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ETHICAL CONSIDERATIONS OF TRIAGE FOLLOWING NATURAL DISASTERS: THE IDF EXPERIENCE IN HAITI AS A CASE STUDY

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ABSTRACT
Natural disasters in populated areas may result in massive casualties and extensive destruction of infrastructure. Humanitarian aid delegations may have to cope with the complicated issue of patient prioritization under conditions of severe resource scarcity. A triage model, consisting of five principles, is proposed for the prioritization of patients, and it is argued that rational and reasonable agents would agree upon them. The Israel Defense Force's humanitarian mission to Haiti following the 2010 earthquake serves as a case study for the various considerations taken into account when designing the ethical-clinical policy of field hospitals. The discussion focuses on three applications: the decision to include an intensive care unit, the decision to include obstetrics and neonatal units, and the treatment policy for compound fractures.

INTRODUCTION

Emergency scenarios such as earthquakes, pandemics, and wars present a moral challenge to achieve just resource allocation under conditions of severe scarcity. During the last three decades, there has been an evolving awareness of the need to be prepared in advance for such catastrophic circumstances. Two related disciplines have been developed to meet this need: disaster management and disaster medicine. According to Halpern and Larkin,[1] 'Disasters may be defined as MCIs (Multiple Casualty Incidents) that involve significant disruption of the infrastructure (human, logistic, or medical) of the region/nation coping with the event (e.g. natural disaster, war).'

A third and related discipline is ethics for disasters, which is still in its infancy. Humanitarian aid delegations sent to disaster zones to provide medical care have to cope with the complicated issue of patient prioritization under circumstances of severe resource scarcity, among the other challenges they face. Mallia has argued that 'ethics is not harmonizable to all situations'[2] and that the very nature of disaster calls for a different ethical framework. He claims that disaster situations call for utilitarian considerations and that consequences-based theories provide more appropriate guidance than deontological approaches. He rightly stresses that since disaster situations call for a different ethical framework, one must define the perimeter zone (space and time) of the disaster in order to signal when it is time to revert to usual ethical conduct.

Gerald Winslow provided the following descriptions to distinguish dire scarcity from moderate scarcity:[3]

> [D]ire scarcity can be described as follows: the amount of some life-saving resource, which cannot be further divided without losing its life-saving capacity, is insufficient to sustain the lives of all who are in need… Under the conditions of moderate scarcity, the goods in question may be divided so that everyone who has a claim may receive a share roughly equivalent to his or her claim.

[1] P. Halpern & G. L. Larkin. 2006. Ethical Issues in the Provision of Emergency Medical Care in Multiple Incidents and Disasters. In *Disaster Medicine 3rd edition*. G. R. Ciottone, ed. Philadelphia: Mosby Elsevier: Chap. 9. (p. 65)

[2] P. Mallia. Towards an Ethical Theory in Disaster Situations. *Med, Health Care, Philos* 2015; 18: 3–11 (p. 3).

[3] G. R. Winslow. 1982. *Triage and Justice*. Berkeley: University of California Press. p. 43–4.

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As a result of the dire scarcity of resources that follows a disaster, some innocent people will unavoidably die or suffer severe irreversible harm. Under such tragic circumstances, we must provide strong and justifiable arguments that support our decision to treat some but not others. Howe argues that it is impossible to provide an ethical framework for patient prioritization under such circumstances, since reasonable individuals will differ on what core mutual values should prevail.[4] He claims that there is a conflict between principles of justice (according to which the lives of all individuals should be valued equally) and principles of utility (which maximize outcome efficiency).[5] In the following section, I will argue that reasonable people would agree on a set of principles for patient prioritization.

At this point, it is worth pointing out an error in Howe's logic. The conflict Howe presents is not between justice and utility, but rather between equality and utility. First, the concept of justice is not necessarily identical with that of egalitarianism. Different theories of justice advocate for libertarianism, prioritarianism, sufficientarianism or utilitarianism. Second, Howe probably assumes that utilitarianism necessarily rejects the idea that all individuals have equal moral worth, which is incorrect. According to utilitarianism, every individual has an equal right to medical treatment, other things being equal. (Note that utilitarianism is committed to a formal principle of justice, namely impartiality, according to which every individual has an equal moral standing.) However, focusing only on an individual's moral worth does not get us any closer to a resource allocation scheme other than that of a lottery. The utilitarian would look for other morally relevant criteria that are unequal and would give differential weight to each individual's claim for resources, with the goal of prioritizing their conflicting claims and exhausting the available resources.

My intention is to present a triage model consisting of five principles and to argue that those principles, taken together, constitute just resource allocation under the dire scarcity that follows disasters. In the final section, I will focus on the Israel Defence Force (IDF) humanitarian mission to Haiti following the 2010 earthquake. I will describe the main features of the delegation and focus on three ethical-clinical decisions that were made by the IDF Medical Corps commanders. These decisions will be critically discussed under the proposed triage model.

SETTING PRIORITIES AMONG PATIENTS UNDER RESOURCE SCARCITY

A triage model under conditions of resource scarcity that follow natural disasters is a set of principles for setting priorities among patients. I will not be referring to battlefield scenarios or pandemics, since these circumstances introduce other considerations that will not be discussed here. The triage model for patients is guided by five principles, where the first has priority over the other four, which in turn guide or constrain the application of the first.[6]

1) **Equal response to basic needs.** According to Norman Daniels, basic needs can be characterized as: a) *Objectively ascribable*: they can be attributed to an individual even if she does not acknowledge them or even if she claims not to need them, and b) *Objectively important*: moral importance is attributed to the satisfaction of these needs, regardless of the weight the individual attaches to them.[7]

Meeting basic needs is morally important because of their effect on the individual's ability to live a good life. The demand for equal distribution under this principle should be understood as a formal requirement of equality, that is, equality as impartiality (also known as Aristotelian equality, i.e. treating similar people in the same manner).

2) **Medical efficiency.** Medical efficiency, in the context of disaster medicine, should be understood as the extent to which death or irreversible harm can be prevented and it constrains the application of the first principle. Given two patients with unmet basic needs, priority should be given to the one whose treatment will produce greater medical efficiency. Under scarcity, it would be outrageous and irrational to squander limited resources on someone with a bleak prognosis.

3) **The principle of conservation.** Priority should be given to those who require proportionately smaller amounts of available resources, as long as that policy of distribution enables us to benefit at least one additional individual. The principle of conservation constrains the application of the first two principles. Thus, in the case of three patients with similar needs and medical efficiency, if A requires 30 minutes of treatment and B and C require 10 minutes each, priority should be given to B and C, because treating them requires less time than treating A.

The same principle applies not only to patients but also to medical procedures. If there are two possible

[4] E. G. Howe. 2014. Medical ethics in disasters. In *Conflicts and Catastrophe Medicine: a Practical Guide*. J. M. Ryan et al. eds. London: Springer London: 91–110. (p. 96)

[5] Robert Veatch also presents the conflict between justice and utility. R. Veatch. Disaster preparedness and triage: Justice and the common good. *Mt Sinai J Med* 2005; 72: 236–241.

[6] Winslow (*op. cit*. note 3) has provided an extensive discussion of utilitarian and egalitarian principles of triage. The triage model I am proposing here is based on some of Winslow's arguments, but is integrated differently than his proposed triage model. I will discuss these differences at the end of the section.

[7] N. Daniels. 1985. *Just health care*. Cambridge: Cambridge University Press.

treatments for a group of patients and one of them will require more time and resources, then there is good reason to use the cheaper procedure if it will enable us to treat or save more patients.

4) **Immediate usefulness.** Priority should be given to the most useful individuals under the immediate circumstances. Thus, some individuals, such as medical personnel, firefighters, etc., possess special skills or abilities that can be used for the benefit of many others. Giving medical priority to these patients is justified if we have reason to believe that benefiting them will immediately increase the amount of resources available for the whole community and thus will help to save additional lives.

5) **Queue**. When there are no moral differences between patients, impartiality requires treating them according to queue. Thus, treating patients according to their order of arrival is an expression of procedural justice. When there are no moral criteria that can differentiate between individuals and thus point to a just end-state result, we should follow just procedures that respect the equal entitlement of individuals. It is true that order of arrival can be affected by morally irrelevant factors such as age, geography, whether one has caring family members or kind neighbors, or even just brute luck which determined who happened to be rescued first. A 'cleaner' procedure might be selection by lottery. However, a lottery is not time-efficient or practical in field hospital (FH) triage. In addition, it is important to stress that although the patients who are left at the triage zone (waiting to be admitted to the FH) have an equal moral entitlement to medical care, those who came first have a valid claim to be admitted first – they waited longer!.

Could these five principles be accepted by reasonable people as principles of justice? A brilliant innovation by John Rawls to the formulation of a theory of justice was the idea of preceding a concept of justice to a concept of the good.[8] This means that in multi-cultural societies we have reason to follow the principle of reasonable pluralism and to avoid enforcing some people's conception of the good on others. Rawls suggested a method called the veil of ignorance for preceding a concept of justice to a concept of the good. The veil allows rational and reasonable individuals[9] to reflect on possible principles of justice without having any information about themselves, with the goal of guaranteeing fairness and impartiality. This method is particularly useful for our purposes since a humanitarian delegation that arrives from another country to provide assistance (medical or otherwise) should not impose its values on the local society. The assistance provided should be as universal as possible or, more accurately, should be provided according to principles that any rational and reasonable person would accept. The affected community is not required to endorse those principles for implementation once the disaster has been dealt with, just as a humanitarian delegation would not necessarily endorse those principles in their own societies under moderate scarcity of resources.

According to Rawls: '. . .a conception of right is a set of principles, general in form and universal in application, that is to be publicly recognized as a final court of appeal for ordering the conflicting claims of moral persons.'[10] He proposed the following five conditions for such a set of principles, which are indeed met by the five prioritization principles of the triage model presented above:

a. Generality – they are formulated using general properties or relations.
b. Universality – they apply to all individuals (being moral persons).
c. Publicity – they are chosen for a public conception of justice.
d. Ordering competing claims – the purpose of the principles, and the relative importance and role of each in the triage model, is to determine how people's claims will be weighted.
e. Finality – applying the five principles means that caregivers and patients treat these principles 'as the final court of appeal in practical reasoning.'[11]

It should be noted that Rawls himself based his account on Hume's discussion of the circumstances of justice.[12] According to Rawls, moderate scarcity of resources is part of the 'objective circumstances which make human cooperation both possible and necessary.'[13] Moreover, if such circumstances do not obtain, 'there would be no occasion for the virtue of justice.'[14]

It is worth keeping in mind that Rawls (for the sake of simplification) formulated a general theory of justice that is fitting for societies in which every individual is 'a

[8] J. Rawls. 1999. *A Theory of Justice – Revised Edition*. Cambridge: The Belknap Press.

[9] According to Rawls, the individuals behind the veil of ignorance have two moral capacities: they are rational (capable of having a conception of their good and deciding on their plan of life) and reasonable (capable of having or acquiring a sense of justice, that is, they are able to act upon the principles of justice that all can accept, given the assurance that other members will do the same). J. Rawls. 2005. *Political Liberalism - Expanded Edition*. New York: Columbia University Press (see specifically pp. 48–54). And also J. Rawls. 1982. Social Unity and Primary Goods. In *Utilitarianism and Beyond*. A. Sen & B. Williams Eds. Cambridge: Cambridge University Press: 159–185.

[10] Rawls, *op. cit*. note 8, p. 117.

[11] For his detailed discussion, see Rawls *op. cit*. note 8. pp. 112–118 (p. 116).

[12] Ibid, §22.

[13] Ibid, p. 109.

[14] Ibid, p. 110.

normal cooperating member of society'[15] and free from serious medical conditions. He thought that questions of justice that arise from disadvantages resulting from different levels of health should be dealt with later on 'at the legislative stage'.[16]

Despite Rawls' position regarding the circumstances of justice and the allocation of medical care, I claim that it is possible to make use of his method in order to reflect rationally and reasonably on just principles for patient prioritization. My position is that rational and reasonable individuals who are unaware of their conception of the good, natural properties and social role, and whether and to what extent they would be affected by natural disasters, but are fully aware of the possibility of natural disasters and of the five formal conditions that apply to principles of justice, would agree on a set of principles for the allocation of limited resources. Moreover, I claim that behind the veil of ignorance they would vote for these five principles, which are the only ones that would increase their chances of survival and treat each one of them in an impartial manner.

This set of five principles not only acknowledges the equal moral worth of each individual, but also gives first priority to medical need, which is the dominant criterion in the allocation of medical care. However, given the dire circumstances following natural disasters, the triage model integrates other relevant criteria such as medical efficiency and the need to maximize the number of beneficiaries. Behind a veil of ignorance, a rational and reasonable agent would want to increase her chances of survival and therefore she would give first priority to greater medical needs as long as the satisfaction of these needs will result in medical efficiency. Hence, priority would not be given to unsalvageable patients, nor to patients with minor injuries. In addition, since a rational and reasonable agent wishes to maximize her chances of survival and has no knowledge whether and to what extent she might be affected by the disaster or its aftermath, she has reason to vote for procedures and prioritization criteria that increase the number of lives saved (that is, they fulfil the principles of conservation and immediate usefulness). As claimed above, the fifth principle (queue) guarantees that when there are no morally relevant criteria that can prioritize individuals, we would want to be treated in an impartial manner. It seems to me that among individuals with an equal moral claim to receive medical care, the only thing that can differentiate them is the time they have waited, and it would be unjust to give priority to an individual who has waited less than others, everything else being equal.

As I claimed at the beginning of this section, the triage model presented here is integrated differently from the account proposed by Winslow. Both of our accounts use Rawls' methodology, i.e. the veil of ignorance, in order to justify the triage principles. Furthermore, both of the accounts specify almost identical principles. According to Winslow, behind the veil of ignorance we would 'vote' for: medical success, the principle of conservation, the principle of immediate usefulness and queue. However, there are five important differences between the accounts and I will begin with the most important of them.

According to my account, there is a specific role for each principle and an order of importance in their application. Winslow simply states and justifies the principles but does not integrate them into a coherent triage model. For example, according to his account one might apply the principle of conservation before the principle of medical success, thus yielding what I view as unjust results. Recall that according to my account the principle of conservation is applied between patients that have the same medical need and between procedures that have the same efficacy. The desire to preserve resources and maximize their use should not override medical need.

The second difference is that Winslow does not adopt 'equal response to basic needs' as the first principle to be applied. Apparently, he presumes we should provide 'equal access' to anyone with medical need but claims that 'in the case of disaster triage the principle of medical neediness might be more readily superseded by the demand of efficiency' (p. 151).

Third, note that, according to Winslow, just allocation of medical treatment in a disaster would follow the principle of 'medical success', whereas I use the term 'medical efficiency'. It is puzzling that Winslow would use the word 'success' since he is well aware that success can be expanded to include variables such as the length and quality of the life saved. These variables lead to a negative bias against older or disabled patients. According to my account, these variables should not be taken into account, and they contradict the first principle (equal response to basic needs).

Fourth, Winslow presents the principle of immediate usefulness as a possible version of Rawls' difference principle and thus claims to show a more egalitarian, rather than utilitarian, sentiment to justify it. In my view, there is no need to hide or minimize our utilitarian sentiments. The equal moral obligation towards each individual with medical need was acknowledged in the first principle (which Winslow did not state) as a formal principle of equality. The role of the other principles (2–4) is to maximize the number of beneficiaries.

Lastly, Winslow's triage principles apply to any form of disaster and do not distinguish between events such as an earthquake, tsunami, pandemic, nuclear event or mass civilian casualty event in time of war. As

[15] Rawls. 2005 *op. cit*. note 9, p. 184.
[16] Ibid.

mentioned, the triage model proposed here is only applicable in the case of natural disasters, and does not apply in the case of pandemics or casualties of war since in those cases there may be other considerations to be taken into account which may affect the prioritization of patients.

After presenting the triage model, I will describe the IDF humanitarian mission to Haiti as a case study for various ethical considerations of patient prioritization under circumstances of severe scarcity. My intention is to describe and critically discuss three ethical-clinical decisions that were made by the IDF Medical Corps commanders.

THE IDF HUMANITARIAN MISSION TO HAITI AS A CASE STUDY

A. The IDF humanitarian mission to Haiti[17]

On January 12, 2010, an earthquake measuring 7.0 on the Richter magnitude scale struck near Port-au-Prince, Haiti. It resulted in 250,000 dead, 350,000 injured, and over 1.5 million homeless. It was a mega disaster, an extreme case of scarcity. On January 16, 2010, the entire IDF humanitarian mission team arrived on the scene. It consisted of 230 active and reserve duty personnel, of whom 121 were medical personnel and 109 were part of the logistics, security, and rescue team. The field hospital started to admit patients 89 hours after the earthquake. The hospital was capable of providing sophisticated medical care. It included surgical units, an Intensive Care Unit (ICU), an orthopaedic unit, medicine and hospitalization units, paediatric services (including a neonatal unit), gynaecology and obstetrics units, and auxiliary services such as a laboratory, imaging (including x-ray and ultrasonography), and pharmaceutical supplies. Because the Israeli field hospital (FH) had intensive care and neonatal units, it quickly became a referral centre for other street clinics and FHs. The hospitalization capacity was 72 beds. During the FH's 10 days of operation, 1,111 patients were treated, 244 surgical operations were performed, and 16 births were facilitated.[18]

The IDF's FH used a system of dynamic triage.[19] Initially, the triage algorithm consisted of three questions:

a. How urgent is this patient's condition?
b. Do we have adequate resources to meet this patient's needs?
c. Assuming we admit this patient and provide the level of care required, can the patient's life be saved?

On the basis of this algorithm, patients with severe brain injuries, paraplegia secondary to spinal injuries, or a low score on the Glasgow Coma Scale were not admitted to the hospital. This was justified on the following grounds: the hospital did not have the required resources to benefit them, and their admission would have been at the expense of other patients with a better prognosis. Despite this policy, when the rescue teams rescued people who had been buried under the rubble for several days but had miraculously survived, the decision was made to admit them to the hospital even though it would be at the expense of other patients with a better prognosis.[20] One of the interviewees explained it in somewhat providential terms by claiming that 'the world had already chosen him' and that it would therefore be inappropriate to deny him treatment.

The diversion from the triage algorithm on that occasion reveals a possible gap between the theoretical level, i.e. the attempt to formulate objective principles of patient prioritization, and the practical level, i.e. the actual decisions in triaging patients and treating them. I will return to this point below.

Triage was reevaluated on a daily basis, taking into account several factors: the available resources of the community (that is, the kind of medical facilities that had arrived in Haiti), the current hospital capacity, and the medical supplies that were available at the hospital or from the WHO storeroom. The use of a dynamic triage approach, alongside a policy of early discharge (with oral antibiotics and a letter for follow-up within several days), and the use of a pre-hospitalization area for patients who had already been triaged, enabled the medical personnel 'to treat more than 100 patients per day in a facility with 72 beds.'[21]

B. Three ethical-clinical decisions

When we talk about triage, we need to keep in mind that in the case of an FH it begins long before the first patient arrives. It in fact starts when deciding which services the hospital will provide during its operation, based on the objectives set for the FH. The first two decisions I will discuss are the following: 1) whether to include an ICU, and 2) whether to include obstetrics and neonatal units.

[17] The description of the IDF humanitarian mission to Haiti and the discussion that follows are based on interviews I carried out with four high-ranking officers from the delegation. My purpose was to learn about the various ethical considerations they used and how various values were interpreted and weighted.

[18] Y. Kriess et al. Early Disaster Response in Haiti: The Israeli Field Hospital Experience. *Ann Intern Med* 2010; 153: 45–48.

[19] O. Merin et al. The Israeli Field Hospital in Haiti – Ethical Dilemmas in Early Disaster Response. *N Eng J Med* 2010; 362(11): e38(1–3).

[20] Ibid.

[21] Ibid: 3.

Most FHs operating after a natural disaster do not provide these services[22] and for good reason. The main objective of disaster medicine is to save the greatest number of lives and keep morbidity to a minimum.[23] Consequently, there is no place for heroic measures and no reason to expend expensive and limited resources on patients who need intensive care or on premature babies. Since women give birth at home in most developing countries, it could be argued that there is no reason to offer obstetrics services in an FH. So why then were those units included in the hospital, and was the decision to include them compatible with the five principles I suggested in the previous section?

B.1ICU

Intensive care (IC) is an expensive service to provide. The technical equipment is heavy, it takes up valuable space on the plane, and the ratio of medical personnel per patient is high. The ICU had four beds: one or two were designated for postoperative recovery during the first few hours after surgery, and two or three were available for patients who needed IC. The problem was that if those beds were to be used for patients with an extremely severe condition, such as systemic failure or respiratory insufficiency resulting from sepsis, the ICU resources would be unavailable for others for an extended period of time.[24] According to Colonel (res.) Guy Lin (the commander of the surgical unit) and others, six ICU patients with systemic failure died during the first four days.[25] As a result, it was decided that the ICU policy would be to admit only those patients who the physician anticipated could be stabilized within 24 hours. That policy led to the establishment of an ad hoc ethics committee that dealt with the practical and ethical implications of the new policy.[26]

This experience can be viewed as supporting the position that FHs should not include an ICU, but according to the commanders I interviewed, including Lin, the decision to bring the unit was the right one. Three claims were presented: First, there is no evidence that by foregoing IC, more patients would have been saved. Second, IC equipment and personnel were needed, in any event, in order to stabilize patients who had undergone surgery. Third, most patients who underwent an operation and needed IC, as well as patients referred to the IDF's FH in order to be connected to respirators, survived because of the decision to bring IC equipment.

The first claim does not justify the inclusion of IC in a FH. It is possible to assume that if IC equipment and personnel had not been included, it would allow the provision of less demanding medical care for a greater number of patients with less serious medical conditions. The second and third claims might be empirically true, but they are based on the assumption that those patients were entitled to medical care in the first place. Some of those patients were entitled to medical care since their condition was not grave and a simple operation could save their lives or prevent irreversible harm. Patients with systemic failure or respiratory insufficiency, however, could be classified as 'beyond emergency care' according to the definition of the WMA (World Medical Association). According to the WMA Statement on Medical Ethics in the Event of Disasters:[27]

> [P]atients whose condition exceeds the available therapeutic resources, who suffer from extremely severe injuries… to such an extent and degree that they cannot be saved in the specific circumstances of time and place, or complex surgical cases requiring a particularly delicate operation which would take too long, thereby obliging the physician to make a choice between them and other patients. Such patients may be classified as 'beyond emergency care'.

The WMA then explains:

> It is ethical for a physician not to persist, at all costs, in treating individuals 'beyond emergency care', thereby wasting scarce resources needed else-where. …It is justified when it is intended to save the maximum number of individuals.

My interviews with the IDF Medical Corps commanders brought me to the conclusion that the policy to include an ICU in almost any humanitarian delegation sent to disaster zones reflects the vision and ethical code of the Medical Corps. The first of the Corps' mission values is the obligation to exhaust any course of action and any means in order to preserve and protect human life.[28] The possible gap between the WMA statement and the IDF Medical Corps policy regarding the inclusion of IC lies in the different

[22] C. de Ville de Goyet. Health Lessons Learned from the Recent Earthquakes and Tsunami in Asia. *Prehosp Disaster Med* 2007; 22: 15–21.

[23] See, for example, The World Medical Association (WMA). 2006. *Statement on Medical Ethics in the Event of Disasters.* Available at: www.wma.net/en/30publications/10policies/d7/index.html [Accessed 20 Apr 2016].

[24] Merin et al., *op. cit*. note 19.

[25] G. Lin, A, Yitshak & M. Batumski. Surgical Strategies in an Ongoing Mass Casualty Situation: What Can We Learn from the Experience of the Israel Defense Forces Medical Corps Field Hospital in Haiti? *Harefoa Hatsvait (Military Medicine)* 2010; 7: 60–63. (Hebrew)

[26] Ibid; Merin et al., *op. cit*. note 19. It is important to mention that according to Israeli law, withdrawing treatments such as ventilation is prohibited.

[27] WMA Statement on Medical Ethics in the Event of Disasters, *op. cit*. note 23.

[28] G. Fire. 2009. Values of the Medical Corps – Are They Appropriate as an Ethical Code of Military Medicine in Israel? In *Studies in Ethics, vol. 1*. A. Kasher ed. Jerusalem: Magnes Press, 45–58 (Hebrew).

interpretations given to the term 'beyond emergency care' and the relative weight of the value of saving lives versus utilitarian concerns of maximizing number of beneficiaries.

According to the triage model presented here, the initial decision to admit patients with a poor prognosis was a heroic step, incompatible with the principles of medical efficiency and conservation. However, the policy adopted on the fourth day to admit only patients with a good prognosis was in line with the first three principles, i.e. equal response to basic needs, medical efficiency, and conservation. Moreover, that policy is justifiable if the FH uses a dynamic triage, as in the case of the IDF's FH. The FH admitted patients who needed IC equipment (such as a ventilator) who had been referred from other FHs in exchange for referring patients with moderate injuries to them. That policy made it possible, on the one hand, to treat patients with severe conditions and, on the other hand, to increase the number of beneficiaries.

B.2 Obstetrics and neonatal units

The decision to bring obstetrics and neonatal units is not required by the triage principles I have suggested, but neither does it contradict them. The main argument supporting the decision to bring an obstetrics unit is that it satisfies the cost-efficiency standard and is not in competition with other medical needs (since it can easily be put to use in meeting general hospitalization needs when no obstetric treatments are required). Once the decision to bring an obstetrics unit had been made, it seemed logical to also send a neonatal unit. No heroic measures would be taken to save the life of a premature baby born at 26 weeks, but efforts would be made to save the life of one born at 36 weeks.

According to the commanders I interviewed, there was a more fundamental reason for the decision to bring obstetrics and neonatal units, which reflected the guiding principles of IDF humanitarian missions, not just the one to Haiti but also in earlier missions to Turkey, Kosovo, Rwanda, etc. They thought it was morally important not only to save lives but also to help bring new life into the world. This is a rather unusual consideration in the context of disaster medicine, whose main objective is to do the greatest good for the greatest number.

This example and that of survivors rescued from underneath the rubble illustrate the gap between the theoretical and practical levels. I got the impression that having obstetrics and neonatal units in an FH somehow normalizes the tragic situation facing the affected population and the medical personnel.[29] Assisting with births and saving the lives of premature babies is an act of hope. For the medical personnel and the patients in the hospital who witnessed their efforts, it was a symbolic act that pointed to a more optimistic future. As one of the interviewees said, 'While the world deals with disaster medicine, we also bring new life to this world.' This was not expressed as a criticism of other delegations since 'professionally they are not mistaken; it is simply not an integral part of disaster medicine objectives.'[30] In my opinion, although the decision to bring obstetrics and neonatal units is not required by the principles I have proposed, it is compatible with the first two principles, i.e. meeting basic needs and medical efficiency.

B.3 Treatment of compound fractures

Compound fractures are one of the most common injuries during earthquakes in populated areas. If not treated, the wound becomes infected and the patient usually develops sepsis and dies. There are two possible treatments for compound fractures under conditions of severe scarcity in an FH: amputation and external fixation.[31] The procedure of external fixation requires more resources (for example, an expensive kit of screws and poles), though it has better results: the patients do not lose the limb and can walk on their own using crutches when they leave the hospital, which they do within 24 to 48 hours.

It was initially decided to perform external fixation rather than amputation if the infection had not spread excessively. On the fourth day, some physicians had an opportunity to leave the hospital for a few hours and see what was going on outside. The sight of thousands of people with compound fractures literally lying in the streets waiting to die led these physicians to question the policy and advocate for change. They felt it was time to start amputating limbs with compound fractures in order to save more lives. After a very intense discussion, it was decided to continue with the existing policy. Three main reasons were presented. First, amputation is not necessarily the best option. Since the patients would leave the

[29] On the psychological effects of disasters on patients and caregivers, see R.J. Ursano, C.S. Fullerton, and A.E. Norwood. Psychiatric Dimensions of Disaster: Patient Care, Community Consultation, and Preventative Medicine. *Harv Rev Psychiatry* 1995: 3: 196–209. See also, Howe, *op. cit*. Note 4, Mallia *op. cit*. note 2.

[30] Elsewhere I have claimed that the IDF has a unique view of the objectives of an FH in a humanitarian mission and a unique way of executing those missions and that they are the result of the values and norms of the IDF Medical Corps and Israeli society as a whole. These claims were presented as part of a project called Israeli Bioethics whose objectives were to identify and describe ethical, legal and social determinants that differentiate bioethics in Israel from that in other modern societies. In this case, it could be argued that Israel's pro-natal policy influences physicians' view of an FH's objectives. E. Ram-Tiktin. Setting Priorities among Patients under Circumstances of Severe Scarcity. *J Health Law Bioeth* 2011; 4: 116–160.

[31] The procedure of external fixation is known as 'orthopedic minimal acceptable care.' G. Lin et al. Hard Times Call for Creative Solutions: Medical Improvisations at the Israel Defense Force Field Hospital in Haiti. *Am J Disaster Med* 2010; 5(3):1–5. And also Lin et al., *op. cit*. note 25.

hospital for tent cities, the stump could develop a life-threatening infection. Second, amputation is not an ideal option in Haiti because of the limited availability of prosthesis and rehabilitation. Third, unlike street clinics and other field hospitals, the IDF's FH had the resources to save limbs, and some of the physicians therefore felt they had a moral duty to preserve, as best they could, the quality of life of those they treated.

I was told that some of the physicians, and particularly the orthopaedists, argued that: 'We are here to practice medicine; we are not a salami factory.' It may be that the training and vision of orthopaedists, in contrast to those of surgeons, create a certain self-image of the profession: 'Surgery is about cutting, while orthopaedics is about rehabilitation.' Perhaps, then, the fourth reason to continue with the existing policy had to do with an attempt to safeguard or to protect this self-image and the professional integrity of the physicians.

I would like to suggest another possible explanation. It has been suggested that physicians have a greater moral obligation toward identified patients (the ones they are already treating) than non-identified (or anonymous) ones (in our case, those lying in the street). According to this position, from the perspective of the individual physician, the welfare of the identified patient is more important than his obligation toward non-identified patients. The clinical policy of the FH should not be determined from the perspective of the individual physician, but rather that of the policy planner, who has an obligation to the entire community. Moreover, that position was adopted when the triage algorithm I have presented was decided upon.

It could be claimed that I have been too hasty in dispensing with the moral distinction between identified and non-identified patients. It might be argued that this distinction cannot be ignored and is indeed applied in disaster situations without a second thought (e.g. trapped miners, travellers trapped in canyons, survivors at sea, etc.). The moral intuition behind this is reflected in the *rule of rescue*. According to that rule, there is a greater moral imperative to provide life-saving treatments to identified patients, whose death is certain and imminent without immediate intervention, than to provide preventative care that will save the lives of non-identified patients in the future, even if they outnumber the identified patients. Triage endorses, in a certain way, the rule of rescue but treats it as only one moral consideration among several. Tony Hope discusses six weaknesses of the rule, and I will not repeat them here.[32] Moreover, the rule of rescue is not relevant in this case for two main reasons: First, the non-identified patients will die in the following hours or days, rather than the distant future. Second, the decision is not whether to save the lives of identified patients or those of non-identified patients, but whether to preserve the *quality of life* of the identified patients versus saving the lives of the non-identified ones. On that matter, Derek Parfit has already shown why saving lives outweighs saving limbs.[33]

Thus, we see again the gap between the theoretical and practical levels. The triage algorithm of the IDF's FH did not include the objective of preserving the patients' quality of life but rather was directed at maximizing the number of lives saved. On the practical-personal level, however, it was decided to give priority to considerations of quality of life, at least in this case. It could be argued that a physician's duty to preserve quality of life need not be explicitly stated in a triage algorithm since it is standard Good Medical Practice. However, the case of compound fractures demonstrates that sometimes preserving a patient's quality of life can conflict with the disaster medicine objectives of saving the greatest number of lives and keeping morbidity to a minimum. In my opinion, the IDF's FH policy on this matter was in contradiction to the conservation principle. The principles I have proposed give little room for considerations of quality of life and focus on the objective of saving the greatest number of lives.

I share Mallia's opinion that an essential part of disaster preparedness is to train health care professionals in how to reflect on ethical conflicts and dilemmas.[34] The arguments presented above to support external fixation of compound fractures demonstrate that health care professionals find it difficult to shift from ordinary ethics to disaster ethics. Reflecting in advance on the objectives of disaster medicine and the ethical challenges that it can present will not only improve disaster management but also ease the psychological burden of denying treatment (or a specific treatment) to some patients.

CONCLUSION

My aim in this article was to claim that circumstances of severe scarcity call for a different set of allocation principles and to offer a triage model of five such principles. They can be regarded as principles of just allocation under severe scarcity and they fulfil Rawls' five formal conditions required of a conception of justice. I claim that these principles would be chosen behind a veil of ignorance were individuals (characterized as being rational and reasonable) required to consider the nature of a just allocation of resources under severe conditions.

[32] T. Hope. Rationing and life-Saving Treatments: Should Identifiable Patients Have Higher Priority? *J Med Ethics* 2001; 27: 179–185.

[33] D. Parfit. Innumerate Ethics. *Philos Public Aff* 1978; 7: 285–301.

[34] Mallia, *op. cit*. note 2.

The IDF's FH operation in Haiti reflected a unique view of the objectives of an FH. On the one hand, it was in line with the general objective of disaster medicine. Thus, the triage algorithm gave priority to patients with severe injuries as long as they had a good prognosis and as long as the hospital had the resources necessary to treat them. On the other hand, the objectives of the FH (as reflected in the medical units it included, and specifically the ICU and obstetrics and neonatal units), the admission (albeit in rare cases) of patients with a poor prognosis, and the clinical policy regarding the treatment of compound fractures reflect a deviation from the algorithm's rationale. Two possible explanations can be offered: First, although the FH worked according to a utilitarian triage algorithm, other considerations and values (such as saving lives while also preserving quality of life and helping to bring new life into the world) influenced the admission and treatment policy. In other words, contrary to the triage model I propose, which strives to be universal (i.e. it is a set of principles that rational and reasonable individuals would accept under conditions of impartiality), the IDF's FH operation combines the triage algorithm with additional values that stem from a specific conception of the good (namely, the IDF Medical Corps Code of Ethics and unique features of Israeli bioethics). Second, I think we cannot ignore the unavoidable gap between the theoretical level (i.e. the attempt to formulate a rational and reasonable allocation scheme) and the practical level (i.e. the behavior of those who actually have to deny treatment to victims). The justification for one triage model or another can be strong and convincing, yet the psychological impact of denying treatment to patients can sometimes override the attempt to follow objective and rational principles. I believe that in the case of the IDF's FH policy in Haiti, both explanations apply.

Although I fully empathize with the ethical and psychological burden of health care professionals working under such conditions, I believe that humanitarian aid delegations should put aside their own cultural values and follow ethical principles that can be universally accepted. In addition, the psychological burden on health care professionals would be minimized by educating them in clinical ethics and thus providing them with the ethical perspective of disaster medicine.

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