1 **Protecting the Health and Safety of Workers Who Respond to Disasters: Achieving Equity**

2 **Through Education and Training**

3 **Policy Date:** October 29, 2024

4 **Policy Number:** 20246

5 Abstract

6 Workers who respond to disasters are disproportionately at risk of injury, illness, and death,

7 resulting in devastating effects on communities. This policy statement aims to address the health

8 and safety concerns workers face in disaster response and clean-up scenarios and underscores the

9 need for equity, resilience, and capacity building through education and training. Opportunities

10 to strengthen local, state, and federal responses to disasters are needed to ensure the equitable

11 protection of workers across all occupations and backgrounds. Public health professionals must

12 advocate for (1) the establishment of protocols for the proper enforcement of policies and

13 programs related to the health and safety of disaster workers; (2) the provision of high-quality

14 and effective health and safety training to disaster workers, including mental health curricula;

15 and (3) the adoption of a systematic approach to training that includes resources to prepare

16 workers for risks in all stages of disaster preparedness, response, and recovery. The inclusion of

17 all people affected in the impacted communities will ultimately benefit the broader public health.

18 Key words: disaster response, occupational health and safety, training

19 Relationship to Existing APHA Policy Statements

20 • APHA Policy Statement 20223: Support Decent Work for All as a Public Health Goal in
21 the United States

22 • APHA Policy Statement 20175: Ensuring Language Justice in Occupational Safety and
23 Health Training

24 • APHA Policy Statement 20158: Preventing Occupational Transmission of Globally
25 Emerging Infectious Disease Threats

26 • APHA Policy Statement 20157: Public Health Opportunities to Address the Health
27 Effects of Climate Change

28 • APHA Policy Statement 20148: Ensuring Workplace Protections for Temporary Workers

29   •   APHA Policy Statement 20138: Support for Workplace Injury and Illness Prevention

30   Programs

31   •   APHA Policy Statement 20105: Prioritizing Cleanup of the Hanford Nuclear Reservation

32   to Protect the Public's Health

33   •   APHA Policy Statement 20091: Support for Community Health Workers to Increase

34   Health Access and Reduce Health Inequities

35   •   APHA Policy Statement 20078: Addressing the Urgent Threat of Global Climate Change

36   to Public Health and the Environment

37   •   APHA Policy Statement 20069: Response to Disasters: Protection of Rescue and

38   Recovery Workers, Volunteers, and Residents Responding to Disasters

39   •   APHA Policy Statement 20061: Addressing the Needs of Immigrants in Response to

40   Natural and Human-Made Disasters in the United States

41   •   APHA Policy Statement 20054: Occupational Health and Safety Protections for

42   Immigrant Workers

43

44   Problem Statement

45 The Federal Emergency Management Agency (FEMA) defines a disaster as "[a]n occurrence of a

46 natural catastrophe, technological accident, or human-caused event that has resulted in severe

47 property damage, deaths, and/or multiple injuries."[1] The September 11 terrorist attacks on the

48 World Trade Center (WTC) and the distribution of anthrax in the U.S. postal system in 2001

49 highlighted the urgency to integrate emergency preparedness and response with occupational

50 safety and health and the need to protect disaster workers, defined as "those who are formally

51 employed or volunteer during response and recovery efforts." Disaster workers were found to be

52 at increased risk of negative physical and mental health outcomes after the WTC disaster. WTC

53 response and clean-up workers paid a high price in mortality and morbidity from hazards related

54 to, among others, concrete, gypsum, fibrous glass, asbestos, particulate matter, and cellulose.[2]

55 A 15-year follow-up study of WTC rescue and recovery workers demonstrated that responding

56 within the first week of the disaster was associated with a 30% to 50% higher risk of heart

57 disease mortality, smoking-related mortality, and all-cause mortality among nonfirefighters and

58 non–general responder cohorts.[3]

59

60 Complex risk environment and health impacts: Since the WTC events, the environmental risks

61 and conditions workers face in response to disasters and subsequent clean-ups have continued to

62 evolve in complexity. Disasters may be naturally occurring, such as hurricanes, earthquakes, and

63 tornadoes, or human made, such as those involving chemical hazards, nuclear hazards, or

64 biohazards. In addition, climate change has increased the number and severity of climate-related

65 disasters. Thus, emphasis should be placed on preparing for disasters, particularly those now

66 present in regions where such instances were historically limited or nonexistent.[4] According to

67 the National Centers for Environmental Information, the annual average number of billion-dollar

68 disasters has increased from three in the 1980s to more than 100 such incidents every year.[5]

69 With the increasing frequency and severity of extreme weather events, disaster workers—who

70 have the dual role of living and working in the affected communities—are most vulnerable to

71 secondary hazards.[6,7] For example, hurricanes have resulted in downed power lines as well as

72 poorly ventilated areas, increasing the risk of exposure to volatile organic compounds and to

73 sewage that can cause infectious illnesses.[8,9] Subsequent clean-up activities can generate toxic

74 dust, and direct contact with mold can cause severe, long-term, and sometimes irreversible

75 damage to workers' health.[8–10] Response and recovery efforts to disasters such as the

76 Deepwater Horizon oil spill and the WTC attacks resulted in respiratory, hematological, and

77 hepatic function abnormalities among first responders and clean-up workers.[8,10] Furthermore,

78 some workers face additional barriers such as lack of knowledge and skills in properly donning

79 and doffing personal protective equipment (PPE). Similarly, organizational-level factors can

80 impede worker safety during response and recovery (e.g., availability of and access to

81 appropriate PPE). Taken together, these challenges add to the complexity of disasters. [11,12]

82

83 Increasingly, initial disaster response and clean up relies on community members and volunteers.

84 This may include construction, landscaping, and renovation firms; out-of-state workers who

85 temporarily relocate to the area; local volunteers; and those deployed from other regions.[13,14]

86 Thus, many disaster volunteers may not be familiar with local policies, availability of PPE, and

87 just-in-time (JIT) training opportunities.[14,15] In a study exploring the utility and risk

88 associated with spontaneous volunteers, it was reported that 62% of organizations had used such

89 volunteers in response activities; however, fewer than 20% consistently checked volunteers'

90 credentials or performed employment/licensure verification and background checks.[12] This

91 finding highlights lack of training, health and safety, liability, and alignment of expectations as

92 the top challenges in using volunteers in response and recovery; yet, nongovernmental voluntary

93 disaster response organizations may not be structured to incorporate volunteers, evaluate their

94 competencies, and manage their training gaps effectively.[16]

95

96 Likewise, disaster work has been known to adversely affect an individual's mental health.[17]

97 Disaster workers may experience injuries firsthand or experience secondary trauma, such as

98 witnessing an affected community's physical destruction and emotional distress.[18] Job stress

99 may also impact disaster workers' interpersonal relationships, with spouses often assuming a

100 supportive role, frequently at the expense of their own comfort and well-being.[19] Furthermore,

101 due to work assignments, workers may experience stress caused by long separations from their

102 social support systems.[20] For example, a 2023 Substance Abuse and Mental Health Services

103 Administration (SAMHSA) research bulletin highlighted the behavioral health effects of

104 disasters.[21] While rates of postdisaster posttraumatic stress disorder (PTSD) varied depending

105 on the type of event, PTSD can have prolonged effects. Approximately 30% of disaster survivors

106 will also experience major depressive disorder.[21] It is important to note, however, that despite

107 increasing attention to mental health in recent years, the incidence of diagnosed PTSD,

108 depression and anxiety disorders, substance use disorders, and self-harm may be unknown as a

109 result of fragmented health care access and follow-up among disaster workers.[18,19,22]

110

111 Vulnerable worker populations: In addition to numerous safety and health hazards, disaster

112 workers may face occupational health disparities. The National Institute for Occupational Safety

113 and Health (NIOSH) defines occupational health disparities as "avoidable differences in work-

114 related disease incidence, mental illness, or morbidity and mortality that are closely linked with

115 social, economic, and/or environmental disadvantage such as work arrangements,

116 sociodemographic characteristics, and organizational factors." [23]

117

118 Exploitative working and living conditions among clean-up workers are common. A study of day

119 laborers revealed that immigrant workers were on the frontlines to assist residents and business

120 owners. These day laborers served as a "just-in-time workforce of 'second responders'" to take

121 on laborious and hazardous work such as debris removal, structure demolition, and building

122 remediation.[24] Employers may hire non–English-speaking workers to avoid complying with

123 occupational safety and health conditions and standard employment terms.[25] Wages can be

124 low, even below the legal minimum, and workers can face intimidation and retaliation (e.g.,

125 termination, deportation) when voicing concerns about dangerous working or living

126 conditions.[26]

127

128 Our efforts must underscore our commitment to delivering the best available services, training,

129 and prevention strategies as part of an all-hazards approach, especially for historically excluded

130 and vulnerable populations. The all-hazards approach is an integrated system that emphasizes

131 commonalities among the full spectrum of emergencies and disasters, rather than a specific type

132 of hazard, in planning for preparedness, response, and recovery. In this way, capabilities and

133 capacities for a broad array of hazards can be developed for specific locations, including the

134 most vulnerable communities.[27] These resources should be directed to those who may reside in

135 the most at-risk environments, including communities in flood-prone areas or in proximity to

136 manufacturing facilities or hazardous waste sites. Black, indigenous, and people of color

137 (BIPOC) communities, as well as other disadvantaged communities, face systemic inequities

138 (e.g., inequities related to the built environment, infrastructure, and environmental exposures)

139 and are disproportionately affected by climate change, disasters, and actions that impede

140 equity.[28] Consequently, individuals residing in these communities are prone to facing the

141 repetitive burden of exposure to adverse health, social, and economic impacts of disasters that

142 place their communities, disaster workers, and volunteers at peril.[29] Ensuring the protection of

143 disaster workers involves inclusive training, hazard and risk assessments, provision of

144 appropriate PPE, and injury and health surveillance.[30]

145

146 Current policies and standards: NIOSH and the Occupational Safety and Health Administration

147 (OSHA) provide guidance, recommended practices, and resources for worker safety and health

148 (WSH) issues at the federal level. However, only OSHA has the authority to enforce standards

149 employers must comply with to protect WSH.

150

151 OSHA's Hazardous Waste Operations and Emergency Response standard (HAZWOPER) is

152 designed to protect workers involved in hazardous waste operations and emergency response

153 activities.[31] The standard applies to scenarios including clean-up operations at uncontrolled

154 hazardous waste sites; operations involving hazardous waste at treatment, storage, and disposal

155 facilities; and emergency response operations for hazardous substance releases. A site-specific

156 health and safety plan, training and refreshers for site workers, PPE tailored to specific hazards,

157 and a comprehensive emergency response plan are key components of HAZWOPER

158 compliance. In addition, medical exams and consultations are required for employees exposed to

159 hazardous substances above certain thresholds for significant periods. However, HAZWOPER

160 does not cover all local or governmental workplaces, and only 29 states have OSHA-approved

161 state plans that protect local and government workers. Volunteers who are not covered by OSHA

162 may be covered by the state plans. In such situations, the U.S. Environmental Protection

163 Agency's HAZWOPER regulations cover compensated and uncompensated (volunteer) workers

164 engaged in HAZWOPER operations.[32]

165

166 The HAZWOPER standard is the basis as well for the National Institute of Environmental Health

167 Sciences (NIEHS) Worker Training Program (WTP), which has been applied in numerous

168 disaster and hurricane clean-up operations to protect WSH since the implementation of

169 HAZWOPER in 1990.[33] NIEHS also publishes guidelines and materials to protect clean-up

170 workers from debris, mold, oil spills, and other hazardous materials.[34]

171

172 There are, however, inadequacies in the current training and regulatory framework for

173 emergency responders, highlighting the need for comprehensive, up-to-date standards that

174 address the full range of hazards and their respective training, equipment, and technology

175 support.[30] Older standards may not reflect the latest knowledge, technology, and practices in

176 emergency response and may be outdated in addressing contemporary hazards and

177 challenges.[35,36] For instance, OSHA Fire Brigades Standard 29 CFR 1910.156 (1980)

178 established requirements for the organization and training of and equipment for fire brigades,

179 which are groups of employees organized to respond to fires and other emergencies.[37] To

180 address some of these deficiencies, the proposed 2024 OSHA Emergency Response Standard is

181 intended to replace the Fire Brigades Standard and cover a broader range of emergency

182 responders, including technical search workers, rescue workers, and emergency medical service

183 providers.[38] However, it is proposed as a ''performance-based'' standard, which may not align

184 entirely with the Department of Homeland Security's National Incident Management System

185 (detailed subsequently).

186

187 Moreover, OSHA lacks sufficient inspectors and resources to protect all at-risk workers during

188 the entire disaster cycle.[39] For example, even though standard contract terms for response

189 operations funded by FEMA require compliance with wage and hour regulations and providing a

190 safe working environment, enforcement of OSHA standards is often lacking due to limited

191 funding and staffing.[40]

192

193 Integration of disaster workers' safety in federal agencies, systems, and frameworks: FEMA

194 provides community training and education to build local capacity before, during, and after

195 disasters.[41] FEMA's involvement in worker safety can be categorized into several key areas:

196 establishment of safety protocols and guidelines; training and education through courses related

197 to such areas as PPE, hazard recognition, and safe work practices through the Emergency

198 Management Institute and the National Training and Education Division; and collaboration with

199 OSHA. In addition, FEMA provides comprehensive safety protocols and guidelines for disaster

200 response activities and deploys officers to monitor safety conditions at disaster sites. However, it

201 is important to note that, unlike OSHA, FEMA does not have regulatory power to enforce WSH

202 regulations.

203

204 The Worker Safety and Health Support Annex, a collaborative document between OSHA and

205 FEMA, outlines the framework for ensuring WSH during disaster response operations.[42] The

206 annex highlights roles, responsibilities, coordination mechanisms, and resources required for

207 protecting response and recovery workers. It also details collaborations among local, state, and

208 federal agencies such as state occupational safety and health agencies, local health departments,

209 emergency management offices, and local worker safety and health organizations to implement

210 safety protocols effectively.

211

212 The National Incident Management System provides a systematic, proactive approach to guide

213 agencies and organizations at all levels of government, the private sector, and nongovernmental

214 organizations in working to prevent, protect against, respond to, recover from, and mitigate the

215 effects of incidents. The system integrates with other emergency management and response

216 systems, such as the National Response Framework, to provide a cohesive approach to managing

217 incidents. [43,44] Furthermore, it establishes standardized processes and procedures such as

218 incident command systems for coordination and collaboration among various agencies and

219 organizations to ensure interoperability and effective communication during emergencies. Safety

220 officer is a key position of the command staff whose responsibility is to ensure the safety of all

221 incident personnel. This includes identifying potential hazards and developing measures to

222 mitigate risks. The safety officer's responsibilities also require continuously monitoring,

223 assessing, and mitigating hazards; developing safety plans; and conducting safety briefings to

224 inform incident personnel about specific hazards, protective measures, and procedures for

225 reporting unsafe conditions. If unsafe conditions are identified, the safety officer has the

226 authority to stop or alter activities. It should be noted that safety officers' responsibilities are

227 limited to the response phase and do not extend beyond that. Therefore, they are not required to

228 train personnel, including volunteers on site.

229

230 As one of the strategic preparedness and response operations of the U.S. Department of Health

231 and Human Services (DHHS), the Medical Reserve Corps (MRC) is a national network of more

232 than 300,000 volunteers that plays a critical role in disaster response by augmenting local public

233 health, medical, and emergency response systems.[45] The MRC provides surge capacity,

234 administers vaccinations and supports mass care operations, educates the public about

235 emergency preparedness and health promotion, and assists with logistics and coordination during

236 disasters.

237

238 Evidence-Based Strategies to Address the Problem

239 A comprehensive health and safety training system for disaster workers: Worker safety training,

240 an administrative control, is one component in the hierarchy of controls to prevent injury and

241 illness.[46] Evidence shows that providing worker safety training, both before and after an

242 emergency event, increases the likelihood of safer work practices in high-risk

243 environments.[30,47] Worker training should focus on instituting safety principles and

244 emergency preparedness to identify potential hazards and assess risks; ensuring proper selection,

245 use, and maintenance of PPE; ensuring that workers know evacuation routes, emergency contact

246 information, and first-aid basics; establishing a clear chain of command and communication

247 channels; and conducting regular drills to practice responses to various emergency scenarios.

248 This type of training is helpful even when specific hazards are unknown.

249

250 Training should be designed and delivered to adhere to principles of adult learning including

251 interactive/engaging learning methods, ensuring greater knowledge and skill acquisition for a

252 diverse disaster response and recovery workforce. [48–50] There is substantial evidence of the

253 effectiveness of training in enhancing workers' safety performance. Adoption of multilingual and

254 inclusive safety training methods, as required by OSHA, has been found useful in addressing

255 language and literacy limitations among volunteers, migrants, and other clean-up

256 workers.[48,51] A multisource evaluation demonstrated that safety training should proactively

257 consider language, literacy levels, and cultural traditions of a diverse workforce to enhance

258 effectiveness and impact.[48] Ensuring the availability of JIT training for first responders,

259 especially training involving chemical, biological, and radiological hazards, has been found to be

260 useful in significantly improving knowledge levels.[52] Meta-analysis study findings have

261 further shown the relative effectiveness of engaging safety training methods, with up to three

262 times greater gains in safety knowledge acquisition and demonstration of safety practices in

263 cases where hazard event/severity is high.[47,48]

264

265 Preparedness and monitoring of health conditions: Robust standards to assess and mitigate the

266 health risks involved with assigned tasks for disaster workers must be met to fully protect

267 disaster recovery workers and first responders. The Centers for Disease Control and Prevention

268 (CDC) Emergency Responder Health Monitoring and Surveillance system provides guidance to

269 organizations on monitoring and tracking health effects and predeployment medical reviews. The

270 National Response Team recommends that voluntary organizations responding to disasters adopt

271 components of the CDC system.[53] Ongoing surveillance of hazard exposure, medical risk, and

272 availability of care is key to maintaining a healthy and willing workforce. Such surveillance

273 could include creating a worker roster on site to ensure follow-up, medical evaluation and

274 monitoring, support (mental health, support groups), and resources (e.g., the 9/11 Victim

275 Compensation Fund).[54–56] At present, first responder data on injuries, illnesses, and fatalities

276 available through the U.S. Bureau of Labor Statistics do not account for participation in disaster

277 response or include informal and volunteer workers.[57] This impedes our ability to

278 systematically monitor, analyze, interpret, and disseminate illness and injury data related to an

279 event's emergency responder population. To ensure that disaster response workers are aware of

280 health conditions, several strategies including education, training, monitoring, and support

281 systems need to be implemented. One such example is the SAMHSA First Responders and

282 Disaster Responders Resource Portal, which offers a comprehensive range of resources to

283 support the behavioral health of first responders.[58] The portal includes training and resources

284 aimed at various worker populations such as those employed in disaster management, law

285 enforcement, fire services, and emergency medical services.

286

287 Safety and health needs of a diverse workforce that includes marginalized and vulnerable

288 populations: The NIEHS WTP is an example of a national effort to provide disaster response and

289 clean-up training. This highly engaging and interactive health and safety training is peer led and

290 includes hands-on demonstrations and exercises.[50,59] Historical evaluations have shown that

291 the WTP is effective in preparing a diverse disaster response and recovery workforce that

292 includes community volunteers.[48,50,59] Several community-based organizations and unions

293 have provided training to enhance community workforce capacity for disaster response and

294 recovery. One such organization, Make the Road, New York, readily responded to Hurricane

295 Sandy because of its cadre of trained people and was able to train immigrant day laborers.[60]

296 The Gulf Responder Resilience Training Project, developed by NIEHS and SAMHSA, was

297 designed with input from community members to reflect the unique mental health needs and

298 cultural contexts of workers and volunteers in disaster-prone regions. The participatory approach

299 used in the project encouraged interactions and communications among participants that

300 ultimately improved workforce capacity and enhanced local preparedness efforts and community

301 awareness. [61,62]

302

303 The NIEHS WTP has also documented the effectiveness of mental health support for promoting

304 engagement in positive health behaviors and reducing the incidence of mental health

305 symptoms.[63,64] Awareness-level training for first responders, workers, and supervisors is

306 recognized as a useful intervention to impart the skills needed to initiate an emergency response,

307 particularly for vulnerable worker subpopulations living in and around disaster-affected areas.

308 More specifically, an evaluation of a NIEHS WTP resiliency training program involving

309 professional and volunteer workers who responded to Hurricane Sandy revealed greater

310 improvements in healthy lifestyle behaviors, stress management control, and mental health

311 among responders who received resiliency training.[64]

312

313 These types of training and related resources should be used as part of a whole community

314 approach that recognizes the needs and capabilities of the community, including volunteer

315 workers.[65] For example, OSHA and NIEHS provide multilingual, culturally appropriate, and

316 inclusive safety materials that address language and literacy concerns and are readily available

317 and easily accessible.[30,66] These materials provide core disaster training resources that can be

318 complemented with site-specific, JIT training provided by key community partners to prepare

319 volunteers for the activities they will engage in and the hazards they may encounter in an

320 efficient and cost-effective manner. Furthermore, MRC volunteers are a potential resource for

321 training in mass care, medical surge, and health education.[45] Local community partners can

322 collaborate with the MRC in training volunteer disaster workers where such expertise is needed.

323

324 Leadership and organizational support: Leadership support is crucial for the effectiveness and

325 impact of training programs. Transparency, accountability, engaging relations, and shared

326 decision making enhance worker performance during the response and recovery phases. [67,68]

327 This also requires leadership to have a thorough understanding of workers' social circumstances

328 as well as existing support systems and systemic barriers that might be exacerbated during and

329 after a disaster.[69]

330

331 Organizational support and related policies to address disaster workers' personal needs (e.g.,

332 child care) have been shown to enhance their willingness to report to work and boost their

333 confidence during response.[70] In 2020, the Florida Department of Education's Office of Early

334 Learning, in coordination with local organizations, prioritized and increased access to child-care

335 services for first responders and health care professionals.[71] However, such arrangements are

336 often infrequent, inaccessible, or cost prohibitive.[72] Research justifies the need to assist

337 employees and volunteer workers throughout disaster relief operations. An inclusive approach,

338   open communication, and employer-employee trust building are crucial components of effective

339   leadership and organizational support.[73]

340

341   Alternative Strategies

342   An alternative strategy could be excluding volunteers from requirements for safety training

343   because it would be impractical to conduct and potentially delay response activities. This

344   alternative, however, disregards foundational principles of public health that policies and

345   practices should be ethical and equitable. Emergency responders and recovery workers who are

346   volunteers should be provided appropriate health and safety protections, just as are paid workers

347   who face the same hazards.

348

349   Action Steps to Implement Evidence-Based Strategies

350

	Evidence-Based Strategy		Action Steps
1	Establish a comprehensive health and safety training system for disaster workers.	1a	OSHA and FEMA should ensure that training providers use a systematic training and educational process that includes a needs analysis, identification of contextual factors/barriers to safety and health, and continuous quality improvement. This process should include local agencies and nonprofit organizations involved in disaster response and recovery.
		1b	OSHA and FEMA should ensure that training providers incorporate principles of adult learning, including use of local partners to ensure contextual and cultural relevance for the disaster workforce (including volunteers).
		1c	OSHA and FEMA should ensure the availability of JIT for first responders, including adoption of innovative training technologies. Training providers must have the administrative and physical structures needed to provide

			site-specific and hazard-specific training, including curricula, trainers, initial training supplies and equipment, classroom facilities, and mobile training vans.
2	Include planning and preparedness activities.	2a	FEMA, in consultation with local and state disaster response agencies, should conduct a predeployment medical screening that ensures "fitness for duty" to assess and mitigate the health risks involved with assigned tasks for individual workers.
		2b	FEMA, in consultation with local and state disaster response agencies, should ensure joint planning and exercising of the safety management plan to adopt robust standards that reliably protect disaster recovery workers and first responders.
		2c	FEMA, in consultation with local and state disaster response agencies, should conduct ongoing surveillance of hazardous exposures, medical risks, and availability of care to maintain a healthy and willing workforce and inform targets for workforce staffing goals.
		2d	Analysis of data on illness, injury, mortality, and environmental trends is critical not only after a disaster but before a disaster. Incident command officials should implement a surveillance system in line with CDC's Emergency Responder Health Monitoring and Surveillance system to improve understanding regarding the scope of hazardous exposures, medical risks, and availability of care to help design evidence-based strategies in the planning phase.
3	Address the safety and health needs of a diverse workforce that includes	3a	Emergency management must work closely with community and volunteer workers to ensure accessibility of core disaster and JIT resources for

	marginalized and vulnerable populations.		worker safety using a whole community approach that addresses community capabilities and needs.
		3b	OSHA and SAMHSA must ensure that training providers offer opportunities for training in mental health, coping strategies, and resilience building for workers, managers, and supervisors to promote engagement in complementary health behaviors and reduce the incidence of mental health symptoms.
		3c	OSHA, SAMHSA, and DHHS, in conjunction with state and local disaster response providers, should adopt policies and practices directed at specific barriers to protecting disaster workers during response and recovery (e.g., PPE access, child-care needs), including increased availability of resources to promote worker resilience and well-being.
4	Incorporate leadership and performance monitoring.	4a	FEMA, in conjunction with local and state disaster response agencies, should appoint a competent, experienced leadership team for each disaster response and recovery effort and establish an integrated governance body to ensure successful long-term recovery.
		4b	FEMA, in conjunction with local and state disaster response agencies, should encourage collaboration and coordination among disaster workers and other interested parties with an emphasis on transparency, accountability, and shared decision making to enhance health and safety during the response and recovery phases.
		4c	FEMA, in conjunction with local and state disaster response agencies, should ensure that training providers conduct analyses to demonstrate the impact of disaster

		worker training and related policies and practices on the health and safety of disaster workers and affected communities (e.g., cost/benefit, return on investment, utility analysis).

351

352   Opposing Arguments

353   One argument against preparing workers for safety hazards when responding to disasters is

354   whether the costs exceed the benefits. However, preliminary evidence of the positive economic

355   impacts of worker training programs has been demonstrated nationwide, including decreases in

356   the number of injuries. These economic impacts include the direct cost of medical care as well as

357   the indirect costs of lost wages and personal suffering. NIEHS WTP training and related

358   resources saved $717 million in government expenditures from 1995 through 2013, or roughly

359    $40 million annually.[74] The direct cost saving from safety and injury prevention has been well

360   documented in similar workforce development programs in disadvantaged communities.[75]

361

362   Another opposing argument could be that there is inadequate evidence of serious injuries or

363   illnesses experienced by clean-up and recovery workers. This is due to inadequate surveillance

364   structures during disaster recovery, as discussed above.[57]

365

366   Lastly, one could argue that disaster worker training currently lacks enforcement of a specific

367   standard. This is particularly relevant given that many of the most vulnerable disaster workers

368   are unaware of these standards and less likely to exercise their rights and that employers are not

369   held accountable because of lack of enforcement. Another issue is that these workers are often

370   volunteers, and OSHA standards do not apply without an employee/employer relationship.

371

372   Conclusion

373   Protecting the health and safety of disaster workers during response and recovery efforts by

374   focusing on achieving equity through education and training is imperative. As disasters become

375   more frequent and related response and recovery work increases in complexity, many current

376   occupational health and safety standards will not adequately address new hazards. Developing

377   such a policy is essential for protecting disaster workers, promoting equity, adapting to modern

378   challenges, ensuring legal compliance, and maintaining public trust. We must ensure that all

379   workers, regardless of their background or status, are equipped with the necessary skills and

380   resources to perform their duties safely and effectively.

381

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