SELECTED SUMMARY

Allocating scarce life support in a public health emergency

DAVID THAMBU

Department of Medicine, Christian Medical College, Vellore, Tamil Nadu 632 004 INDIA e-mail: thambu@cmcvellore.ac.in

Douglas B White, Mitchell H Katz, John M Luce, Bernard Lo. Who should receive life support during a public health emergency? Using ethical principles to improve allocation decisions. *Ann Intern Med*. 2009; 150:132-8.

India, like many developing countries, is vast with differing geographic and socioeconomic situations. We see public health emergencies on an almost continual basis. These include famines, floods, earthquakes and other natural disasters including the recent tsunami, and the recent pandemic of the swine flu. Often different emergencies are seen in different parts of the country at the same time, for example famine due to water scarcity in one part and floods in another area.

During public health emergencies, there is usually a scarcity of potentially lifesaving treatments (in addition to the existing, chronic shortage of these in most developing countries). These include things from the mundane but essential, like safe water, intravenous fluids and medications to the more expensive and specialised, and items requiring manpower such as mechanical ventilators. The former usually arrive in a few days to weeks after disaster strikes, while the latter are a problem.

Let us take mechanical ventilation as an example to illustrate the situation. When people are unable to breath adequately by themselves to maintain sufficient body oxygenation, they require assistance of some sort. This could be a face mask with oxygen or non-invasive ventilation such as continuous partial pressure ventilation. If these will not suffice, patients need a tube put into their respiratory system (endotracheal tube) and oxygen-rich air pushed into the tube (mechanical ventilation). Mechanical ventilators are very expensive, require specialised doctors to use and maintain, and are a scarcity in most parts of India even in "normal situations".

Imagine the recent swine flu pandemic, which had the potential to cause over a million infected in India and a large number dead. The numbers requiring mechanical ventilation could have been over 100,000. In the actual event India had many fewer cases and deaths - 30,154 positive and 1,443 dead according to government records (1). I would like to use this situation to address the question we are looking at: given a scarcity of these life-support systems (mechanical ventilation in this case), how do we decide or prioritise who gets these treatments?

Some of the principles that are used currently include "greatest good for the greatest number" or, in an emergency, "maximising the number of people who survive to hospital discharge." Douglas White and colleagues (2) have evaluated relevant issues in the context of a hypothetical influenza pandemic, analysed the ethical principles that could guide allocation, and proposed an allocation strategy that balances multiple morally relevant considerations. In brief, they have included three principles - "save most lives", "save most life years" and the "life cycle principle". They have devised an allocation strategy that includes these three principles with predicted short-term biological survival (using a well known scoring system, the SOFA score) as shown in the table from their article, reproduced below:

There have been previous guidelines describing multi-principle systems (3) to help make decisions, such as the UNOS point system, the QUALY allocation system, the DALY allocation system and the "complete life system". As is evident from the multiplicity of "systems" and algorithms, the allocation of scarce resources is always difficult, and making "ethical" decisions that satisfy all aspects of ethics, morality and religious beliefs is nearly impossible.

Of all principles that have been deemed important, the following are common to most, and I have listed in order of importance (in my personal view).

1. Save the most lives: This sounds simple while looking at a single intervention such as ventilation, but can be complex while comparing two interventions.Take the example of safe water versus ventilation. More lives will be saved at lower cost by providing safe water, but that would mean no ventilators for patients (though they are fewer in number) who would benefit from this.

2. Save the most life years: This is easier to apply. Compare two patients of the same age, one with a pre-morbid condition that reduces life expectancy, and you would treat the patient with the most number of potential life years left.

3. Life cycle principle: Give each person the opportunity to pass through childhood, young adulthood, middle age, and old age. This inherently favours the young.

4. Lottery: This is a simple principle - everyone has an equal chance. While this cannot be the only principle one uses, it must be part of any system

5. Instrumental value: Prioritising people based on usefulness to many people at that time (for example workers making a

vaccine) and those deemed irreplaceable in the future (for example leading national leaders).

6. Framework or algorithm: Some advocate putting all the above or any other they deem relevant in a framework and then making a decision taking all into consideration. An algorithm on the other hand uses a score or a system to guide the decision.

How does one make sense or a summary of all these important but different issues? It is important to get as wide a range of public perceptions on this matter before making a decision. This is a decision that should be made between disasters or epidemics, as advocated by White et al.

What is the way forward for India and the developing world? At the time of writing I could find no document with the ministry of health or the National Emergency Medical Relief that discusses these issues, but perhaps they exist.

However, in the wake of the "swine-flu" pandemic that seems to have passed by without severe "mortality", this seems an opportune moment to begin a public debate and frame a national policy in this vital issue. This must include as wide a representation from society as possible, both among the medical fraternity as well as the "lay" public.

Why can we not "take" guidelines developed elsewhere? The reason is evident: the value that we (for example, Indians) place on any of the above listed principles will be different from another society. Hence the need for a national discussion and a unique, national policy.

The time for this may be short, given the frequency of public health disasters in India and the potential threat of infectious disease pandemics. We must act now.

References

1. Ministry of Health and Family Welfare. Pandemic Influenza - A(H1N1) [Internet]. New Delhi: Government of India;[date unknown; cited 2010 Jun 16]. Available from: http://mohfw-h1n1.nic.in/
2. White DB, Katz MH, Luce JM, Lo B. Who should receive life support during a public health emergency? Using ethical principles to improve allocation decisions. *Ann Intern Med.* 2009 Jan;150(2):132-8.
3. Persad G, Wertheimer A, Emanuel EJ. Principles for allocation of scarce medical interventions. *Lancet*. 2009 Jan;373(9661):423-31.