Advancing Environmental Health and Justice: A Call for Assessment and Oversight of Health Care Waste

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Abstract

Health care waste adversely affects society in ways that have been overlooked for decades, an issue that the COVID-19 pandemic has accelerated significantly. This policy statement addresses the human impacts that occur as health care waste is processed, transported, landfilled, or incinerated. With limited federal tracking and lack of regulation, patterns of environmental racism persist. Communities of color and low-income communities most often experience the greatest environmental health burdens through disposal of waste in their communities. Many communities have called for action for decades, as our massive health care industry contributes greatly to these harms. Centering these communities, public health professionals must advocate for (1) evidence-based federal policies with transparent, accessible data about health care waste generation, type, and fate; (2) leadership within the health care industry (e.g., from hospitals, accrediting bodies, and professional organizations) to address environmental health and justice issues related to waste; (3) health impact assessments, cost-benefit analyses, and circular economy research with health care systems and communities to identify cost-effective, feasible, and just solutions; and (4) federal initiatives to prioritize funding toward mitigation of cumulative exposures and impacts, reparation for harms, and investment in well-being for communities exposed to waste, health care or otherwise. Some public health experts anticipate that we may be entering a “pandemic age,” which suggests that, without intervention, intersecting issues of infectious disease, climate change, waste, and environmental health and justice will remain and reoccur.

Relationship to Existing APHA Policy Statements

- APHA Policy Statement 202116: Ensuring Equity in Transportation and Land Use Decisions to Promote Health and Well-Being in Metropolitan Areas
- APHA Policy Statement 20218: Call for Urgent Actions to Address Health Inequities in the U.S. Coronavirus Disease 2019 Pandemic and Response
- APHA Policy Statement 20197: Addressing Environmental Justice to Achieve Health Equity
- APHA Policy Statement 20189: Achieving Health Equity in the United States
Problem Statement

Health care waste refers to all waste related to medical procedures, including waste generated within health care facilities, laboratories, research centers, homes, communities, veterinary health care settings, and other minor sources.[1] This may entail waste from health care–related food systems; medical waste plastics (MWPs); pharmaceutical, chemical, radiological, or infectious agents; personal protective equipment (PPE); and human or animal tissues and remains, among other types. The United States health care industry generates an estimated 5 to 6 million tons of waste each year,[2] with 5 billion pounds (or about half) attributable to the nation’s nearly 6,100 private and public hospitals.[3,4] Beginning in 2020, the COVID-19 pandemic accelerated the production of most types of health care waste globally as a result of increased demands on the system from testing, vaccination, and treatment, as well as increases in single-use MWPs because of early concerns regarding SARS-CoV-2 transmission and infection.[5]

One type of health care waste, regulated medical waste (RMW), is not defined by federal U.S. policy but is generally considered “the portion of the waste stream that may be contaminated by blood, body fluids or other potentially infectious materials, thus posing a significant risk of transmitting infection.”[6] This includes microbiological laboratory waste, pathological and anatomical waste, blood specimens and products, and other body-fluid specimens, as well as vaccine sharps and vials. Approximately 75% to 90% of health care waste is nonhazardous, while 10% to 25% is infectious, toxic, or radioactive and considered RMW in the United States.[1,7] In the United States, RMW is typically autoclaved (i.e., sterilized with steam) (20%–37%) or incinerated (49%–60%), or sometimes other technologies are used to process it (4%–5%).[3] Large health care facilities treat much of their RMW on-site, but most rely on other companies to take it off-site.[3] By the end of 2021, RMW had increased at unprecedented rates with more than 8 billion SARS-CoV-2 vaccine doses given globally, resulting in an additional 144,000 tons of RMW from glass vials, syringes, needles, and safety boxes.[5] We must not lose sight of the
humanity underlying RMW, which includes bodily remains as well. At the onset of the pandemic in 2020, with an overwhelming number of lives lost to SARS-CoV-2, management of RMW entailed disaster morgues and mass graves in the United States and across the planet.[8,9]

Health care waste poses many threats to public health, including from excessive production and disposal of petroleum-based single-use MWPs, unsustainable waste management practices that contribute to climate change (e.g., failure to adequately segregate RMW from nonhazardous waste), and inequities associated with transport and siting of health care waste that disproportionately harm communities of color and low-income communities, both urban and rural, that are situated near waste streams. Of course, the exposure scenarios and environmental risk factors for these related issues vary greatly, and multiple and coordinated policy solutions are needed to improve oversight toward health equity. To begin, this policy statement focuses on common types of health care waste, including single-use MWPs and RMW from U.S. hospital settings, that contribute to notable health inequities downstream. (Note that health care waste generated in households is beyond the scope of this policy statement.)

Health care waste management standards, regulations, and guidance: In the United States, a variety of agencies have responsibilities for health care waste management, as follows.

- The Environmental Protection Agency (EPA) oversees waste management through the Resource Conservation and Recovery Act (RCRA), which provides a legal framework for management of both hazardous and nonhazardous solid waste, and much of the general health care waste stream makes its way to RCRA-managed waste facilities.[10]

- The Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC) provide rules and guidance for discarding RMW, and facilities that generate this type of waste are required to have a medical waste management plan to prevent infection.[11–13] OSHA has additional responsibilities over workplace safety for those managing waste.[11] The CDC is responsible for infectious disease management of waste.[12,13] The Department of Transportation, the Department of Veterans Affairs, the Department of Agriculture, the Federal Emergency Management Agency, and other agencies have their own regulations or guidelines that point to CDC and OSHA rules.

- Also, with the CDC, OSHA, the Department of Agriculture, and the Federal Emergency Management Agency, the Department of Transportation enforces hazardous materials regulations with requirements for transport of RMW, as workers and communities may be at risk if problems occur in transit. Motivated by cases of Ebola in the United States in 2014 and 2015, the Department of Transportation developed stronger protections for “Class A” materials, which
are defined as those “known or reasonably expected to contain a pathogen that is in a form capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals who are exposed to it.”[14,15]

These and many other federal protections are in place, and they are primarily designed to reduce transmission of infection through worker protection.

Ultimately, there are no federal regulations for tracking health care waste, making it difficult to identify which and how much communities are disproportionately burdened with any associated environmental exposures. The Medical Waste Tracking Act (MWTA) of 1988 followed the RCRA’s “cradle-to-grave” approach to waste regulation wherein the EPA specifically tracked RMW from generation to disposal.[16] Motivated by several incidents of health care waste washing ashore in waterways and oceans in the late 1980s, it mandated enforceable standards (i.e., standards with penalties) for separating, packing, storing, and labeling RMW with recordkeeping of the amounts and types generated. However, the MWTA was implemented in only a handful of states and expired after 2 years.[17]

In 1990, Congress commissioned a report by the Government Accountability Office (GAO) to assess “1) selected states’ infectious medical waste regulatory programs; and (2) the status of the [EPA’s] implementation of the Medical Waste Tracking Act.”[18] The report yielded six recommendations for the EPA to reconsider various health waste management practices; five of the six recommendations were considered “closed and not implemented,” and it was stated that the “EPA does not anticipate having a regulatory role in medical waste management,”[18] without any indication of which agencies should have this responsibility.

The EPA did address one of the 1990 GAO recommendations by developing the Clean Air Act’s Hospital Medical Infectious Waste Incinerator Standards.[16] The EPA considers impacts on communities where health care waste is incinerated by regulating emissions through these standards. More than 90% of U.S. health care waste was incinerated prior to 1997 and the implementation of these standards,[16] a process that may contribute to ambient air pollution as a major source of dioxins, furans, and particulate matter.[7]

Most states have developed laws pertaining to RMW (some patterned after the MWTA), and these laws vary in their stringency, definition of RMW, and requirements. For example, some states require registration for medical waste generators, but most do not. Some states set time frames for how long
RMW can be stored before disposal, and others do not. A federal repository of state laws does not exist, but the Healthcare Environmental Resource Center does have a map endorsed by the EPA that links to each state’s RMW policies (although some are outdated).[19] Similarly, many health care waste industry Web sites (e.g., PureWay, SharpsCompliance Inc.) have links to each state’s related policies to support hospital administrators who use their services to maintain compliance within and across states. The Model Guidelines for State Medical Waste Management, commissioned and funded by the EPA and prepared by the Council of State Governments, can be found on the EPA Web site,[20] but these guidelines were published in 1990 and thus do not reflect current trends in science, policy, or technology.

Relatedly, there is no limit on transporting health care waste from a state with more stringent regulations to one with more lax regulations,[21] which may lead some states and municipalities to take on more waste in exchange for economic revenue. Historically, this has generally meant that a large portion of waste is placed in communities that are already overburdened with incinerators, landfills, or other cumulative environmental risks, where cheaper land and fewer regulations perpetuate disproportionate impacts.[22–25] U.S. environmental protections, including the Clean Air Act’s Hospital Medical Infectious Waste Incinerator Standards, have long failed to account for these cumulative impacts.[26]

Producing and managing single-use and medical waste plastics: The health care industry generates large amounts of MWP, and many medical equipment (e.g., tubing, blood sample tubes), and PPE (e.g., gloves, N95 masks, plastic face shields, Class II surgical gowns) items are designed to be disposable.[27–31] In addition to generation of more single-use PPE and municipal solid waste (MSW) during the COVID-19 pandemic, disposable nonprescription “over-the-counter” antibody and diagnostic tests have become a part of life for millions and may be increasingly available during future infectious disease outbreaks.[32] Although these single-use and MWP items help sustain life, are often mandated, and protect the health care workforce from contracting infections such as SARS-CoV-2, they can also harm human life with major environmental health and justice implications. To begin, industry manufacturers at the front end, and incinerators and landfills on the back end, carry the burden of related pollution emissions and discharges, unsafe noise, and harmful odors that reduce quality of life in significant ways. Also, with the ongoing increases in single-use plastics and MWP, manufactured using fossil fuels, there are more carbon dioxide and methane emissions, leading to further climate disruption.

Some single-use plastics and MWP are RMW, but many are not. In the late 2000s and early 2010s, several studies began to outline related issues of inadequate waste segregation. The authors of one
systematic review reported that up to 90% of “red bag waste” (i.e., RMW) was not hazardous or infectious.\cite{33} Other researchers reported that 40% of operating room waste was simply nonhazardous packing material and that up to 60% of operating room waste was recyclable.\cite{34} According to Healthcare without Harm, these activities are responsible for producing about one third of waste in healthcare settings with operating rooms in the United States, and two thirds of that waste is considered RMW.\cite{35} In 2019, a survey across four Mayo Clinic campuses revealed that 57% of the 524 participating operating room staff members and clinicians were unclear on which items were recyclable.\cite{34} In fact, studies suggest that as much as 80% of waste is uncontaminated and accumulated prior to a patient entering the operating room and could be directed toward nonhazardous waste or recycling streams.\cite{36,37} However, the World Health Organization reports that 3 of 10 health care facilities globally do not have the infrastructure to segregate waste.\cite{5} Furthermore, during the COVID-19 pandemic, many health care facilities considered all health care waste infectious and deemed it RMW even though much was not—as we have since learned the primary transmission route is airborne rather than dermal.\cite{38}

Assessing health care waste streams and public health impacts as a matter of environmental racism: For generations, environmental racism has underlain the general management and siting of waste in the United States and the shipping of waste to lower-income nations.\cite{22–25,39} In 1979, a group of Black homeowners in Houston, Texas, formed the Northeast Community Action Group and used legal tactics to cease the placement of a sanitary landfill in their neighborhood. Although their lawsuit, Bean v. Southwestern Waste Management, Inc., failed to stop development of the landfill, it raised awareness about the potential health effects of waste management and siting. In 1982, protests further galvanized the environmental justice movement when residents of Warren County, North Carolina, fought back against the dumping of 60,000 tons of soil contaminated with polychlorinated biphenyls in their community. The United Church of Christ led a historic analysis in 1987, with a follow-up conducted in 2007.\cite{22,23} These reports confirmed that race predicted hazardous waste siting in the United States above and beyond one’s income. As of 2019, there were 73 municipal solid waste incinerators in the United States, and 79% of them were located in low-income communities or communities of color.\cite{39} In Michigan, for example, six of the state’s eight hazardous waste facilities are located in Wayne County, a majority-Black county in one of the most segregated regions in the nation, with nearly 70% of this waste coming from outside the state.\cite{40}
Much health care waste from U.S. hospital and clinical settings is moved off-site and, thus, contributes to exposures and impacts among those living near incinerators and landfills in both urban and rural communities. Rather than health equity, waste facility siting and expansion decisions have often been determined by the availability of affordable land, which then perpetuates co-location of environmental exposures through a system of environmental racism.[22,25] A systematic review of studies published between 2002 and 2017 on the health impacts of waste incineration identified 61 papers reporting on adverse outcomes.[41] This included 34 papers reporting exposure to elevated levels of known pollutants, with nine papers for each of the following outcomes: increased risk of developing neoplasia, correlation with adverse reproductive outcomes, and links to hypertension, reduced lung function, and other diseases.[41] Another systematic review led to close examination of 29 studies assessing health effects associated with proximity to landfills, incinerators, and dump sites/open burning sites.[42] The authors of the review found that residing near landfills was associated with increased risks of mortality, respiratory diseases, and negative mental health effects and that living near any type of MSW site was associated with an increased risk of adverse birth and neonatal outcomes. However, there has not always been extensive evidence, and major gaps in the scientific literature remain. Data on RMW and overall health care waste amounts, types, and fate could help us to better understand and address the health care industry’s contributions to environmental injustice.

The role of medical and public health professionals is relevant in addressing health care waste as an issue of health equity. Increasingly, medical and other health professional programs are integrating climate change into curricula, and some are beginning to acknowledge waste as a contributor.[43] The Association for Medical Education in Europe, the American Medical Association, the Australian Medical Association, and the World Medical Association have all called on medical professionals to recognize their role in addressing the climate crisis.[44] Yet, few appear to explicitly recognize climate or environmental justice implications of our health care systems in policy and position statements. The U.S. Call to Action on Climate, Health, and Equity: A Policy Action Agenda, with signatories including APHA, the Academic Pediatric Association, Physicians for Social Responsibility, and the American Medical Student Association, as well as nearly 100 other health-affiliated organizations, does draw particular attention to environmental justice.[45] Additional attention to health care waste will further help to achieve these goals. The environmental standards of The Joint Commission, the accrediting body for health care organizations, focus on ensuring safe handling of RMW with no attention to where that waste eventually goes.[46] These standards have substantial reach as they apply to approximately 78% of
U.S. hospitals.[47] Ultimately, medical communities have not fully recognized the need for assessment and oversight of health care waste to achieve health equity.

Evidence-Based Strategies to Address the Problem

Ongoing improvements to procurement and waste management in hospitals and other large clinical settings could help to reduce production of petroleum-based single-use MWPs and alleviate harmful downstream incineration and landfill practices that disproportionately affect low-income communities and communities of color in the United States. Leading organizations such as Healthcare without Harm and Practice Greenhealth have long advocated for reductions with frameworks such as “rethink, reduce, reuse, recycle, dispose,”[35] and specific evidence-based strategies continue to emerge that make it possible to move away from “dispose” and toward “rethink” and “reduce.” For example, the Ronald Reagan UCLA Medical Center piloted a switch from single-use to reusable surgical gowns, which are ultimately thicker, offer more protection against infectious disease transmission, and diverted 297 tons of waste from landfills between 2011 and 2015.[48] Today, reusable surgical gowns are increasingly used in health care settings but are still not commonplace.[48] The World Health Organization’s 2022 report “Global Analysis of Healthcare Waste in the Context of COVID-19” spells out the following strategies for reducing PPE-related waste that hospitals are piloting across the world: compostable face masks, recycling of surgical masks, and repurposing of used medical masks as construction materials.[5] Also, several autoclaving techniques allow hospitals to treat RMW on-site, avoiding community transmission during handling, enabling it to be handled as MSW rather than RMW, and reducing overall waste weight.[49] Of course, many waste reduction approaches are already routine in health care settings, such as small color-coded and labeled medical waste containers to avoid mixing of waste types.

Many large hospitals have sustainability coordinators, committees, offices, or senior leadership focused on environmental programming, or they hold memberships with organizations providing technical assistance, communities of practice, and inspiration, such as Practice Greenhealth.[50] This work may or may not emphasize waste issues. Some major health care systems are leading the way by addressing waste through increased sustainability, carbon neutrality, or Leadership in Energy and Environmental Design certification planning processes, entailing large-scale organizational shifts. Kaiser Permanente has a history of leadership focused on environmental stewardship, and it has launched various recycling and environmental procurement programs to meet the goal of carbon neutrality set in 2016.[51] As part of this plan, the organization set a goal of recycling, reusing, or composting 100% of its nonhazardous and
nonmedical waste by 2025. In 2020, Kaiser Permanente reported collecting 400 tons of medical devices for reprocessing and more than 45,900 tons of waste for recycling, reuse, or composting.

Furthermore, there are economic incentives that may support the health care industry toward improved waste reduction. More than a decade ago, the Commonwealth Fund studied hospital programs that centered energy conservation and waste reduction and estimated that, if expanded to all U.S. hospitals, the programs could save the health care system $15 billion over 10 years.[52] Practice Greenhealth conducted a survey of 331 hospitals and found that initiatives to reduce waste in operating room facilities saved them $100,000, on average, and nearly $72.4 million overall in 2019.[53] Representing nearly 20% of the U.S. gross domestic product, the health care industry has purchasing power to shift industry practices, and environmentally preferable purchasing programs have long been effective in decreasing costs while reducing waste.[54] The Healthcare Environmental Resource Center informs hospitals that if RMW is more than 15% of their total waste, there is likely much room for cost savings given that hospitals may pay up to 10 times the cost to process RMW relative to their solid waste.[55] Additional cost-benefit analyses, circular economy studies (i.e., how to design for durability, reuse, remanufacturing, and recycling), and health impact assessments may help to inform administrative and financial decision making at varying scales.

Even with increasing options for sustainable practices, massive amounts of health care waste will remain a global reality and a likely threat to environmental health and justice given historic patterns. To truly address downstream environmental impacts of health care, some governments recognize the need to track and report environmental metrics by health care systems, sometimes including waste-related metrics. In a cohort study of 49 large U.S. health care organizations, Senay and Landrigan found that the health care delivery sector has long lagged in sustainability reporting relative to other U.S. sectors.[56] In addition, Hensher and McGain note that while some U.S. health care organizations are leading in environmental stewardship (e.g., Kaiser Permanente), most fall short in moving beyond basic corporate social responsibility and climate risk disclosure reporting.[57] Hensher and McGain direct readers to a potential model: the England National Health System’s Sustainable Health Dashboard. This dashboard “provides performance data for every NHS provider, clinical commissioning group, and region in England on a range of indicators in the domains of governance; carbon; resources, water, and waste; air pollution; plastics; and adaptation.”[58] Although less comprehensive than the National Health System, many other countries or provincial and state governments also make efforts to generate the data needed to make evidence-based health care waste management decisions. For instance, in Victoria, Australia, state
government funding policy mandates that all public health services report specific environmental impact 
measures annually, including energy use, greenhouse gas emissions, water use, and waste generation.[59]

Although the U.S. health care system is radically different than the systems in most other nations, similar 
federal reporting policies could be designed, and they could also be an opportunity to consider and 
develop strategies to alleviate environmental injustice impacts. For instance, we saw the Affordable Care 
Act call on nonprofit, tax-exempt hospitals to begin assessing and addressing social determinants of 
health in the communities they serve through required community health needs assessments 
(CHNAs).[60] Some scholars have seen CHNAs as a missed opportunity for addressing environmental 
issues and preparing for climate change. CHNAs may not currently be the appropriate mechanism for 
assessing health care waste impacts, as they are designed to focus on the community defined by 
geographic area and target populations served.[60] If health care waste is sent across state lines, for 
instance, this would be beyond a CHNA’s required scope, but requirements could be extended to account 
for this issue. Of course, many federal policies exist whereby, with EPA oversight, states are charged with 
managing industry regulation, data collection, and enforcement to uphold the Clean Air Act, Clean Water 
Act, and RCRA, for instance. Although these policies have failed in many ways to address environmental 
justice, new policies are under consideration that may be relevant, such as Justice40, designed to ensure 
that “40 percent of the overall benefits of certain Federal investments flow to disadvantaged communities 
that are marginalized, underserved, and overburdened by pollution.”[61] Through these policies, large 
amounts of data are made publicly available via databases such as EJScreen and the Climate and 
Economic Justice Screening Tool. In the United States, we have evidence that policies and tracking tools 
are possible and could be helpful in documenting and addressing health care waste in efforts to curb 
environmental injustice.

Opposing Arguments/Evidence

Admittedly, many of these evidence-based solutions for waste reduction have tradeoffs. For instance, in 
efforts to reduce RMW, health care facilities must balance the benefits and costs of using large amounts 
of chemical disinfectants that may have environmental health implications.[62] Many strategies must be 
approved by leadership or accrediting bodies as cost-effective, and they may raise liability issues when 
shifting from single use toward reuse of materials such as PPE.[63] Recycling, rather than disposal, may 
still have major implications for global environmental health and justice associated with its transport, 
processing, and siting given that U.S. waste is often transferred to other countries.[64] As Wyssusek 
explains, “until recently a significant portion of the world’s recycled plastic, paper and scrap metal have
been exported to China. Up to 70% of the world’s plastic waste alone was exported to China and Hong Kong in 2016. [65] However, recently China has put a ban on such waste imports causing a global panic around where else to divert the increasing volumes of recyclable waste, raising the question of sustainability of recycling after all.” [66] Sustainability efforts toward environmental justice cannot be abandoned, however; research that considers the health impacts of these decisions holistically, alongside costs and benefits, is needed to inform programs and policies.

Given that health care in the United States is largely private, and thus profit oriented, many industry leaders may argue that the costs of shifting toward environmentally just practices are too high. Small health care systems, especially those serving rural communities and providing care to uninsured populations, may not be able to implement major environmental changes because of cost or lack of expertise. Increased costs for meeting new recycling, segregation, or handling requirements or shifting to new purchasing models may lead health care providers to shift added costs to patients. Evidence suggests that this does not need to be the case. Decreasing RMW through improved segregation can mean fewer processing costs and air emissions. [49] Many cost-saving programs do exist, and they illustrate that it may not be necessary to increase the already high costs of health care for patients. [49]

Opponents may also suggest that data on the disproportionate adverse health impacts of health care waste on communities of color and low-income communities are inconclusive as there is not a national system to track the transport and disposal (landfill or incineration) of health care waste, specifically RMW. Of the 73 MSW incinerators operating in the United States, 79% are located in communities of color and low-income communities, and more than half (44 and 48, respectively) are located in communities where the population is at least 25% people of color and 25% of the population is living below the federal poverty line. [39] For decades, countless studies have shown similar inequitable siting patterns for landfills and hazardous waste sites, suggesting that these patterns have held steady or worsened. [21–25] Also, we know that communities surrounding landfills and incinerators experience adverse health effects. [41,42] Federal policy has never truly confronted the environmental racism embedded in waste management—health care or otherwise.

Action Steps
Because health care waste in the United States is a matter of environmental health and justice, a coordinated policy effort is needed. As noted, public health experts anticipate that we may be entering a “pandemic age,” [67] and thus intersecting issues of infectious disease, health care waste management,
and climate change require assessment and policy intervention. APHA offers the following recommendations:

1. Federal lawmakers must increase oversight of health care waste given that current state-by-state policies likely perpetuate environmental justice issues. To begin, Congress should hold hearings and call for a GAO report to outline challenges and opportunities for environmental protections with respect to health care waste, including a much-needed comparative, evaluative scan of existing state-by-state policies.

2. On the basis of lessons learned from other federal policies and state management of health care waste, Congress should establish new policies after completing the GAO report. This could entail, for instance, an updated version of the Medical Waste Tracking Act of 1988, an amendment to the RCRA, and/or new requirements within the Affordable Care Act’s CHNA process to address health care waste. Policy is needed to delineate federal definitions of RMW and call on the EPA to establish a tracking system to easily understand who is transporting health care waste (RMW and MSW) within and across state lines, U.S. territories, and tribal lands and out of the United States. The EPA should make health care waste tracking data available in tools including EJScreen and the Climate and Economic Justice Screening Tool. This would allow communities, agencies, and scholars to understand the social, economic, and health implications of this waste and inform and compel strategies to address disparities.

3. Federal or state lawmakers should establish policies that require health care systems to prioritize environmental health and justice through adequate staffing, resources, training, and capacity for sustainability initiatives that reduce health care waste and propose solutions from generation and segregation to siting. Policies should also include protections for workers who handle health care waste.

4. The EPA should revisit the Model Guidelines for State Medical Waste Management and generate updated guidelines based on lessons from state policies and evidence of cost-effective sustainability programs that have emerged over the past several decades with intentional consideration of the environmental justice impacts of health care waste. Technical assistance or grant opportunities offered by the agency could better help to continually identify and improve upon such models. In doing so, the EPA should consult with diverse stakeholders within the health care and waste industry, state agencies, and the environmental justice movement.

5. The Joint Commission should extend its environmental standards for site accreditation by requiring waste audits to assess the type, amount, and fate of health care waste for each facility. Site
accreditation should also include review of protection measures in place for workers who handle health care waste.

6. With increased integration of climate change–related curricula in medical and other health professional training programs, as well as a move from leading health-related professional associations to call on their members to act on climate change, instructors in clinical training programs must more explicitly acknowledge local and global climate and environmental justice to increase awareness across the health care workforce of waste issues in a deepened commitment to doing no harm.

7. Scholars should conduct health impact assessments, cost-benefit analyses, and circular economy research with health care systems and communities to identify cost-effective, feasible solutions to reducing use of single-use plastics and MWPs and moving toward environmentally preferred purchasing. These studies could assess environmental justice impacts related to different waste management strategies (e.g., sterilization and reuse, on-site sterilization before landfilling, incineration) or the potential economic and environmental health impacts of closing landfills or incinerators. In addition, they could account for health care tradeoffs (e.g., infection risks, unintended effects of recycling processes, elevated costs), as well as downstream impacts of health care waste, and consider metrics relevant to fenceline communities in the United States and beyond.

8. Finally, reduction of health care waste and increased tracking alone will not fully eliminate the long-standing burden of waste (health care and otherwise) in low-income communities and communities of color in the United States. Federal initiatives designed to address environmental racism, such as Justice40, must prioritize funding toward mitigation of cumulative exposures and impacts, reparation for harms, and investment in amenities to support well-being in communities exposed to various waste management practices.

References


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