

## Online Journal of Health Ethics

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Volume 8 | Issue 2

Article 5

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Victor Y. Kong MBChB, Ph.D.

*Burns Unit Surgical Resident, Edendale Hospital, victorywkong@yahoo.com*

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### Recommended Citation

Kong, V. Y. (2013). Mass Burns Casualties: Ethical Dilemmas. *Online Journal of Health Ethics*, 8(2).  
<http://dx.doi.org/10.18785/ojhe.0802.05>

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## Mass Burns Casualties: Ethical Dilemmas

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**Dr. Victor Y. Kong, MBChB**  
Surgical Resident (General Surgery)  
Burns Unit, Edendale Hospital  
Department of Surgery

Nelson Mandela School of Medicine  
University of KwaZulu Natal  
Pietermaritzburg, SOUTH AFRICA

### Abstract

Mass burns casualty disasters occur rarely, but they are difficult to manage. Management of these cases are often further complicated in poorly resourced settings found in the developing world as triage decisions often have to be made early. This case report discusses ethical dilemmas that have been encountered when treating a mass burns casualty's incident in the setting of a regional burns unit in South Africa.

## Mass Burns Casualties: Ethical Dilemmas

### Introduction:

Mass burns casualty disasters are uncommon and extremely challenging to manage. The management of these cases is made more difficult in developing countries because resources in burns units are typically severely limited. Decisions made in triage and the selection of patients who are likely to benefit from the scarce available resources is not easy. This case report discusses some key ethical dilemmas encountered during the management of a mass burns incident at a regional burns unit in South Africa. The exact details of the case have been modified, and some information has been changed for the purpose of illustrating the message behind this case.

### Case Study:

An urgent phone call was received from a referring rural hospital within our catchment area notifying our Burns Unit that a major burns disaster had occurred earlier in the evening. A petrol powered heat generator had exploded among thirty people who had gathered together in a shack in one of the poorest areas of the province. The casualties were initially taken to the nearest rural hospital for treatment, and many had been carried there by members of their own community. When the patients arrived, it emerged that only one doctor was on duty at the local hospital, and the hospital had no suitably trained specialist personnel with experience in burns management. Our specialist burns unit was approximately 4 hours away.

A triage was performed by the doctor on duty at the hospital. The casualties comprised thirty people and most were in their 20s. The majority presented with evidence of inhalation injuries. Approximately five patients had sustained at least 90% burns, fifteen had burns above 60% and ten had sustained burns ranging from 20% to 40%. To exacerbate matters, the only ambulance service covering the region at the time was involved in another trauma incident elsewhere, and a long delay was expected before any of the patients could be transported out of their local hospital to receive treatment at the Burns Unit in Edendale Hospital.

To further intensify the situation, our burns unit had been operating at full capacity during the preceding week, and other surgical units within the hospital were experiencing severe bed shortages. In fact, all elective operations had been cancelled in the previous two weeks. At the time of the incident, the surgical emergency department was already dealing with a significant amount of patients, the majority having been admitted with violent trauma, which was commonly seen at that time of the year.

The initial five patients were assessed as having sustained over 90% burns. It was decided that palliative management was the most appropriate course of action, because their likelihood of survival was minimal. We advised the referring doctor to keep those five patients at their local hospital for active palliation. The fifteen patients with over 60% burns were transferred to our burn unit for further assessment. Out of these fifteen cases, ten eventually arrived. It emerged that the majority had severe full thickness burns and most had signs of inhalation injuries. On this occasion there was no further available capacity for ventilation at Edendale Hospital, even

after consulting the trauma unit. Therefore, a decision was made to return these patients back to their local hospital for palliation. The prognosis for the remaining ten cases where burns ranged from 30% to 40% was deemed more positive, and these patients were fully resuscitated in the surgical emergency unit, whilst pressure was placed on the hospital management to create or free up more bed space.

In spite of our best attempts to free up bed space and provide adequate resuscitation, which involved the mobilisation of extra staff from other departments who volunteered to assist, all the patients had to be managed in the surgical emergency unit for over 48 hours. There were no left over trolleys, blankets or empty spaces in the unit and some patients had to be treated in the corridor outside the unit.

Further problems later ensued when our unit was told about public outcry from the local community claiming that the patients who had been transferred back to their local hospital had been 'unfairly discriminated against'. Then, the story aroused the interest of local media and local government, and all the patients who were initially classified as having a low likelihood of survival were then 'urgently transported' back to our unit. However, most of the relatives of the patients had been left behind at the referring hospital because they were not allowed to be transferred with the patients. Tragically, several patients died on route back to our unit during transportation, and many arrived having only received minimal treatment because their original palliative management plan had been interrupted. Eventually, an urgent decision was made to convert floor space in the surgical emergency unit to cater for these patients.

After a flurry of urgent logistical planning, some beds eventually became available in our unit; one extra bed was brought in from another unit in the province. Out of the ten patients originally considered as having a salvageable prognosis, and who received definitive burns care, eight survived.

### **Discussion:**

The above case highlights many important ethical dilemmas encountered during the management of a mass burns disaster in a rural area of a developing country.

A mass burns disaster is always challenging to manage, mainly because it is a relatively rare occurrence. However, many healthcare providers are inexperienced in coping with such an incident, and when disaster strikes, particularly in rural areas, clinicians frequently lack the essential basic support and resources they need, and then they are often faced with having to make difficult decisions in respect of how to allocate care for these patients (Naicker et al, 2009). It is not unusual, especially in the developing world, for a clinician to find that he or she is the sole healthcare provider for the entire community (Reed & Torres, 2008). Therefore, this means that an appropriate triage of patients by the doctor at initial contact becomes even more crucial than ever, but nevertheless remains a challenging skill to master.

The principle of triage originated from the French word 'trier'. It was first recorded as a system applied in order to manage military casualties among Napoleon's army as they fought on battlefields. Basically, it was a method used for prioritising the treatment of wounded soldiers

(Spencer, 2011). Soldiers who were injured the least received priority treatment so that they could return to battle quickly. Those who were expected to live but who had some injuries were given next priority treatment. However, the mortally wounded were simply left to die. Using this model, the modern system of triage gives priority to patients who show the best signs of survival and who can be treated with the least amount of resources. Those treated last are deemed to require the most intensive treatment and need to be allocated the most resources (Bell, 1981). Although the modern day concept of triage has evolved from this historical root, it is still largely based around the idea that patients who are mortally ill are unlikely to survive, and, therefore, they should not be allocated priority treatment.

At the outset of triage in any major burns disasters, particularly in the above case, several issues were raised. Firstly, patients all have the right to receive treatment and to be treated with dignity. When one is faced with a limited number of patients, the decision often seems to be simpler. But with an increasing number of patients involved that have clearly overwhelmed the system to provide adequate care, the decision making process then often centres on resource allocation, and 'doing the greatest good for the greatest number of patients'. This in itself may be justified in the resource limited setting, but it is often the most vulnerable patients (such as those with severe burns who are unlikely to survive) who were left with no choice but accept the situation as it is. Could the situation be different if one was the only patient involved? It automatically changes our perspective, in that the mind-set is likely to be different which will ultimately shape our approach.

Secondly, how exactly can one decide who is to benefit from treatment, given the harsh reality that not every victim can be treated because there is simply not enough resources for everyone? Patients often have little or no input to this decision making process. How exactly does one convey to his patients that they would not be given full treatment because of their inevitable death? This undermines patients' autonomy. Furthermore, if a patient were to refuse to accept such decision being made by the clinician, would consideration based on the 'common good for all' still be justified? While it may be reasonable in Napoleon's days on the battlefield, in current times, this posed a significant problem, as it could potentially impact on the survival of others. These have been a subject of on going debate and it becomes increasingly difficult as decision making can often be subjective. It is also variable depending on the individual involved in the critical decision making process. At best, the extent of a burn injury can only provide a crude guide to the likelihood of a patient's chances of survival, and this can be used to assist decision making at triage stage (Ryan et al, 1998). It is well known that for burns injuries the total body surface area (TBSA) burnt is one of the most important predictors of mortality (Ryan et al, 1998). However, many other factors such as the age of the patient, burn depth, and comorbidities can also contribute to mortality. It should be noted that even in developed countries with excellent resource availability, treatment failure is common among patients who have TBSA burns of over 60% (O'Mara et al, 2010). Studies in developing countries continue to report a high mortality rate among severely burned patients. In India for example, Subrahmanyam et al (2003) reports that mortality rates are 100% for those with TBSA burns of over 60%. In Nigeria, Olaitan et al (2006) reported a similar high mortality rate (approaching 100%) for those with TBSA burns of over 80%. Therefore, taking into account above factors and our own experience of a 100% mortality rate for those with a TBSA of over 60%, difficult decisions about commencing palliation at the outset of treatment usually have to be made.

In this case, the burns specialist decided that it was appropriate for some patients to remain at their local hospital to receive palliative care. This decision may have been partly influenced by the rural location of the hospitals in the catchment area. It then becomes problematic if there is a disagreement between the wish of individual versus that of the families. Patients may feel that they deserve to be treated at a specialist facility, but then others with seemingly less severe injury have the priority, it may appear a form of discrimination. Furthermore, even if palliative care is the goal for most of these patients, one could argue that assessment and treatment by involvement of a burns specialist is still justified. To be informed that a life and death decision was made after discussion with the specialist 'over the telephone' may seem cold, illogical and even unacceptable. It is clear that there is no resource available to transport all patients to the burns unit. The local ambulance service was already overstretched at the time of the incident; thereby pressuring other hospitals to provide additional resources to transport mortally injured patients who had no prospect of survival was hardly justifiable. It was essential that any available resources were used to transport those who had a much higher likelihood of survival to the Burns Unit, as at least these patients can receive treatment. As a part of palliative care, it was considered appropriate for patients to be kept in an appropriate facility so they can receive the best care possible, and it is becoming increasingly more apparent that adequate palliative care can be provided at community hospitals (Payne et al, 2004); although many of these hospitals are under-utilised. Managing patients in this way reduces strain on services provided by acute hospitals and it allows family and friends to be close to the patient during their tragic time by reducing the need for them to travel great distances to see their loved ones. Often these families have no means of transport, and it would cause them unnecessary anxiety in an already distressing situation if they were forced to travel great distances to be with their loved ones.

Although the decision that was made in respect of which patients were accepted into our unit at the time of this incident was based mostly on clinical criteria, as assessed by the initial triage doctor at the rural hospital. However, further questions arose about the accuracy of the assessment, as it is well known that the level of accuracy of an assessment has a significant impact on the overall hospital decision making process. The assessment of burns injuries by clinical means alone is notoriously inaccurate (Heimbach et al, 1992; Hoeksema et al, 1992). A recent study from South Africa noted a wide knowledge gap between medical practitioners working in a rural setting and those working in a city hospital, particularly in respect of severe burns management (De Villiers, 2006). This raises issues connected with the principles of collegial trust, because it is important to have professional trust in our colleagues and trust that they have made a reasonable assessment of the situation. We as clinicians, who are involved with sheer human misfortune on a daily basis, all assume that our colleagues are competent, and if not, it would be our duty to assist in all that we could. However, how could one realistically expect a sole doctor in charge of an entire community to also be an expert in handling such a situation? Is our current training for doctors working in rural areas adequately preparing those for these challenges? Are our patients being treated fairly or being disadvantaged simply because they live in the rural communities? We believe that these are the areas that are perhaps only barely addressed in healthcare policies. Until there is significant awareness from the general public, it is unlikely that there will be significant improvement in these areas.

Hypothetically, all of these patients would potentially have to be transferred for further assessment, and the reality of managing this situation would not only be impossible, but time consuming, and could potentially negatively affect the patients' outcomes. In our case, the outcry from the local community came as a surprise, and this highlighted issues relating to communication errors and misunderstandings. It should be the primary responsibility of the management team leader of the incident to delegate the delivery of accurate information, especially to the family of a patient. However, how does one communicate with the families and relatives of more than thirty burns victims, all of whom were based almost four hours away from our unit? This situation was aggravated by the lack of understanding, fear and uncertainty experienced by the families, and further enflamed by intervention of the media.

**Conclusion:**

Whilst every effort was made by all involved to deliver the best care with the available resources, in this case it proved impossible to provide adequate care for every patient who was injured in this incident, without having to prioritise some patients over others. We acknowledged that not every victim would survive and difficult decisions had to be made, decisions which took into account the ethical dilemmas that could arise. It is hoped that this case will provide an illustration for those who are involved in burns care and provide greater understanding and awareness of the impact of the decision making process of patients, their families, and any possible consequences.

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