Review Article

Procedure and Ethics of Triage: Rationing Healthcare During Pandemics and Disasters

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Abstract

The demand for healthcare services is likely to often exceed supply during pandemics and disasters, as we have experienced during the COVID-19 pandemic recently across the globe; Bangladesh is not an exception. In hospital settings with such constraining conditions especially in low-income countries like Bangladesh, institutions and individual providers of healthcare must use some moral framework for distributing the available resources efficiently and equitably during critical times. Triage is a military term in origin, being used to describe the prioritization of wounded soldiers and the use of available medical resources for maximal efficiency. Commonly recognized examples of triage include prehospital, catastrophic, emergency department, intensive care, waiting list (e.g., for lifesaving treatments such as surgical operation, dialysis, and organ transplants), and in battlefield casualties. Triage has the ability to substantially decrease mortality and morbidity by providing timely and specific care for critically ill patients on a priority basis. This paper aims to discuss triage procedure and ethical debates behind practice of triage during the pandemics and disasters.

Keywords: *Triage, healthcare, pandemic, disaster, low-resource setting, ethical dibate*

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INTRODUCTION

The demand for healthcare services is likely to often exceed supply during pandemics and disasters. In the setting of such constraining conditions especially in low-income countries like Bangladesh, institutions and individual providers of healthcare must use some moral framework for distributing the available resources efficiently and equitably in those in critical times.[1,2] For example, we may talk about the recent COVID-19 pandemic in our country. We, as physicians, in this uncomfortable position typically deferred the decisions of "who gets what" to our own inner personal judgment in most of the cases in the beginning phase of the crisis. These decisions were understandably fraught with controversy, because the motives behind were not often clear to the people in the healthcare sector struggling the COVID-19 situation, let alone to the people outside of the sector. Compounding this ambiguity is the fact that there has been insufficient training, minimal oversight, and little formal discussion regarding basic ethical concerns such as fidelity, veracity, justice, autonomy,

and even beneficence, to ensure that these principles are being addressed in these extreme circumstances like COVID-19.[3] These ethical principles are just as important, if not more important, in triage situations in which decisions can affect life and death. Nonetheless, when the practice and principles of triage are examined within the context of the specific situation in which it is used, those ethical principles become evident as the foundations on which triage decisions are actually made. However, the priorities may vary according to the situation, resources, local communities' culture and values.[1] This paper aims to discuss history, procedure and ethical debates behind practice of triage during the pandemics and disasters.

HISTORICAL BACKGROUND

Before undertaking any discussion regarding the ethics of triage, we must understand the mechanics and typical driving factors involved here. Patient management using triage principles evolved significantly throughout history from its introduction in the battlefield to the current strategies of hospital facilities ensuring efficient care delivery with scarce resources.[2] Triage is derived from the French word 'trier', which means 'to sort' or 'to categorize' in English, i.e., to choose among several.[3,4] 'Triage' is a military term in origin, being used to describe the prioritization of wounded soldiers and the use of available medical resources for maximal efficiency.[3,4] A surgeon in Napoleon's army, Dominique Jean Larrey, established such procedure for the wounded soldiers' evaluation and evacuation by sorting into three categories – dangerously wounded, less dangerously wounded, and slightly wounded – according to the severity of their wounds while the combat was still going on.[5] French military doctors in the World War I and Japanese as well as UK and US military doctors in the World War II divided sick or wounded soldiers, which was found in historical evidence of 'triage' procedure; this technique was quickly recognized as an effective way for front line medical personnel to sort, classify and distribute the sick and wounded.[4-6] Till date, triage in military settings is a crucial component of battlefield medicine, directing limited resources to provide effective care and maximize survival rates among the injured by adopting systematic approach to categorize casualties based on the severity of their injuries. Advances in triage in modern medicine guided appropriate patients management and delivery of healthcare through prioritizing the patients.[1,3,6] Some of the commonly recognized examples of triage include (1) prehospital, (2) catastrophic, (3) emergency department, (4) intensive care, (5) waiting list (e.g., for lifesaving treatments such as surgical operation, dialysis and organ transplants), and (6) battlefield casualties.[3]

TRIAGE PROCEDURE

Triage works differently in different settings. It is slightly different in a hospital than at the site of a battle field or natural disaster.[4,6] During the COVID-19 pandemics, in our respective hospitals, we tried to follow standardized operating procedure for triage.[7] Besides, common standard steps of the triage process were adopted, which are as follows:

1. ***Initial Assessment:*** Upon a patient's arrival, a rapid assessment of vital signs, symptoms, and overall condition was conducted. This includes checking responsiveness, airway, breathing, circulation, and any visible injuries.
2. ***Classification:*** Based on the initial assessment, classify the patient into a triage category (e.g., immediate, delayed, minor and expectant)[8]. This classification helped us inform the priority of treatment.
3. ***Documentation:*** We recorded all vital signs and any pertinent details of the assessment and categorization. Good documentation is essential for continuity of care and legal protection, if applicable.
4. ***Reassessment:*** Continuous monitoring and reassessment of patients seemed so critical especially in dynamic environments, where conditions may rapidly change. We adjusted triage levels as necessary based on evolving patient conditions.
5. ***Communication:*** we tried our best to communicate triage decisions clearly to the involved other departments, patients and their families including any specific care plans or interventions required for each patient category.

We have come to know that triage categories are systematic classifications which is usually used in military settings to prioritize treatment based on the severity of injuries and the immediacy of care required; those categories are essential for optimizing resource allocation and improving patient outcomes in high-stress environments. Typically, triage in military medicine is divided into four main categories[8]:

1. **Immediate (Red)**: Patients requiring urgent medical intervention to survive.

2. **Delayed (Yellow)**: Patients with serious injuries that can wait for treatment without immediate risk of death.
3. **Minor (Green)**: Patients with non-life-threatening conditions who can be treated later.
4. **Expectant (Black)**: Patients who are unlikely to survive due to the severity of injuries, thus receiving comfort measures instead.

This structured classification allows military medical personnel to efficiently assess and manage casualties, ensuring that those in critical need receive care promptly.[4,8] Those triage categories are followed by several healthcare settings as is or with modifications based on their needs. For example, Tucci et al. showed the similar colour coding for triage approach in patient management in an emergency department of a hospital in Texas, USA (Fig. 1).[9] However, various triage categories were introduced in different clinical settings in different countries in different situation including the recent COVID-19 pandemics.[10]

Innovative technologies are transforming triage in healthcare settings, enhancing the efficiency and accuracy of medical responders in high-stress environments.[6] Digital triage tools, which utilize algorithms to assess injuries and prioritize treatment quickly, have become essential in combat scenarios. These tools help streamline decision-making processes in chaotic situations. Besides, mobile applications are also playing a significant role in triage by providing real-time data and communication capabilities. These apps allow medical personnel to share vital information about casualties instantly, enabling quicker responses and coordinated efforts among different units. Such innovations improve situational awareness and resource allocation. Furthermore, advancements in telemedicine are facilitating remote assessments, allowing medical professionals to guide field personnel through complex triage decisions. This technology proves invaluable when immediate access to higher-level care is not achievable, ensuring that critical patients receive appropriate attention without delay.[6,11-13]

ETHICAL DEBATES ON ADOPTING 'TRIAGE' IN HEALTHCARE

During the COVID-19 pandemics, our hospitals were forced to adopt triage procedure with the use of ICU and OT equipment as well staffing in different departments, and as health systems reached breaking point, choices about who will get access to life-saving treatment (e.g, ICU beds, dialysis, surgical operation) was necessarily became a real ethical and practical challenge. Triage is based on maximising benefits (as it allocates resources according not to need but best outcome), which is a utilitarian value in healthcare.[1-3,14,15] Let us think about some special life-saving scenarios as we faced during the COVID-19

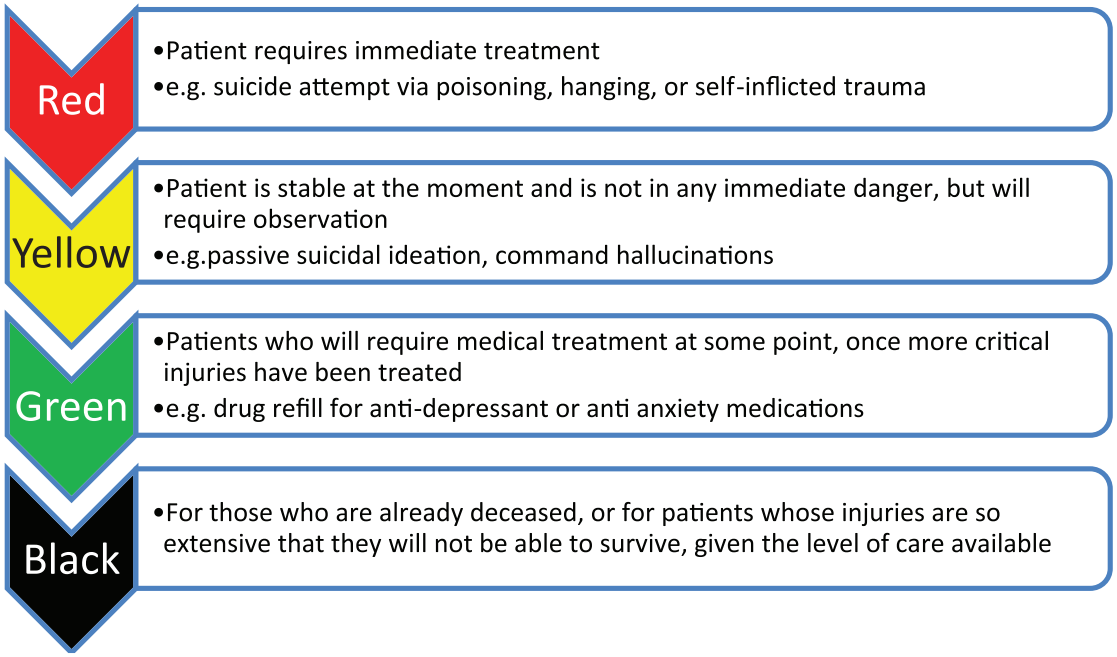

Fig. 1: Triage colour coding used in the emergency medicine department.

pandemics. Firstly, in patients with increasing shortness of breath and deteriorating respiration efficiency, the time frame optimal for initiating mechanical ventilation and saving lives is short. This was critical when the exponential growth of patients with COVID-19 brought ICUs.[16] Secondly, compromised facilities for dialysis in patients with chronic and acute renal failure cost their survivability in acute and chronic kidney disease.[17] Finally, long wait list for the emergency surgical (including obstetrical and gynaecological) operation was a disruption to the duty of care for our patients in need.[18] However, shortage of protective equipment and staff led us to those unbearable condition. As the global crisis of the COVID-19 pandemic was increasing day by day at that time, being in resource-poor settings in a developing country, we were facing a barrage of ethical problems related to the provision of healthcare. Still we got dedicated hospitals for where some sorts of triage procedures were introduced.

There have been much discussion and debates over decades as well as during the recent COVID-19 crisis on justification of following triage criteria.[19,20] Questions arise towards reasonable justification – on both 'substantive' (i.e., "which criteria should be used?") and procedural (i.e., "how should these criteria be chosen?" and "by whom?") elements.[19] Therefore,

Now we would like to discuss if triage procedure could satisfy the four principles of (bio)medical ethics. Looking at "Principlism"[21], autonomy of the patients occupies a prime position in medical ethics; however, in a pandemic crisis, this principle may be superseded by the imperative to maximize public health outcome,[1,3,22-25] as we have it mentioned it earlier. For children and severely ill patients, as they lack decision making capacity through moral reasoning, they are also not in a position to decide what is best for them in the situation, their autonomy is curtailed. Similarly in beneficence/non-maleficence issue, during a pandemic crisis, our commitment to individual patients may conflict with the duty of our profession as a whole to promote and protect public health in our resource-poor settings. Even considering optimal care for patients may be disrupted/modified by the decisions of the triage team.[1,3,22-25] This might be problematic but need of the situation. Moreover, triage team, rather than bedside physician, make decisions about which patients will receive life-sustaining intervention (allocation) and whether resources will be withdrawn from one patient and given to another (reallocation) in such crisis situation;[19,22-25] the notion of 'distributive justice' does not necessarily mean that everyone has equality in access, or the same chance as others at accessing resources, rather equity is ensured such that those who need resources the most and those who are most likely to benefit receive preferential access to scarce resources.[1,19,22]

Among other ethical principles behind triage are fidelity and veracity. Fidelity is the establishment of trust between the physician and the patient. However, during pandemic situation, the competing interests of resource allocation and triage of other patients' care before an individual's care appear to conflict with this fiduciary responsibility of the physician to an individual patient.[3,21] Veracity represents patients' expectations that their physician will tell them the truth. However, veracity does not mean that all dying patients need to be told they are going to die. In emergency situation, triage is a "cold hard fact" that physicians acting under the guidance of this preexisting transparent framework are thus transparent in purpose themselves, and their veracity is unquestioned.[3,21]

One more important debate is on the point that if healthcare discrimination by age (especially deprioritising older adults for treatment based on their life-expectancy, treatment outcome, and quality of life) should be avoided, even after it could be morally justified, in situations with intrinsic scarcity (e.g., in pandemics and disaster), based on the principles of solidarity and efficiency.[20,26] Therefore, in pandemic or disaster situation, open and clear discussion about "setting priority" is an important part to be addressed where resources are scarce.[19,20,27] Ethical dilemma occurs, if always the elderly are considered as the highest risk group amid the example of Spanish Flu that affected mostly young adults.[20] In contrast, often public discussions about strict triage would cause additional anxiety and frustration among the most vulnerable groups (e.g., elderly, chronically ill patients, persons with multimorbidities, persons with obesity as we observed during the COVID-19 pandemics).[20,26,27]

All of us have seen that ethical triage is a complex and challenging process; therefore, it requires careful consideration of medical, social, cultural, and ethical

factors to guide the decision-making process as well as fair and transparent allocation of resources.[27-31] It is even more challenging for the resource-poor countries of the world.[32] Several research, discussion and propositions have been made to ensure effective allocation of scarce resources in crisis situations in different settings, e.g., geriatric care facilities, ICUs, children's ward, surgical units, obstetrical facilities, etc.[25-31] Questions and criticism may be raised by others concerned with timing of such article writing. Some (often including us) may think that such controversial discussion on policies should not come to the table of talks when government is already facing a harsh reality; in contrast, we also feel that this may be judged as a matter of pandemic preparedness for our future.[33,34] We assume that this COVID-19 crisis is not the end of our test, but the beginning of more of such calamities either natural or man-made. However, our aim is to start the discussion involving different stakeholders including policymakers and politicians, so that "given the lack of knowledge about the nature of the next pandemic and who will be at highest risk, our deliberation of health services and distribution of resources can be more impartial and transparent", based on an equitable and ethical procedure.[20]

Last but not the least, good leadership is essential that is reflected in ethical decision-making in healthcare during crisis. Leaders must make the right decisions at the right time and be able to convince their workforce as well as public constituents that they have done so for better outcome, even if the decision seems unpopular and associated with strict restrictions,[20,35] as we have observed in triage procedure and limiting people's movement in heath facilities during the COVID-19 situation. From a leadership perspective, healthcare workers need to be offered as many resources and strategies as possible to help them build up their resilience and coping strategies.[20,33,35]

CONCLUSION

Patient management through triage is obviously a difficult task. During any pandemic, natural disaster or humanitarian conflict situation, triage requires significant levels of practice, skill, and medical maturity of the attending physicians. No one person can maintain realistically all of the compounding factors or related ethical principles in mind while making decisions; still triage has the ability to substantially decrease mortality and morbidity by providing timely care for critically ill patients on a priority basis. Hence, our institutions should come forward to make guideline/framework for triage procedure suitable for their clients/patients in need. Continuous education, practice, and collaboration among different departments can help physicians enhance their triage capabilities. Moreover, the current situation of overcrowding, fragmentation, and resource shortages in our healthcare system must be replaced with need based planning, coordination among stakeholders and effective financing, so that the needs of acutely critical patients are met individually and as a population in future emergency and disaster situations.

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