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# What a Waste! An Evaluation of Federal and State Medical and Biohazard Waste Regulations During the Covid-19 Pandemic and Their Impact on Environmental Justice

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# WHAT A WASTE! AN EVALUATION OF FEDERAL AND STATE MEDICAL AND BIOHAZARD WASTE REGULATIONS DURING THE COVID-19 PANDEMIC AND THEIR IMPACT ON ENVIRONMENTAL JUSTICE

## I. COVID-19 Made Things Messier: An Introduction to Medical and Biohazard Waste Disposal and COVID-19

Scientists first reported the novel human coronavirus (COVID-19) disease in late 2019.[1] On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, meaning it is a disease that is prevalent across the globe.[2] COVID-19 is one of only five documented pandemics since the 1918 flu.[3]

Understanding the COVID-19 virus and its global impact plays a key role in evaluating the resulting medical and biohazard waste.[4] SARS-CoV-2 is the virus responsible for the COVID-19 pandemic.[5] In most cases, the coronavirus causes a "mild to moderate respiratory illness" which most infected people recover from without medical treatment.[6] Others, however, develop serious symptoms which may require specific medical intervention.[7] COVID-19's impact on public health has strained healthcare systems worldwide.[8] Global COVID-19 cases and hospitalizations put intense pressure on hospi-

1. *See* Sarah Moore, *History of COVID-19*, News-Medical (May 23, 2022), https://www.news-medical.net/health/History-of-COVID-19.aspx (noting origin of pandemic).

2. *Id.* (stating when pandemic began); *see also* Ellie Riley, *What Is a Pandemic? Definition, Examples, and How It Compares to an Epidemic*, GoodRx Health (Oct. 26, 2021), https://www.goodrx.com/conditions/covid-19/what-does-pandemic-mean-with-examples-vs-epidemic (defining meaning of pandemic).

3. *See* Moore, *supra* note 1 (highlighting number of global pandemics).

4. For a discussion of the COVID-19 virus, see *infra* notes 5-7 and accompanying text.

5. *See Coronavirus Disease (COVID-19)*, World Health Org., https://www.who.int/health-topics/coronavirus#tab=tab_1 (last visited Jan. 21, 2022) (documenting COVID-19).

6. *Id.* (explaining COVID-19 symptoms).

7. *See id.* (distinguishing between typical and serious COVID-19 cases). Serious side effects may include troubled breathing, chest pain, or an inability to wake up or stay awake. *Symptoms of COVID-19*, Ctrs. for Disease Control & Prevention (May 22, 2022), https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html (mentioning serious medical symptoms of COVID-19).

8. *See New Analysis Shows Continued Negative Impact of COVID-19 on Hospital & Health System Financial Health in 2021*, Am. Hosp. Ass'n (Mar. 23, 2022), https://www.aha.org/press-releases/2021-03-23-new-analysis-shows-continued-negative-impact-covid-19-hospital-health (highlighting COVID-19's impact on medical systems).

tal staff and sharply increased the demand for resources such as face masks, surgical gowns, respirators, testing materials, personal protective equipment (PPE), and other medical supplies.[9] In the United States, COVID-19 drastically increased the production of medical supplies and the subsequent proliferation of medical and biohazard waste.[10]

The Resource Conservation and Recovery Act (RCRA) is the primary federal authority governing how to dispose of both solid and hazardous waste.[11] On October 21, 1976, Congress enacted the RCRA to address the increase of waste from municipalities and industries.[12] Congress has only amended the RCRA three times since signing it into law, the first including the Hazardous and Solid Waste Amendments (HSWA).[13]

The federal government's role in waste regulation, however, is limited in scope.[14] The RCRA gives the United States Environmental Protection Agency (EPA) general oversight of medical and hazardous waste.[15] Ever since the federal Medical Waste Tracking Act (MWTA) expired in 1991, states have predominately taken the lead

9. *See Face Masks, Barrier Face Coverings, Surgical Masks, and Respirators for COVID-19*, FOOD & DRUG ADMIN. (Sept. 15, 2021), https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/face-masks-barrier-face-coverings-surgical-masks-and-respirators-covid-19 (discussing types of personal protective equipment that protect against and aid recovery from respiratory illness).

10. *The Regulation of Medical Waste During COVID-19*, JD SUPRA (May 18, 2020), https://www.jdsupra.com/legalnews/the-regulation-of-medical-waste-during-28654/ (stating impact of increased medical waste). COVID-19 also increased the demand for certain medical devices and equipment. *Medical Device Supply Chain Notifications During the COVID-19 Pandemic*, FOOD & DRUG ADMIN. (Mar. 17, 2022), https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/medical-device-supply-chain-notifications-during-covid-19-pandemic#:~:text=The%20Coronavirus%20Disease%202019%20(COVID,manufacturing%20and%20supply%20chain%20operations (explaining medical device and supply chain disruptions).

11. *History of the Resource Conservation and Recovery Act (RCRA)*, U.S. ENV'T PROT. AGENCY (May 12, 2021), https://www.epa.gov/rcra/history-resource-conservation-and-recovery-act-rcra [hereinafter *History of RCRA*] (introducing purpose and scope of RCRA).

12. *Id.* (addressing when RCRA became law and its purpose).

13. *Id.* (describing RCRA's amendments). Two amendments include the Federal Facility Compliance Act of 1992, which strengthened enforcement of RCRA at federal facilities, and the Land Disposal Program Flexibility Act of 1996, which provided regulatory flexibility for land disposal of specific wastes. *Id.* (specifying amendments to RCRA).

14. For a discussion of the limitations of federal agencies and regulations, see *infra* notes 114-41 and accompanying text.

15. 42 U.S.C. § 6962 (introducing role and regulation of RCRA); *see generally History of RCRA*, *supra* note 11 (outlining examples of this authority). Under the RCRA, the EPA has the power to regulate waste generation, transportation, treatment, storage, and disposal processes. *Id.* (defining oversight).

in regulating medical waste.[16] Many states adopted medical and biohazard waste regulations similar to the expired MWTA.[17]

This Comment discusses both federal and state regulations pertaining to medical and biohazard waste, examines the limitations of weak federal regulations, and analyzes the issues of disparate state discretion under the country's federalist approach.[18] This Comment ultimately explores how disparate state standards and weak federal oversight perpetuate environmental injustices that negatively impact lower-income and minority communities.[19] Part II of this Comment introduces the RCRA, the current handling of medical and biohazard waste, notable litigation regarding waste disputes, and the reasons for global concern.[20] Part III evaluates federal regulations and responses to medical and biohazard waste.[21]

Part IV then examines various state level regulations and responses to the problems medical and biohazard waste pose.[22] Lastly, Part V discusses the current federal framework's shortcomings and the disparities between different state waste regulations.[23] This section also summarizes the realities of environmental injustices with respect to COVID-19 related waste and argues that both federal and state governments must implement various changes to ensure environmental justice is a primary objective of environmental law.[24]

16. *The Regulation of Medical Waste During COVID-19*, *supra* note 10 (highlighting shift to state responsibility). The MWTA established heavy penalties for illegally dumping body tissues, blood wastes, and other contaminated biological materials. *Id.* (noting reason for penalties).

17. *Id.* (explaining influence of expired MWTA).

18. For a discussion of the federal and state regulations, see *infra* notes 114-94 and accompanying text.

19. For a discussion of the impacts on environmental justice, see *infra* notes 198-210 and accompanying text.

20. For a discussion of the litigation involving biohazard waste, see *infra* notes 81-99 and accompanying text.

21. For a discussion of the applicable federal regulations, see *infra* notes 114-41 and accompanying text.

22. For a discussion of the applicable state regulations, see *infra* notes 142-94 and accompanying text.

23. For a discussion of the issues at both the federal and state level, see *infra* notes 114-94 and accompanying text.

24. For a discussion of the importance of environmental justice, see *infra* notes 198-210 and accompanying text.

## II. A BIOHAZARDOUS BACKGROUND: EVALUATING DIFFERENT MEDICAL WASTE CATEGORIES, DISPOSAL METHODS, RELEVANT MEDICAL WASTE LITIGATION, AND ENVIRONMENTAL CHANGES COVID-19 HAS CAUSED

The global increase in COVID-19 medical and biohazard waste production destabilized healthcare waste management processes, which elevated medical and biomedical waste disposal as a significant threat to public health and the environment.[25] Consequently, the pandemic also increased awareness that proper collection and disposal methods of medical and biohazard waste helps mitigate disease transmission and offers environmental benefits.[26] Even before the pandemic, proper medical and biohazard waste disposal methods were critical to ensure the wellbeing of society and the environment.[27] Given the serious public health and environmental concerns, various federal and state regulations, acts, and lawsuits attempted to manage waste disposal.[28]

### A. Where and How Do I Throw This Out? Evaluating Biohazard and Medical Waste Categories and Disposal Methods

Before evaluating medical and biohazard waste categories and disposal methods, it is paramount to first define relevant terms.[29] Medical waste is an "umbrella term" encompassing many categories of waste that originated from medical treatments or research.[30]

25. Atanu Kumar Dasa, Nazrul Islamb, Morsaline Billah & Asim Sarkerd, *COVID-19 Pandemic and Healthcare Solid Waste Management Strategy – A Mini Review*, 778 SCI. TOTAL ENV. 1, 2 (July 15, 2021), https://doi.org/10.1016/j.scitotenv.2021.146220 [hereinafter *A Mini Review*] (emphasizing threat of increasing amount of biohazard waste). The highlights of this paper are as follows: (1) healthcare waste has dramatically increased during the COVID-19 pandemic; (2) COVID-19 spreads faster if healthcare waste is not properly managed; (3) sanitation and safety measures for workers are essential; (4) on-site treatment of healthcare waste can help to alleviate the burden on waste management; and (5) proper management practices help stop the spread of COVID-19. *Id.* at 1 (summarizing report's findings).

26. *Id.* (stressing importance of proper waste management and positive impact on environment).

27. For a discussion of the importance of proper waste disposal methods and the resulting litigation and fines when waste was not disposed of properly, see *infra* notes 81-99 and accompanying text.

28. For a discussion of state and federal regulations pertaining to biohazard waste, see *infra* notes 114-94 and accompanying text.

29. For a discussion of medical and biohazard waste, see *infra* notes 30-36 and accompanying text.

30. *Medical Waste Versus Biohazard*, HEALTHCARE WASTE MGMT. (Oct. 5, 2021), https://www.hwmusa.com/medical-waste-disposal/medical-waste-versus-biohazard/ (defining medical waste).

Comparatively, biohazard waste is "any waste that may contain infectious waste" and falls under the regulated medical waste category, which outlines specific disposal rules and regulations.[31] Federal law defines medical waste as "isolation wastes; infectious agents; human blood and blood products" and "pathological wastes."[32] This definition of medical waste also notably includes "sharps; body parts; contaminated bedding; surgical wastes and potentially contaminated laboratory wastes; dialysis wastes . . ." and anything else the government decides to categorize as medical waste.[33]

There are two distinct types of medical waste: red bag and sharps.[34] Red bag waste is the "receptacle" for contaminated or potentially contaminated materials containing blood or Other Potentially Infectious Materials (OPIM).[35] Sharps waste, however, includes contaminated sharps, "such as hypodermic needles [and] scalpels."[36]

The surge of COVID-19 related waste further emphasized the importance of identifying other pre-existing waste categories.[37] Chemical waste contains chemical substances, such as "laboratory reagents, film developing reagents, [and] expired/unused disinfectants."[38] Infectious waste involves infective pathogens found in "materials contaminated with blood and body fluids, human excreta, laboratory cultures, and microbiological products."[39] Pathological waste is similar to infectious waste, but differs as it is typically a piece of a body part, including part of a tissue or an organ.[40]

There are additional categories of waste to consider and distinguish.[41] Another waste product includes radioactive waste.[42] This waste contains radioactive substances, namely unused radiotherapy

31. *See id.* (elaborating on difference between medical and biohazard waste).

32. 33 U.S.C. § 1402(k) (1994) (defining medical waste).

33. *Id.* (continuing medical waste definition).

34. *The Basics of Medical Waste Disposal*, ONSITE, https://www.onsitewaste.com/medical-waste-101 (last visited Jan. 23, 2022) [hereinafter *Medical Waste 101*] (outlining categories of medical waste).

35. *Id.* (explaining definition of red bags).

36. *Id.* (expressing definition of sharps).

37. *See A Mini Review*, *supra* note 25, at 4-5 (noting more categories of waste).

38. *Id.* at 5 (outlining chemical waste). While many hospitals have transitioned to using safer chemicals, there are various health systems still using harmful, toxic chemicals and disposing of them in a way which negatively impacts the environment. *See id.* (explaining issues relating to chemical waste management).

39. *Id.* (specifying types of infectious waste).

40. *Id.* (defining subset of medical waste and pathological waste).

41. For a discussion of other medical waste categories, see *infra* notes 42-49 and accompanying text.

42. *A Mini Review*, *supra* note 25, at 6 (introducing radioactive waste). Radioactive waste is particularly harmful to the environment if the person handling the

or laboratory research liquids.[43] If a handler poorly manages this type of waste, exposure to the radioactive elements in the waste can create significant health and environmental risks.[44] Additionally, pharmaceutical waste includes contaminated and expired pharmaceutical products.[45] Due to the increase in COVID-19 patient hospital admissions, pharmaceutical waste increased substantially.[46]

Although hazardous waste plays a significant role in waste management, non-hazardous waste also greatly contributes to waste production.[47] Non-hazardous healthcare waste includes used "plastic water bottles, office paper, magazines, newspapers, [and] food waste."[48] Lastly, used COVID-19 diagnostic test kits also contribute to the growing quantity of waste because a tester only uses each kit once.[49]

Before COVID-19, medical waste classification played an integral role in proper biohazard and medical waste management worldwide.[50] The World Health Organization (WHO) and United Nations (UN) advised waste handlers to separate non-hazardous materials and general healthcare waste from the biohazard waste, with handlers placing sharps placed in puncture-and tamper-proof containers and infectious waste in leak-proof plastic bags.[51] Importantly, these guidelines advised disposal companies to collect biohazard and medical waste as frequently as possible to prevent hazardous accumulation.[52]

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waste does not discard it properly. *Id.* (contextualizing radioactive waste containment issues).

43. *Id.* (defining radioactive waste and outlining relevant issues).

44. *See id.* (highlighting risks of radioactive waste exposure).

45. *Id.* (defining pharmaceutical waste).

46. *Id.* (noting increase in pharmaceutical waste). Those individuals handling COVID-19 related waste are at higher risk for contracting the SARS-CoV-2 virus depending on whether the handler is near COVID-19 patients or other pharmaceutical waste. *Id.* (explaining COVID-19's impact on those responsible for collecting waste).

47. For a discussion of non-hazardous waste examples, see *infra* notes 48-49 and accompanying text.

48. *A Mini Review*, *supra* note 25, at 6 (discussing hospitals' non-hazardous waste).

49. *Id.* at 7 (defining other waste categories).

50. *See* Ben Brenner, *The Complete Guide to Biohazard Waste Disposal*, MEDPRO DISPOSAL (Feb. 25, 2016), https://www.medprodisposal.com/2470/the-complete-guide-to-biohazard-waste-disposal/ (underscoring importance of proper containment). Producers using these classifications allowed producers of biohazard waste to segregate and sort the waste into labeled containers. *Id.* (exploring various classifications).

51. *Id.* (emphasizing need to separate different waste types).

52. *Id.* (explaining proper waste disposal methods through routine storage and collection).

Waste producers have several waste disposal methods after segregating, containing, and labeling waste materials.[53] One option is incineration, which waste providers often use for pathological and pharmaceutical waste.[54] Incineration burns and, thus, destroys the waste material.[55] Another option is called autoclaving, which providers regularly utilize to dispose of sharps by microwave radiation.[56] Additionally, irradiation disposes of sharps by using gamma rays.[57] Chemical decontamination, furthermore, often disposes of blood and fluid wastes.[58] Chemical decontamination is the reduction or removal of waste by chemical neutralization or detoxification.[59] Lastly, onsite destruction efforts may use one or a combination of any of the above methods.[60]

### B. The Government Takes Out the Trash: A Historical Framework of Medical Waste Regulation

Congress has continually added and updated legislation to further the needs of medical waste regulation, starting with the RCRA in October 1976 to address increasing municipal and industrial waste.[61] The RCRA amended the Solid Waste Disposal Act (SWDA) of 1965, which sought to improve solid waste disposal methods.[62] The RCRA expanded the SWDA to include new waste disposal technologies.[63] In November 1984, Congress amended the RCRA by passing the federal Hazardous and Solid Waste Amendments (HSWA).[64] Among other mandates, these amendments phased out

53. *See Medical Waste 101*, *supra* note 34, at 5 (highlighting different waste disposal methods).

54. *Id.* (noting incineration option). While incineration is an option, the United States does not have many incinerators because the EPA has strict regulations governing emissions. *Id.* (elaborating on practicality of incineration option).

55. *A Citizen's Guide to Incineration*, U.S. ENV'T. PROT. AGENCY, 1, 1 (Sept. 2012), https://www.epa.gov/sites/default/files/2015-04/documents/a_citizens_guide_to_incineration.pdf (defining incineration and explaining and putting process in perspective).

56. *Medical Waste 101*, *supra* note 34, at 5 (defining irradiation).

57. *Id.* (noting how irradiation destroys sharps specifically).

58. *See id.* (describing chemical decontamination waste disposal methods).

59. *See generally* Liudvikas Jagminas, *CBRNE - Chemical Decontamination*, MEDSCAPE (July 30, 2018), https://emedicine.medscape.com/article/831175-overview (defining chemical decontamination).

60. *Medical Waste 101*, *supra* note 34 (acknowledging onsite destruction method of medical waste disposal).

61. *See History of RCRA*, *supra* note 11 (describing RCRA's scope and purpose).

62. *See id.* (providing description of RCRA, which was first statute designed to improve solid waste disposal).

63. *Id.* (showing developments of new waste technologies).

64. *Id.* (noting congressional amendments to RCRA). Some of the other HSWA mandates include stricter enforcement and waste management programs.

certain hazardous waste disposal methods and implemented corrective actions to minimize biohazard waste.[65]

Notably, the country demanded better medical waste reforms after community members found bags of syringes on American beaches in the 1980s.[66] At the time, there was a general lack of space for all types of garbage, let alone medical waste specifically.[67] In response to this growing public health crisis, the federal government created the 1988 Medical Waste Tracking Act (MWTA) to monitor and manage medical waste.[68] This legislation amended the RCRA and served as the basis for the EPA's subsequent promulgation of medical waste standards.[69]

The MWTA created a solid framework for medical waste regulation.[70] Unlike the prior acts, the MWTA explicitly defined medical waste and outlined different regulations for medical waste.[71] The MWTA also created a "cradle-to-grave tracking system" to trace medical waste from the time it left the hospital to the waste's eventual disposal in a landfill.[72] This tracking system helped ensure the proper disposal of medical waste and limited associated risks of further contamination.[73] The MWTA also required several management standards for medical waste and implemented record keeping

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*Summary of the Resource Conservation and Recovery Act*, U.S. ENV'T PROT. AGENCY (Sept. 28, 2021), https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act (parsing out HSWA amendments).

65. *See History of RCRA*, *supra* note 11 (detailing amendments).

66. *See* Sally Squires, *Needles on the Beach*, WASH. POST (Aug. 23, 1988), https://www.washingtonpost.com/archive/lifestyle/wellness/1988/08/23/needles-on-the-beach/809288a7-ae56-44fa-8bfc-027479613f27/ (describing catalyst for medical waste reform).

67. *Id.* (exploring general medical waste issues regarding space and capacity).

68. *Medical Waste Tracking Act of 1988*, U.S. ENV'T PROT. AGENCY ARCHIVE (Mar. 29, 2016), https://archive.epa.gov/epawaste/nonhaz/industrial/medical/web/html/tracking.html (reasoning for creation of MWTA); Medical Waste Tracking Act of 1988, § 6992, Pub. L. No. 100-582, 102 Stat. 2950 (documenting MWTA statute text and purpose).

69. *The Regulation of Medical Waste During COVID-19*, *supra* note 10 (naming amendments to EPA waste standard).

70. For a discussion of the MWTA's framework, see *infra* notes 71-75 and accompanying text.

71. *Medical Waste Tracking Act of 1988*, *supra* note 68 (explaining history of MWTA's enactment and MWTA's operative components); § 6992, 102 Stat. at 2950 (1988) (emphasizing importance of medical waste definition).

72. *Id.* (expanding on MWTA tracking system).

73. *See id.* (describing significance of specific tracking system).

requirements.[74] Despite the abovementioned additions and clarifications, the MWTA expired in 1991.[75]

After the MWTA's two-year program ended, states largely took on the role of regulating medical waste.[76] Congress has generally not amended the RCRA since the MWTA and HSWA; however, there are a few exceptions.[77] The Federal Facility Compliance Act of 1992 was one amendment to the RCRA which focused on enforcement of the RCRA at federal facilities.[78] Additionally, the Land Disposal Program Flexibility Act of 1996 was an amendment that provided "regulatory flexibility" for disposing of specific wastes on land.[79] As noted above, these amendments to the RCRA are limited in scope and detail; thus, much discretion is left to the states to self-regulate.[80]

74. *Id.* (expressing improvements MWTA made). Specifically, the MWTA created "standards for segregation, packaging, labeling, and marking, and storage of medical waste." *Id.* (clarifying regulatory improvements).

75. *Medical Waste*, U.S. ENV'T PROT. AGENCY (May 14, 2022), https://www.epa.gov/rcra/medical-waste (noting Act's expiration). It is important to note that the EPA has not directly regulated medical waste since the MWTA expired in 1991. *See id.* (clarifying EPA's role in medical waste management). Once the MWTA expired, the EPA analyzed information gathered throughout its two-year program and concluded that medical waste carries the highest risk to healthcare workers who are exposed to medical waste at the point of generation. Brooke Brown, *The History of Medical Waste*, SOLS. (Mar. 22, 2022), https://a-solutionsinc.com/the-history-of-medical-waste/#:~:text=congress%20passed%20the%20Medical%20Waste,four%20states%20and%20Puerto%20Rico (outlining history of medical waste regulation).

76. *See Medical Waste*, *supra* note 75 (explaining state role in medical and biohazard waste management).

77. *See History of RCRA*, *supra* note 11 (detailing RCRA amendment timeline).

78. *Id.* (highlighting RCRA enforcement at federal facilities). The Federal Facility Compliance Act amended the Solid Waste Disposal Act (SWDA) and clarified certain requirements and sanctions to federal facilities. Federal Facility Compliance Act of 1992, Pub. L. No. 102–386, § 6961, 106 Stat. 1505 (1992) (clarifying provisions of SWDA regarding application to federal facilities).

79. *History of RCRA*, *supra* note 11 (noting Act provided regulatory flexibility). The Land Disposal Program Flexibility Act of 1996 amends the Solid Waste Disposal Act and makes "certain adjustments in the land disposal program to provide needed flexibility, and for other purposes." Land Disposal Program Flexibility Act Of 1996, Pub. L. No. 104–119, § 6901 110 Stat. 830 (1996) (showing Act's purpose).

80. For a discussion of state discretion, see *infra* notes 142-94 and accompanying text.

### C. Trashy Lawsuits: Noting Litigation Regarding Improper Medical and Biohazard Waste Disposal

Legal disputes are widespread due to inconsistent state regulations of medical and biohazard waste.[81] Most cases settle with only small fines, but several have had major legal and financial ramifications.[82] In one case from 2010, New Jersey authorities fined a Pennsylvania dentist $100,000 for disposing of bags of syringes in Pennsylvania waters that later washed ashore on New Jersey beaches.[83] The dentist pleaded guilty in the Cape May County Superior Court for dumping 260 Accuject-brand dental needles, 180 cotton swabs, and several plastic containers used to hold dental fillings.[84]

This case is particularly significant because it shows that waste disposal issues migrate across state borders.[85] It highlights situations where disposing of waste in one state can impact other states.[86] Extending this example further, even if someone in one state disposes of waste correctly by its own state standards, the waste can still travel into another state and violate the other state's standards.[87]

Penalties for medical and biohazard waste violations can be substantial.[88] In 2011, two San Diego hospitals received a combined $375,000 fine in civil penalties and costs for medical waste

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81. *See Who Can Sue You for Improper Medical Waste Handling and Disposal*, ON-SITE (Feb. 18, 2019) [hereinafter *Who Can Sue You for Medical Waste*], https://www.onsitewaste.com//post/who-can-sue-you-for-improper-medical-waste-handling-and-disposal (discussing legal issues surrounding biohazard waste).

82. *Id.* (introducing potential legal and financial consequences of violating waste regulations).

83. *Id.* (detailing specifics of Pennsylvania case). The state grand jury indicted McFarland on one count of third-degree Unlawful Disposal of Regulated Medical Waste on November 18, 2008. *State of New Jersey v. Thomas W. McFarland, Jr.*, SGJ 567-08-1 (U.S. Nov. 18, 2008), https://www.nj.gov/oag/newsreleases08/pr20081118a-McFarland-Indictment.pdf (stating grand jury indicted dentist).

84. *Who Can Sue You for Medical Waste*, *supra* note 81 (noting products dentist disposed of into water); *see also* Jonathan Tamari & Jacqueline L. Urgo, *Pa. Dentist Charged with Dumping Medical Waste*, PHILA. INQUIRER (Sept. 6, 2008), https://www.inquirer.com/philly/news/homepage/20080906_Pa__dentist_charged_with_dumping_medical_waste.html (recounting Superior Court charges).

85. *See* Tamari & Urgo, *supra* note 84 (detailing how dentist's waste traveled from Pennsylvania to New Jersey).

86. For a discussion of the impact of state regulations affecting other states, see *supra* notes 83-85 and accompanying text.

87. For a discussion of different state standards, see *infra* notes 142-94 and accompanying text.

88. For a discussion of fines relating to biohazard waste disposal, see *infra* notes 89-92 and accompanying text.

storage violations.[89] Specifically, the San Diego hospitals failed to sort medical trash properly and did not obtain the proper transfer permits.[90]

Medical waste does not only originate from large hospitals and industrial facilities.[91] In one case from 2017, a Missouri podiatry clinic faced $93,074 in fines related to mishandling waste.[92] The Occupational Safety and Health Administration (OSHA) found the Missouri podiatry clinic improperly disposed of its medical waste and, subsequently, cited the clinic for several violations.[93]

Moreover, professionals in the medical field are not the only ones violating medical waste regulations.[94] In 2018, the California District Attorney charged Target Corporation for unlawfully disposing medical waste materials.[95] Target ultimately paid $7.4 million to settle the case with the state of California.[96]

These above examples demonstrate that medical and biohazard waste disposal issues are widespread.[97] For businesses, clinics, and hospitals, the financial cost of improperly disposing of medical waste may prove disastrous.[98] It is, therefore, critical these entities properly dispose of medical waste to maintain corporate integrity, but also to avoid heavy financial consequences.[99]

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89. *See* Paul Sisson, *REGION: Taking Out the Trash a Careful Business at Local Hospitals*, SAN DIEGO UNION-TRIBUNE (Dec. 18, 2011), https://www.sandiegounion tribune.com/sdut-region-taking-out-the-trash-a-careful-business-at-2011dec18-story.html (discussing San Diego case).

90. *Id.* (explaining violations in San Diego case).

91. *See Who Can Sue You for Medical Waste*, *supra* note 81 (highlighting medical waste comes from other places).

92. *Missouri Podiatry Clinic Cited for Improper Handling of Medical Waste*, OCCUPATIONAL SAFETY & HEALTH ADMIN. (Nov. 8, 2017), https://www.osha.gov/news/newsreleases/region7/11082017-1 (discussing Missouri case involving small podiatry clinic).

93. *Id.* (discussing OSHA citations in Missouri case).

94. *See generally Who Can Sue You for Medical Waste*, *supra* note 81 (listing various waste disposal violators).

95. Paulina Dedaj, *Target Pays Out $7.4 Million in California Waste Suit*, FOX NEWS (Dec. 5, 2018, 10:00 PM), https://www.foxnews.com/us/target-pays-out-7-4-million-in-california-waste-suit (documenting California case involving Target settlement). Target was alleged to have "unlawfully disposed" of "2,038 hazardous waste items, 175 items containing confidential medical information and 94 items deemed medical waste." *Id.* (specifying details of allegation).

96. *Id.* (showing settlement amount Target paid).

97. For a discussion of widespread medical waste issues, see *supra* notes 81-96 and accompanying text.

98. *See* Dedaj, *supra* note 95 (detailing example of high cost for violations).

99. *See Who Can Sue You for Medical Waste*, *supra* note 81 (stressing importance of proper waste disposal).

### D. Unprecedented Times, Unprecedented Waste: COVID-19 Related Waste's Impact on the Environment

COVID-19's immense production of biohazard and medical waste has negatively impacted the environment.[100] In addition to the 6,600 metric tons of waste the healthcare industry produces each year, waste from COVID-19 has drastically added to this staggering amount of waste.[101] At one point during the COVID-19 pandemic, the world used an estimated 1.6 million protective goggles, 76 million examination masks, and 89 million medical masks each month.[102]

When individuals do not properly dispose of medical and biohazard waste, toxic and infectious waste may infiltrate landfills, which presents public health risks.[103] If a waste disposal company does not treat the waste, the untreated waste can contaminate drinking, surface, and ground water.[104] Even when a company treats the waste with chemical disinfectants, if this waste is improperly disposed, it can chemically pollute the environment.[105] The severity of these potential consequences can make it challenging to implement effective biohazard and medical waste disposal protocols.[106] Untreated or improperly disposed waste, moreover, can

100. For a discussion of COVID-19's impact on the environment, see *infra* notes 101-09 and accompanying text.

101. Hadley Barndollar, *The COVID Pandemic Has Produced a "Staggering" Amount of Waste. Where is it All Going?*, THE PROVIDENCE J. (Apr. 8, 2021), https://www.providencejournal.com/story/news/2021/04/08/covid-pandemic-medical-waste-disposal-crisis-ppe-testing-vaccine-equipment/4839287001/ [hereinafter *"Staggering" Amount of Waste*] (stressing large amount of waste healthcare industry produced). The healthcare industry has itself contributed ten percent of greenhouse gas emissions and other pollutants in addition to the pre-existing 6,600 metric tons. *Id.* (highlighting preexisting greenhouse gas production by healthcare industry); Massachusetts General Hospital, *Waste Generation by Hospital Emergency Departments is Highlighted for First Time*, MEDICAL PRESS (Sept. 24, 2020), https://medicalxpress.com/news/2020-09-hospital-emergency-departments-highlighted.html#:~:text=healthcare%20facilities%20in%20the%20U.S.,to%20adversely%20affect%20human%20health (emphasizing increasing amounts of waste); *see* Tyler Kuo, *COVID-19 PPE Is an Environmental Nightmare*, THE CHOATE NEWS (Apr. 23, 2021), https://thechoatenews.choate.edu/2021/04/23/covid-19-ppe-is-an-environmental-nightmare/ (explaining COVID-19's significant impact on environment).

102. *See "Staggering" Amount of Waste*, *supra* note 101 (describing shockingly high amount of waste).

103. *See Medical Waste 101*, *supra* note 34 (stating risk to landfills).

104. *Health-Care Waste*, WORLD HEALTH ORG. (Feb. 8, 2018), https://www.who.int/news-room/fact-sheets/detail/health-care-waste (warning of possible environmental contamination risks).

105. *Id.* (documenting chemical waste risks to environment).

106. *Id.* (stating challenge of biohazard waste disposal).

cause illness.[107] Disposal methods can also contribute to these public health and environmental issues.[108] Although incinerators can efficiently dispose of biohazard waste, incineration can produce enormous amounts of air pollutants, which can harm the environment.[109]

Due to the ease of contracting COVID-19 and the volume of waste the pandemic has and continues to generate, healthcare waste treatment and associated recycling programs have become considerably unstable.[110] COVID-19 waste that is improperly treated may present significant threats of disease transmission to various groups who interact with such waste, including waste workers, medical staff, patients, and even the overall community.[111] Improper waste management also releases "harmful and deleterious contaminants" into the environment.[112] In sum, COVID-19 produced and continues to produce unprecedented amounts of medical waste; as a result, federal, state, and local governments have attempted to intervene by imposing emergency regulations.[113]

## III. FEDERAL REGULATIONS STINK: UNDERSCORING THE LIMITATIONS OF FEDERAL MEDICAL AND BIOHAZARD WASTE REGULATIONS AND REGULATORS

The RCRA established the federal legal framework for managing both hazardous and non-hazardous solid waste.[114] Under the

107. *Id.* (noting consequences of improper disposal on human health).

108. *See id.* (explaining challenges of disposal methods).

109. *Health-Care Waste*, *supra* note 104 (expressing limitations of incinerators). Notably, "[o]nly modern incinerators operating at 850-1100 °C and fitted with special gas-cleaning equipment are able to comply with the international emission standards for dioxins and furans." *Id.* (specifying modern incinerators used to prevent air pollution).

110. *See A Mini Review*, *supra* note 25, at 1 (noting COVID-19's impact on waste management).

111. *Id.* (explaining risks of disease transmission).

112. *Id.* (summarizing waste's impact on societal health); *see COVID-19 has Caused a Surge in Medical Waste. Here's What Needs to be Done*, WORLD ECON. F. (Feb. 17, 2022), https://www.weforum.org/agenda/2022/02/medical-waste-plastic-environment-covid/ (showing vast number of waste produced by COVID-19 pandemic); *see Tonnes of COVID-19 Health Care Waste Expose Urgent Need to Improve Waste Management Systems*, WORLD HEALTH ORG. (Feb. 1, 2022), https://www.who.int/news/item/01-02-2022-tonnes-of-covid-19-health-care-waste-expose-urgent-need-to-improve-waste-management-systems (outlining extra medical waste produced).

113. *Medical Waste 101*, *supra* note 34 (stressing need for regulations); *see* Tyler Kuo, *COVID-19 PPE is an Environmental Nightmare*, THE CHOATE NEWS (Apr. 23, 2021), https://thechoatenews.choate.edu/2021/04/23/covid-19-ppe-is-an-environmental-nightmare/ (explaining COVID-19's harmful environmental impact).

114. *Does RCRA Regulate Wastes That May Contain the Virus That Causes COVID-19, Such as Used Medical Equipment or Personal Protective Equipment?*, U.S. ENV'T PROT.

RCRA, the EPA controls the "generation, transportation, treatment, storage and disposal of hazardous waste."[115] The EPA, therefore, can develop regulations and policies to manage and clean up hazardous and non-hazardous waste and create beneficial reuse programs.[116] Two specific subtitles of the RCRA include Subtitle D, which focuses on non-hazardous solid waste requirements, and Subtitle C, which focuses on hazardous solid waste.[117]

States are responsible for implementing hazardous and non-hazardous waste programs under the RCRA.[118] The EPA only sets minimum national standards for the design and operation of hazardous and non-hazardous disposal facilities.[119] The RCRA has a state authorization rulemaking process, which allows the EPA to delegate hazardous waste programming implementation to individual states.[120] This process seeks to establish minimum standards and provide flexibility to states to administer their standards.[121] Yet, this flexibility tends to create excessive discretion and confusion from state-to-state.[122] In addition, the EPA regulates hospital/medical/infectious waste incinerators (HMIWI) and provides standards for solid waste incineration.[123]

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AGENCY (Mar. 24, 2022), https://www.epa.gov/coronavirus/does-rcra-regulate-wastes-may-contain-virus-causes-covid-19-such-used-medical-equipment (summarizing RCRA's purpose).

115. *Resource Conservation and Recovery Act (RCRA) Overview*, U.S. ENV'T PROT. AGENCY (Jul. 14, 2021), https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview [hereinafter *RCRA Overview*] (outlining RCRA's authorizations).

116. *Id.* (responding with what EPA does with this authority).

117. *Id.* (parsing out Subtitle D and Subtitle C).

118. *Id.* (explaining role of states).

119. *Id.* (highlighting limitations on EPA authority).

120. *State Authorization under the Resource Conservation and Recovery Act (RCRA)*, U.S. ENV'T PROT. AGENCY (Nov. 20, 2021), https://www.epa.gov/rcra/state-authorization-under-resource-conservation-and-recovery-act-rcra (introducing state authorization). Accordingly, Subtitle C grants EPA the power to authorize the state to implement its own requirements instead of the federal government's requirements; in the event there is no existing state program, EPA steps in to enforce hazardous waste requirements. *See RCRA Overview*, *supra* note 115 (expressing role of EPA if state role is nonexistent).

121. *See id.* (noting goal of state authorization process).

122. For a discussion on state discretion, see *infra* notes 142-94 and accompanying text.

123. *See Healthcare Law – Medical Treatment: Medical & Infectious Waste*, LEXIS-NEXIS 50-STATE SURVS., STATUTES & REGULS. (Feb. 2020) [hereinafter *Healthcare Law*] (adding another regulation by federal government). This was codified in Section 129 of the Clean Air Act (CAA), titled, "Solid Waste Combustion." *See Hospital, Medical, and Infectious Waste Incinerators (HMIWI): New Source Performance Standards (NSPS), Emission Guidelines, and Federal Plan Requirements Regulations*, U.S. ENV'T PROT. AGENCY (Jan. 18, 2022), https://www.epa.gov/stationary-sources-air-

In addition to the EPA, other federal agencies examine waste disposal; however, their scope is also limited to their specific department regulations.[124] These agencies include OSHA and the Department of Transportation (DOT).[125] OSHA has its own medical waste classifications and definitions.[126] Specifically, OSHA created the Occupational Exposure to Bloodborne Pathogens Standard in 1991.[127] This standard protects healthcare workers from biohazard exposure risks.[128] Moreover, this standard has many requirements, including an exposure control plan and other rules regulating waste from healthcare facilities.[129] OSHA's exposure control plan and general biohazard waste provisions help minimize employee exposure to medical and hazardous waste; however, these provisions fail to address the dangers biohazard waste disposal poses to non-employees.[130]

Additionally, the DOT plays a small regulatory role in the waste disposal process.[131] The DOT focuses on developing and enforcing the safe transportation of infectious substances.[132] The DOT's Hazardous Materials Regulations (HMR) lay out requirements for classifying, packaging, and maintaining infectious materials.[133] Although the DOT's regulations address the safe transportation of infectious substances, federal regulation standards only outline cer-

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pollution/hospital-medical-and-infectious-waste-incinerators-hmiwi-new (outlining standards).

124. For a discussion of the additional federal agencies that regulate biohazard waste, see *infra* notes 125-38 and accompanying text.

125. *Who Regulates Medical Waste Disposal?*, MED. WASTE PROS, https://www.medicalwastepros.com/articles/who-regulates-medical-waste/ (last visited June 22, 2022) (documenting two specific federal agencies that help regulate medical waste).

126. 29 C.F.R. § 1910.1030(b) (2022) (introducing OSHA's definitions).

127. 29 C.F.R. § 1910.1030 (2022) (noting 1991 standard).

128. *See Information for Employers Complying with OSHA's Bloodborne Pathogens Standard*, CTRS. FOR DISEASE CONTROL & PREVENTION (June 6, 2014), https://www.cdc.gov/niosh/docs/2009-111/default.html#:~:text=the%20Bloodborne%20Pathogens%20Standard%20applies,or%20other%20potentially%20infectious%20materials (mentioning purpose of standard).

129. *See Bloodborne Pathogens and Needlestick Prevention*, OCCUPATIONAL SAFETY & HEALTH ADMIN., https://www.osha.gov/bloodborne-pathogens/standards#:~:text=what%20is%20the%20Bloodborne%20Pathogens,hazards%20related%20to%20bloodborne%20pathogens (last visited May 15, 2022) (detailing Blood Pathogen Standard requirements); 29 C.F.R. § 1910.1030 (2022) (presenting control plan).

130. *See id.* (stressing importance of plan).

131. 49 C.F.R. §§ 100-199 (2022) (introducing EPA and DOT classifications).

132. *Transporting Infectious Substances Overview*, U.S. DEP'T OF TRANSP.: PIPELINE & HAZARDOUS WASTE MATERIALS SAFETY ADMIN. (Aug. 2, 2022), https://www.phmsa.dot.gov/transporting-infectious-substances/transporting-infectious-substances-overview (discussing DOT focus).

133. *Id.* (laying out HMR requirements).

tain federally approved guidance.[134] As a result, individual states may have somewhat different rules.[135]

Several other federal agencies play roles in infectious substance oversight.[136] Namely, the Centers for Disease Control and Prevention (CDC) protects the nation's public health by providing leadership and controlling guidelines for diseases.[137] The Federal Emergency Management Agency (FEMA) also oversees infectious substances by executing full government responses, which is particularly necessary during a pandemic such as the COVID-19 pandemic.[138]

The oversight responsibilities that federal waste regulations give to federal agencies act as a floor and effectively provide little support to state regulations, other than minimal guidance.[139] In an attempt to guide states, the EPA drafted Model Guidelines for State Medical Waste Management.[140] These guidelines document waste characterization, methods of transportation, treatment of waste, and suggested destruction and disposal of medical waste; but, they do not provide thorough regulatory support.[141]

## IV. NOT A WASTE OF TIME, BUT TOO DISPARATE FOR CONSISTENCY: A SNAPSHOT OF THE SIGNIFICANT AMOUNT OF DISCRETION AFFORDED TO STATES

Without strong federal requirements, states have discretion to regulate the storage and transportation of medical and biohazard

134. *See id.* (summarizing DOT's focus regarding biohazard waste).

135. *See generally State Regulations Resource Locator*, ENVCAP, https://www.envcap.org/srl/resourcelocator.php?id=13 (last visited June 22, 2022) (providing links to different state regulations).

136. For a discussion of other federal agencies that regulate biohazard waste, see *infra* notes 137-38 and accompanying text.

137. *Background I. Regulated Medical Waste*, CTRS. FOR DISEASE CONTROL & PREVENTION (Nov. 5, 2015), https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/medical-waste.html (outlining role of CDC).

138. *Transporting Infectious Substances Overview*, *supra* note 132 (stating role of FEMA during disasters like pandemics).

139. *See generally Resource Conservation and Recovery Act (RCRA) and Federal Facilities*, U.S. ENV'T PROT. AGENCY (Jan. 18, 2022), https://www.epa.gov/enforcement/resource-conservation-and-recovery-act-rcra-and-federal-facilities (examining federal regulations and arguing they are inadequate).

140. *See Healthcare Law*, *supra* note 123 (highlighting EPA draft of Model Guidelines for States). The Council of State Governments, a nonprofit organization, developed the guidelines with the goal the guidelines would be a "ready-reference" tool for those managing medical waste disposal. *Model Guidelines for State Medical Waste Management*, U.S. ENV'T PROT. AGENCY (Oct. 13, 2021), https://www.epa.gov/rcra/model-guidelines-state-medical-waste-management (mentioning purpose of guidelines).

141. *See Healthcare Law*, *supra* note 123 (expanding on these guidelines).

waste.[142] With respect to transportation, states may require permits or special regulations for waste facilities.[143] States also have discretion to use different waste disposal methods.[144]

States can also control storage by regulating the containers that store waste and implementing fixed storage time limits.[145] Most states also regulate facilities and transporters and develop management plans for medical and biohazard waste.[146] States approach the MWTA's guidance differently, with some states using the MWTA as a basis for that state's own regulations, while other states substantially deviate from the MWTA.[147] With this discretion, states often play varied roles in regulating and maintaining medical and biohazard waste.[148]

Further, states also have discretion in adopting an OSHA federal program or an OSHA State Plan.[149] OSHA State Plans are OSHA-approved workplace safety and health programs that states operate.[150] OSHA State Plans tend to be more responsive to local needs than federal OSHA programs.[151] Although federal OSHA covers a majority of private sector employers and workers throughout the country, state and local government workers are not covered by OSHA unless they work in a state with an OSHA-approved State Plan.[152] Comparatively, another twenty-two states and territories have "OSHA-approved State Plans that cover both private and state and local government workers," and there are five states and one U.S. territory with an OSHA-approved state plan that covers

142. *See id.* (emphasizing significant state role).

143. *Id.* (noting state permit and regulation requirements).

144. *Id.* (expressing discretion by states).

145. *Id.* (noting container regulations).

146. *See Healthcare Law*, *supra* note 123 (outlining another role of states in biohazard waste management).

147. *Regulated Medical Waste—Overview*, HEALTHCARE ENV'T RES. CTR., https://www.hercenter.org/rmw/rmwoverview.php#:~:text=most%20states%20have%20regulations%20covering,tracking%2C%20recordkeeping%2C%20and%20reporting (last visited Feb. 18, 2022) (showing MWTA's influence on various state regulations).

148. For a discussion of the varied state discretion, see *infra* notes 158-94 and accompanying text.

149. For a discussion of state discretion in adopting an OSHA federal or state program, see *infra* notes 150-54 and accompanying text.

150. *State Plans*, OCCUPATIONAL SAFETY & HEALTH ADMIN., https://www.osha.gov/stateplans/ (last visited Oct. 31, 2022) (defining OSHA State Plans).

151. *See Frequently Asked Questions*, OCCUPATIONAL SAFETY & HEALTH ADMIN., https://www.osha.gov/stateplans/faqs (last visited Oct. 31, 2022) (noting general trend in state plans).

152. *Id.* (highlighting importance and impact of OSHA State Plan).

only state and local government employees.[153] Although the federal OSHA agency must approve OSHA State Plans, states still have significant discretion to implement more rigorous standards because OSHA only requires state programs to be "at least as effective as" federal programs.[154]

The state regulations in the following subsections are merely a snapshot of the discretion afforded to state biohazard and medical waste removal and treatment.[155] Each state may maintain its own policies and laws to respond to waste.[156] With the onset of COVID-19 and the vast increase in medical and biohazard waste, the different waste removal and treatment processes have become a greater public health and environmental concern.[157]

### A. Don't Mess with Texas's Medical and Biohazard Waste Standards

Texas's medical and biohazard waste standards, for example, are stricter and more detailed than OSHA's federal standards.[158] OSHA's Bloodborne Pathogen Standard defines contaminated sharps as, "[A]ny contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires."[159] Texas, however, defines sharps in much greater detail.[160] Compared to federal regulations, Texas's law considers more contaminated materials than federal law, thus limiting the amount of hazardous

153. *Id.* (mentioning number of OSHA-approved State Plans).

154. 29 U.S.C § 667(c)(2) (emphasizing state discretion).

155. For a discussion of state biohazard waste regulatory discretion, see *infra* notes 158-94 and accompanying text.

156. For a discussion of the preexisting state discretion, see *infra* notes 158-94 and accompanying text.

157. For a discussion of the major health and environmental concerns associated with COVID-19, see *supra* notes 101-09 and accompanying text.

158. *See Medical Waste*, TEX. COMM'N ON ENV'T QUALITY (Sept. 13, 2022), https://www.tceq.texas.gov/permitting/waste_permits/msw_permits/medwaste (introducing Texas biohazard waste standards).

159. 29 C.F.R. § 1910.1030 (2019) (specifying OSHA Bloodborne Pathogen Standard).

160. *See* 25 TEX. ADMIN. CODE § 1.132 (2022) (defining sharps). Texas law states that sharps include, but are not limited to "hypodermic needles, hypodermic syringes with attached needles, scalpel blades, razor blades, disposable razors, disposable scissors used in surgery, intravenous stylets, glass pasteur pipettes, specimen tubes, blood culture bottles, microscope slides, broken glass from laboratories, tattoo needles, acupuncture needles and electrolysis needles." *Id.* (detailing extensive list of items Texas law considers as "sharps") (number format omitted).

or potentially hazardous materials in landfills.[161] As each state defines sharps and biohazard waste differently, it can be tremendously confusing and expensive for businesses and other waste handlers to dispose of biohazard and medical waste, especially during the instability of the COVID-19 pandemic.[162]

## B. California Cracks Down on Medical and Biohazard Waste Specifications

Some states, like Texas, have broad definitions of waste.[163] Other states, like California, have very comprehensive general waste and, specifically, biohazard waste disposal requirements.[164] California and other states have issued additional COVID-19-specific waste storage requirements.[165]

States have discretion to limit the amount of time that businesses and organizations store waste on-site and can specify storage requirements.[166] This includes waste that is stored in generators, treatment facilities, and transporters.[167] California has very specific storage limitations.[168] These storage limitations include various accumulation requirements, which depend on the size of the generators and distance from the treatment plant.[169]

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161. For an introduction to Texas's law on biohazard waste standards, see *supra* notes 158-60 and accompanying text.

162. *See Regulated Medical Waste—Overview*, *supra* note 147 (noting present state of biohazard waste regulations).

163. For a discussion of Texas law on biohazard waste standards, see *supra* notes 158-62 and accompanying text.

164. *See Regulations*, CALRECYCLE, https://calrecycle.ca.gov/laws/regulations/ (last visited May 18, 2022) (introducing detailed waste disposal requirements in California); *Medical Waste Management Program*, CAL. DEP'T OF PUB. HEALTH (June 22, 2022), https://www.cdph.ca.gov/Programs/CEH/DRSEM/Pages/EMB/MedicalWaste/MedicalWaste.aspx (documenting California's comprehensive biohazard waste regulations).

165. For a discussion of California state biohazard related regulations, see *infra* notes 168-72 and accompanying text.

166. *See generally Regulations*, CALRECYCLE, https://calrecycle.ca.gov/laws/regulations/ (last visited July 1, 2022) (detailing discretion California has taken to create storage regulations).

167. *See id.* (portraying inclusions in this type of discretion).

168. *See* CAL. HEALTH & SAFETY CODE § 25123.3 (2022) (noting storage specifications); *see* CAL. CODE REGS. Tit. 22, § 66262.34 (2022) (stating California as exemplifying specific standards).

169. *See DTSC Accumulating Hazardous Wastes at Generator Sites Fact Sheet*, CAL. DEP'T TOXIC SUBSTANCES CONTROL (Jan. 2002), https://dtsc.ca.gov/accumulating-hazardous-wastes-at-generator-sites/ (highlighting differing generator requirements). These accumulation requirements depend on the role of the generator and, particularly, on how many kilograms of hazardous waste the generators generate on-site per month. *Id.* (summarizing accumulation time limit chart).

California also issued a host of specific medical and biohazard waste guidance and government updates during the onset of COVID-19.[170] This guidance provided clear instructions to treat COVID-19 infected waste.[171] Prior to the pandemic, California enforced strict regulation requirements and required that all medical waste generators register with the state.[172] Alabama, Florida, Maine, New Jersey, and Ohio are examples of other states that also require all medical waste generators register with the state; however, many states do not have this strict of a requirement.[173]

C. Maine's Guidance and Flexibility in Response to COVID-19

States are able to enact their own management and disposal guidance for medical and biohazard waste.[174] States often use this discretionary power to flexibly enforce their own guidelines.[175] Maine, for instance, allowed waste facilities to extend their hours of operations to manage increasing volumes of waste.[176] In response to COVID-19, Maine deftly enforced and amended their own guidelines by quickly evaluating the newfound needs of the pandemic.[177] Other states, such as Kentucky, Vermont, and West Virginia, issued similar guidance.[178] In contrast, states such as Alabama, Arkansas, Connecticut, Florida, and New Jersey, decided only to change their guidelines on a "case[-]by[-]case" basis.[179] Thus, while some states

170. *See COVID-19 Resources and Updates*, CALRECYCLE, https://www.calrecycle.ca.gov/markets/covid-19 (last visited Feb. 19, 2022) (noting states could choose specific guidance in times of COVID-19 in addition to other federal orders).

171. *See id.* (underscoring importance of COVID-19 guidance).

172. CA HEALTH & SAFETY CODE § 118025 (2015) (showing California generator requirement).

173. *See, e.g.*, ALA. ADMIN. CODE r. § 335-17-1 (2012) (mentioning Alabama requirements); FLA. STAT. ANN. § 381.0098 (2012) (exemplifying Florida requirements); ME. REV. STAT. ANN. tit. 38 § 1319-0(3) (West 2021) (noting Maine law); N.J. ADMIN. CODE § 7:26-3A.8 (2016) (documenting New Jersey code); OHIO ADMIN. CODE § 3745-27-30 (2021) (finding Ohio maintains generator requirements too); *See* Jan Harris, *How State Medical Waste Regulations Differ*, SHARPS COMPLIANCE, INC. (Apr. 5, 2017), https://blog.sharpsinc.com/state-medical-waste-regulations-differ (listing states and counties requiring all medical waste generators register).

174. For a discussion of state enforcement discretion, see *infra* notes 175-80 and accompanying text.

175. *See* Elise Paeffgen, *INSIGHT: What Do We Do With COVID-19 Waste?*, BLOOMBERG L. (May 20, 2020, 4:00 AM), https://news.bloomberglaw.com/environment-and-energy/insight-what-do-we-do-with-covid-19-waste (reinforcing high degree of state discretion).

176. *See* EXEC. ORDER NO. 24 FY 19/20 (Mar. 26, 2020) https://www.maine.gov/governor/mills/sites/maine.gov.governor.mills/files/inline-files/EO%2024.pdf (expanding on Maine's response to COVID-19 waste).

177. *See generally id.* (noting flexible enforcement in Maine).

178. Paeffgen, *supra* note 175 (discussing other states with similar guidance).

179. *Id.* (observing other states with different guidance).

have efficiently responded to the COVID-19 waste crisis by implementing immediate guidance, other states have been less proactive and effective.[180]

### D. Idaho Talks Personal Protective Equipment in the Time of COVID-19

States have also taken diverging approaches to Personal Protective Equipment (PPE).[181] PPE is equipment worn to minimize exposure to hazards that cause injuries and illnesses.[182] Various OSHA State Plans generally address federal OSHA PPE regulations, and OSHA requires most PPE to comply with the American National Standards Institute (ANSI).[183] Some states, like Idaho, require healthcare facilities to manage all of the facility's PPE as biohazard medical waste, regardless of potential for infection.[184]

In other states, PPE disposal might depend on confirmed COVID-19 contact.[185] Although some states require facilities to manage only COVID-19-confirmed contact PPE as medical waste, other states recommend facilities discard all PPE medical waste, regardless of whether there was COVID-19 confirmed contact.[186] Given this discretion, some states will ultimately dispose of PPE that contains remnants of the COVID-19 virus, which could result in polluting the environment and infecting others.[187]

### E. Iowa Lays on the Federal Floor

Per the RCRA, states have the discretion to enforce medical and biohazard waste regulations that are consistent with or equally

180. *See id.* (directing attention to discretion of states).

181. *See id.* (furthering discussion of state discretion by noting different PPE requirements).

182. *See 1910.132 - General Requirements*, OCCUPATIONAL SAFETY & HEALTH ADMIN., https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132 (last visited July 4, 2022) (setting standards for PPE and noting equipment's purpose).

183. *Personal Protective Equipment*, OCCUPATIONAL SAFETY & HEALTH ADMIN., https://www.osha.gov/personal-protective-equipment/standards (last visited Feb. 19, 2022) (explaining OSHA PPE regulations).

184. *See Coronavirus Information*, IDAHO DEP'T OF ENV'T QUALITY (Oct. 26, 2021), https://www.deq.idaho.gov/about-us/coronavirus-information/ (mentioning Idaho standard).

185. *See* Paeffgen, *supra* note 175 (noting state discretion with managing PPE disposal).

186. *See id.* (distinguishing between states requiring disposal when confirmed COVID-19 contact has occurred and those states without such requirement).

187. *See id.* (stressing state discretion and negative consequences of discarding COVID-19-confirmed contact PPE).

as rigorous as federal regulations.[188] Of the fifty states, however, Alaska and Iowa are the only states that acquiesce to what the EPA mandates in their respective regions, meaning their regulations only go as far as the federal floor.[189] Significantly, the EPA has not authorized Iowa to operate its own hazardous waste program instead of the federal program.[190] Thus, the only regulatory infrastructure available to Iowa is the less stringent federal biohazard waste guidance.[191]

### F. Medical and Biohazard Waste Specifications, Right Here in Pennsylvania

Even before the COVID-19 pandemic, Pennsylvania mandated strict medical and chemotherapeutic waste requirements.[192] For example, only infectious and chemotherapeutic waste transporters with a license from the Pennsylvania Department of Environmental Protection can collect or deliver biohazard waste in Pennsylvania.[193] These detailed PA Codes maintain stringent waste definitions, specific storage requirements, and proper waste segregation requirements.[194]

As outlined in the brief study of states above, there is noticeable discretion in state biohazard and medical waste regulation; thus, certain communities across the country have been impacted differ-

188. *See Are Environmental Regulations In Your State More Stringent Than Those Of The EPA?*, HAZARDOUS WASTE EXPERTS (Nov. 6, 2017), https://www.hazardouswasteexperts.com/environmental-regulations-more-stringent-than-epa/ (highlighting state discretion principle).

189. *Id.* (discussing states that are closer to federal floor); IOWA ADMIN. CODE R. 567-109.9(455B,455D) (West 2021) (imposing requirements on waste generators regarding how to handle waste). The phrase "federal floor" means that the federal regulations are the minimum statutory requirement; state courts and state legislatures can require higher standards but cannot go below the federal floor. *See generally* Marc L. Miller & Ronald F. Wright, *Leaky Floors: State Law Below Federal Constitutional Limits*, 50 ARIZ. L.REV. 227, 228 (2008) (defining meaning and significance of federal floor).

190. *See Special Waste Authorization (SWA)*, IOWA DNR, https://www.iowadnr.gov/environmental-protection/land-quality/solid-waste/special-waste-authorization (last visited July 1, 2022) (explaining Iowa must rely on federal programming).

191. For a discussion of federal biohazard waste requirements and regulations, see *supra* notes 114-41 and accompanying text.

192. *See Regulated Medical and Chemotherapeutic Waste*, PA. DEP'T ENV'T PROT., https://www.dep.pa.gov/Business/Land/Waste/SolidWaste/MunicipalWaste/Regulated-Medical-Chemotherapeutic-Waste/Pages/default.aspx (last visited Mar. 3, 2022) (explaining previous medical and chemotherapeutic waste regulations in Pennsylvania).

193. *Id.* (expanding on regulations in PA).

194. *See* 25 PA. CODE §§ 284.1-.734 (West 2022) (explaining presence of stringent codes).

ently by the COVID-19 pandemic by having a greater number of positive cases, higher fatalities, and more severe illness symptoms.[195] To this end, lower socioeconomic and minority populations have suffered the most from minimal medical and biohazard waste oversight.[196] As such, environmental justice has become a mounting issue during the COVID-19 pandemic.[197]

## V. ENVIRONMENTAL RACISM AND THE IMPACT OF COVID-19

Environmental racism is a pervasive and persistent problem throughout the United States.[198] In 1987, Rev. Dr. Benjamin Chavis first used the term "environmental racism" in his report on the disproportionate number of toxic waste site locations within communities of color compared to other neighborhoods.[199] Years later, environmental regulators and organizations closely examined the excessive amounts of pollution that were present in both low-income communities and communities of color.[200] These regulators and organizations found that ineffective environmental laws and government actions contributed to higher concentrations of waste in those same communities.[201]

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195. For a discussion of COVID-19's general impacts, see *supra* notes 1-10 and accompanying text.

196. For a discussion of the importance of environmental justice and the negative impact of inadequate regulatory oversight on minority and low-income communities, see *infra* notes 198-210 and accompanying text.

197. For a discussion of environmental justice, see *infra* notes 198-210 and accompanying text.

198. *See* Richard J. Lazarus & Libby Dimenstein, *Stewart's Paradoxes of Liberty, Integrity, and Fraternity: Sobering Lessons from COVID-19 for Environmental Law*, 29 N.Y.U. ENVTL. L.J. 543, 561 (2021) (describing problem of environmental racism). Studies have shown noticeable environmental burdens to racial and ethnic minority communities. *See generally* Kyra G. Bradley, Note, *Environmental Justice Class Action Rises Above the Rubbish: The Third Circuit Revives Common-Law Nuisance Remedies in* Baptiste v. Bethlehem Landfill Co., 32 VILL. ENVTL. L.J. 209, 209-10 (2021) (providing backdrop and explaining noticeable litigation in environmental justice movement). The health risks communities that live close to hazardous waste facilities face is a major environmental justice focal point. Dominique R. Shelton, *The Prevalent Exposure of Low Income and Minority Communities to Hazardous Materials: The Problem and How to Fix It*, 32 ASS'N, BEVERLY HILLS, CALIF. 1, 1 (1997) (highlighting harmful effects of prevalent exposure). There also have been growing movements to increase awareness surrounding environmental justice issues. *See* Sheila Foster, *Race(ial) Matters: The Quest for Environmental Justice*, 20 ECOLOGY L.Q. 721, 723 (1993) (mentioning quest for environmental justice awareness).

199. Lazarus & Dimenstein, *supra* note 198, at 561-62 (documenting history of environmental racism).

200. *Id.* at 562 (showing role of local organizers in environmental justice movement).

201. *Id.* (expressing findings of organizers).

In addition to environmental organizations, many public interest groups, academics, and local grassroots organizations helped catalyze the fight for environmental justice.[202] According to these groups, environmental justice means "all people and communities are entitled to equal protection of environmental, energy, health, employment, education, housing, transportation, and civil rights laws and regulation."[203] Today, more than ever, environmental justice is a major focal point in news and educational platforms.[204]

Along with these existing inequalities and disparities, the influx of COVID-19 related waste and the virus's constant uncertainty has exacerbated environmental justice issues.[205] Recent studies indicate severe COVID-19 symptoms and other negative impacts of the virus are closely associated with "race, class, and environmental disparities."[206] One Harvard research study found that individuals living in communities with high levels of fine, particulate matter air pollution are more likely to die from COVID-19 than those without this level of exposure.[207] Another study supported this finding and connected COVID-19 risks to redlining, a historic race-based exclusionary real estate tactic, which has targeted Brown and Black communities.[208] Given that low-income and minority communities

202. Robert D. Bullard, *Introduction: Environmental Justice-Once A Footnote, Now A Headline*, 45 HARV. ENVTL. L. REV. 243, 244 (2021) (outlining role of environmental organizations, public interest groups, academics, and grassroot organizers).

203. *Id.* (defining environmental justice).

204. *Id.* at 246-48 (highlighting importance of environmental justice today).

205. Lazarus & Dimenstein, *supra* note 198, at 563-64 (stating impact of COVID-19 on preexisting environmental disparities). Reportedly, many factors, such as "a history of discrimination, land-use planning, lack of access to healthcare, housing, and income inequality" are relevant to why communities of color disproportionately face COVID-19-related issues. Eli Woods, Article, *Environmental Racism in the Age of COVID-19*, 26 LOY. PUB. INT. L. REP. 94, 94 (2020) (outlining factors contributing to environmental racism).

206. Bullard, *supra* note 202, at 246 (mentioning important and relevant studies).

207. Xiao Wu, Rachel Nethery, M Benjamin Sabath, Danielle Braun & Francesca Dominici, *Air Pollution and COVID-19 Mortality in the United States: Strengths and Limitations of an Ecological Regression Analysis*, 6 SCI. ADVANCES 1, 1 (2020) (specifying findings of one study). As this Comment has alluded to, Black and Brown communities are significantly more at risk. *Id.* at 2 (noting disproportionate impact of environmental pollution). Recent studies have found links between breathing polluted air and the chances of being infected, experiencing severe symptoms, or dying of COVID-19. Allyson Chu, *Growing Evidence Links Air Pollution Exposure and COVID-19 Risk*, WASH. POST (May 13, 2022, 8:00 AM), https://www.washingtonpost.com/wellness/2022/05/13/air-pollution-covid-risk-death/ (pointing out link between air pollution and COVID-19 cases).

208. Jason Richardson et al., *Redlining and Neighborhood Health*, NAT'L CMTY. REINVESTMENT COAL. (2020), https://perma.cc/6BG8-ZG8H (showing confirmation of results by another study). Historically, housing policies and laws have segregated neighborhoods by race, which has resulted in poorer health conditions for

often live closer to waste management sites, the mass increase of COVID-19 waste has had a significant impact on these communities.[209] Significantly, the calls for racial justice during the 2020 Black Lives Matter Protests have given environmental justice a new and critical sense of urgency.[210]

## VI. EXPOSING THE LIMITATIONS OF FEDERALISM AND THE PRICE OF FAILED NATIONAL LEADERSHIP

COVID-19 clarified that environmental justice cannot be a "secondary objective of environmental law" and that the country needs stronger federal leadership to respond to catastrophes of this magnitude.[211] Currently, the federal government's biohazard and medical waste regulatory schemes are inadequate to respond to a pandemic; thus, state discretion has indeed played an important role.[212] Yet, varying levels of state waste regulations and discrepant responses to the COVID-19 pandemic demonstrate that federalism can hinder progress when collective decision-making is essential to help tackle environmental harm.[213]

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communities of color. Courtney Lauren Anderson, *Surviving Gentrification and Segregation*, 18 IND. HEALTH L. REV. 283, 283 (2021) (connecting segregation housing practices and negative health impacts).

209. Bullard, *supra* note 202, at 246-47 (2021) (noticing connection between proximity of waste treatment sites and human health during COVID-19); Ben Piven, *Black Lives Matter Protests Spotlight Environmental Racism*, AL JAZEERA (June 19, 2020), https://www.aljazeera.com/economy/2020/6/19/black-lives-matter-protests-spotlight-environmental-racism (examining connection between Black Lives Matter protests and environmental racism).

210. Bullard, *supra* note 202, at 248 (underscoring importance and role of Black Lives Matter protests). The police killing of George Floyd, a Black man in Minneapolis, Minnesota, as well as countless other examples of racism and police brutality catalyzed the Black Lives Matter movement. Ashley Westerman, *In 2020, Protests Spread Across The Globe With A Similar Message: Black Lives Matter*, NAT'L PUB. RADIO (Dec. 30, 2020, 5:04 AM), https://www.npr.org/2020/12/30/950053607/in-2020-protests-spread-across-the-globe-with-a-similar-message-black-lives-matt (documenting global impact of Black Lives Matter movement); Adelle Thomas & Rueanna Haynes, *Black Lives Matter: The Link Between Climate Change and Racial Justice*, CLIMATE ANALYTICS (June 22, 2020), https://climateanalytics.org/blog/2020/black-lives-matter-the-link-between-climate-change-and-racial-justice/ (stressing link between climate change and racial justice).

211. *Lazarus & Dimenstein*, *supra* note 198, at 563 (2021) (repeating importance of environmental justice in response to COVID-19).

212. *See generally id.* at 558 (acknowledging importance of federalism). Federalism is important because it allows states and the national government to share power and allows states certain levels of discretion to govern their jurisdictions. *Federalism*, PUB. BROAD. SERV., https://www.pbs.org/tpt/constitution-usa-peter-sagal/federalism/ (last visited June 22, 2022) (mentioning importance of federalism to avoid total federal control of states).

213. Lazarus & Dimenstein, *supra* note 198, at 545-46 (contrasting with limitations of federalism).

COVID-19 knows no borders or boundaries, which allows the virus and resulting pollution to spread from state to state.[214] In addition to the infectious virus, large increases in COVID-19 waste have created pollution spillover effects throughout the country.[215] Given the lack of uniformity across states and an unprepared and weak federal response, some states did and still do not have strong regulatory frameworks to handle sizable amounts of COVID-19 waste.[216] As past instances of environmental racism and redlining in the United States foreshadow, minority and low-income communities will continue to suffer significantly from the health and environmental impacts of COVID-19.[217]

Although the role of federal agencies in biohazard waste regulation must be strengthened to provide uniformity in catastrophic times, like the COVID-19 pandemic, this alone will not suffice to achieve a more environmentally-just future.[218] The United States' leadership must also play a more active and diligent role in implementing guidance.[219] Presidents, regardless of political affiliations, should commit to improving biohazard and medical waste disposal.[220] Further, although the EPA addresses environmental justice initiatives, the federal government should create either a new subagency within the EPA or an entirely new agency separate from the EPA to regulate biohazard disposal and prioritize environmental justice.[221] To learn from the failures of the COVID-19 response, it would be strategic to build up and invest in future planning.[222]

Despite the need for stronger federal leadership and increased federal medical and biohazard regulation, states still should main-

214. *See id.* (emphasizing spread of COVID-19).

215. *See id.* (noting spread of pollution from COVID-19).

216. *See id.* (underscoring issues of uniformity); *Incomplete Oversight of State Hazardous Waste Rule Authorization Creates Regulatory Gaps and Human Health and Environmental Risks*, U.S. ENV'T PROT. AGENCY (July 31, 2018), https://www.epa.gov/sites/default/files/2018-07/documents/_epaoig_20180731-18-p-0227_glance.pdf (mentioning gaps in national hazardous waste rules and its impact on environment and human health).

217. *See* Lazarus & Dimenstein, *supra* note 198, at 546 (asserting detriments to minority and low socioeconomic communities).

218. *See id.* (emphasizing limitation of federal government regulation and goal of environmentally just future).

219. *See id.* at 555 (acknowledging limitations within federal government).

220. For a discussion of the need for strong federal government leadership, see *infra* notes 221-22 and accompanying text.

221. *See Environmental Justice*, U.S. ENV'T PROT. AGENCY (Mar. 23, 2022), https://www.epa.gov/environmentaljustice (mentioning environmental justice is of EPA concern but not main focus).

222. For a discussion of recommendations, see *supra* notes 218-21 and accompanying text.

tain an active role in regulating medical and biohazard waste within their borders.[223] It is clear that some states, like California, have demonstrated their ability to respond efficiently to COVID-19 and act as national leaders.[224] In addition to California, other state and local governments, like Illinois, New York, Ohio, and Maryland, have played indispensable roles in addressing the global pandemic within their borders by quickly and efficiently issuing shelter-in-place orders.[225]

Additionally, the federal government does not possess the local knowledge that may be necessary to implement and enforce new waste regulations.[226] The difficulties associated with enforcing federal environmental programs could, however, be alleviated if federal officials required state officials to implement such programs.[227] Yet, despite certain constitutional concerns about a federal mandate, weak federal leadership is a significant contributing factor in the country's failure to address important environmental issues.[228] Thus, without a consistent message throughout different administrations, states have increasingly sought guidance from environmentally progressive states for inspiration and leadership.[229]

A key lesson from COVID-19 is that some problems require strong federal leadership because states cannot effectively address cross-border issues alone.[230] No single state could have slowed COVID-19's spread without cooperation from other neighboring states.[231] As previously stated, COVID-19 and COVID-19 waste have no respect for state borders.[232] In this regard, the least protected states affect the overall public health, welfare, and economic pros-

223. For a discussion of the importance of state discretion, see *infra* notes 224-26 and accompanying text.

224. *See* Lazarus & Dimenstein, *supra* note 198, at 558 (showing positive state discretion and leadership).

225. *See id.* at 546 (providing examples of positive state discretion through examples).

226. *See id.* at 555 (noting federal government limitations and, in contrast, strengths of states and local agencies).

227. *See* Richard B. Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1198 (1977) (bringing up consideration of federal mandate).

228. *See* Lazarus & Dimenstein, *supra* note 198, at 553 (expressing concern for weak federal government regulation).

229. *See id.* at 555 (exemplifying role of states as leaders).

230. *Id.* at 557 (asserting necessity of federal government leadership).

231. *Id.* at 557 (finding state limitations).

232. *Id.* (reemphasizing spread of COVID-19).

perity of all states.[233] With this widespread impact, vulnerable communities continue to suffer.[234]

COVID-19 massively exposed the limitations of federalism, the impact of failed national leadership, and weak federal regulations.[235] Thus, throughout the COVID-19 pandemic, it has become abundantly clear that states need more robust federal guidance.[236] Low-income communities and communities of color have disproportionately suffered harm as a result of disparities between biohazard waste and medical standards, which has noticeably reflected the disproportionate harm of the COVID-19 virus.[237]

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233. *See* Lazarus & Dimenstein, *supra* note 198, at 557 (showing how states impact other states).

234. Stewart, *supra* note 227, at 1250 (highlighting suffering of minority communities and low-income communities).

235. *See id.* at 1197 (summarizing COVID-19 revelations regarding national and state leadership).

236. *See* Lazarus & Dimenstein, *supra* note 198, at 547 (asserting state needs).

237. *See id.* at 564 (noting disparities and their continual impacts).

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