially damaged by its earlier blunders and mistaken predictions, the agency might have

¹¹⁸ David Willman, *Some Ebola Experts Worry Virus May Spread More Easily Than Assumed*, L.A. TIMES (Oct. 7, 2014), available at <http://www.latimes.com/nation/la-na-ebola-questions-20141007-story.html#page=1>; Jon Greenberg, *George Will Says a Sneeze or Cough Could Spread Ebola*, POLITIFACT (Oct. 19, 2014), <http://www.politifact.com/punditfact/statements/2014/oct/19/george-will/george-will-claims-sneeze-cough-spread-ebola/>.

¹¹⁹ Willman, *supra* note 118.

¹²⁰ Arthur Delaney, *CDC Removed Info On Coughing and Sneezing from Ebola Q&A (UPDATE)*, HUFFINGTON POST (Oct. 30, 2014), http://www.huffingtonpost.com/2014/10/30/cdc-ebola_n_6078072.html.

¹²¹ *Id.*

rationalized that it was necessary to accommodate public fear by recommending severe “movement restrictions” for asymptomatic individuals with at least “some risk” of developing Ebola. The CDC may have convinced itself that this would prevent another embarrassment and thereby preserve its ability to set policy throughout the crisis.

Of course, this is merely an educated guess based on information that is publically available. Perhaps hardball politics was going on behind closed doors, which has yet to come to light. In any case, the story of the CDC’s *Guidance*, and of the events that preceded it, is a cautionary tale of how even the most authoritative public health agency can go wrong when it makes policy divorced from science. It demonstrates how expert administrators with impeccable credentials and the best of intentions can make public health policy that accommodates public fear at the expense of science. The next and final section of this article examines the price we pay when that happens.

E. THE MANY COSTS OF ACCOMMODATING FEAR IN PUBLIC HEALTH POLICY

A fundamental principle of public health practice is that policy must be grounded in science. It is embedded in Dr. Frieden’s practice, described in the epigraph of this article, to “base it all on data.”¹²² Regardless of the underlying reason (or rationalization), the CDC’s recommendation in its *Guidance* that asymptomatic individuals exposed to Ebola patients while in West Africa be prohibited from coming within three feet of another person for the twenty-one day incubation period of the virus breached this core principle. As demonstrated by almost forty years of experience, encompassing twenty-five Ebola outbreaks, and somewhere between 16,000 and 25,000 human cases, asymptomatic individuals incubating Ebola do *not* pose a risk of transmission to others.¹²³ Consequently, subjecting them to a near-absolute quarantine does not serve a public health purpose. Instead, it accommodates and exacerbates public fear, deprives some individuals of their right to move about freely, and sets a dangerous example for ignoring science. Each of these comes at a high cost, and some of those costs are apparent from our recent experience with Ebola.

As others have noted, one cost of unnecessary restrictions on the liberty of those who travel to West Africa to care for Ebola patients is

¹²² Jon Schuppe, *CDC Chief Tom Frieden Confronts Ebola Crisis Cool and Collected*, NBC NEWS (Aug. 10, 2014), <http://www.nbcnews.com/storyline/ebola-virus-outbreak/cdc-chief-tom-frieden-confronts-ebola-crisis-cool-collected-n175351>.

¹²³ See *supra* text accompanying notes 44–46.

that such a policy discourages health care workers from volunteering to provide such treatment.¹²⁴ The medical relief organization, Doctors Without Borders, for which both Craig Spencer and Kaci Hickox volunteered, reported in late October 2014 that it had already seen the “chilling effect” that a threat of quarantine and similar restrictions were having on its volunteers.¹²⁵ Anxiety and confusion among workers over quarantine laws caused the organization to consider shortening stays in West Africa so as to accommodate the twenty-one days a worker might need to remain away from family and co-workers after returning home.¹²⁶

Imposing additional burdens on individuals who would otherwise fight the spread of Ebola at its source is not only unfair to health care workers volunteering their services at great personal risk, but it also increases the risk that the disease spreads. Like a wildfire, an infectious disease will spread if not contained.¹²⁷ Thus, the best way to protect the population of the U.S. against Ebola is to contain it and stop it in West Africa. That, of course, requires willing volunteer health care workers to travel abroad to take up the fight.

Additionally, when the CDC accommodates public fear by recommending a near-absolute quarantine of health care workers returning from West Africa, it creates cover for others to do the same. The Secretary of Defense, at the request of the Joint Chiefs of Staff, announced a policy in late October to quarantine all military personnel for twenty-one days when they return from service in any of the three West African nations where Ebola was widespread.¹²⁸ This tremendous waste of financial and military resources was designed to comfort military personnel and their families against the fear that somehow an asymptomatic soldier might infect a loved one with Ebola back home.¹²⁹

Once the precedent is set for accommodating irrational public fear over the transmission of Ebola from asymptomatic individuals, it is

¹²⁴ Drazen, *supra* note 48, at 2029.

¹²⁵ Jonathan Allen, *U.S. Quarantines ‘Chilling’ Ebola Fight in West Africa: MSF*, REUTERS (Oct. 30, 2014), <http://www.reuters.com/article/2014/10/31/us-health-ebola-usa-msf-idUSKBN0IJ2PR20141031>.

¹²⁶ *Id.*

¹²⁷ Dan Roberts, *CDC Director Warns Ebola like ‘Forest Fire’ as Congress Readies for Hearing*, GUARDIAN (Oct. 16, 2014), available at <http://www.theguardian.com/world/2014/oct/16/ebola-congress-hearing-cdc-director>.

¹²⁸ Barbara Starr, *Hagel Announces Mandatory Ebola Quarantine*, CNN (Oct. 29, 2014), <http://www.cnn.com/2014/10/29/politics/military-ebola-quarantine/>.

¹²⁹ See Dan Lamothe, *Military Begins First Quarantine-Like Monitoring in U.S. for Ebola Mission Troops*, WASH. POST (Nov. 13, 2014), available at <http://www.washingtonpost.com/news/checkpoint/wp/2014/11/13/military-begins-first-quarantine-like-monitoring-in-u-s-for-ebola-mission-troops/>.

difficult to contain. It imposes a social, if not a legal, obligation on health care workers to quarantine themselves rather than risk being perceived as irresponsible.¹³⁰ Likewise, it puts political pressure on state politicians to out-do each other in the name of soothing public fear and comforting their constituents. As one newspaper headline put it, “Is Your State Quarantining Ebola Doctors?”¹³¹ The accompanying article stated that “[s]everal governors in tough reelection fights are rejecting CDC’s Ebola Guidelines in favor of more draconian rules.”¹³²

Discrimination against those associated with Ebola is an even uglier cost to accommodating irrational public fear about transmission of the disease. Here are just a few examples of Ebola discrimination in the U.S. Officials in several states excluded teachers and students from classrooms merely because they or someone they live with traveled to West Africa.¹³³ Health care workers who had treated Ebola patients in Atlanta, New York, and Dallas lost moonlighting jobs, were denied service in local businesses, and had their children turned away from day care for fear that they posed a danger.¹³⁴ School-aged brothers from Senegal, living in the U.S., were beaten by classmates yelling “Ebola.”¹³⁵ Certainly, there would be cases of discrimination regardless of whether the CDC accommodated public fear through its *Guidance*, but we must

¹³⁰ See Rebecca Martinez & Eric Hodge, *North Carolina Doctor in Voluntary Quarantine After Returning from Liberia Aid Mission*, WUNC (Jan 7, 2015), http://wunc.org/post/north-carolina-doctor-voluntary-quarantine-after-returning-liberian-aid-mission?utm_source=Facebook&utm_medium=Social&utm_campaign=FBWUNC4651.

¹³¹ Sam Baker & Sophie Novack, *Is Your State Quarantining Ebola Doctors?*, NAT. JOURNAL (Oct. 30, 2014), <http://www.nationaljournal.com/health-care/is-your-state-quarantining-ebola-doctors-20141030>.

¹³² *Id.*

¹³³ See, e.g., *Connecticut School Lifts Ban on Girl Barred Over Ebola Fears*, REUTERS (Oct. 30, 2014), <http://www.reuters.com/article/2014/10/31/us-health-ebola-usa-school-idUSKBN0IK01P20141031>; see Aimee Jones, *Newton High School Teacher Removed From School Until She is Medically Cleared for Ebola*, NEWTON CITIZEN (Oct. 29, 2014), available at <http://www.newtoncitizen.com/news/2014/oct/29/newton-high-school-teacher-removed-from-school/>; see also Amanda Terkel, *Oklahoma Teacher Will Have To Quarantine Herself After Trip to Ebola-Free Rwanda*, HUFFINGTON POST (Oct. 28, 2014), http://www.huffingtonpost.com/2014/10/28/ebola-rwanda-oklahoma-teacher_n_6062726.html; see also Allison Ross, *Teacher Leaves Catholic School Amid Ebola Fears*, COURIER-JOURNAL (Nov. 4, 2014), available at <http://www.courier-journal.com/story/news/education/2014/11/03/louisville-catholic-teacher-resigns-amidst-ebola-fears/18417299/>.

¹³⁴ Anemona Hartocollis & Nate Schweber, *Bellevue Employees Face Ebola at Work, and Stigma of It Everywhere*, N.Y. TIMES (Oct. 29, 2014), available at http://www.nytimes.com/2014/10/30/nyregion/bellevue-workers-worn-out-from-treating-ebola-patient-face-stigma-outside-hospital?_r=4.

¹³⁵ Elizabeth Barber, *2 Kids from Senegal Were Beaten Up in NYC by Classmates Yelling ‘Ebola’*, TIME (Oct. 28, 2014), available at <http://time.com/3542955/senegal-kids-brothers-assaulted-ebola-bronx-tremont-school-new-york-city-pabe-amadou-drame/>.

assume that cases of discrimination increase significantly when the nation's leading public health authority suggests that there is reason to fear that we might catch Ebola even from those who do not appear to be sick.

Finally, when the CDC, through the *Guidance*, ignores the facts about Ebola transmission, it erodes confidence in science, which makes the work of protecting the public's health all the more difficult. Consider the latest measles outbreak in the U.S. From January 1 through April 3, 2015, there were 159 cases of measles spanning eighteen states and the District of Columbia.¹³⁶ The recent resurgence of measles in the U.S. is often blamed on parents who ignore the scientific facts about the risks and benefits of the measles vaccine.¹³⁷ How can the CDC or any public health agency blatantly ignore the science of Ebola transmission, and then urge American parents to set aside their unfounded fear and trust the science behind the measles vaccine?

In the face of both widespread fear over Ebola in the U.S. and the CDC's damaged credibility following several early mistakes, it might have been a near impossible task for the agency to fend-off its critics and hold public health policy accountable strictly to the science of Ebola transmission. But that is the fight the CDC should have taken up. Instead, by issuing its deeply flawed *Guidance*, the agency ignored its bedrock responsibility and, as a result, undermined the public's health.

¹³⁶ *Measles Cases and Outbreaks*, CDC (Mar. 30, 2015), <http://www.cdc.gov/measles/cases-outbreaks.html>.

¹³⁷ *See, e.g.*, Jennifer Shih, *Why Worry About the Measles Outbreak?*, CNN (Aug. 7, 2014), <http://www.cnn.com/2014/08/07/opinion/shih-measles-vaccine/>.