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Are numbers still killing people: And what is being done about it?

Penelope M. Mullen*

Birmingham, United Kingdom

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1. Introduction

There is increasing recourse to quantitative approaches in healthcare allocation and prioritisation, frequently using methods from operational research and health economics. Such approaches can prove very attractive and influential, employing what are viewed as scientific, rational, methods. An earlier paper "Killing by numbers: could quantitative analysis lead to involuntary 'euthanasia'?" [1] argued that pursuit of the superficially-attractive objective of health-gain maximisation had resulted in potentially life-saving or life-prolonging treatment being denied because it is deemed not cost-effective. It then asked whether the arguments underlying this denial could lead to compulsory euthanasia. None of the ethical arguments explored demonstrated convincingly that this could not happen. Ensuing papers questioned the appropriateness of adopting health-gain maximisation as a principal objective of health care systems-as advocated by many health economists and also implicitly or explicitly by many policy makers in the UK. They also explored what might be appropriate health-system objectives.

More recently, whilst continuing to argue that providing noncost-effective, albeit needed and potentially efficacious, treatments would unfairly deprive others of 'more efficient' health care and so reduce aggregate heath gain, some proponents of healthgain maximisation have recognised the potential for inequity and

E-mail address: penelope.mullen@btinternet.com.

ABSTRACT

There is increasing recourse to quantitative approaches in healthcare allocation and prioritisation, frequently using methods from operational research and health economics. Such approaches can prove very attractive and influential, employing what are viewed as scientific, rational, methods. But can high-tech quantitative analysis, taken to its apparently logical conclusion, cause the ethical 'human' dimension in health care to be overridden. This paper develops some of the ethics arguments posed in an earlier paper by Mullen and Mullen (2006), questioning whether it is ever permissible to kill someone. It then suggests why numbers might kill and discusses what might prevent this. Some recent developments are then reviewed to address the question of whether "Killing by Numbers" has become more or less likely. It is concluded that, despite recent developments, the attraction of apparently logical quantitative approaches means that numbers probably are still killing people.

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'adverse headlines' resulting from its pursuit. This has led to a number of proposals, policies and sophisticated analytical approaches to attempt to address the concerns.

This paper reviews the debates on the risk of 'compulsory euthanasia' and appropriate health-service objectives, examines the extent to which recent analysis, policies and proposals address the various concerns and asks whether numbers are still killing people.

2. Is it ever permissible to kill someone?

Obviously, killing people is wrong. Luttrell [2, p. 1709] states that "...it has been clear for many years that a doctor who actively takes steps to end the life of one of his or her patients is acting illegally and is potentially guilty of murder...". But the full quotation, opening with "Although" and concluding "there has been much less clarity about the relatively common decision to withdraw or withhold life prolonging medical treatment", reminds us that the position is by no means clear cut.

Many debates in medical ethics are relevant and it is possible here only to touch on some of the issues and arguments. Relatively non-controversial is the right, accepted in many countries, of mentally competent adults to refuse treatment. More controversial is the withdrawal of treatment from non-mentally competent adults, even when in a persistent vegetative state (PVS). Possibly less controversial is assisted suicide or voluntary euthanasia for the mentally competent—legal in some countries, but a criminal offence in others. However, at the far more controversial extreme is compulsory or involuntary 'euthanasia'. Could or should compulsory 'euthanasia', whether for mentally competent adults or those deemed not mentally competent, ever be accepted?

A commonly quoted set of moral principles in medical ethics is: *respect for autonomy* (a norm of respecting the decision-making







^{*} Correspondence to: 75 Eastern Road, Selly Park, Birmingham, B29 7JX, United Kingdom. Tel.: +44 (0) 121 472 0576.

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capacities of autonomous persons); *non-maleficence* (a norm of avoiding the causation of harm), *beneficence* (a group of norms for providing benefits and balancing benefits against risks and costs), *justice* (a group of norms for distributing benefits, risks, and costs fairly) [3].

It could be argued that the principle of autonomy would rule out compulsory 'euthanasia' for mentally-competent adults. But, unless we assume autonomy overrides all the other principles,¹ it is necessary to look further.

Compulsory 'euthanasia' could, of course, result either from an 'act'—actively killing someone—or from an 'omission'—failing to treat, or even to feed. These could, respectively, violate the principles of non-maleficence and beneficence.

To what extent does beneficence imply a duty to act to save a life? According to Beauchamp and Childress [3, p. 165], beneficence requires taking "positive steps to help others, not merely refrain from harmful acts". This relates to what they term "Obligatory Beneficence": but does that imply an absolute degree of obligation? No, according to Beauchamp and Childress [3, p. 170], who argue that a poor swimmer seeing someone drowning is not obliged to risk their life attempting to save that person. However, they continue, "If the passer-by does nothing (eg fails to alert a nearby lifeguard) the failure to help is morally culpable".

However, a duty to save a life appears to be qualified when Beauchamp and Childress [3, p. 165] combine two principles: *positive beneficence* which "requires agents to provide benefits" and *utility* which "requires that agents balance benefits and drawbacks to produce the best overall results" and which, they claim, is itself an "extension of the principle of positive beneficence". "To be appropriately beneficent", they continue [3, p. 166], "generally requires that one determine which actions produce an amount of benefit sufficient to warrant their costs". From this qualified beneficence they go on to state the conditions which *all* need to be satisfied for person X to have "a determinate obligation of beneficence toward person Y" [3, p. 171]:

- 1. Y is at risk of significant loss of or damage to life or health or some other major interest.
- 2. X's action is needed (singly or in concert with others) to prevent this loss or damage.
- 3. X's action (singly or in concert with others) has a high probability of preventing it.
- 4. X's action would not present significant risks, costs, or burdens to X.
- 5. The benefit that Y can be expected to gain outweighs any harms, costs, or burdens that X is likely to incur.

Of course, these conditions refer to the duty of individuals, which is not necessarily identical to the duty of society. Nevertheless, these conditions point to the considerable scope for debate especially in relation to costs and burdens and the potential implications of approaches associated with health-gain maximisation, a form of utilitarianism.

3. Why might numbers kill?

The main arguments here arise from the pursuit in the English Health Service (NHS),² and to a lesser extent in some other countries, of the superficially attractive and apparently scientific utilitarian objective of health-gain maximisation. The main instrument

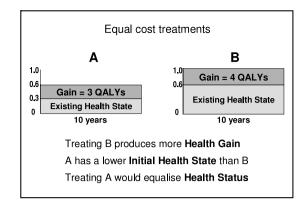


Fig. 1. Equity and QALY Gain.

for operationalising this is the Quality Adjusted Life Year (QALY) with one QALY equivalent to one year in perfect health. The QALY, whose origins can be found in the OR literature of the 1970s, is extremely valuable in comparing alternative therapies for a single group of patients where, *ceteris parabis*, the therapy giving the greatest number of QALYs for given resources, or with the lowest cost/QALY, will be selected. However, problems arise when QALY maximisation is used to select between treatments for different groups of patients.

For example, there are claims that QALY maximisation is inherently ageist as older people have less scope to gain QALYs. Thus treatments targeted at older people might be valued lower.

QALY maximisation can ignore relative need by favouring those in a higher initial health state if they can achieve greater QALY gains, as the simple example in Fig. 1 illustrates. Here two individuals (A and B) both would benefit from treatment costing the same amount. The treatment would move A from 0.3 to 0.6 on the 0–1 scale and B from 0.6 to 1.0, both maintained for 10 years.³ Who should get priority? Treating B produces more *Health Gain*. However, A has a lower *Initial Health State* (is worse off). Further, treating A would equalise *Health Status*.

Another equity-related adverse effect is 'double jeopardy', where a person who has a pre-existing disability which means that their maximum achievable health status is less than perfect would be able to gain fewer QALYs from life-saving treatment than a person with no pre-existing disability.

In a further equity scenario, A and B achieve the same QALY gain from treatment, but A costs more to treat than B. On a QALYmaximisation decision rule, priority should go to B. But what if Female A costs more to treat than Male B for biological reasons, or non-English-speaking A costs more than B because they need an interpreter? Thus, maximising QALYs could result in systematic discrimination against, say, minority ethnic groups, occupants of poorer housing needing in-patient stays rather than day surgery, or inhabitants of sparsely populated locations.

A variant of the equity argument, which is especially relevant to our concerns here, arises when considering the individual versus the collective. Inherent in health-gain maximisation is indifference between health gain achieved through a small increase for a large number of people and that achieved through a large (even life-saving) increase for a small number. Thus, a small gain, say 0.1 each year over 10 years for 11 people (total 11 QALYs), is valued higher than a gain of 1 (life saving) for 10 years for one person (total 10 QALYs), even if the 11 people start from a health status of

¹ The example of Leslie Burke [4], who lost his legal fight to prevent doctors withdrawing his artificial nutrition and hydration (ANH) if they were unable to communicate with him, suggests it does not.

 $^{^{\}mbox{2}}$ These arguments apply most specifically to England rather than the whole of the UK.

 $^{^3}$ It is recognised that it is not strictly appropriate to consider individual cases Also, the issue of discounting health is ignored here—both in the interests of simplicity.

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