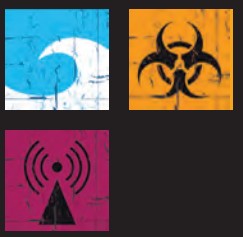

Chapter 17

Ethics

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Preface

What are the ethical issues involved in disaster planning and response? Why should those involved in disaster planning and response be concerned with ethics in the first place? In this chapter, we hope to highlight answers to these pressing questions. We will begin by discussing what ethics is or may be and progress to a discussion of why ethics is integral to disaster management. Against this background, we will examine the importance of an explicit articulation of ethical principles that ought to guide disaster planning and response. We will further bolster the view of the fundamental ethical nature of disaster management by highlighting illustrative ethical dilemmas that may arise during a disaster. Finally, we will raise key ethical questions relevant to research during and following a disaster.

Contents

Preface 511
What is Ethics? 512
Why is ethics important to disaster planning and response? 513
A proposed ethical framework for disaster planning and response 514
Ethics in practice 518
Research in disaster management 521
Conclusion 523
References 523

What is Ethics?

Ethics concentrates on the moral appraisal of actions and dilemmas affecting the lives of individuals and communities in their conduct of day-to-day affairs, both ordinary and extraordinary. It is a discourse devoted to critical reflection, argumentation, and deliberation regarding the goodness, fairness, and justice of human actions and interventions. To this end, it consists of thinking about the moral acceptability of what individuals and institutions ought to do, explaining why we ought to do it, describing how it ought to be done, and evaluating how well it has been done and whether future response ought to be adjusted. In short, ethics seeks to provide moral justification for human actions and interventions.

Ethics as a deliberative undertaking admits to a wide variety of theoretical expression. This simply means that there are multiple ways of understanding how to justify actions. Some theories, such as utilitarianism, focus on consequence as the ultimate means of justifying actions. Other theories, such as egalitarian theories, focus on considerations of justice and fairness. To be sure, ethical theories converge on a fundamental idea: what is congruous to most is a commitment to a coherent set of rules for the justification of action that abjure reliance on tacit and arbitrary reasoning. It is important to note, however, that different theories can come into opposition on basic principles, often provoking further moral conflict. This issue should be taken into account, particularly when considering decisions of priority setting or resource allocation, each capable of grounding decisions on what are ultimately irreconcilable principles.

Saying that there are many ways to justify an action does not entail that all actions are equally justified. Ethical reasoning weighs arguments for or against proposed actions. Rarely is it "algorithmic" or purely deductive, often resisting reduction to simple flow sheets. Rather, ethical reasoning renders decisions that encapsulate factual considerations, reasons, and principles as providing explicit robust rationales to support actions. Even so, justifications can be found to be sound or unsound, well supported or poorly supported.

It should be acknowledged that there are schools of thought that deny the possibility of justified ethical decision-making. Some philosophers have argued that ethical statements are merely reflections of internal emotional states (emotivism) or constitute propositions that do not contain truth value (noncognitivism). For example, postmodern theorists deny the possibility of objective reflection on ethical issues arguing that such discourse obscures power dynamics.

Moreover, ethics is distinct from the law in that laws are enforceable obligations that are codified and subject to adversarial adjudication in courts or tribunals. As is amply demonstrated by history, laws can be unethical. For example, slavery, now widely deemed to be a fundamentally unethical practice, was once legal. As Viens et al. have noted, an action "is not necessarily justifiable *just because* it is carried out under the rubric of the law," meaning that justifying action on legal grounds does not necessarily imply it is morally justifiable.[1] This is because positive law, unlike ethics, does not seek to provide moral justification for actions and interventions but rather renders decisions based on the existing laws that may or may not be ethical. In its quest for justification, ethics brings to bear concepts such as duty, obligation, reciprocity, caring, and solidarity as important normative concepts, each of which being important dimensions of disaster management.

Why Is Ethics Important to Disaster Planning and Response?

Ethical reasoning is premised on reason-giving accounts and, therefore, may seem at variance to the requirements of top-down, command-and-control driven decision making often required in disaster response. However, we argue that the most important reason for disaster planning and response is ethical—that is to reduce human death and suffering—and that the mitigation of economic and property losses is subordinate to—or at best a corollary of—this imperative to save human life. The response to any kind of disaster is based on our concern for preserving human life, for mitigating damage to human-built environments, and to reducing economic and other (ordinary and extraordinary) disturbances to society. Yet, many ethical norms are commonly tacit and rarely explicitly articulated by those engaged in disaster management. Often, these are implicitly captured in broad terms that are expressed in mission statements and underpinned by overarching concern for either assuring the most benefits for the most people (utility) or the claim that all individuals have unique value as humans (dignity). Thus, although not explicitly stated in disaster thinking, we are concerned with responding to a disaster and mitigating mortality, morbidity, and destruction because it expresses our fundamental value for human life and community.

Viewed this way, the ethical nature of disaster management is inescapable. There are few issues, if any, in disaster planning and response that do not admit an ethical perspective; every practical problem that disaster planners face is fraught with profound ethical dilemmas and every decision that they make is an inherently moral choice.[2] But, more than that, decisions about interventions are often shrouded in uncertainty, especially given the dearth of scientific evidence[1] in the early days of—and at times beyond—a disaster. For this reason, reliance on scientific justifications is at best inadequate; and even where there *are* reliable data to support interventions, scientific accounts remain problematic because the nature of evidence in disaster management inevitably yields varying levels of uncertainty.[3] That decisions are difficult, if not impossible, to reach with any degree of certainty reinforces the fact that fundamental ethical dilemmas lie at the root of disaster management and ethics is the foundation of every decision rendered about interventions.

Moreover, looking for ethical exceptionalism in times of disaster can be exceedingly problematic. This is because rules of thumb and situational ethics are not likely to produce desirable results during a crisis situation.[4] The 2003 SARS (severe acute respiratory syndrome) outbreak and Hurricane Katrina in 2006 are cases in point. In effect, the SARS experience underscored the moral hazard of what can transpire when healthcare systems are ill-prepared for sudden crisis. Being caught off guard unleashed repercussions that would resonate well beyond the outbreak itself —diminished public trust, weakened hospital staff morale, confusion regarding roles and responsibilities, stigmatization of vulnerable individuals and communities, and injudicious risk communication,[5–7] among other factors.

Similarly, many failures of ethical preparedness were clearly demonstrated in the aftermath of the Katrina disaster, particularly when it came to evacuating and admitting victims to and from hospitals. Varying perceptions on triaging

priorities—determining priority to rescue and medical treatment—led to confusion and at times sheer chaos that resulted in poor or inexistent communication and exercises of power differentials. Different factors such as healthcare providers, first responders, and helicopter operators had different intuitions about who should be the first to be removed or admitted; while one gave priority to those most critically ill, another to those least ill, and yet another to women and babies.[4] What was clear is that the process of triaging as they performed it, though seemingly a unified concept, actually admitted to a very nuanced and varied way of thinking.

In his work on triage for scarce resources such as that seen in disaster response and organ allocation for transplantation, Veatch[8] notes that triage itself is a multifaceted concept admitting to a variety of interpretations, and thus, one that is ultimately founded on different justifications. Historically speaking, Veatch shows that, in the English tradition, considerations of utility and efficiency governed the concept of triage, meaning that the first consideration in deciding on the allocation of scarce resources was battle readiness to expedite the return of soldiers to service.[8] However, in the French tradition, triage was determined based on the person who was most in need, even if it was understood to be inefficient. Making triage decisions according to the principle of utility (those most likely to survive) or the principle of vulnerability (those that are sickest) clearly demonstrates that varied ways of thinking about a concept can lead to radically different conclusions about what counts or what matters and what one ought to do. Pellegrino[9] echoes this view: "[t]he solutions we seek to the practical problems of moral choice depend entirely on the conceptual framework we use to define what we think right or wrong, good or bad." Clearly, conflicting principles that have not been explicitly negotiated can have tragic outcomes, pointing to the importance of clarifying the meanings of concepts to create a common ground for policy and practice. An example of this might be predefinition of what care would be delivered in a situation with limited resources.

Most crucially, the lack of a common ground amid rescue efforts in Hurricane Katrina created an impasse as to who sets priorities and who has the legitimate authority to execute orders. So, not only is this disaster a particularly stark example of the importance of clarifying the meanings of concepts but also it points to the idea that careful ethical analysis is essential to create the conditions for genuine agreement. Nagel[10] calls this "a comparable consensus about what important ethical and evaluative questions have to be considered if (a) decision is to be made responsibly." In this vein, one of the major learning goals of this chapter is to illustrate that a key task of ethical reflection in the predisaster period is to make explicit and clear where differences of perspective may lie.

A Proposed Ethical Framework for Disaster Planning and Response

A key question is how one integrates ethics into disaster response and whether disaster response needs to be distinct, both procedurally and substantively, from dominant ethical principles invoked for usual responses to clinical dilemmas. In other words, what description of ethics is relevant for disaster response?

As Ahmad[11] has argued, disasters are different than everyday dilemmas and are forms of complex emergencies whose considerations do not fit within the established clinical frames of ethics underpinning modern healthcare systems. The lens through which healthcare professionals are asked to understand and respond to dilemmas is usually derived from bioethical frameworks that tend to be individualistic and based on the principles of autonomy, whereas disaster response usually requires more of a focus on a blend of utilitarian and humanistic considerations.

To be sure, bioethics, as the dominant paradigm for clinical medicine, does provide a necessary, though insufficient, foundation for disaster thinking. Berg and King[12] identify 5 ways in which bioethics can contribute to disaster response. First, many diverse concerns of bioethics, such as the ethics of pandemic response, are tightly linked to issues elucidated in traditional bioethics discourse. Second, it can provide a wide set of methodological and analytical approaches to decision making. Third, bioethicists are skilled, as they attest, at "navigating the treacherous terrain of decision making among multiple stakeholders in complex crisis situations" and thus can facilitate the inclusion of nonmedical considerations into planning processes. Finally, bioethics can provide cautionary advice and act as a hedge against rash and unreflective action.

Another contribution of bioethics to disaster thinking is the development and use of ethical frameworks. As Dawson[13] has argued, "the primary role of a framework [is] to aid deliberation by making relevant values explicit" and that these "values are then used to guide or frame decision making." An ethical framework serves as a tool to improve decision-making accountability, which means that it demands, and benefits from, constant feedback and revision. It is intended to inform decision-making by encouraging reflection, argumentation, and deliberation on important values underpinning ethical concerns that require attention in a disaster.

Beyond the role that bioethics can play in disaster management, disasters present distinct ethical considerations in view of its population focus.[14–19] This means that an ethical framework relevant to considerations of disaster management must transcend the common view and practice that "the individual [is] the focal point of moral concern,"[19] that it transcends the prevailing individualistic biomedical framework. A viable example of an ethical framework relevant for a crisis situation is one developed by an interprofessional and interdisciplinary team of practitioners and scholars for pandemic planning, built on the experience of SARS in Toronto.[20] To this end, they crafted an ethical framework that was informed by ethical values and principles as well as guided by ethical decision-making processes.

The first part of the framework identifies the key elements of ethical decision-making processes, adapted from the "accountability for reasonableness" model developed by Daniels and Sabin[21] (see Table 17-1: Ethical processes [listed in alphabetical order]. Adapted from Daniels and Sabin).[22] These processes—accountability, inclusiveness, openness and transparency, reasonableness, and responsiveness—are conducive to enhance the basic accountability to further enhance the substantive ethical quality of decisions. Indeed, those affected by difficult decisions may be more accepting if the decision-making process has, and is perceived to have, ethical legitimacy.

However, it is important to underscore that ethical processes do not guarantee ethical outcomes. Thus, the second part of the framework identifies 10 key ethical values that ought to inform the substantive ethical dimensions

Table 17-1: Five Procedural Values to Guide Decision-Making

Accountable	There should be mechanisms in place to ensure that decision makers are answerable for their actions and inactions. Defense of actions and inactions should be grounded in the 14 other ethical values proposed below.
Inclusive	Decisions should be made explicitly with stakeholder views in mind, and there should be opportunities to engage stakeholders in the decision-making process.
Open and Transparent	The process by which decisions are made must be open to scrutiny and the basis upon which decisions are made should be publicly accessible.
Reasonable	Decisions should be based on reasons (i.e., evidence, principles, and values) that stakeholders can agree are relevant to meeting health needs in a pandemic influenza crisis. The decisions should be made by people who are credible and accountable.
Responsive	There should be opportunities to revisit and revise decisions as new information emerges throughout the crisis. There should be mechanisms to address disputes and complaints.

of decision-making in pandemic planning and, more broadly, disaster planning context (see Table 17-2: Ethical values to guide decision making [listed in alphabetical order]). These values—duty to provide care, equity, individual liberty, privacy, proportionality, protection of the public from harm, reciprocity, solidarity, stewardship, and trust—are intended to provide guidance, understanding that several values may be relevant to a given situation. Indeed, the hallmark of a challenging ethical decision is that one or more values are in tension and that there is no clear answer about which one to privilege in making a decision. This is why, when values are in tension with one another, it is of utmost importance to strive to reach genuine agreement through the engagement of stakeholders.

Table 17-2: Ten Substantive Values to Guide Decision-Making

Equity	All patients have an equal claim to receive the health care they need under normal conditions. During a pandemic, difficult decisions will need to be made about which health services to maintain and which to defer. Depending on the severity of the health crisis, this could curtail not only elective surgeries, but could also limit the provision of emergency or necessary services.
Duty to Provide Care	Inherent to all codes of ethics for healthcare professionals is the duty to provide care and to respond to suffering. Healthcare providers will have to weigh demands of their professional roles against other competing obligations to their own health, and to family and friends. Moreover, healthcare workers will face significant challenges related to resource allocation, scope of practice, professional liability, and workplace conditions.
Protection of the Public From Harm	To protect the public from harm, healthcare organizations and public health authorities may be required to take actions that impinge on individual liberty. Decisions makers should weigh the imperative for compliance; provide reasons for public health measures to encourage compliance; and establish mechanisms to review decisions.
Proportionality	Proportionality requires that restrictions to individual liberty and measures taken to protect the public from harm should not exceed what is necessary to address the actual level of risk or critical needs of the community.
Privacy	Individuals have a right to privacy in health care. In a public health crisis, it may be necessary to override this right to protect the public from serious harm.
Reciprocity	Reciprocity requires that society support those who face a disproportionate burden in protecting the public good and take steps to minimize burdens as much as possible. Measures to protect the public good are likely to impose a disproportionate burden on healthcare workers, patients, and their families.

Table 17-2 *(continued)*

Solidarity	As the world learned from SARS, a pandemic influenza outbreak will require a new vision of global solidarity and a vision of solidarity among nations. A pandemic can challenge conventional ideas of national sovereignty, security, or territoriality. It also requires solidarity within and among healthcare institutions. It calls for collaborative approaches that set aside traditional values of self-interest or territoriality among healthcare professionals, services, or institutions.
Stewardship	Those entrusted with governance roles should be guided by the notion of stewardship. Inherent in stewardship are the notions of trust, ethical behavior, and good decision-making. This implies that decisions regarding resources are intended to achieve the best patient health and public health outcomes given the unique circumstances of the influenza crisis.
Trust	Trust is an essential component of the relationships among clinicians and patients, staff and their organizations, the public and healthcare providers or organizations, and among organizations within a health system. Decision makers will be confronted with the challenge of maintaining stakeholder trust while simultaneously implementing various control measures during an evolving health crisis. Trust is enhanced by upholding such process values as transparency.

Ethics in Practice

With an understanding of these ethical values and processes, it would be helpful to frame them in relation to some exemplary dilemmas that are often faced in a disaster. These ethical dilemmas are not meant to represent an exhaustive list of those that may be faced in a disaster, but rather they serve to illustrate how the proposed ethical framework can be used to identify key ethical aspects of decision-making.

Priority Setting

In a disaster, the demand for healthcare services usually exceeds available resources. And when resources are scarce, tough choices need to be made

about who can be treated and what services can be offered. As such, difficult decisions need to be made about who ought to have access to ventilators, vaccines, antivirals, and other necessary resources in the health sector and in the community. Although clinical criteria can provide some guidance on how to set priorities, these are value-based decisions that cannot be made with reference to clinical criteria alone but can only rely on ethical reasoning. The ethical goals of priority setting are to allocate scarce resources in a legitimate, fair, and equitable manner.[7] This is especially important in the process of determining: whether priority ought to be given to the sickest patients or those most likely to survive, who ought to make these allocation decisions, and which medical services to maintain or place on hold during a disaster.[5]

A particularly salient example of priority setting that arose during the H1N1 pandemic was that of the ethical allocation of antivirals and vaccines. Here, the values of solidarity and protecting the public from harm would have required that priorities be set to maximize the capacity to help society ensure that the ill are cared for during a pandemic. Furthermore, proportionality would have required that decision-makers consider who within the community are most vulnerable to the contagion as well as who are most likely to benefit from immunization. A well-informed public conversant with the values in the ethical framework and aware of the expertise that informed the ranking of priorities for immunization would have been consistent with value of trust and the principle of transparency. This might also apply to standardized triage decisions before patient's arrival at a hospital in a pandemic where it is perceived that these patients can only be treated if there are sufficient resources.

Communication

Poor communication among public health officials, healthcare workers, and the public was cited as a major factor contributing to the confusion and even spread of the virus during the time of SARS.[23,24] This was recognized by the WHO Global Conference on Severe Acute Respiratory Syndrome when their final report concluded that "information should be communicated in a transparent, accurate, and timely manner."[25] Outbreak communications take place at many different levels—from the physician's office to the municipal, federal, provincial, or international levels. Lack of jurisdictional coordination in communications undermines trust in public officials and redoubles the need for engagement with the public. Outbreak communications that build and preserve public trust can ultimately be an extremely effective public health tool that has a direct impact on mortality and morbidity at the local and the international levels.[26] In order to build trust, communication must be open and honest.[27,28] Information must be complete, accurate, and communicated proactively to the public.[26–30] Being transparent means being open about what is known and what is not known about the situation. Transparency in risk communications is necessary, if not sufficient, to ensure fairness and accountability in the management of a public health crisis.[27] Furthermore, the principle of reciprocity is a correlate principle to that of transparency. In order to encourage the public to be transparent about their own health status, there needs to be an acknowledgment on the part of the State that there are reciprocal moral obligations to ensure that transparency will not have negative consequences.

Duty to Care

Response to disasters often requires a unified effort from both formal and informal healthcare systems that involve clinical and nonclinical health care workers (HCWs), professional and nonprofessional staff. For this reason, disasters present unique ethical dilemmas for frontline workers who face disproportionate risks of serious morbidity and mortality, particularly during infectious disease outbreaks,[31] such as the SARS outbreak where 95% of those infected in Taiwan were HCWs, or from toxic exposure, such as the sarin gas attack in Tokyo where nearly half of emergency department workers fell ill from cross contamination.[32] This leads us to question the nature of HCWs' obligation to treat patients despite the risk of infection and whether there are limits to this duty to care in a disaster setting. Further exacerbating occupational risks, HCWs may face competing personal and professional obligations to their patients, colleagues, employers, family members, as well as to their own health. Healthcare workers remember the pulmonary disease in fire crews who worked without adequate protection at the Twin Tower buildings. This may explain why 25%–85% of HCWs report being unwilling to show up for work in a pandemic.[33]

From this finding alone, we can argue that the duty to care may transcend individual provider considerations as such considerations are embedded within institutional and social contexts.[34] Indeed, the duty to care is not necessarily rooted in the professional virtues, self-sacrifice, and altruism of individual workers, as it has been traditionally understood. Rather, it arises from a social response to what values our society hold as important, how we are all vulnerable to infection and illness, and that this shared vulnerability underscores the importance of solidarity and reciprocity.[35] However, important documents such as Codes of Ethics and professional directives are not clear in stating the precise level of acceptable risk for HCWs to assume—and hence how ought the duty to care be circumscribed during a disaster.[31,*]

Cultural Sensitivities

Cultural issues are exceptionally important and ethically germane in disaster response. Natural disasters and other forms of catastrophic events are natural magnets for media attention. However, as Bhan[36] pointed out, there is a failure to respect privacy of victims, as well as the concern of cultural appropriateness of the visual depiction of casualties. Bhan[36] argues that "health professionals and administrators can and should control media access to hospitals, clinics, and disaster sites on the grounds that the public's right to information should not outweigh the rights of victims to privacy, confidentiality, and dignity." So, while the media can play an important role in galvanizing public opinion and relief efforts, they can also infringe on the privacy of families when they are emotionally shattered, thus causing disrespect to both survivors and victims.

[*]For more information on the legal issues regarding safety in the workplace, please refer to Chapter 9, Scene Safety.

Research in Disaster Management

It is important to evaluate the role of research during a disaster. There is often an imperative for novel research to be conducted during and following a disaster in order to effectively respond to the outbreak while minimizing morbidity and mortality as well as inform and enhance response for future disaster planning efforts. Indeed, much can be learned from research that is conducted during or following disasters. One study indicates that the knowledge derived from research following a natural disaster has helped psychologists predict how individuals and groups will react in these situations and how it has shaped the development of interventions to help people recover following a disaster.[37] Such results indicate that human subjects research conducted during and following a disaster may increase the understanding of the human response to trauma and further explicate ways in which the negative effects of disaster on individuals can be mitigated,[38] which, it has been well documented, can have acute and chronic effects on individuals and populations, including physical, mental, and economic effects. To this end, the protection of human subjects in research is facilitated by the review and monitoring by oversight bodies such as research ethics boards (REBs) or institutional review boards (IRBs). Although these committees conventionally balance potential benefits and harms to human subjects while adhering to core ethical principles to evaluate and approve research protocols, they are guided by limited discourse regarding the protection of human subjects during a disaster.[39]

This has led many to question whether the extenuating circumstances seen in a disaster setting justify the adjustment of the ethical standards afforded in ordinary research.[40] This may be necessary in view that the recognition that certain individuals and populations may be particularly vulnerable as participants of research following a disaster. This poses an ethical challenge because some survivors of trauma may be unable to anticipate the distress that will accompany research participation, as the process of investigation may evoke potentially disabling memories of emotionally painful experiences.[41,42] Another ethical challenge is that of research ethics governance in a disaster, for example, the research ethics review processes that must balance the urgency and necessity of having a timely response relative to the level of immediate threat to the public without compromising due process. Furthermore, we must be aware of redundant proposals for research that may potentially oversample a given population during a disaster, which may require mechanisms to coordinate the review of research proposals.[39] Finally, depending on the severity of the outbreak, research ethics committees may be unable to meet in person or research may be contemplated in jurisdictions where no functioning oversight exists. All of these complications do not negate the importance for appropriate oversight, but rather that innovative governance processes may need to be contemplated to efficiently and ethically conduct research in disasters.[43] So, while some strongly support the view that additional attention must be paid to ensure the proper protection of human subjects[44] and management of research, one may also pose the question: what are the ethics of *not* conducting research to answer the profound questions that we face during disasters?[45]

Protecting human subjects is not the sole ethical challenge in research surrounding disaster planning and response. In disaster situations, it is also imperative that both researchers and research ethics committees carefully balance their duty to research participants with their duty to fellow researchers and, more broadly, the pursuit of scientific integrity.[41] Due to the magnitude and time sensitivity of disaster response, research involving tissue and public health data is often conducted on a large scale, requiring significant resources over time. Thus, in an influenza pandemic or other infectious disease outbreaks, for example, there is an impetus to coordinate efforts among scientists to acquire knowledge pertaining to novel infectious agents, modes of transmission, and the effectiveness of preventive measures and other interventions. But while under nonpandemic situations, researchers enjoy intellectual property rights protection over the data and results obtained from their research, specific moral questions arise regarding the obligations of researchers during a pandemic. For instance, while the open sharing of data or tissue samples may enable researchers and public health authorities to better contain a virus or prevent unnecessary suffering, conflict may arise when intellectual rights of researchers are required to be balanced with the greater societal interest to do everything possible to protect the public during a pandemic or disaster. This tension was seen in the race to patent the SARS virus which brought to light, as Rimmer[46] discussed, "the tension between securing private patent rights and facilitating public disclosure of information and research."

Within this context, some have even suggested that prepublication of data sharing ought to be promoted not only by the researchers but also by the scientific journal editors to give rapid exposure to findings of a time-sensitive nature. More broadly, others have advocated that mechanisms need to be in place to ensure that the sharing of tissue samples and data is mutually beneficial to researchers and society, and such mechanisms ought to be transparent to engender a sense of trust among different stakeholders.[47] But the sharing of data would necessitate significant buy-in from global scientific communities and governments who operate within a well-entrenched system that only rewards ownership of proprietary data.

This consideration is true and very pertinent to the 7/7 bombings in London, England where publication of data relating to the incident was very sensitive from the survivors perspective. There is a survivors group who still meet regularly. Similarly, the Marchioness Disaster in 1989 on River Thames created much ethical anxiety in relation to the publication of Coroners reports.

Although the ethical issues presented here focus mainly on the issues related to generating descriptive epidemiological, virological, or clinical data, important questions also exist regarding affected communities and how research can be utilized to provide immediate or future benefit to those populations. Furthermore, as the recent controversy surrounding the H5N1 virus specimens from Indonesia demonstrates, affected parties may need to be adjusted from considering the inequity between the researcher and the community, to consider inequities between industrialized and developing countries.[40] This question of benefit sharing presents unique ethical challenges that not only affects how research is conducted during a disaster but also questions the paradigm of scientific investigation in its conveyance of benefit.

Conclusion

A significant insight learned from the SARS experience and subsequent disasters, was that in times of crisis, "where guidance is incomplete, consequences uncertain, and information constantly changing, where hour-by-hour decisions involve life and death, *fairness is more important, rather than less* [emphasis added]."[6] Considerations of fairness are important in both procedural and substantive ethical frameworks. This is because there is a need for fair decision-making processes as well as equitable distributions of scarce human and material resources[48] because when resources are scarce and decisions must be made with limited information, a fair process is critical to establish the legitimacy of allocation decisions and to preserve trust among those affected.

We hope that no disaster will end civilization. Such a cataclysmic event would render ethics and, indeed, all human affairs moot. That said, it is more likely that no disaster will result in the complete and utter destruction of human life, which means that there will also be those who survive these situations and reflect on the fairness, justice, and adequacy of the response to the disaster. In other words, evaluation will always occur in the aftermath of a disaster and questions of accountability and responsibility will be inevitably raised.

With that in mind, there is no question that ethics plays a fundamental role in disaster preparedness, disaster response, and in the evaluation of response to disasters. For this reason, it is important that ethical learning be incorporated into disaster planning and that it be an important part of the assessment, response, and evaluation phases. Most crucially, it is fundamentally important to have a clear and explicit discussion of the ethical principles underpinning human actions and interventions. Finally, it is incumbent on disaster planners to provide the space and opportunity for first-line disaster responders to reflect on their own ethical perspectives, as well as to develop by consensus an explicit ethical framework to guide response. For a while, an ethical framework in no way guarantees outcomes, it provides, at the very least, evidence of foresight and attention to complex and difficult decisions affecting the fate of individuals and communities.

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