

Wilderness Medicine in Disasters and Humanitarian Crisis

Christopher M. Tedeschi, MD, MA; Kiran Pandit, MD, MPH

Columbia University College of Physicians and Surgeons, Division of Emergency Medicine, NewYork-Presbyterian Hospital, New York, New York USA

Correspondence:

Christopher Tedeschi
Columbia University Medical Center
Emergency Medicine Division
622 West 168th Street, PH1-137
New York, New York 10032 USA
E-mail: ct2122@columbia.edu

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In the wake of highly publicized recent disasters in Haiti, Pakistan, and elsewhere, discourse among those concerned with the management of public health emergencies has focused on defining a standard of professionalism for humanitarian and disaster responders.¹ Few “prerequisites” exist for the diversity of casual responders, experienced providers, and humanitarian professionals who respond to acute events by the thousands. Efforts have been made to develop core curricula, enforce standards, and develop professional organizations for humanitarian practitioners.^{2,3} In developing inroads to a standard pre-deployment knowledge base for disaster and humanitarian responders, the basics of wilderness medicine education can introduce the fundamental concepts of self-preservation, improvisation and, most importantly, resource allocation.

Wilderness medicine and disaster medicine have grown substantially in the past decades, each maturing to include specialized bodies of knowledge. These specialties initially developed with little contact. However, the two fields share common principles and practice settings as well as a dynamic and improvisational nature. Their most important commonality may be the skill of resource allocation. As practitioners in both fields continue to broaden their practice, opportunities exist for innovative teaching and research.

The wilderness often is devoid of human influence, while disasters may be defined on the basis of affecting humankind. Yet many individuals participate in both types of medicine, with common interests and skills. Both fields stress improvisation and decision-making with limited information. Wilderness medicine texts now include chapters on disaster response, while disaster medicine texts pay special attention to practice in resource-poor (“austere”) settings.^{4,5}

Traditionally, wilderness medicine involves the practice of medicine in remote environments. Wilderness practice includes environmental illnesses, mountain medicine, travel medicine, as well as global health issues related to austere settings.⁶ Such practice nearly always requires decision-making—with limited information—about how to distribute scarce resources. Disasters in resource-poor settings (including humanitarian emergencies and urban disasters with loss of infrastructure) may be considered austere environments as well, with similar resource allocation challenges.

After the September 2001 attacks in New York City, *Outside* magazine reported on responders from the world of wilderness medicine.⁷ While the technical skills of those professionals were their chief asset, the similarity of the disaster setting to the resource-poor wilderness was obvious. “The scale of the catastrophe,” *Outside* observed, “blurred the distinction between what is urban and what is wild. Parts of New York became wilderness, not metaphorically, but literally.” In 2010, earthquake responders in Haiti experienced an analogous situation.

In any austere setting, how should limited resources be distributed? Distribution strategies might benefit some and potentially hurt others. Which resources are most important, given limited space, time, and funding?

Resource allocation is based on aggregate rather than individual good—perhaps one of the strongest similarities between these two diverse fields, making the decision-making processes concordant.^{8,9} For example, mountain search-and-rescue teams limit the resources they carry during a search. They operate with only the supplies they have transported to a remote setting, and make allocation decisions about whom to evacuate first, or which patients will benefit from access to a helicopter. In disasters, limited resources such as medications, vaccines, and airlifts are allocated via a similar thought process.

In the wilderness and during disasters, practitioners creatively make the most of what they have, developing best practices with time. Wilderness medicine students are taught to make litters from saplings, rope, or ski poles—and the same may occur during a disaster. In post-earthquake Haiti, medical personnel often performed procedures with the scarce, ill-suited supplies on hand, and converted pick-up trucks into impromptu ambulances. In all austere settings, supplies and tools with redundant functions—as well as materials that are lightweight, compact, and sturdy—are most valuable. The wilderness medicine and search-and-rescue communities have developed many such tools, yet the acute phase of disaster response often relies on supplies hastily gleaned from “back home,” leading to shortages of vital supplies and surpluses of uselessness.

Practitioners are the most valuable resource. Disaster settings often require backcountry skills for procuring shelter, nutrition, hydration, warmth, and safety. At field locations in post-earthquake Haiti, providers camped outdoors, and were responsible for their own clean water, food, and shelter. Rain, wind, and extreme heat challenged volunteer and professional responders alike, and the management of human capital became a priority for those supervising the facilities.^{10,11}

Additionally, in disaster and wilderness settings, the role played by the natural environment cannot be underestimated. Physical surroundings largely determine the resources available and those required. Can potable water be obtained easily? Are there local resources for food or shelter? What about an aircraft landing zone? The preservation of the natural environment as a sustainable resource also is important. While wilderness practitioners often are familiar with the “leave no trace” philosophy, disaster responders struggle with waste issues on a larger scale, as rubbish accumulates and land is re-purposed to meet pressing needs. A keen understanding that the local environment is a valuable resource helps influence plans for short- and long-term goals.

The overlap between wilderness medicine and disaster response means personnel trained in both are more versatile and more likely to succeed with limited resources. Wilderness medicine skills—situational awareness, survival, and improvisation—are key pre-deployment skills for practitioners entering any disaster or humanitarian relief setting. Those practicing in such settings will benefit from a traditional wilderness medicine curriculum along with training in humanitarian response and public health.

This special relationship between wilderness and disaster medicine invites future growth in collaborative practice and innovative educational methodology. Potential projects include studies examining the skills of resource allocation, the development of educational techniques to teach those skills, and more thoughtful examination of the intersection between wilderness medicine, public health, and disaster medicine.

A multitude of courses in wilderness medicine exist. The Wilderness Medical Society offers formal recognition of such skills in the Fellow of the Academy of Wilderness Medicine (FAWM) designation.¹² Many curricula, however, do not address the problems of disaster response or the larger international system of response to complex emergencies. Similarly, disaster and humanitarian aid groups offer courses to prepare responders for field experiences.^{13,14} Yet, these programs often assume expertise in the wilderness-related skills of improvisation, self-sufficiency, and most importantly, resource allocation.

Such educational initiatives could be combined formally by reinforcing the concept that practice in remote or distressed settings relies on the skill of making the most of limited available resources. Thus, a hybrid model for wilderness medicine and pre-deployment disaster medicine training is envisioned, focusing on the common qualities described here and the growing need for effective training for disaster and humanitarian responders.

To accomplish this goal, wilderness educators should collaborate with disaster and humanitarian relief organizations to understand how to modify existing curricula to meet responders' needs. Likewise, response agencies ought to recognize that training in wilderness medicine provides a background for practitioners working in dangerous and remote settings, and ought to seek out individuals with such skills when placing responders in the field.

Research focusing on the effective teaching of resource allocation skills should also be encouraged. Computer-based simulation and scenario-based drills are two potential areas for providing instruction in this important skill.

As the vital communication between these fields increases, so will the recognition of the underlying principle that effective practice in any austere environment depends on smart, rational resource allocation. Clinicians and first responders with this hybrid background will be able to do the best possible good for their patients, be they with a single victim in the wilderness, or faced with a disaster affecting thousands.

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