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EM - REVIEW

Triage in public health emergencies: ethical issues

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Abstract General concepts about medical disasters, public health and triage are outlined. Triage is described in the context of public health emergencies and disaster settings, and the main ethical values at stake in triage are discussed. Possible conflicts between competing values are outlined. Special attention is given to possible conflicts between the protection of individual interests (typical of clinical ethics), and the pursuit of collective interests (typical of public health and triage). Hippocratic ethics is compared to utilitarian ethics and to perspectives that emphasize the principle of justice. Three ethical attitudes are suggested that may contribute to a resolution of competing values: protection of human dignity, precaution and, especially, solidarity. Personalism promotes the collective good by safeguarding and giving value to the well-being of each individual. A personalistic perspective is suggested as a way to deepen the concept of solidarity as a pillar both of clinical and public health ethics.

Keywords Ethics · Triage · Emergency

Background

This paper examines the importance of discerning the ethics at play in deliberative processes associated with public health approaches to emergencies and disasters, and offers a possible ethical approach that may reconcile putative tensions between individualistic bioethics and utilitarianism in the application of triage.

Society is vulnerable to medical disasters and public health emergencies caused by a variety of events such as pandemic disease, war and disasters (natural and man-made). The American College of Emergency Physicians (ACEP) defines medical disasters as situations in which the 'destructive effects of natural or man-made forces overwhelm the ability of a given area or community to meet the demand for health care' [1]. A public health emergency exists when an event (whether earthquake, rapid population migration and displacement, pandemic disease or others) overwhelms routine community capabilities to address them.

In disasters settings, routine medical services are typically inadequate, and global experience has shown the need for systematic planning [2]. National and local communities have engaged with planning by: first, identifying procedures for rapidly handling medical emergencies; second, identifying protocols to support multiagency and multidisciplinary cooperation (since many organizations and different kinds of practitioners are invariably involved in the response effort, including, for instance, medical personnel, fire fighters and civilian volunteers); and third, identifying mechanisms for allocating limited resources to support medical care, such as drugs and medical supplies. Health emergencies thus defined require priority setting, rationing and triage.

Triage, an established process of medical sorting, is useful both in ordinary and in catastrophic situations. In ordinary situations, triage involves making decisions about the order in which patients will be treated based on the urgency of patients' needs. 'In the last few years, the emergency department (ED) has faced a continuous increase in visits in part due to its excessive use for

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non-urgent problems' [3]. During catastrophic events, triage may require making decisions that some patients will not receive treatment at all. 'Triage, clinical assessment and discharge are identified as critical moments during an emergency care process' [4]; indeed, effective triage is crucial in disaster settings when the volume of patients far exceeds the availability of human and material resources. Yet, although there has been increasingly urgent discussion of the ethics of triage in some of the medical disaster and ethics literature, there is as yet little agreement on an appropriate framework for such an ethics. While triage is typically supported by utilitarian principles—that decisions must benefit the greatest number of potential survivors—there is some acknowledgement of the potential for conflict for clinicians whose practice is underpinned by the individualist focus of conventional bioethics, and for whom attention to the common good may have the effect of overriding individual liberty and rights [2, 5].

In part, this potential for conflict arises because the practice and ethical basis of triage has been largely shaped in the context of resource allocation in hospital settings [6], which are, in contrast to emergency and disaster settings, afforded the relative luxury of time. Clinicians who undertake triage in hospital settings—usually, though not exclusively, emergency physicians—have evolved an ethical framework to guide their practice. In such settings, the interests of individual patients remain paramount, but it is unclear how clinicians working in public health emergencies can apply triage in ways that address both the individual interests of patients and the common good embedded in the public health ethos that underpins disaster planning [7]. Indeed, in the disaster or public health emergency setting, time is at a premium: physicians have to rapidly make decisions about whom to treat and which resources to use in treatment. Consequently, their decisions are not necessarily made in the interests of individual patients, as required by the Hippocratic oath, but are instead made in the interests of a 'common good'. This phenomenon raises important questions about the ethical framework of emergency response and disaster plans and the potential tension between the individualistic basis of bioethics and the utilitarian ethos of triage in these settings.

Discussion

Biomedicine, public health practice and ethics

The practice of biomedicine attempts to balance medical care of the individual with the individual's autonomy; it takes place in a unique relationship between an individual and a physician; and there is a degree of congruence between clinical and ethical practice, since clinical bioethics is based on a deontological heritage derived from many centuries of Hippocratic-oath based medicine [8]. Indeed, from its beginnings in the early 1970s, traditional bioethics has produced substantial results in a relatively short period [9].

In contrast, public health practice focuses on the health of the community in general, and has been largely shaped by utilitarian ethical principles [10], which have, at times, been at odds with the liberal rights of the individual. It is characterized by 'collective action for sustained population-wide health improvement' [11, 12] and its ethical focus is the 'public good' rather than on individuals. Moreover, historically, public health, especially in Europe, has been, at times, closely aligned with the objectives of the state, and has lacked a clear, widely held framework for its practice, and therefore its ethics [13, 14].

Further, while the practice and ethics of biomedicine requires, by and large, the voluntary participation of the individual, public health operates along a continuum from noncoercive voluntary participation (e.g. antismoking campaigns) to more coercive interventions, such as those that promote lifestyle choices or in some way limit personal freedoms (e.g. quarantine). Disaster scenarios that precipitate public health emergencies are likely to incur interventions at the coercive end of this continuum; to limit the capacity of clinicians to make decisions about care in terms of the best interests of individual patients; and to limit the capacity of individuals to make choices about the care they receive. Indeed, policy for public health emergencies falls under the purview of public health officials rather than individual clinicians [15]. Moreover, not only has public health ethics matured more slowly than, and is quite distinct from, traditional bioethics [14], but, at the level of practice there may be conflict between clinical ethics and public health ethics, since 'those involved in the practice of public health embrace a set of values that are often, not to say always, in conflict with the autonomy-centred values of those who take an individualistic (…) stance' [16].

The ethics of disaster planning

In public health emergency and medical disaster settings, 'the personal choices and preferences of some will be overridden by a greater concern for the well being of a whole population' [17]. Similarly, the ethical framework of disaster planning emphasizes the public good, and its objectives include: protecting life and health, respecting human rights, promoting social justice and building civic capacity so that communities can be resilient in their response and recovery [15]. Planning and preparedness are typically developed by the state (e.g. in the US, the Federal Emergency Management Association), and involves elaborating specific processes and procedures that coordinate

the responses of various agencies and tell individual responders (e.g. physicians) what they must do. Planning, therefore, can be viewed as somewhat paternalistic, and it is this ethical strain that is embodied in the practice of triage, and that most stands in potential conflict with biomedical ethics that support clinical decisions in the best interests of individual patients.

Clinical decision-making in disaster settings presents unique challenges to practitioners attending to victims. In Wynia's view [18] for instance, healthcare providers are faced with three challenges: rationing (who gets care and what kind of care do they get), restrictions (e.g. isolation) and responsibilities. These challenges are thrown into sharp relief in the practice of triage.

Triage

Triage, which has been extensively studied in many countries [19], is an essential component of public health responses to mass disasters involving large numbers of casualties. The word 'triage' comes from the French 'trier', which means 'to sort' and originated as a method to evaluate and categorize the wounded in battle [20]. Originally, the practice of triage in military contexts was based on need rather than rank, and thus contains within it the seeds of an egalitarian ethics. While the term has negative connotations associated with using scarce resources 'where they do the most good' [21], it is, nonetheless a common method used by practitioners (often using science as the basis for decision-making, not ethics) to balance available resources with patient need.

In disaster settings that incur mass casualties, triage is key, and needs to happen rapidly, objectively, accurately and optimally, to ensure the greatest good for the greatest number. Yet, discussions of the ethical basis of triage tend to use the allocation of resources in hospital settings as their reference point—settings in which clinicians also practice medicine with respect to the needs of individual patients. Therefore, a utilitarian approach may not be a fully adequate framework for planning and executing disaster responses [6] because the history and practice of triage also incurs an egalitarian ethics that focuses on assisting those in greatest need: that is, on the needs of particular individuals.

The values at stake

Wynia notes that while it cannot be denied that public health shows a markedly utilitarian component [18], reducing public health ethics to mere utilitarianism would be an oversimplification. He argues:

> 'According to the oversimplified view, public health ethics is based entirely on a particular type of consequentialism: let us call it, 'health utilitarianism'. That is, the proper goal of all public-health efforts is to advance the health of as many people as much as possible. Correct actions in public health can thus be determined by calculating the net health benefits to be gained by an action. If true, this would imply that individual rights can be a matter of public-health ethics only insofar as they affect health outcomes' [18].

Therefore, in accepting utilitarianism as the premise for the ethics of disaster triage, one implicitly accepts the potential for conflict in practice. The ethical basis and practice of triage provokes conflicts in values between public health and clinical bioethics [22] precisely because of the tension between the rights of individuals and the need to protect the common good.

In practice, the potential for conflict arises because in a public health emergency, clinicians used to subscribing to an ethical framework that privileges individual autonomy and the doctor–patient relationship are required to operate under a different ethical framework that seeks to minimize morbidity and mortality amongst the population as a whole. Thus, clinicians cannot in such an emergency make decisions about the care of patients that take into account only the needs of any particular patient. These need to be weighed in comparison to competing patient needs, and in that sense, triage, informed by a utilitarian public health ethics can be understood to stand in conflict with the Hippocratic oath, since triage effectively redefines the clinician's scope of practice, and requires a restriction of healthcare in the interests of the common good.

Thus, for some commentators, the practice of disaster triage compromises human rights [23], which are framed ostensibly as the rights of individuals. For others, the practice of disaster triage—at the very least—undercuts the ethical premise of the Hippocratic oath, which states that the physician shall practice medicine for benefit of patients according to the physician's ability and judgement, and to not bring harm to patients. Within the framework of the Hippocratic oath, a physician cannot abandon the patient under his or her care to attend to the greater needs of another [24]. Yet, as we have seen, the practice of disaster triage prevents the application of a strictly Hippocratic ethics [2, 25], and so in emergency situations, a physician has to choose between two possible options [26]:

- Attending to those victims for whom they can do the most good (utilitarian principle)
- Attending to those with the greatest need (principle of justice or egalitarianism).

Disaster triage, as currently framed, requires health care professionals to disregard the concept of giving everyone a

fair and equal opportunity to receive medical treatment [27]. Instead, triage privileges the likelihood of survival. Therefore, emergency triage provides neither equal shares of care nor equal opportunity [28]. In contrast, the ethics of triage need to account for both community and the individual, since, as Wynia adds: 'attention to fundamental human rights is critical to good community health, as well as individual health' [18]. Whether an emergency plan is ethically acceptable or not depends both on its substantive content (what it tells people to do and what its consequences are), and on the deliberative process used to approve it [29]. The deliberative process underpinning triage in public health emergencies is informed by utilitarian principles, yet, there is an alternative approach based on a tradition of European bioethics that takes a broader perspective and emphasizes solidarity.

There is an ethical strain in both European and North-American bioethics that emphasizes dignity rather than autonomy, precaution and [30, 31], most of all, solidarity: when people in Europe are interviewed about the values they consider fundamental for the design of the health and social care systems, they often refer to solidarity [32].

The concept of dignity of humankind describes the evolving understanding of those basic individual rights that no government or person should ever be permitted to limit [33–36].

The 'precautionary principle' was first introduced in controversies about the environment [37], but it is also applicable to human health [38]. Precaution is an action principle [39] whereby in the absence of certainties (such as the availability of resources or the likelihood of survival) public authorities are committed, without waiting for the progress of knowledge, to taking temporary and flexible measures to face potential health or environmental risks, in respect of which the scientific data available are insufficient, uncertain or contradictory [40–42]. Within the parameters of this principle, triage could be reframed as an action that is necessary to address public health risks and that stems from the pursuit of solidarity.

'Solidarity exists amongst a group of people when they are committed to abiding by the outcome of some process of collective decision-making, or to promoting the well-being of other members of the group, perhaps at significant cost to themselves' [43]. The principle for human solidarity asks special attention for patients in serious conditions. Solidarity is a decisive value for triage. Therefore, it deserves a specific discussion.

Solidarity

In his wide-ranging historical analysis of the concept of solidarity, the German philosopher Bayerz [44] has indicated that its core meaning is the perception of mutual obligations between the members of a community.

In the domain of health and social care, solidarity is first and foremost understood as a moral value and a social attitude regarding those in need of support.

The concept of solidarity is deeply rooted in human experience and thought, and can be understood in different ways.

In the liberal model, the most important principles are the right to personal freedom and private property. Liberals emphasize the distinction between justice and charity: meeting the medical needs of the diseased is a matter of charity, not justice [45, 46].

Fundamental to the egalitarian model, on the contrary, is the notion of equality of human beings, and the creation of possibilities for people to become as much equal to others as possible, including as regards health. According to this model, there is a positive obligation to reduce differences in individual health: central in this model is the determination of who is the worst-off. Therefore, assessment of the severity of the conditions is a central issue [47].

In the utilitarian model, utility is a central concept. It includes different notions, such as good health, well-being, pleasure, satisfaction, happiness, and, in general, being able to achieve one's goal in life. Determination of the effectiveness and cost-effectiveness of a medical intervention is a key element in the utilitarian justice model, not the assessment of the disease burden itself. It is therefore especially concerned with the determination of 'appropriate care' [48].

According to the communitarian model, justice in the distribution of health care is not determined by the individual or by the individual medical need, but by what a community considers as necessary care. This is in turn determined by the values and the standards chosen by each community, and can be different for different communities [49].

Personalism considers the individual to be the core value, and tries to achieve the common good by promoting and enhancing the good of the individual. The main values proposed by personalism include respect for life, (public health actions are aimed at protecting and promoting human life and health), sociality and solidarity (social solidarity means and involves a commitment to bridge the gap between the different sectors of society and to integrate them into a community) and responsibility (the responsibility to prevent and protect against avoidable diseases, the duty not to create irresponsible burdens for the society, and responsibility for people in need) [50, 51].

Solidarity emphasizes a sense of togetherness that implies a commitment to provide priority to the most disadvantaged: one of the most significant disadvantages of all collective decision-making is that decisions are usually

about categories, so that the patient's individual condition is not adequately taken in.

There are some significant ethical misgivings to the use of collective, utilitarian and contractual models in disaster triage. As stated by Steinberg [52] 'The utilitarian system significantly interferes with equality, and primarily undermines those who are in greatest need of health care services'. The utilitarian theory, by concentrating on societal good, may place a burden of unacceptable sacrifice on individuals or subpopulations [53]. That said, it is probably fair to state that the libertarian theories of justice, as rigidly constructed, do not furnish adequate answers to mass casualty triage. Although patient autonomy is a guiding principle of biomedical ethics, it is unrealistic to believe that a free-market system of resource allocation, based in large part on ability to pay, has any role in resource allocation during a disaster.

The initial concept of modern triage, as developed on the battlefield by the Baron Dominique Jean Larrey (the surgeon in Napoleon's army who devised a method to evaluate and categorize the wounded in battle and to evaluate those requiring the most urgent medical attention [20]) was one of need, regardless of rank, and therefore an egalitarian concept. Arguing a strong egalitarian approach, it follows that it would be better not to treat any victim rather than to treat victims unequally; this would not appear to be an ethically tenable viewpoint. However, Larrey's approach, based on need rather than rank, heralded the maximum egalitarian principles posited by Rawls [54].

During recent decades, a 'technical' approach has become increasingly influential in health care priority setting. However, non-technical considerations cannot be avoided. A model based on need, where the sickest are treated first and with the most resources, might, in fact, be fairer and improve societal outcome: solidarity can therefore be expressed by being altruistic, sympathetic, universally benevolent and just [55]. Where altruism is a general moral principle underlying selfless 'good deeds' that help others, being sympathetic is regarded as an attitude that leads everyone to feel kind with respect to others, and share in their joy and suffering. Because, in this view, solidarity springs from common elements of human experience, it is spontaneous, mutual and not externally (i.e. politically, sociologically) controlled. Solidarity is seen as being selfless, open and generous towards other people, putting their best interests before our own, without expecting anything in return. Therefore, solidarity cannot be seen within an exclusively utilitarian or an exclusively liberal framework [55].

A few examples are probably useful to show how the principle of human solidarity can be applied when disease burdens are weighed and compared.

Triage is necessary, for example, in the event of a massive disease outbreak. In these circumstances it is possible that hospitals and the health care system will lack the capacity to provide care for everyone who needs it. When there are not enough drugs, beds or other resources to provide for everyone in need, then a different—and more severe—kind of triage than that usually employed in the hospital emergency department (ED) will be required. While standard ED triage involves making decisions about the order in which patients will be treated based on the urgency of patients' needs, in a catastrophic situation that could result from a bioterrorist attack, triage may require making decisions that some patients will not receive treatment at all [56]: ordinary triage classifies the patients so that all will receive optimal care, while mass casualty triage treats the patients according to the salvage value when the injured overwhelm available medical facilities and not all can be treated.

In these strictly utilitarian conditions some categories of individual may be neglected.

However, also more ordinary situations raise problems.

Let us suppose, for example, that during a fall season, a man with no chronic medical condition requests an influenza immunization, as he does every year, and that, because of a trouble in the major vaccine manufacturing plant, there is a shortage of vaccines. The physician explains to the man that only patients at high risks are eligible for vaccination. Let us suppose also that the man responds that every year he is told that he should get vaccination, that even with the shot he usually gets a severe influenza, and that he is worried that he may die. In this case, the patient requests an intervention recommended by every standard guideline. What principles should drive the physician's decision?

Let us hypothesize a different situation: a bus accident has occurred, all passengers are severely hurt, and some might die if not helped immediately. Only one ambulance with one doctor is available. The doctor recognizes his brother amongst the more severely hurt. Amongst the passengers there is also a nurse who could help, but she is also hurt. In these dramatic conditions it is necessary to set priorities. If you were the physician, would you treat your brother, or those who are at higher risk of death, or the nurse?

A large part of public health ethics is guided by a strictly utilitarian ethic promoting the maximization of benefits. This is the reason why a vaccination is not given to the person concerned about the potential consequences of the flu in the first case, and why the nurse is the first to be treated in the second case. This also corresponds to the indications found in many triage guidelines for emergency situations. For example NATO differentiates between ordinary and extraordinary triage: 'Ordinary triage

classifies the wounded so all will receive optimum care, while mass casualty triage treats the injured according to salvage value when the injured overwhelm available medical facilities and not all can be treated' [57].

Hippocratic ethics is instead of little help under these circumstances because it is better suited for the relationship between a physician and a single patient than for public health issues.

Of course, the decision to not vaccinate in the first case and to treat the nurse first in the second case is in accord not only with the principle of utility but also with the principle of solidarity. However, solidarity calls upon the healthcare worker to intimately examine his or her deontology, responsibilities, and values. By no means does this intend to accuse utilitarianism of ignoring deontology, but it certainly involves a very powerful risk of reducing assessments to cold, mathematical calculations. Solidarity, however, can be understood in different ways. According to Pasini and Reichlin, for example, 'Though solidarity (…) can be conceptualized in different ways, we suggest that it can be referred mainly in two different, if related, aspects of human community:

(i) it can be understood as a concern for the worst off, or the disposition to care for the weakest members of the community; this would not necessarily involve compassion, or any feeling of inward participation in their suffering, but rather a concern for their predicament aimed at the protection of their dignity;
(ii) it can also be conceived of as a consciousness of sharing a system of values, or a way of life; this involves caring for others as part of caring for the common good of the community in which one has been socialized and educated as an individual' [58].

It would therefore be imprudent to suggest that the principle of solidarity offers a single, clear-cut response (particularly in the vaccination case, insofar as a doctor privileging a relative after the accident could easily be accused of violating the principle of justice). The aim here is to point out that the principle of solidarity involves many different potential values at stake, making it necessary to avoid generalizations and to make assessments on a case-by-case basis: 'no matter how much we plan, the next disaster always seems to take us by surprise, to introduce a new twist, and to pervert our responses because of overwhelming novel and different political agendas' [59].

It would be clearly presumptuous to resolve in this discussion every ethical issue connected to these problems, and especially, the very personal conflicts for the doctors.

However, solidarity can furnish a few elements useful in decision making.

The first element is attentiveness: it is essential to be open to the needs of others.

The second is responsibility: care requires that one feels responsible, according to the professional deontology.

The third is competence: in order to give care, one has to be competent.

A statement on the tableau in front of the Professor Schweitzer Hospital in Lambarene (Gaboon) may help guide the decision making in difficult choices: 'Que le respect de la vie soit le principe élémentaire de l'éthique et de la vraie humanité' ('Respect for life must be the ethical principle and the truth of humanity').

Conclusion

Solidarity is broadly expressed in Western thought [60], from Terence's concept of 'humanitas', to Vergilius's concept of 'pietas', Seneca's concept of 'simpatia', the notion of 'charitas' in Christianity [61] and in philosophy, personalism. Personalism emphasizes absolute respect for life (the principle of inviolability); subsidiarity and the '*minimum*' *mandatory* principle; justice and non-discrimination; and responsibility [62]. However, just as dignity and precaution are not an exclusive trait of any one philosophy, solidarity can be found in a variety of cultures, and therefore provides a cross-cultural way of thinking about the ethics of public health preparedness and the practice of triage.

A possible transposition of the general principles into the specific context of triage might be:

- Intervention must be necessary and effective.
- Intervention should be the least restrictive alternative.
- There should be procedural due process that offers the right to appeal.
- Benefits and burdens of intervention should be fairly distributed.
- Public health officials should make decision in an open and accountable manner (transparency).

Nonetheless, the complex ethical and social values invoked when triage is advocated should be examined before such measures are implemented. Personalism, by regarding the person as a fundamental value, promotes the collective good by safeguarding and giving value to the well-being of each individual. Consequently, in the context of disaster triage, personalism potentially offers an ethical bridge between the needs of the individual and those of the common good and a framework for elaborating the practice of triage.

Conflict of interest None.

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