Prioritizing Preparation: Ensuring Access to Health Care Through Hospitals’ Stockpiling of Personal Protective Equipment

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Prioritizing Preparation: Ensuring Access to Health Care Through Hospitals’ Stockpiling of Personal Protective Equipment

Briana D. Long*

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I. INTRODUCTION

When the COVID-19 pandemic struck the United States in the early months of 2020, the nation was unprepared for the havoc that ensued.1 The nation’s failure to prepare the supplies required by hospitals to treat patients and protect health care providers was especially concerning.2 Many American hospitals feared that a lack of ventilators, the life-support machines heavily relied upon by patients with severe respiratory virus symptoms, could cost many patients their chance of survival.3 However, it soon became apparent that supplies used daily in hospitals, such as masks, gloves, goggles, and aprons, were even more essential during the pandemic.4 These supplies proved vital in protecting America’s frontline medical workers from contracting the virus.5

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1 See infra notes 17–22 and accompanying text.


4 See PANDEMIC INFELUENZA PREPAREDNESS AND RESPONSE GUIDANCE FOR HEALTHCARE WORKERS AND HEALTHCARE EMPLOYERS, U.S. DEP’T OF LAB. 30 (2009), www.w1np.org/ARES/ FIRST_-2/PANDEM--1.PDF (“Given that pandemic influenza vaccine will likely not be available until 4 to 6 months into the pandemic and that shortages of antiviral medication are anticipated, PPE will be especially important for protecting healthcare workers.”); Yi Zhao, Personal Protective Equipment Protecting Healthcare Workers in the Chinese Epicenter of COVID-19, CLINICAL MICROBIOLOGY AND INFECT. (July 23, 2020), www.clinicalmicrobiologyandinfection.com/article/S1198-743X(20)30437-7/fulltext [https://doi.org/10.1016/j.cmi.2020.07.029]; Personal Protective Equipment for Ebola, WORLD HEALTH ORG., www.who.int/teams/health-product-and-policy-standards/access-to-assistive-technology-medical-devices/priority-medical-devices-for-covid/ppe-ebola/ (last visited Nov. 26, 2020) [https://perma.cc/JA5Z-EE5X] (recognizing that PPE was the most important equipment in preventing the spread of the Ebola virus, a similar respiratory virus to COVID-19).

Hospitals categorize these vital daily supplies as personal protective equipment (PPE). PPE includes any “equipment worn to minimize exposure to hazards” to prevent health care workers from injuries and illnesses. Hospital administrators view PPE as essential to keeping health care workers safe. PPE not only protects health care providers, but also patients, hospital staff, and visitors in hospitals every day by preventing the spread of germs, thereby reducing the risk of transmitting infections.

Throughout the pandemic, PPE has proven to be hospitals’ most critical form of equipment. Health care workers are at a heightened risk of contracting COVID-19. A preliminary study found that health care workers were twelve-times as likely to contract COVID-19 as non-health care workers. During the
pandemic, PPE shortages unnecessarily exposed many health care providers who later contracted the contagious virus. With each passing month in 2020, news sources featured headlines reporting PPE shortages. Journalists have extensively documented the severe impacts of PPE shortages on health care providers’ and patients’ fears of exposure to the virus.

Researchers, primarily from Massachusetts General Hospital and Harvard, preprinted this study in May of 2020 in response to the pandemic, which impacted America in February of 2020. This journal has not yet been peer-reviewed.

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13 See Shortage of Personal Protective Equipment, supra note 5.

14 See e.g., Healthcare Personnel and First Responders: How to Cope with Stress and Build Resilience During the COVID-19 Pandemic, CTRs. for Disease Control and Prevention (May 5, 2020).
had previously created the Strategic National Stockpile (SNS) to supplement emergency supplies, including PPE, at the beginning of the pandemic, the SNS lacked sufficient PPE to address shortages and protect American health care workers during COVID-19.16

In April of 2020, Johns Hopkins University estimated the amount of PPE necessary for the nation to respond appropriately to the COVID-19 pandemic.17 The report released calculations that the United States, in order to protect health care workers for a 100-day COVID-19 wave, would need approximately 3.4 billion more gloves, 321 million more isolation gowns, 179 million more medical masks, and 57 million more disposable respirator masks, such as N95 respirators, beyond the supplies needed during non-emergency times.18 In contrast, at the beginning of the pandemic the SNS had stored only twelve million N95 respirators (twenty-one percent of Johns Hopkin’s estimated demand) and thirty million surgical masks (seventeen percent of Johns Hopkin’s estimated demand).19 The number of gloves and isolation gowns within the SNS was not made clear by the House Committee on Oversight and Reform.20 However, the U.S. Department of Health & Human Services (HHS) distributed the entire stock of PPE to state entities by early April of 2020, indicating a similar shortage in gloves and isolation gowns in the SNS.21 These statistics display the critical failure of the


18 Id.


20 See Press Release, New Document Shows Inadequate Distribution, supra note 16; Berenson, supra note 19; Toner, supra note 17.

federal government to adequately prepare for a national medical emergency of COVID-19’s magnitude.22

There is a direct correlation between access to health care in America and health care providers’ access to PPE.23 Masks, gloves, goggles, and similar PPE help to prevent transmissions of infectious diseases in hospitals, especially between patients and their health care providers.24 If health care providers do not have access to this protective equipment, they are more likely to contract infectious diseases.25 During PPE shortages, more health care workers are likely to be exposed to infectious diseases due to their lack of protection and, as a result, they are more likely to contract those diseases.26 Once a health care provider is ill, they are likely unable to continue providing care to others.27 As more health care providers fall ill, hospitals’ ability to continue providing care to patients in need is more significantly impacted.28 Staffing problems force hospitals to admit fewer patients or continue providing care to the same number of patients at a lower quality of care.29 In an effort to mitigate health care worker shortages in North Dakota, the Governor issued an executive order allowing health care workers to


23 See infra notes 24–30 and accompanying text.


27 See Shortage of Personal Protective Equipment, supra note 5; Press Release, Katie Marquedant, supra note 11 (workers caring with patients with documented COVID-19 had a nearly 5-times higher risk of testing positive if they had adequate PPE and a nearly 6-times higher risk if they had inadequate PPE); Mitigating Staff Shortages, supra note 26.


29 See Castles, supra note 28; SCHWARTZ ET AL., supra note 28.
care for positive COVID-19 patients after testing positive for COVID-19, if the health care worker was asymptomatic.30

Access to health care is an essential human right.31 While some Americans contest this statement, more than half of the world’s countries formally recognize health care as a human right.32 After the severe nationwide impact of this pandemic on American citizens, the United States must reevaluate this omission of a fundamental right.33 By formally recognizing health care as a human right, the government would acknowledge its duty to provide Americans access to health care.34 This pandemic has highlighted the importance for all citizens, but especially health care providers, to be confident that their health is a priority to the government.35 Health care providers are the most critical component of saving lives in the health care system because they provide diagnoses, treatment, and care to patients.36 Medical equipment is rarely useful unless a health care provider is available to administer it to a patient.37 Therefore, the nation’s lack of preparation to ensure the safety of health care providers in emergencies by stocking adequate


33 See infra notes 240–68 and accompanying text.

34 See infra notes 249–68 and accompanying text.

35 See Mark A. Rothstein, Should Health Care Providers Get Treatment Priority in an Influenza Pandemic?, 38 J.L. MED. ETHICS 412 (2010) (“[T]he following three considerations almost certainly would be used to support giving health care providers treatment priority in a pandemic: (1) specific social worth; (2) general social worth; and (3) desert.”).


37 See Alice G. Gosfield, Editorial: Physician-Hospital Partnership—What Really Counts?, 3 J. ONCOLOGY PRACT. 133 (“[V]irtually everything that happens in a hospital is derived ultimately from a physician’s order.”).
amounts of PPE is a violation of the government’s ethical duty to respect, protect, and fulfill Americans’ health care needs.38

To resolve the nation’s deficiency in PPE preparation, the federal government should reinstate its Hospital Preparedness Program (HPP) grant enabling hospitals to establish a storage space for PPE and to supply the initial stockpile.39 This grant should allow hospitals to utilize stockpile materials to minimize waste.40 After the federal government funds the initial stockpile, hospitals will be able to independently maintain their stockpiles by replenishing the PPE they use from the stockpile with their standard equipment budgets.41 This grant encompasses a high initial cost for the federal government; however, it will reduce the federal government’s long-term costs by requiring less spending in reaction to the next national emergency.42 If the federal government is unwilling or unable to provide the funding for a grant program, Wyoming should implement a similar grant or expand the state stockpile to ensure Wyoming’s health care providers’ safety during future emergencies.43

This comment argues that the United States federal government should recognize its duty to protect American’s access to health care through protecting the safety of health care providers.44 Part II describes the consequences of previous national PPE shortages and the statutes and regulations currently governing hospital’s PPE storage.45 Part III explains the impact of PPE shortages to the nation during the COVID-19 pandemic and identifies the heightened risk of PPE shortages to rural communities during medical emergencies.46 Part IV


40 See infra notes 232–33 and accompanying text.


42 See infra notes 329–36 and accompanying text.

43 See infra notes 317–20 and accompanying text.

44 See infra notes 241–68 and accompanying text.

45 See infra notes 51–142 and accompanying text.

46 See infra notes 143–199 and accompanying text.
describes the reactionary measures of government agencies to the pandemic.\textsuperscript{47} It contends that the government should formally recognize its duty to ensure access to health care because health care is a fundamental human right.\textsuperscript{48} Part V proposes the reinstatement of HHS’s Hospital Preparedness Program and suggests that if the federal government is unwilling or unable to reinstate a modified version of the HPP program, Wyoming should take steps to ensure the safety of health care providers during future medical emergencies.\textsuperscript{49} Finally, Part VI addresses potential criticisms.\textsuperscript{50}

II. Background

A. Learning from Previous Mistakes: Prior Hospital PPE Shortages

America’s PPE shortages are not specific to the COVID-19 pandemic.\textsuperscript{51} PPE supply shortages were also problematic during the Severe Acute Respiratory Syndrome (SARS) pandemic, the Ebola epidemic, and the H1N1 pandemic.\textsuperscript{52} Despite these warnings, the federal government made almost no changes to its emergency preparation techniques and continued to underfund national

\textsuperscript{47} See infra notes 200–268 and accompanying text.

\textsuperscript{48} See infra notes 241–68 and accompanying text. Formally recognizing health care as a human right would also create other significant ramifications beyond increasing PPE preparation for health care workers. See Human Rights and Health, WORLD HEALTH ORG. (Dec. 29, 2017), www.who.int/news-room/fact-sheets/detail/human-rights-and-health [https://perma.cc/W4B3-22BU]. However, other effects of recognizing health care as a human right are outside the scope of this article.

\textsuperscript{49} See infra notes 269–320 and accompanying text.

\textsuperscript{50} See infra notes 321–368 and accompanying text.


\textsuperscript{52} See Archib Campbell, supra note 51, at 1108; Nurses Protest H1N1 Respirator Mask Shortage, supra note 51; Schneck, supra note 51; Ebola (Ebola Virus Disease), supra note 51; Memorandum from Kirchhoff, supra note 51, at 1–5. The difference between an epidemic and pandemic is that an epidemic is a widespread, but not global, medical emergency related to transmission of an infectious disease. Rebecca J. Stanborough, How is a Pandemic Different From an Epidemic?, Healthline (Apr. 30, 2020), www.healthline.com/health/pandemic-vs-epidemic [https://perma.cc/6H5V-2QBJ]. A pandemic relates to a global medical emergency related to widespread transmission of an infectious disease. Id.
medical emergency preparation programs. The COVID-19 pandemic has only illuminated the severity of federal, state, and local shortages of vital medical gear, including PPE.

The commercial market typically fulfills hospitals’ PPE supply. However, during emergencies, the demand for PPE surges, and the commercial market has minimal ability to respond by rapidly supplying PPE to meet the increased demand. Consequently, hospitals are unable to obtain PPE from the market. Instead, hospitals request these critical supplies from the SNS. In 2003, Congress designed the SNS “to supplement and resupply state and local public health agencies in the event of a national emergency within the United States or its territories.” The inventory is managed and distributed by HHS. When the pandemic struck the United States, most Americans were under the misimpression that the SNS had enough emergency medical supplies, including PPE, to carry

56 See Shortage of Personal Protective Equipment, supra note 5.
60 See Strategic National Stockpile, supra note 16; Anna Nicholson et al., The Nation’s Medical Countermeasure Stockpile: Opportunities to Improve the Efficiency, Effectiveness, and Sustainability of the CDC Strategic National Stockpile §2 (2016).
America through several months of global market shortages. However, the SNS’s reserves were depleted by the beginning of April 2020, only one month after HHS’s declaration of a national public health emergency.

The United States’ lack of preparation is even more apparent when compared to other countries. In 2009, when America was recovering from PPE shortages after the nation’s response to the H1N1 pandemic, researchers found that for each mask per American citizen, Australian citizens had 2.5 masks, and English citizens had six. Better preparation of PPE allowed Australia and England to cope more effectively with the H1N1 pandemic. This finding is particularly concerning because HHS has not substantially replenished the SNS since 2009. In 2009, over 85 million N95 respirators were distributed from the SNS to support public health efforts during the H1N1 pandemic. President Obama tried to replenish the depleted stockpile in 2011; however, Congress did not allocate the full amount of requested funds. In the federal budget, Congress...
specified that the majority of the allocation should be spent preparing for a terrorist attack.\(^6^9\) There was not enough money allocated to also restock the PPE used during the H1N1 pandemic to prepare for future respiratory influenzas.\(^7^0\) As a result of Congress' equipment prioritization, the SNS only had twelve million N95 respirators stored for the nation to rely on during the COVID-19 pandemic, only fourteen percent of the supply that was utilized during the H1N1 pandemic.\(^7^1\) Moreover, of the twelve million stored respirators, five million were expired.\(^7^2\)

The market for hospitals' PPE is generally stable.\(^7^3\) However, demand for PPE spikes during emergencies necessitating a government-maintained PPE stockpile.\(^7^4\) A stockpile is even more critical to the United States because the nation's PPE supply has become increasingly unstable over the last decade as the country has increasingly relied upon other countries, especially China, for medical supplies.\(^7^5\) It is dangerous for one country to control the creation and

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\(^6^9\) **Budget of the U.S. Government: Fiscal Year 2011, Off. of Mgmt. and Budget** 76 (2011). Congress specified that HHS should utilize $400 million of its allocated funds in preparing countermeasures against chemical, biological, radiological, and nuclear threats. *Id.* HHS was expected to use the remainder of the money within the $1.65 billion allocated to the Supplemental Appropriations Act in 2009. *Id.*


\(^7^1\) *Id.* The stockpile distributed 85 million N95 respirators. *Id.* Later, for COVID, the stockpile had 12 million N95s and 12/85 = 14%. *Id.*

\(^7^2\) *Id.* (“Another 5 million N95 masks in the stockpile are expired.”).


\(^7^4\) See *Nicholson et al.*, supra note 60, at 1; **Shortage of Personal Protective Equipment, supra note 5.**

\(^7^5\) In 2004, United States manufacturing companies fulfilled 90% of the countries' surgical mask market. Yuki Noguchi, *Not Enough Face Masks are Made in America to Deal with Coronavirus*, Nat’l Pub. Radio (Mar. 5, 2020, 5:06 AM), www.npr.org/sections/health-shots/2020/03/05/811387424/face-masks-not-enough-are-made-in-america-to-deal-with-coronavirus [https://perma.cc/4VH9-W664]. Within one year, 95% of the countries' demand was
distribution of most medical supplies because then the supply becomes susceptible to disruptions. In a pandemic, countries relying primarily on imported medical supplies face a higher risk of shortages because their domestic stockpile and industrial capacity rely on other possibly affected countries. If the country controlling the critical supply terminates exports of those supplies, and if there are no redundancies in production, such as a stockpile, the reliant country is without means to rapidly obtain those supplies.


76 See Feinmann, supra note 75.

77 See Aaron Friedberg, The United States Needs to Reshape Global Supply Chains, FOREIGN POLICY (May 8, 2020, 3:48 PM), foreignpolicy.com/2020/05/08/united-states-reshape-global-supply-chains-china-reglobalization/ [https://perma.cc/7EX4-N2UL] (“Once the coronavirus pandemic begins to recede, greater awareness of the potential impact of natural as well as man-made shocks will accelerate tendencies not toward deglobalization but rather toward reglobalization: a reshuffling of supply chains and at least a partial reduction in the concentration of capacity inside China. In the words of one recent survey of global manufacturing trends: ‘While the trade war triggered some notable tinkering, the massive operational disruption wrought by the coronavirus pandemic will compel companies to fundamentally rethink their sourcing strategies. At minimum . . . they will be increasingly inclined to spread their risks rather than put all their eggs in the lowest cost basket, as many long did in China.’”); Danielle Pletka & Derek Scissors, We’re Too Dependent on China for Too Many Critical Goods. Especially Medicine., AM. ENTER. INST. (Mar 21, 2020), www.aei.org/op-eds/were-too-dependent-on-china-for-too-many-critical-goods-especially-medicinel ("This makes no sense, economically or logically. Most individuals wouldn’t tolerate dependence on a single drug store for a critical, life-saving medication. Why would a nation?").

Throughout 2020, the COVID-19 pandemic illustrated the accuracy of previously anticipated PPE market vulnerabilities. COVID-19 spread across America, creating a national surge in demand for PPE. However, the surge of COVID-19 cases in China had already depleted much of global PPE supply since the virus originated in China months before reaching America. China is also the largest provider of PPE, which was problematic because many PPE manufacturing factories closed while the pandemic devastated China. When the pandemic reached the United States, transmission rates in China began subsiding, allowing workers to return to their manufacturing jobs. After an initial scarcity of imported supplies in America, Chinese PPE factories were able to reopen and contribute to the increasing global PPE demand. China, amongst other countries, rushed to create more factories to produce PPE to meet supply. However, due to the urgent demand in an increased supply of PPE, the quality of the supplies was not subject to the same level of market oversight as they were.

79 See supra notes 18–23 and accompanying text; infra notes 352–53 and accompanying text; Talha Burki, Global Shortage of Personal Protective Equipment, 20 LANCET 785, 785 (2020) (“The COVID-19 pandemic has caused shortages and price rises in PPE, especially those needed to protect frontline workers.”).


82 See Burki, supra note 79, at 785.


85 See Burki, supra note 79 (noting the dramatic increase in China’s supply of PPE, including surgical masks producing 90 million more masks per day than production before the pandemic).
before the pandemic, resulting in lower-quality products. Upon complaints of lower-quality materials, China implemented additional quality assurances; however, these assurances caused further delays in exporting supplies.

To respond to PPE shortages, some American industrial companies endeavored to pause the production of their industrial products and, instead, switch to manufacturing the PPE in high demand. However, these companies struggled to find the raw materials required to manufacture the PPE products. Producers discovered that many raw materials were also primarily produced in China and imported into the United States. Since China makes most of the raw materials to produce medical supplies, depleted Chinese exports made these materials challenging to obtain during the pandemic. As a result, American industrial companies capable of manufacturing PPE supplies were mostly unable to produce the supplies desperately needed by American hospitals.


91 Id.

92 See supra notes 88–91 and accompanying text.
Despite these difficulties, COVID-19 highlighted Americans’ innovative spirit. After recognizing the challenges of producing medical-grade masks in the United States, many individuals and local businesses began creating cloth masks and aprons from material scraps to supplement hospitals’ dwindling supplies. However, most hand-crafted masks are not created with the same standard as industrial-made masks and may not offer the same protection. Cloth masks generally have not surmounted the rigorous testing of medical-grade masks to determine the degree of protection they provide. Although cloth masks offer more protection than no mask, cloth masks primarily help the health care industry by decreasing the overall demand for medical-grade masks, preserving them for health care workers. Moreover, cloth masks also indirectly help health care workers maintain medical-grade masks by slowing down the transmission of the virus, which decreases the number of COVID-19 patients admitted to hospitals. Subsequently, the reduction in COVID-19 patients


96 See ABRAR A. CHUGHTAI ET AL., EFFECTIVENESS OF CLOTH MASKS FOR PROTECTION AGAINST SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (2020).


reduced the amount of PPE used in hospitals, allowing hospitals to better retain their supplies.99

Moreover, even surgical masks are insufficient substitutes for N95 respirators.100 N95 respirators filter out 95% of particles 0.3 microns or larger.101 Surgical masks do not block small particles because the loose fit between the mask and the wearer’s face allows passage of most airborne particles.102 The design of surgical masks primarily blocks splashes and large-particle droplets such as those released from a cough or sneeze.103 Surgical masks, when compared to N95 respirators, do not provide equal respiratory protection from exposure to particles in the air to their wearers.104 Surgical masks primarily are meant to protect others from the wearer’s respiratory emissions because the droplets remain within the mask and do not become airborne.105 Because cloth masks protect droplets that may contain COVID-19 particles produced primarily by a person’s coughs or sneezes, such masks reduce but do not eliminate the risk of contracting COVID-19.106 If there are airborne COVID-19 particles, which for example, may be created from an infected person who is not wearing a mask coughing or sneezing, another person with a cloth or surgical mask will not be as well protected from the transmission of the virus by a mask, as they would be using a respirator.107

99 See Brewster, supra note 98; Ringer, supra note 98; Chughtai et al., supra note 96.
101 Don Oldenburg, N95 Masks Fly Off Shelves, but Offer Scant Protection, WASH. POST (Feb. 15, 2003), www.washingtonpost.com/archive/lifestyle/2003/02/15/n95-masks-fly-off-shelves-but-offer-scant-protection/90540cfe-846b-420a-884a-4b872edbe1ca/. 0.3 microns is smaller than the eye can detect. Filtration, NILFISK, nilfiskcharm.com/filtration/#:~:text=One%20micron%20is%20equal%20to%200.3%20micron%20which%20is%20often%20causing%20adverse%20health%20effects (last visited Nov. 26, 2020) [https://perma.cc/5P9R-W6N5]. On average, the human eye can detect particles of 50–60 microns and larger. Id. There are 1,000 microns in a millimeter. Microns to Millimeters, METRIC CONVERSIONS, www.metric-conversions.org/length/microns-to-millimeters.htm (last visited Nov. 26, 2020).
102 N95 Respirators, Surgical Masks, and Face Masks, supra note 97.
103 Id.
104 See Understanding the Difference, CRTS. FOR DISEASE CONTROL AND PREVENTION, www.cdc.gov/niosh/nppdf/UnderstandDifferenceInfographic-508.pdf (last visited Nov. 26, 2020) [https://perma.cc/GSB9-XWKK]. The purpose of respiratory protection is to prevent exposure to contaminated air. Elaine L. Chao & John L. Henshaw, Respiratory Protection, U.S. DEPT OF LAB. (2002), www.osha.gov/Publications/OSHA3079/osha3079.html#:~:text=The%20primary%20objective%20of%20the,thus%20to%20prevent%20occupational%20illness [https://perma.cc/7YNH-GZJW]. Because surgical masks have a loose fit, they do not filter the air to prevent the contaminants, such as COVID-19 suspended in the air, from being inhaled. Understanding the Difference, supra note 104. Therefore, surgical masks should not be used as respirators for respiratory protection. See 42 C.F.R. § 84.1 (2020); Chao & Henshaw, supra note 104.
105 Understanding the Difference, supra note 104.
106 See id.; Considerations for Wearing Masks, supra note 97.
107 See Considerations for Wearing Masks, supra note 97.
Because surgical and cloth masks do not provide full respiratory protection, hospitals typically rely upon respirators for this purpose.108 When health care providers intubate a patient or place a patient on another noninvasive breathing device, the patient can release aerosolized particles of the virus into the air requiring the health care provider to use respiratory protection to prevent transmission of the virus.109 Therefore, N95 respirators are vital for health care workers to best protect themselves while providing care to positive COVID-19 patients.110

B. Federal Pre-Pandemic Laws Relating to Hospital Supplies

No federal laws require an individual hospital to store a certain amount of PPE.111 Although there are a handful of administrative regulations relating to PPE, there is little guidance regarding how much PPE a hospital should store.112 In their role as employers, hospital administrators are responsible for protecting health care workers in the hospital.113 The PPE standard designated by the Occupational Safety and Health Administration (OSHA) mandates that hospitals provide their employees with PPE.114 OSHA also requires that hospitals retain emergency preparedness by maintaining a “functional level” of preserved equipment, supplies, and worker training.115 However, OSHA does not define

109 See Nicoletta Lanese, Are Ventilators Being Overused on COVID-19 Patients?, LIVE SCIENCE (Apr. 8, 2020) (“Noninvasive breathing devices do pose some threat to health care workers, as they can release aerosolized particles of the virus into the air while in use . . . .”).
112 See 29 C.F.R. §§ 1910.132–.138; id. § 1910.1030; id. § 1910.151; id. § 1926.50; id. § 1915.87.
113 See id. § 1910.132(a); HOSPITALS AND COMMUNITY EMERGENCY RESPONSE: WHAT YOU NEED TO KNOW, U.S. DEP’T OF LAB. 14 (2008).
the amount of supplies constituting a functional level, leaving that determination largely to the discretion of individual hospitals.116

The Centers for Medicare and Medicaid Services (CMS) also regulates health care organizations indirectly.117 Hospitals participating in the Medicare and Medicaid services must comply with CMS’s Conditions of Participation.118 One condition of participation that hospitals must comply with is CMS’s Emergency Preparedness regulations.119 These regulations include compliance with the Emergency Medical Treatment and Labor Act (EMTALA), requiring hospitals

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116 See id.


to comply with general infection control practices. General infection control practices include a requirement for hospitals to use PPE correctly and have PPE readily available at entrances to patients’ rooms. Health care providers found to be non-compliant may be restricted from further participation in the Medicare or Medicaid program. However, during the pandemic, CMS released a memorandum stating that EMTALA does not provide specific requirements for the amount of PPE that health care facilities must have on hand; however, health care facilities are still expected to adhere to accepted standards of infection control strategies to prevent transmissions of the COVID-19 virus.

Although the federal government does not require specific amounts of PPE storage, the CDC will occasionally release a calculator to help hospitals estimate how much PPE the hospital may need for a medical emergency. The CDC typically releases these calculators during particular medical emergencies where hospitals utilize more PPE than they use in non-emergencies. This calculator estimates a facility’s PPE “burn rate” to help calculate its future PPE needs. In addition to assessing the burn rate, the calculator can help hospitals prioritize PPE conservation measures depending on the facilities’ surge capacity.


122 See 42 C.F.R. § 424.535(j) (2020); Memorandum from David Wright, supra note 119, at 5. According to the American Hospital Association, 60% of the care provided to patients in most hospitals is covered by Medicare and Medicaid. AMERICAN HOSPITAL ASSOCIATION: UNDERPAYMENT BY MEDICARE AND MEDICAID FACT SHEET, AM. HOSP. ASS’N (2017).


126 See PPE Burn Rate Calculator, supra note 124. An inventory burn rate calculates how quickly the hospital is predicted to use and need to dispose of equipment. See id. PPE is recommended for one-time use only; so after an article of PPE is used, it is “burned” because it has expended its full use, and it must be disposed of and replaced. See QUESTIONS ABOUT PERSONAL PROTECTIVE EQUIPMENT (PPE), U.S. FOOD AND DRUG ADMIN. (Mar. 11, 2020), www.fda.gov/medical-devices/personal-protective-equipment-infection-control/questions-about-personal-protective-equipment-ppe [https://perma.cc/ZEY4-7XLZ].

127 See PPE Burn Rate Calculator, supra note 124 (“The tool will calculate the average consumption rate . . . this information can then be used to estimate how long the remaining
In summary, America's lack of preparation relating to PPE stems partially from the lack of supplies in the SNS and partially from governmental agencies' lack of guidance relating to hospital PPE storage prior to medical emergencies.\textsuperscript{128} The severe lack of stored PPE equipment nationwide demonstrates that neither hospitals nor the government stored adequate supplies for health care providers during emergencies.\textsuperscript{129} This failure to prepare must be rectified to save American lives before the next large-scale medical emergency.\textsuperscript{130}

C. Pre-Pandemic Wyoming Laws Relating to Hospital Supplies

At the end of 2020, Wyoming had no state laws or regulations related to PPE storage.\textsuperscript{131} Wyoming also lacked administrative rules related to the storage of protective gear in Wyoming.\textsuperscript{132} “The Wyoming Department of Health, however, requires hospitals to establish an infection control program to obtain state supply of PPE will last, based on the average consumption rate” – if you open the calculator (Excel file) you can see the three categories. Surge capacity is the increased strain on the hospital’s PPE during a pandemic from a sudden increase of high-risk patients placing a strain on a hospital’s supplies. Optimizing Personal Protective Equipment (PPE) Supplies, CTRS. FOR DISEASE CONTROL AND PREVENTION (July 16, 2020), www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html [https://perma.cc/Q8WS-Y9G4].

\textsuperscript{128} See Greenfield Boyce, supra note 61; Brown, supra note 66; Jacobs & Fink, supra note 61. However, Congress created the SNS to supplement state and local supplies during public health emergencies, not meet each state’s emergency demand. See Strategic National Stockpile, supra note 16.


\textsuperscript{130} See supra notes 24–31 and accompanying text.

\textsuperscript{131} See Jeff Lagasse, California Passes Nation’s First Bill Requiring Hospitals to Keep a 45-Day Supply of PPE, HEALTHCARE FIN. NEWS (Sept. 2, 2020), www.healthcarefinancenews.com/news/california-passes-nations-first-bill-requiring-hospitals-keep-45-day-supply-ppe [https://perma.cc/4LSV-DRD7] (for CA to be the only state in the nation to pass a PPE supply bill, WY could not have such a statute). Wyo. CODE R. § 053-0012-4 (LexisNexis 2020); id. § 053-0013-4; id. § 010-0005-28. The Wyoming Health Association also has not made any local or state recommendations regarding the state’s regulation of health care facilities’ PPE storage. See WHA Resources, Wyo. Hosp. Ass’n, www.wyohospitals.com/wha-resources/ (last visited Nov. 26, 2020).

\textsuperscript{132} See Wyo. CODE R. § 053-0012-4; id. § 053-0013-4; id. § 010-0005-28. The Wyoming Health Association also has not made any local or state recommendations regarding the state’s regulation of health care facilities’ PPE storage. See WHA Resources, supra note 131.
licensure. These programs must adhere to standards of practice recognized nationwide to prevent and control infectious diseases. Hospitals typically fulfill this requirement by stipulating their transmissions prevention protocols. Hospitals must supply enough PPE to their workers and patients to comply with their infection control policies and should be required to maintain this standard even in times of emergencies. When individual hospitals independently determine the supply of PPE to store, they may inadequately estimate the number of supplies necessary for an emergency and, therefore, be unable to comply with infection control policies when hospitals and patients need those policies the most.

Wyoming has published PPE quality and procedure requirements through the Wyoming Department of Workforce Services; however, these regulations mirror the federal OSHA requirements discussed in the previous section. Therefore, because there are no state-specific regulations relating to the storage of medical PPE supplies, Wyoming hospitals have considerable discretion regarding their facilities’ PPE storage. So long as Wyoming hospitals meet the federal quality and procedure requirements outlined by OSHA and comply with their infection control programs, they are not subject to further regulations related to PPE. Due to this lack of regulation on hospital inventories, an individual hospital’s inventory decisions are typically contained within internal documents. Unfortunately, these individual hospital decisions are generally unavailable to the public, making further analysis of state hospital PPE practices unfeasible.

133 See Wyo. Code R. § 048-0061-12 (Section 24 – Infection Control Program).
134 See id.
135 Yacob Habboush et al., Infection Control, StatPearls (Sept. 11, 2020), www.ncbi.nlm.nih.gov/books/NBK519017/#:~:text=Infection%20control%20program%20has%20the,transmission%20depending%20on%20the%20microorganism [https://perma.cc/W2W5-X984].
138 See Wyoming Department of Health Infectious Disease Epidemiology Unit, Infection Prevention Orientation Manual §7 (2014).
139 See Wyo. Code R. § 053-0012-4; id. § 053-0013-4; id. § 010-0005-28.
140 See Wyo. Code R. § 053-0012-4; id. § 053-0013-4; id. § 010-0005-28.
141 See supra notes 128–40 and accompanying text.
142 See Jan de Vries, Hospital Inventory Systems: Powerplay or Rational Decision-Making?, Hospital Healthcare Europe (June 16, 2011), hospitalhealthcare.com/news/hospital-inventory-
III. PPE SHORTAGES DURING THE PANDEMIC

A. Nationwide PPE Unavailability During the COVID-19 Pandemic

During the COVID-19 pandemic, the entire nation faced PPE supply deficiencies. The PPE shortages forced many hospitals nationwide to optimize their supplies through rationing and reuse of disposable materials. The CDC recommends N95 respirators be used for no more than eight hours before their


disposal for optimal protection. However, N95 shortages drove many health care providers to disregard this recommendation in desperation to maintain respiratory protection during the PPE shortage.

B. Challenges Obtaining Supplies in Wyoming During the COVID-19 Pandemic

By rationing supplies and receiving donations from local communities, only one Wyoming hospital, near the end of 2020, reported reaching a critical shortage of PPE supplies. However, while Wyoming has never completely exhausted its PPE supply, the state has not been immune to supply scarcities due to a lack of emergency preparedness. Many hospitals in Wyoming faced PPE shortages, and some hospitals described their PPE situation as “critical” and “desperate.” As the state’s restrictions began to loosen at the end of April, 2020 allowing businesses to reopen slowly and expand public gathering size limitations, Wyoming Governor Mark Gordon expressed fears that a resurgence of COVID-19 cases may occur. He warned that serious shortages remained in Wyoming, hinting that hospitals

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150 See Michelle Stoddart et al., When Each State’s Stay-At-Home Order Lifts, ABCNEWS (May 12, 2020, 8:06 PM), abcnnews.go.com/US/list-states-stay-home-order-lifts/story?id=70317035 [https://perma.cc/FK3D-L68F].
may still not have the supplies necessary to manage a spike in the virus.\footnote{Priyadarshini et al., \textit{supra} note 144.} After May of 2020, Governor Gordon did not provide any updates regarding the adequacy of state hospitals’ PPE supplies.\footnote{See Governor Mark Gordon, \textit{supra} note 147.} Additionally, the Wyoming Medical Center in Casper reported in mid-October of 2020 that it had “plenty” of PPE supplies.\footnote{Brendan LaChance, \textit{Wyoming Medical Center Activate ‘Code Orange’; Seeing Record Number of Covid Patients}, \textit{Oil City News} (Oct. 14, 2020), oilcity.news/community/health/covid-19/2020/10/14/wyoming-medical-center-activate-code-orange-seeing-record-number-of-covid-patients/ [https://perma.cc/7QDU-4YZL].} However, the national trend of shortages at the end of the year in 2020, especially for N95 respirators, indicated that it was likely at least some Wyoming hospitals were experiencing PPE supply shortages.\footnote{See Mark Huffman, \textit{With COVID-19 Surging, America is Facing Another Mask Shortage}, \textit{Consumer Affairs} (Nov. 5, 2020), www.consumeraffairs.com/news/with-covid-19-surge-america-is-facing-another-mask-shortage-110520.html [https://perma.cc/C942-UQ5P]; Some PPE Shortages are Worsening, \textit{Kaiser Fam. Found.} (Sept. 18, 2020), khn.org/morning-breakout/some-ppe-shortages-are-worsening/ [https://perma.cc/KX3Q-HKNH]; Daniel J. Finkenstadt et al., \textit{Why the U.S. Still Has a Severe Shortage of Medical Supplies}, \textit{Harv. Bus. Rev.} (Sept. 17, 2020), hbr.org/2020/09/why-the-u-s-still-has-a-severe-shortage-of-medical-supplies [https://perma.cc/53DB-7DKQ].}

Governor Gordon had previously recognized that it was “absolutely essential” that health care workers protect themselves with PPE.\footnote{National Stockpile and State Supplies Going to Wyoming Communities in Need, \textit{Cap City News} (Mar. 23, 2020), capcity.news/latest-news/2020/03/23/national-stockpile-and-state-supplies-going-to-wyoming-communities-in-need/ [https://perma.cc/8A3U-KEY8].} The state focused, in the early months of the pandemic, on obtaining PPE for the state’s hospitals.\footnote{See \textit{id}.} In late March of 2020, Wyoming received a shipment of PPE from the SNS.\footnote{Doug Randall, \textit{Governor Says Wyoming Received Shipment of Protective Equipment}, KGAB.COM (Mar. 24, 2020), kgab.com/governor-says-wyoming-received-shipment-of-protective-equipment/ [https://perma.cc/9NDM-YTJF].} Although this shipment was helpful to the state’s health care facilities, the supplies only fulfilled 54% of the state’s requested supplies and were inadequate to meet Wyoming hospitals’ demand.\footnote{See Klamann, \textit{supra} note 147. State received 60,000 of the requested 71,294 ventilators; 143,500 of the requested 169,344 masks; 21,356 of the 36,126 requested face shields; 14,796 of the 29,699 requested surgical gowns; 312 of the 1,786 requested coveralls; and 35,800 of the 198,538 gloves requested. \textit{id}.} During a press conference in late March of 2020, Governor Gordon addressed Wyoming’s increasing need for PPE, acknowledging the growing need to obtain the supplies the SNS could not provide.\footnote{National Stockpile and State Supplies, \textit{supra} note 155.} The state then began working with the CDC and the Federal Emergency Management...
Agency (FEMA) to acquire PPE, however, this effort was also unsuccessful. In fact, in early April of 2020, Governor Gordon publicly criticized FEMA at a press conference for canceling Wyoming’s PPE orders. Governor Gordon lamented that FEMA was the federal organization created to help states respond to disasters. However, instead of assisting the state, FEMA preempted Wyoming’s efforts to restock their health care facilities’ PPE. FEMA preempted the PPE orders to prioritize the supply in areas more significantly hit by the virus. This strategy did not allow the less-severely affected areas to get ahead of the virus’s transmission curve. Instead, it forced those areas to respond primarily in reactionary measures to the spread of the virus. This strategy of sending supplies to severely impacted areas was, more likely than not, morally necessary to save the most American lives. However, if America better prepared for nationwide emergencies, the federal government would not be forced to choose to which areas to send supplies since areas that were not as heavily affected by the emergency would already have supplies in storage to stay ahead of the virus’s transmission curve.

After FEMA preempted Wyoming from ordering additional PPE supplies, Wyoming was forced to devise unprecedented solutions to replenish the state’s health care facilities’ critical PPE supply. In the state’s desperation, it ordered PPE supplies directly from China to avoid the U.S. government’s redirection of PPE ordered by the state. Before transmissions of the virus began to intensify within Wyoming, HHS officials depleted the SNS’s PPE inventory through final

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161 Id. 
163 LaChance, supra note 160. 
164 Id. 
165 Id. 
166 Id. 
168 See supra notes 160–67 and accompanying text. 
shipments to other states.\textsuperscript{171} The state, due to the surge of cases during the fall of 2020, may deplete its current PPE stock before the end of the year.\textsuperscript{172} If a shortage does occur, it is unclear what federal protections, if any, Wyoming will be able to rely upon to replenish its PPE based on the federal government’s previous failures to support Wyoming during this pandemic.\textsuperscript{173}

C. Rural Hospitals’ Elevated Concerns Regarding Access to Health Care

Seventeen of Wyoming’s twenty-three counties have fewer than six people per square mile and are, therefore, considered rural communities by Wyoming’s Department of Health.\textsuperscript{174} Citizens residing in rural communities account for almost half of Wyoming’s population.\textsuperscript{175} The low population density of rural communities was advantageous to Wyoming and other primarily rural states at the beginning of the pandemic.\textsuperscript{176} People believed social distancing was natural in rural areas because the small population size residing in a large area of land typically allows for limited face-to-face contact with people outside of those living in the same home.\textsuperscript{177} Wyoming also has relatively low international travel rates, which likely delayed a spike of the virus in Wyoming.\textsuperscript{178} However, the advantages


\textsuperscript{173} See \textit{supra} notes 160–68 and accompanying text.

\textsuperscript{174} \textit{What is Rural}, WYO. DEP’T OF HEALTH, health.wyo.gov/publichealth/rural/officeofruralhealth/what-is-rural/ (last visited Nov. 27, 2020) [https://perma.cc/3BAD-KJWM] (this finding is based on federal agencies’ definition of the term “frontier”).

\textsuperscript{175} \textit{Id.}


\textsuperscript{178} See Patrick Surry, \textit{Which States Are Most Likely to Travel Abroad This Year?}, MEDIA (June 7, 2017), media.hopper.com/research/which-states-are-most-likely-to-travel-abroad-this-year [https://perma.cc/X66N-S7ZY]; Michal Czepkiewicz et al., \textit{Why Do Urbanites Travel More than Do Others? A Review of Associations Between Urban Form and Long-Distance Leisure Travel}, 13 ENV’T RSCH.
enjoyed by rural communities at the beginning of the pandemic did not remain for long.179

Several months into the pandemic, a wave of COVID-19 cases spread to nearly three-quarters of rural communities in the United States.180 In June, Uinta County in Wyoming had the third-highest number of positive COVID-19 cases in Wyoming, even though it is ranked tenth out of the twenty-seven counties in population size.181 Research has found that rural populations are disadvantaged once the virus permeates the community because of the high populations of elderly residents in rural communities, who are at an increased risk of suffering from severe COVID-19 symptoms.182 Therefore, the populations residing in rural areas are at a higher risk of severe illness from COVID-19.183

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179 See infra notes 180–84 and accompanying text.
183 See Rural Communities, supra note 182; People at Increased Risk and Other People Who Need to Take Extra Precautions, supra note 182.
The number of Wyoming deaths resulting from the COVID-19 virus was relatively low for most of 2020 but increased significantly in the fall of 2020. Rural hospitals are also disadvantaged by inequalities including economic stagnation, outdated equipment, and exacerbated health care worker shortages. Economic stagnation further manifests both outdated equipment and health care worker shortages. Rural hospitals are largely unable to purchase new equipment and typically cannot afford to have large surpluses to create adequate storage for emergency preparation. For these reasons, among others, PPE supply shortages took a more significant toll on rural hospitals than urban hospitals.

The severe impact on rural hospitals is due to the combination of health care provider shortages and PPE deficits, which can create chaos in rural communities. Lack of providers creates a distinct disadvantage for rural

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184 See United States COVID-19 Cases and Deaths by State, CTRS. FOR DISEASE CONTROL AND PREVENTION, covid.cdc.gov/covid-data-tracker/#cases_deathsper100k (last visited Nov. 30, 2020). As of October 1, 2020, there were approximately eight deaths in Wyoming per 100,000 people. Death Rate by State/Territory, CTRS. FOR DISEASE CONTROL AND PREVENTION (updated Oct. 1, 2020, 12:17 PM), web.archive.org/web/20201001235600/covid.cdc.gov/covid-data-tracker/#cases_deathsper100k. Wyoming, Alaska, and Vermont had the lowest U.S. state deaths per 100,000 people. Id. However, by the end of November, there were thirty-seven deaths in Wyoming per 100,000 people. United States COVID-19 Cases and Deaths by State, CTRS. FOR DISEASE CONTROL AND PREVENTION (as of Nov. 29, 2020), web.archive.org/web/20201129163355/covid.cdc.gov/covid-data-tracker/#cases_deathsper100k.


186 See Weisgrau, supra note 185, at 1.

187 See id.


communities, especially in times of medical emergencies. The absence of just one health care provider can result in a drastic decline in care because rural health care facilities only have a handful of health care providers available, and they are difficult to replace. When a rural health care provider with insufficient PPE contracts an illness, that physician cannot provide services, resulting in an increased shortage of providers. This increased shortage can be devastating to rural populations' access to health care. Depending on the number of health care providers at the rural facility, losing only a few workers to illness could require the hospital to close.

For example, Crook County Medical Services District (CCMSD) in Crook County, Wyoming, has two physicians. The hospital also employs five nurse practitioners and one physician assistant. If CCMSD does not have access to proper PPE supplies during a potential second wave of the pandemic, several hospital providers will likely be exposed to the virus while caring for patients. Even if only a few health care providers contract the virus, the hospital will suffer a detrimental injury through loss of services and will likely be unable to continue normal operations. Therefore, having adequate PPE supplies on-hand is essential to rural communities because it helps ensure that residents within communities such as Crook County have timely access to potentially life-saving medical care.

190 See Mark A. Kelley et al., The Critical Care Crisis in the United States, 125 CHEST J. 1514, 1514 (2004).
191 See id.
192 See id.
193 See id.
194 See id.
196 Id.
198 See supra notes 189–94 and accompanying text; Kelley et al., supra note 190, at 1514 (“If Leapfrog recommendations are implemented, the physician shortage will be immediate, highlighting the vulnerability of the system that also has a shortage of pharmacists and declining number of critical care nurses. This article describes the challenges and recommends steps to prevent a crisis in the delivery of critical care services.”).
IV. The Government’s Ethical Duty
To Provide Emergency Health Care Preparation

It is not enough for the federal government to respond to large-scale medical emergency through reactionary programs such as the Federal Coronavirus Aid, Relief, and Economic Securities Act (CARES), Defense Production Act (DPA), or Food and Drug Administration (FDA) immunities.\(^{200}\) It is critical for the federal government to formally recognize health care as a human right and to create better emergency preparation programs to ensure Americans have adequate access to health care.\(^{201}\)

A. Why the Federal CARES Act Provider Relief Fund was Insufficient

During the pandemic, many health care facilities experienced unprecedented financial losses.\(^{202}\) The American Hospital Association estimated that from the beginning of March to the end of June in 2020, the average U.S. hospital lost around $202.6 billion.\(^{203}\) Hospitals canceled all elective procedures to reduce the exposure of the virus to all patients whose surgeries could safely be postponed and to reserve hospitals’ existing PPE.\(^{204}\) Canceling elective procedures in hospitals caused large reductions in patient volumes contributing to the extensive losses in revenue.\(^{205}\) Hospitals also accrued losses from the increased costs of COVID-19 patient hospitalizations.\(^{206}\) The cost of purchasing PPE increased drastically.\(^{207}\) Hospitals also accrued additional increased expenses during the pandemic due to an increase in the price of other medical supplies, increased staffing firm prices, increased overtime, and through bonus pay for front-line workers paid by some hospitals.\(^{208}\)

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\(^{200}\) See infra notes 202–39 and accompanying text.

\(^{201}\) See infra notes 240–68 and accompanying text.


\(^{203}\) Hospitals and Health Systems Face, supra note 202.

\(^{204}\) See id.


\(^{206}\) Hospitals and Health Systems Face, supra note 202.

\(^{207}\) Demand Sends Costs of Protective Gear Skyrocketing: ‘There’s No End in Sight’, KAISER FAM. FOUND. (Apr. 17, 2020), khn.org/morning-breakout/demand-sends-costs-of-protective-gear-skyrocketing-theres-no-end-in-sight/ [https://perma.cc/6MP2-9RMA]; see Burki, supra note 79.

\(^{208}\) Hospitals and Health Systems Face, supra note 202.
Hospitals receiving funds from the CARES Act could use the distributed money only for permissible purposes, and hospitals were required to document and report their uses.\textsuperscript{209} Permissible purposes included any use of the allocated money to prevent, prepare for, and respond to the COVID-19 pandemic or reimburse the health care provider for lost revenues attributable to the pandemic.\textsuperscript{210} The CARES Act found that purchases of PPE qualified under a permissible purpose because PPE aids in preventing further transmissions of the virus.\textsuperscript{211} However, this funding for PPE did not cure global PPE shortages.\textsuperscript{212} Instead, the CARES Act, at most, only supplemented the extra expense of the few PPE supplies that hospitals could find.\textsuperscript{213}

The CARES Act temporarily provided enough cash to keep hospitals, especially rural hospitals, operating during the pandemic.\textsuperscript{214} Most hospitals


\textsuperscript{210} CARES ACT PROVIDER RELIEF FUND TERMS AND CONDITIONS, JONES DAY 1 (June 17, 2020, 9:00 AM), www.aha.org/system/files/media/file/2020/06/1513422112_1_CARES-Act-Provider-Relief-Fund-Terms-and-Conditions.pdf [https://perma.cc/77SZ-V9XA].


\textsuperscript{212} See supra notes 18–22 and accompanying text.


within Wyoming received over one million dollars through the CARES Act relief fund.\(^{215}\) However, the relief fund did not provide sufficient relief for hospitals to obtain desperately needed supplies to enhance hospitals’ existing infection control endeavors or to respond to potential future waves of the virus.\(^{216}\) The CARES Act was only a temporary fix.\(^{217}\) A long term solution focused on preparation and supplemented by Congressional action would save the government money and save the lives of many at the beginning of a national medical emergency.\(^{218}\) Creating sufficient PPE storage facilities within hospitals would enable hospitals to continue providing stable health care to Americans, even during medical emergencies.\(^{219}\) It would also allow time for additional tailored reactionary measures necessary to fully address the national emergency.\(^{220}\)

With the COVID-19 pandemic, a few grant programs have emerged to help health care organizations obtain supplies to survive COVID-19 shortages.\(^{221}\) The CARES Act, in some ways, acted as a grant program because it allowed hospitals to put the distributed money towards preparation funding; however, the CARES Act restricted funding to only the supplies needed to prepare for future COVID-
19 waves. Because HHS eliminated the HPP supply grant program, there are no longer any government programs to resolve America's emergency medical supply preparation for future medical crises. A few grant programs were created during the COVID-19 pandemic to fund additional storage and supplies to help hospitals better manage hospitals' PPE and other medical supplies. Therefore, these temporary grant programs do not provide long-term solutions to better prepare hospitals for future medical emergencies.

B. Post-Emergency Response is Insufficient in Replacing Pre-Emergency Planning

It is challenging for the federal government to predict emergencies such as pandemics before they occur, and it is even more challenging to predict the pandemic's severity. Although the federal government has taken steps to increase federal emergency preparation, such as the formation of the SNS in 2003, the U.S. government has not yet found the best way to prepare the nation for medical emergencies.

PPE shortages during previous medical emergencies should have focused the nation's attention on national storage deficiencies. Although the SNS is a good first step in preparing the country for an emergency, it is inadequate to supply


225 See COVID-19 PPE Fund, supra note 224; Personal Protective Equipment Grant Program, supra note 224; Press Release, Minn. DEP’T OF HEALTH, supra note 224.


228 See supra notes 52–54 and accompanying text.
the entire nation with emergency supplies. Although it is vital to maintain the SNS, expanding the SNS would create excessive waste when the stockpile is not used. These supplies sit in storage and are not utilized until an emergency occurs, triggering HHS to deploy the equipment. Waste is expensive because Congress has to replenish the supplies to keep the nation prepared for national emergencies. To prevent this waste and cost, Congress should pass legislation implementing rotating storage systems within hospitals to ensure adequate supply to hospitals nationwide.

Though the government has reactionary steps available such as the DPA and FDA immunities to supplement dwindling supplies during a large-scale national emergency, these reactionary steps take time and could cost American lives. Time is critical in health care. The time to create production of PPE contributes

229 Greenfield Boyce, supra note 61; see Strategic National Stockpile (SNS), CHEMICAL HAZARDS EMERGENCY MED. MGMT. (Sept. 14, 2020), chemm.nlm.nih.gov/sns.htm [hereinafter CHEMM] (recognizing that SNS stores enough supplies to respond to multiple large-scale emergencies, simultaneously, but does not contemplate supporting a uniform nationwide emergency).

230 See The Strategic National Stockpile: Key to Protecting the Nation’s Health, CTRS. FOR DISEASE CONTROL AND PREVENTION cmt. May 6, 2016, 11:13 AM (Apr. 29, 2016), blogs.cdc.gov/publichealthmatters/2016/04/sns-key-to-protecting-the-nations-health/ [https://perma.cc/82PK-VVU8] (“When products are nearing expiration, the SNS can submit them to FDA for stability testing if they meet certain standards. If products are found to be stable and safe to use beyond the original manufacturer’s labeled expiration date, they can be extended for an extra 12 to 24 months of shelf life. More testing can lead to even longer extensions. Products that fail FDA testing are removed from SNS inventory.”); Bipartisan Bills to Improve the Strategic National Stockpile, ENERGY AND COM. COMM. (Apr. 23, 2020), republicans-energycommerce.house.gov/news/bipartisan-bills-to-improve-the-strategic-national-stockpile/ [https://perma.cc/HL5A-BKHT] (“The stockpile inventory modernization act of 2020, introduced by Rep. Brook. And Chairwoman Eshoo, would allow the SNS to sell existing products when they are no longer needed. This will reduce waste and ensure the SNS has resources to reinvest in supplies needed for future public health emergencies, saving taxpayer dollars and helping keep the SNS’s inventory current.”).

231 See Strategic National Stockpile, supra note 16; CHEMM, supra note 229.

232 See The Strategic National Stockpile: Key to Protecting the Nation’s Health, supra note 230, at cmt. June 3, 2016, 11:03 AM (“[F]or the large majority of items, the SNS inventory far exceeds the annual use in the commercial marketplace and these types of rotations are not possible or cost savings.”); NICHOLSON ET AL., supra note 60 (“BARDA also makes investments in next-generation products to potentially decrease life-cycle management costs, for example, productions in lyophilized forms to extend the shelf life from 3 to 10 years. There is clear justification to invest going from 3 to 10 years, but less so from 5 to 6 . . . . He estimated that such investments might require several hundred million dollars over a much longer period of time . . . . This is determined by how quickly the investment will be recouped to develop the second-generation MCM (life cycle costs includes the development and then the out-year cost for replenishment); such investments require savings over time.”).

233 See supra notes 346–49 and accompanying text.


235 See infra note 236–38 and accompanying text.
to the transmission of the virus and directly costs Americans their lives.\textsuperscript{236} By November 2020, 259 thousand Americans died from COVID-19.\textsuperscript{237} If America had better medical emergency preparation, thousands of lives could be saved in the next medical emergency because the nation could rely on the stockpile while reactionary steps are taken to manufacture PPE to match the future demand.\textsuperscript{238} Congress must address the nation's current emergency preparation inadequacies and take steps to rectify these deficiencies through legislation to better protect American citizens’ lives in the future.\textsuperscript{239}

C. The Federal Government’s Ethical Duty to Protect Health Care Providers

America’s public health laws reflect the nation’s endeavors to prevent disease; however, these laws should be expanded to also promote health by improving the underlying determinants of health.\textsuperscript{240} The underlying factors of health include the influence of social, economic, and political forces.\textsuperscript{241} Americans expect the government to acknowledge their medical needs and respond through political forces such as passing laws in the best interest of American citizens.\textsuperscript{242} Health care should be recognized in the United States as a fundamental human right.\textsuperscript{243} Law, human rights, and bioethics are interconnected, and America should formally recognize this relationship.\textsuperscript{244} America’s recognition of health care as a human right would provide essential rights and freedoms to all Americans and create a governmental duty to protect and fulfill those rights.\textsuperscript{245} This ratification would legally create a governmental responsibility to provide minimally adequate treatment to patients in need of medical assistance.\textsuperscript{246} In some ways, the American government already recognizes the importance of Americans’ access to health care through programs such as Medicare, Medicaid, and the Affordable

\textsuperscript{236} See supra notes 25–31 and accompanying text.

\textsuperscript{237} United States COVID-19 Cases and Deaths by State, Ctrs. for Disease Control and Prevention, web.archive.org/web/20201125181927/https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days (as of Nov. 25, 2020).

\textsuperscript{238} See infra notes 306–07 and accompanying text.

\textsuperscript{239} See infra notes 305–16 and accompanying text.

\textsuperscript{240} Foundations of Global Health & Human Rights 2 (Lawrence O. Gostin & Benjamin Mason Meier eds., 2020).

\textsuperscript{241} Id.

\textsuperscript{242} Id. at 9–10.

\textsuperscript{243} See infra notes 244–68 and accompanying text.


\textsuperscript{246} See id.
Care Act. However, even with these programs, millions of Americans still lack access to needed care.

The United Nations (UN) issued General Comment 14 in 2000, an interpretation of Article 12, the International Covenant on Economic, Social and Cultural Rights. The comment states, “[h]ealth is a fundamental right indispensable for the exercise of other human rights.” The United States signed Article 12 in 1977 but has not ratified it, and thus, the United States has also not ratified General Comment 14. However, of the 197 UN member states, 171, or 87%, have ratified this treaty. The United States could ratify the treaty but carve out certain rights and obligations by reserving those rights when ratifying, accepting, approving, or acceding to the treaty. The United States should ratify Article 12 because it is imperative that America formally realize that health care is a human right.

Furthermore, the COVID-19 pandemic is the first time in American history that fifty states have declared a state of emergency.
out this pandemic have been panicked for their well-being.  

The most critical hospital resource in providing medical care to patients are health care providers. More effort in protecting health care providers is required to preserve access to health care. Health care providers are fundamental to providing diagnoses, treatment, and care to patients. When health care providers put themselves at risk due to working during a PPE shortage and consequently contract the illness, they cannot continue providing care to other patients. When significant numbers of workers are unable to continue working, hospitals will become short-staffed. When a hospital is short-staffed, it cannot provide the same quantity and quality of health care. Therefore, the protection of health care workers is directly linked to Americans’ access to health care. As a result of this correlation, the federal government should ethically prioritize health care providers’ safety to preserve the American medical workforce to ensure Americans’ access to health care.

Americans want reassurance that their access to health care is protected by the government. A human right to health care respects the rights of Americans and protects Americans’ lives. The federal government has a duty to promote the


258 Dow et al., supra note 218.

259 Health Professions Networks, supra note 36.

260 See Shortage of Personal Protective Equipment, supra note 5; Press Release, Katie Marquedant, supra note 11; Mitigating Staff Shortages, supra note 26.


263 See supra notes 27–29 and accompanying text.

264 See infra notes 304–16 and accompanying text.


266 Annas, supra note 244, at 660.
well-being of its citizens, including their health and safety, by ensuring medical
care to its residents is accessible.\textsuperscript{267} Therefore, the government should prioritize a
grant program providing stable PPE supplies to health care providers.\textsuperscript{268}

\section*{V. Reinstating a PPE-Specific Hospital Supply Grant Program}

HHS’s previous hospital supply grant was utilized from 2002 to 2011.\textsuperscript{269} In
recognizing the federal government’s duty to protect American’s access to health
care, Congress should reimplement a modified version of the HPP grant program
which would fund a storage space and an initial stockpile of PPE for individual
hospitals.\textsuperscript{270} If Congress does not prioritize the reimplementation of this grant
program, Wyoming should consider increasing PPE supplies to better supplement
the state for future medical emergencies.\textsuperscript{271}

\subsection*{A. The Previously Implemented Federal Hospital Supply Grant Program}

The HPP is the only federally funded source supporting health care facilities’
preparedness and response.\textsuperscript{272} From 2002 to 2011, HPP provided funding
through a grant system for hospitals to buy medical inventory supplies, including
PPE.\textsuperscript{273} Congress created the HPP in 2002 after the impact of terrorist attacks
revealed flaws in hospital preparation.\textsuperscript{274} In 2005, after Hurricane Katrina showed
that the grants used to fund individual hospital preparedness programs were
not sufficient by themselves, HHS transitioned the HPP to incentivize regional

\textsuperscript{267} See Ning Tang et al., \textit{The Roles of Government in Improving Health Care Quality and Safety},

\textsuperscript{268} See infra notes 304–16 and accompanying text.

\textsuperscript{269} See infra notes 272–303 and accompanying text.

\textsuperscript{270} See infra notes 304–16 and accompanying text.

\textsuperscript{271} See infra notes 317–20 and accompanying text.

\textsuperscript{272} See Serena Vinter et al., \textit{Public Health Preparedness in a Reforming Health System}, 4 \textit{Harv. L. \\
(Nov. 25, 2020), www.phe.gov/Preparedness/planning/hpp/Pages/default.aspx#:~:text=As%20the%20only%20source%20of,disasters%20and%20enables%20rapid%20recovery [https://perma.cc/X8KP-NURX]. Other funding sources mentioned in this paper focus on responding to national
emergencies, while the HPP focuses specifically on preparation for health care. \textit{Id.}

\textsuperscript{273} See \textit{Hospital Preparedness Program, Assistant Sec’y for Preparedness and Response}

\textsuperscript{274} Andrea Lebron, \textit{15 Years of the Hospital Preparedness Program and Where It’s Heading, Rave Mobile Safety} (Sept. 11, 2018), www.ravemobilesafety.com/blog/15-years-of-the-hospital-preparedness-program [https://perma.cc/34A5-MQBC].
cooperative agreements. HHS’s regional cooperative agreements created a contract between all hospitals within a region that utilized the HPP grant.

When a hospital within a region was suffering from an emergency that required additional supplies, surrounding hospitals in that region could supplement the affected hospital’s equipment with regional hospitals’ supplies purchased using the HPP.

For health care facilities to utilize the grant, they first were required to match ten percent of the equipment’s cost. Once the facilities purchased inventory with the HPP grant, it became a federal asset. When the equipment was expended, expired, broken, or lost, future grant funds could replace those items and reduce the cost of replenishing the stockpile. Recipients were strongly encouraged, but not required, to rotate items by utilizing the oldest supplies first through the first in-first out inventory method. These inventory strategies prioritize using the oldest equipment in the storage to reduce the amount of waste from expired inventory. The program’s purpose was to ensure that hospitals had access to medical caches in preparation for an emergency causing surge capacities. The HPP grant did not permit the use of PPE from the HPP stockpile in everyday health care operations. HHS reasoned that the purpose of storing the materials in a medical cache for emergencies would be defeated if health care providers used the materials in everyday operations. Therefore, because hospitals could

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275 Id.
276 Id.
277 Id.
278 Id.
280 See ATTACHMENT C, supra note 279, at 2; Government Property for Sale or Disposal, supra note 279; WYO. STAT. ANN. § 9-2-1016.
281 See ATTACHMENT C, supra note 279, at 2.
283 ATTACHMENT C, supra note 279, at 3.
284 Id.
285 Id.
only use the inventory during emergencies, even when using the first-in-first-out method, large amounts of the stored inventory likely expired.\textsuperscript{286}

HPP’s federal funding peaked in 2003 and 2004 at $498 million.\textsuperscript{287} After 2004, the federal government cut the program’s funding every year until 2011.\textsuperscript{288} In 2011, Congress cut HPP’s funding to $350 million.\textsuperscript{289} As a result, HHS replaced the HPP grant with a program that provided funding and technical assistance to public health departments to assist health care facilities’ preparation plans for health care emergencies.\textsuperscript{290} This cut and change in the program in 2011 was alarming after the report released by Trust for America’s Health warned that America fell short in preparedness related to large-scale emergencies.\textsuperscript{291} One of the critical flaws identified in the report was the nation’s inability to ensure hospitals’ access to supplies during a surge.\textsuperscript{292} Instead of acting on the data found in these reports, the government prioritized other areas of the federal budget and cut the HPP grant program.\textsuperscript{293} From 2012 to 2016, HPP dispersed funding to health care facilities to assist their emergency preparation plans instead of helping

\textsuperscript{286} Id. at 2 (permitting replacement grant funds for expired, broken, or lost items within the stockpile); see Reinhard & Brown, supra note 70 (stating that five of twelve million N95 masks in the SNS were expired; thus, indicating that when supplies are stored and only used during emergencies, similar to the SNS, the stock has a high likelihood of expiring before an emergency requires the supplies’ deployment).


\textsuperscript{288} Id.


\textsuperscript{290} See Hospital Preparedness Program, supra note 273; HEALTHCARE PREPAREDNESS CAPABILITIES: NATIONAL GUIDANCE FOR HEALTHCARE SYSTEM PREPAREDNESS, OFF. OF THE ASSISTANT SEC’Y FOR PREPAREDNESS AND RESPONSE vii (2012).

\textsuperscript{291} Ready or Not? 2011 Report Finds Preparedness for Bioterror and Health Emergencies Eroding in Nation, TRUST FOR AMERICA’S HEALTH (Dec. 20, 2011), www.tfah.org/releases/bioterror11/. The large-scale emergencies anticipated in this article could include emergencies such as natural disasters, terrorist attacks, biochemical attacks, epidemics, and pandemics. See id.

\textsuperscript{292} See id. (discussing a risk of eliminating the Cities Readiness Initiative, which supports rapidly distributing and administering vaccines and medications, and without the initiative, the cities are prone to surges since they can’t respond rapidly).

supply the preparation materials for health care emergencies. Since 2017, HPP has supported regional collaboration and emergency medical preparation by encouraging the development of health care coalitions and incentivizing competition. HPP uses its remaining funding to provide emergency training and exercises to health care facilities. The average appropriation from 2018 to 2019 was $265 million. Overall, since the program’s inception in 2002, Congress has invested $5.9 billion in HPP’s health care preparation programs.

The HPP grant was the only grant available during the twenty-first century to provide medical supplies to prepare hospitals for emergencies prior to temporary CARES Act funding. America should learn the valuable lesson from the COVID-19 pandemic that emergency medical supply preparation is crucial for America to timely and effectively respond to national and global medical emergencies. By preparing the nation with an adequate supply of general medical necessities, such as PPE, hospitals and the federal government will be better able to respond to all medical emergencies. The government will also be able to focus its time and money on developing a vaccine or medications specific to that future emergency, which are more difficult to store in preparation. General pre-emergency preparation supplemented by specific governmental reactions to the emergency will better enable the nation to better manage and more effectively mitigate medical emergencies.

294 Hospital Preparedness Program, supra note 273.
295 Id.
296 About the Hospital Preparedness Program, supra note 223.
297 Hospital Preparedness Program, supra note 273.
298 Id.
301 See WHO Checklist, supra note 300, at vii, 24; Personal Protective Equipment, CTRS. FOR DISEASE CONTROL AND PREVENTION, www.cdc.gov/niosh/topics/emres/ppe.html#:~:text=Personal%20protective%20equipment%20(PPE)%20is,for%20emergency%20and%20recovery%20workers.;text=Therefore%2C%20main%20protective%20equipment%20includes%2C%20the%20use%20of%20PPE%20change (last visited Nov. 22, 2020) [https://perma.cc/6AF5-74SB].
303 See Pandemic Influenza Preparedness and Response, supra note 302, § 5; Howard P. Forman et al., Health Care Priorities for a COVID-19 Stimulus Bill: Recommendations to the
B. Reimplementing a Modified Version of the Federal Hospital Preparedness Grant Program

Pandemic emergencies are relatively rare, making it impractical for either federal or state governments to strictly reserve funds or unused supplies specifically for another pandemic.304 America must recognize that emergency medical supply preparation is crucial for timely and effective national responses to medical emergencies.305 By reinstating a federal hospital preparedness grant, similar to the HPP federal grant program utilized from 2002 to 2011, the federal government could fund a sufficient amount of PPE supplies for individual hospitals to survive a pandemic-like emergency for at least a month without additional supply.306 Having a storage supply of PPE would give the nation time to begin creating its own supply or to allow the market to stabilize and match the increased demand.307

It is unlikely that this proposed program would have supplied sufficient amounts of PPE supplies during the COVID-19 pandemic by itself.308 However, the grant program would have extended the amount of time to find additional supplies and put less initial stress on the SNS.309 If health care facilities have continued access to adequate PPE supplies in future medical emergencies, then health care providers, while complying with their ethical duty to provide medical care, will be less likely to do so without proper protective equipment.310 Ensuring


305 See Hospital Emergency Response Checklist, WORLD HEALTH ORG. EUROPE 7, 9 (2011).

306 See Dow et al., supra note 218.


308 See supra notes 18–22 and accompanying text.

309 See supra notes 61–64 and accompanying text; Dow et al., supra note 218.

310 See CHEMM, supra note 229; NICHOLSON ET AL., supra note 60, § 2.
that health care providers have access to sufficient PPE supplies will greatly decrease health care workers’ risk of contracting infectious diseases in their frontline response to medical emergencies.311 This proposed federal hospital preparedness grant system would also enable hospitals to create and maintain efficient and secure spaces for individual hospitals to store essential PPE equipment.312 Implementing a grant program is a key component of the federal government ensuring that hospitals are prepared for all emergencies, especially large-scale emergencies such as pandemics.313

The proposed federal hospital preparedness grant must ensure that every participating hospital has its own PPE storage to rely upon during times of national emergencies.314 For example, if this storage grant were in effect at the beginning of the year in 2020, then hospitals in states similar to Wyoming that were not as heavily impacted by spikes in the COVID-19 pandemic would not have needed to rely as heavily, if at all, on FEMA or the CDC to obtain additional supplies.315 FEMA would only have needed to supplement supplies to hospitals drastically affected by early COVID-19 spikes since each hospital would have a buffer to help ensure the safety of their health care providers.316

C. Creation of a Supplemental State Hospital Grant Program or State Stockpile

If the federal government does not provide funding or another solution to resolve the inadequacies of critical emergency medical supply preparation within hospitals, the Wyoming government must take the initiative to protect its citizens by providing a similar grant system for the state.317 After being forced to cut budgets during the economic downfall resulting from the COVID-19 pandemic and the overall decreased state revenues due to previous unrelated factors, the Wyoming government is less likely than the federal government to have available funding for a hospital preparedness grant program.318 However, the state must

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311 See supra notes 25–30 and accompanying text; Dow et al., supra note 218.
312 See supra notes 304–07 and accompanying text.
313 See Vinter et al., supra note 272, at 352.
314 See Lewis Rubinson et al., Augmentation of Hospital Critical Care Capacity After Bioterrorist Attacks or Epidemics: Recommendation of the Working Group on Emergency Mass Critical Care, 33 Critical Care Med. 2393 (2005) (recognizing that if all hospitals within a region increased their emergency preparation, a region’s life-saving medical care may be increased significantly, possibly doubling or tripling overall critical care capacity).
315 See supra notes 160–63 and accompanying text.
316 See supra notes 163–68 and accompanying text.
317 See infra notes 319–20 and accompanying text.
318 Wyoming’s top economic contributor is the mining industry, which has faced significant substantial declines since 2014. See Workforce Planning Report: 2016, Wyo. Lab. Force Trends Ch. 6 (2016); Economics, Wyo. Mining Ass’n, www.wyomingmining.org/economics/ (last visited
prioritize the health care of nearly half of its residents living in rural communities, despite the state’s current economic hardships.319 Although state funds are scarce, Wyoming cannot ethically afford a failure to provide adequate health care.320

VI. ADDRESSING CRITICISMS

Though there may be concerns about funding, storage space, and potential inventory waste associated with a hospital grant program, first in-first out inventory strategies and offsite storage may mitigate these concerns.321

A. Apportioning Money from the Federal Budget to Fund the Grant Program

Whenever a proposal to spend money arises, one of the first questions to be addressed is how to fund the proposal.322 After the COVID-19 pandemic, the chance the federal government will allocate more money to HHS is fairly high, although this likelihood may change depending on the results of the 2020 American election.323 Congress has already allocated HHS funding to distribute according to the CARES Act to respond to the national COVID-19 crisis.324
There were over 33,000 cases per one million people and 740 COVID-19 deaths per one million people as of November 13, 2020 in the United States.\textsuperscript{325} In contrast, in mid-November, China had only 63 cases per one million people and only 3 deaths per one million people.\textsuperscript{326} As of November of 2020, the United States has seen the most COVID-19 cases and COVID-19 related deaths since the pandemic began.\textsuperscript{327} After nearly eleven million confirmed cases of the virus and over 267 thousand deaths in approximately ten months of the pandemic, Congress has ample proof that more money needs to be invested into HHS to improve the nation’s emergency preparedness.\textsuperscript{328}

The overhead price of this grant would be significant.\textsuperscript{329} Based on University of California Berkeley’s algorithms, a federal grant program supplying a ninety-day PPE stockpile would cost approximately $813 million, and a Wyoming program covering the supplies in all hospitals in the state could cost approximately $1.23 million.\textsuperscript{330} However, to supply the same ninety-day stockpile during an emergency at pandemic prices would cost the federal government over five billion dollars and would cost Wyoming approximately eight million dollars.\textsuperscript{331} The cost of this grant program could be split over several years.\textsuperscript{332} Furthermore, after the high costs to create storage spaces and stock the initial supply of existing hospitals, the costs to continue the program will be substantially reduced.\textsuperscript{333} Continued funding to replace expired, damaged, or lost supplies will be minimal if hospitals rotate supplies and use first-in-first out strategies to prevent waste.\textsuperscript{334} The fund should also continue to allocate money to develop storage spaces in or near new hospitals built after the grant program was created to ensure that all hospitals in
the nation are prepared for emergencies. These supplemental budgets are likely to be minimal compared to the grant’s initial overhead costs, and the grant costs during an emergency could save the government up to five billion dollars.

In 2011, HHS required hospitals receiving the HPP grant to match ten percent of the cost of the supplies. In a renewed hospital storage grant program, the federal government should again require this ten percent match. Though some may argue that hospitals have typically paid for their own PPE, at least in large part, and should continue to do so, most American hospitals struggle to make a profit, even without pandemic conditions. Therefore, many hospitals are unlikely to be able to afford the initial capital to create sufficient storage of PPE to provide the hospital for a future large-scale emergency. The federal government is the best-suited entity to bear the high initial cost of implementing the program. Health care facilities should, again, be required to match ten percent of the initial cost to create the storage and purchase the initial supplies. However, after the federal government invests in the storage facility, hospitals should continue using their normal inventory budgets to replenish the expended inventory from the stockpile. If health care facilities are responsible for periodically replenishing


337 Cooperative Agreements, supra note 335, at 36.

338 See id.

339 See Mitchell, supra note 41; Ebola (Ebola Virus Disease), supra note 51; Maria Castellucci, Hospital ORs May Waste Millions a Year in Disposable Medical Supplies, MOD. HEALTHCARE (Sept. 7, 2016, 1:00 AM), www.modernhealthcare.com/article/20160907/NEWS/160909935/hospital-ors-may-waste-millions-a-year-in-disposable-medical-supplies [https://perma.cc/39Q7-XKHU].

340 See supra notes 337–39 and accompanying text.

341 See generally Breaking Down the US Federal Budget: Charts and Graphs, Up to Us (June 3, 2020), www.itsuptous.org/blog/breaking-down-us-federal-budget-charts-and-graphs# -:text=The%20federal%20budget%20for%20the,was%20set%20at%20$4.79%20trillion [https://perma.cc/B9NX-MUDP] (evaluating the 2020 federal budget set at $4.79 trillion); Ryan Nunn et al., A Dozen Facts About the Economics of the US Health-care System, BROOKINGS (Mar. 10, 2020), www.brookings.edu/research/a-dozen-facts-about-the-economics-of-the-u-s-health-care-system/ [https://perma.cc/L7L6-PRPU] (finding that increasing the federal government’s health care funding may be optimal in some cases).

342 See Cooperative Agreements, supra note 335, at 36.

343 See Mitchell, supra note 41.
the expended supplies from the stockpile, they will be more likely to use first in-first out inventory strategies to reduce their maintenance costs.344

The expiration dates of most PPE supplies range between three to five years.345 When hospitals responsibly rotate the supplies within the cache, the supplies should not expire, so long as the stored amount of inventory is less than the equivalent stock of a three-year normal supply for that hospital.346 By avoiding the expiration of supplies, hospitals will significantly reduce the cost of resupplying the stockpile.347 In an emergency, if a hospital depletes all of its PPE supplies, the supply should be replenished by the federal hospital storage grant program with another ten percent match by the hospital.348 However, if unaffected hospitals in the same region as an affected hospital give their supplies to the affected hospital, the hospital storage grant program should replenish the unaffected hospital's supplies that it gave without requiring a matching fund.349 This method would encourage the use of the regional cooperative agreement approach because the

344 See generally id. First expired-first out inventory methods can also be substituted for first in-first out methods, the first expired-first out method proposes that the supplies that will expire the soonest should be utilized first to prevent waste. Effects of Choosing Different Inventory Methods, LUMEN, courses.lumenlearning.com/sac-finaccounting/chapter/effects-of-inventory-method-on-the-financial-statement/ (last visited Nov. 23, 2020) [https://perma.cc/D3AQ-JXU2].


348 See generally COOPERATIVE AGREEMENTS, supra note 335, at 36.

grant would not penalize hospitals by having them pay the ten percent match when they supplement other hospitals’ supplies.\(^{350}\) Therefore, although the initial cost of the grant program will be considerable, the government and hospitals will ultimately save money while ensuring that health care providers are protected to better maintain Americans’ access to health care.\(^{351}\)

B. Reconciling Critical Hospital Space Concerns

Most PPE supplies are compact and easy to store.\(^{352}\) Hospitals already are required to have PPE on-hand because hospitals use it in day-to-day operations.\(^{353}\) Having a larger cache of PPE should not dramatically increase the space needed to hold the increased supply.\(^{354}\) Even if hospitals do not have the space to contain a storage facility, the storage facility does not have to be physically attached to the hospital.\(^{355}\) Hospitals should store PPE in clean and maintained areas.\(^{356}\) So long as hospitals store PPE in a facility that can maintain relatively constant temperatures, the PPE will remain fully-effective for its full shelf-life.\(^{357}\) Off-site

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\(^{350}\) See A Whole Community Approach, supra note 349.

\(^{351}\) Dow et al., supra note 218.


\(^{354}\) See supra notes 352–53 and accompanying text.


\(^{356}\) 6.3 Personal Protective Equipment (PPE), Univ. of Minn. Dep’t of Env’t Health & Safety, dehs.umn.edu/63-personal-protective-equipment-ppe#:~:text=Storage%2C%20and%20Disposal,2C%20must%20be%20appropriately%20cleaned%2C%20maintained%2C%20and%20stored%20according%20to%20%20light (last visited Nov. 29, 2020) [https://perma.cc/2XFJ-GP9S].

storage is typically inexpensive.\(^{358}\) Hospitals can still rotate inventories by placing the new supply of PPE in the back of the storage container and transferring a portion of the older PPE supply from the front of the storage container to the hospital periodically.\(^{359}\) Though this method is less convenient, the value of the supplies that save the lives of health care providers and preserve access to health care outweighs the inconvenience of a short trip to retrieve supplies every few months.\(^{360}\)

C. Addressing the Expiration of Supplies in Storage

Purchasing tangible supplies, including PPE, presents challenges because the supplies are perishable and eventually expire.\(^{361}\) The typical shelf life of N95 respirators, surgical masks, and isolation gowns is five years.\(^{362}\) Nitrile gloves have a five-year shelf life, but natural latex gloves only have a three-year shelf life.\(^{363}\) Safety glasses have a three-year shelf-life.\(^{364}\) These shelf-lives are calculated based on the presumption that the supplies are being stored under constant, ideal conditions.\(^{365}\) Stable, ideal conditions are met when supplies are kept in a clean and steady environment away from moisture, chemicals, and extreme temperatures.\(^{366}\) Maintaining constant conditions is safer because health care providers will have a reduced chance of using equipment that has expired before its shelf-life, decreasing


\(^{360}\) See Dow et al., *supra* note 218; *Shortage of Personal Protective Equipment*, supra note 5.

\(^{361}\) See Serban, *supra* note 345.


\(^{363}\) Schlatter, *supra* note 345.

\(^{364}\) How Long Does PPE Last?, *supra* note 345.


\(^{366}\) See id.
the PPE’s effectiveness and increasing the health care provider’s risk of exposure. It is cheaper and safer for hospitals to ensure the use of first in-first out methods of their PPE stored within a clean and well-maintained storage space.

VII. Conclusion

The COVID-19 pandemic has shown the egregious deficiency in United States hospitals’ preparedness for emergencies such as pandemics. Access to health care should be a formally recognized human right in the United States. Therefore, the government should ethically be held to the duty of ensuring the safety of health care providers in emergencies. Health care providers are essential to health care access for Americans. Thus, the federal government should reimplement and reinvest in the U.S. Department of Health & Human Service’s Hospital Preparedness Program. A new hospital storage grant program will help resolve America’s preparation deficiencies and ensure health care providers are equipped with the best opportunity to avoid contracting illnesses through providing consistent access to personal protective equipment. If the federal government does not take responsibility for this deficiency through its ethical duty to provide Americans reliable access to health care, Wyoming should implement a similar state-wide grant program to create storage spaces and fund the initial supply of PPE that is essential to Wyoming hospitals to protect its residents. American lives matter, and the implementation of a hospital grant program better preparing the nation for future emergencies is a critical step in saving American lives in future medical emergencies.


368 See supra notes 366–67 and accompanying text.

369 See supra notes 17–22 and accompanying text.

370 See supra notes 243–54 and accompanying text.

371 See supra notes 255–68 and accompanying text.

372 See supra notes 23–29 and accompanying text

373 See supra notes 304–16 and accompanying text.

374 See supra notes 310–11 and accompanying text.

375 See supra notes 317–20 and accompanying text.

376 See supra notes 305–16 and accompanying text.