

# Analysis and comment

## Controversy

### Cardiopulmonary resuscitation in continuing care settings: time for a rethink?

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Cardiopulmonary resuscitation is rarely successful in people who are old or frail, but current policy guidance fails to take this into account

The potential benefits of cardiopulmonary resuscitation, and the likelihood of failure or adverse effects, are not the same for everyone. Current NHS guidelines require staff to involve patients and their families in resuscitation decisions in accordance with local policies.<sup>1 2</sup> However, strict application of these guidelines to people in continuing care settings (such as care homes or community hospitals) potentially diverts staff time and resources away from core elements of care, for limited benefit. We question whether it is ethically appropriate to require all institutions to provide resuscitation.

#### Current position

Current guidelines apply to NHS and other establishments including hospitals, general practices, and residential care homes. The guidelines recognise that cardiopulmonary resuscitation is not always appropriate and that, when it is, some patients will refuse it. However, all institutions are required to have a policy on resuscitation and should provide cardiopulmonary resuscitation unless an overt decision has been made to the contrary.

#### Rates of survival

##### Acute hospitals

The patients most likely to survive cardiopulmonary resuscitation (30% survival to discharge) are monitored patients with ventricular tachyarrhythmias,<sup>3</sup> but the overall rate of survival to discharge in acute hospitals is about 14%.<sup>3-5</sup> One third to one half of survivors will have new, moderate to severe functional or neurological impairment<sup>3 6 w1-w3</sup> as defined by the Glasgow-Pittsburgh cerebral performance categories.<sup>7</sup> The patients with the best chances have minimal comorbidity, receive prompt defibrillation, and the shortest period of resuscitation.<sup>6</sup>

##### Public places

Cardiopulmonary resuscitation in public places such as airports and supermarkets, in particular using automatic external defibrillators, is sometimes successful. The recipient is likely to have been previously



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fit, or at least ambulant.<sup>8</sup> Typical rates for survival to discharge are 5-10%.<sup>w4-w13</sup> Of those who survive, over two thirds will have new moderate to severe neurological impairment.<sup>9</sup>

#### Continuing care settings

People in nursing or residential homes and community hospitals often have complex health needs and are very different from the population having cardiac arrest elsewhere. Staff receive basic life support training, and some facilities have automated defibrillators, but the outcomes of cardiopulmonary resuscitation are likely to be poor. Few data have been published on outcomes from cardiopulmonary resuscitation in nursing homes and none from the United Kingdom, but data from the United States show a survival to hospital discharge rate of 0-6%.<sup>w14-w17</sup>

US nursing home residents are generally fitter than those in the UK and resuscitation services in the homes better developed. The baseline one year survival rate is 66% for people in UK residential

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References w1-w18 are on bmj.com

homes<sup>w18</sup> and less than 50% for those in nursing homes. In addition some of the other factors that reduce the chance of survival from cardiopulmonary resuscitation are likely to exist in continuing care settings. These include no bystander cardiopulmonary resuscitation, unwitnessed cardiac arrest, increasing interval between call for and arrival of ambulance, increasing age,<sup>10</sup> or type of arrest other than ventricular tachycardia or fibrillation. Outcomes in the UK are thus likely to be at the lower end of the range. Predictive algorithms have been tested but are unreliable.<sup>11-14</sup>

### Avoiding harm

Cardiopulmonary resuscitation has the potential to cause harm. At least two thirds of unselected survivors from community cardiac arrests will have new neurological or functional deficits.<sup>9</sup> Other adverse effects include prolongation of distress caused by pre-existing ill health, anxiety or distress over discussions about resuscitation, undignified death, and staff distress. However, selected patients interviewed six months after cardiac arrest reported an acceptable quality of life, with a mean health utilities index of 0.72 (SD 0.22).<sup>15</sup> This compares with a mean of 0.85 in the general population and 0.91 in people whose activities were not limited by chronic disease.<sup>15</sup>

The practicalities of discussing resuscitation are often difficult and may cause distress. Apart from the obvious difficulties in patients with cognitive impairment and communication disorders (which can be partly circumvented using special techniques or provisions for incapacity), the issues are not generally well understood. Patients may be designated for resuscitation by default because staff wish to avoid lengthy discussions, the risk of misapprehension, or accusations of discrimination. Audit data suggest that this has been a widespread unintended consequence of current policies.<sup>16</sup>

Opportunity cost is another consideration. Communication and goal setting are key parts of rehabilitation, terminal care, and managing problems associated with cognitive failure and frailty. Discussions about the end of life can often be added on to these conversations. However, time and expertise for these discussions is limited. Time spent discussing resuscitation will often be better spent ensuring that diagnosis and drug treatment are correct, rehabilitation is given, or on other aspects of counselling or decision making.

### Respecting autonomy

Current advice does not give guidance on determining individuals' preferences for cardiopulmonary resuscitation. This area is under-researched and relatively little is known about the attitudes towards cardiopulmonary resuscitation among frail elderly people with multiple conditions. It is inappropriate for healthcare staff to make value judgments on behalf of their patients.<sup>17</sup> Decisions need to be based on evidence (discussion with the patient, a pre-existing advance directive, or discussions with family or informed others if the patient lacks capacity).<sup>18</sup> When the individual has capacity, the doctor must provide choices and guidance to facilitate choice. In the case of resuscitation, these

general rules must be tempered with the knowledge that the intervention concerned is unlikely to be needed and unlikely to work if implemented. If patients lack capacity, healthcare professionals should act in the best interests of the individual (box).

When asked, up to 60% of residents in a US nursing home opted for cardiopulmonary resuscitation. When they were provided with more detailed information about the outcomes, 14% changed their minds.<sup>19</sup> Americans are particularly averse to resuscitation in the context of dementia.<sup>20</sup> Reasons for opting for resuscitation given by older people include the notion of the sanctity of life and feeling needed or valued by their next of kin.<sup>21</sup>

### Distributive justice

Justice in health care calls for non-discrimination on the grounds of incidental personal factors and making the best use of available resources. Dramatic life saving interventions have often been thought of as having first call on resources, but there is no reason why their costs and benefits should not be appraised like those of other treatments. Equity and non-discrimination are not served by applying interventions to identifiable groups who are unlikely to benefit from them. If an individual requests resuscitation when it is unlikely to be effective, strict adherence to the principle of autonomy would favour provision. Autonomy must be limited, however, by considerations of effectiveness and efficiency if treatment is funded through taxation. Failure to do so will turn taxation (a legitimate transfer of property rights) into robbery (an illegitimate transfer).<sup>22</sup>

Resources are expended in training healthcare professionals in cardiopulmonary resuscitation, in time for discussion and making decisions, and in the provision of follow-up care,<sup>23</sup> especially intensive care beds. Cost effectiveness data from Norway for 2000 show direct hospital related costs of €40 642 (£27 615; \$49 010) for each patient discharged alive or €6632 for each life year gained. Such figures should be interpreted with caution as the systems in Norway are not the same as in the United Kingdom, but, for comparison, the National Institute for Health and Clinical Excellence tends to endorse treatments costing less than £20 000 per life year gained. More relevant are the incremental costs of training in cardiopulmonary resuscitation; US data estimate these at over \$50 000 (£28 000; €41 500) per life saved when older adults or targeted responders are trained.<sup>24 25</sup>

#### Best interests checklist<sup>17</sup>

- Is the lack of capacity temporary or permanent?
- Respect patient's past and present views
- Refer to any relevant written statement made when the individual had capacity
- Consult opinions of family or appropriate others, especially those holding lasting power of attorney
- Encourage participation in decisions
- Action should be the least restrictive to a person's rights
- Do not compromise safety

The concentration on resuscitation decisions in environments accommodating a high percentage of people who can never return to a full and active life deserves scrutiny. A typical nursing home might look after about 70 people and expect 46 deaths a year. In the general population, sudden cardiac death accounts for about one in seven of all deaths. In the continuing care setting, the ratio may be lower because residents are likely to have other conditions that limit life expectancy. Even assuming that cardiopulmonary resuscitation is provided to six residents a year, with a survival to discharge rate of 2%, only one person might survive every eight years. The survivor would have a 30% chance of useful recovery, probably from an already poor state of health. Staff would spend large amounts of time explaining resuscitation to each new resident and be diverted from generally under-resourced core care activities.

## Ethical withholding

The presumption of intervention in continuing care should be challenged. There are two possible approaches that can be taken, one at the level of the institution and the other at the level of the individual.

### Institutions

The costs associated with resuscitation can be argued to be largely at the level of the institution. For example, if one person in a care home or hospital is to be provided with cardiopulmonary resuscitation, all staff require training and the appropriate resources need to be funded. Given the likely low chance of success, it may be that the institution should not offer resuscitation at all. Resources saved by not spending time in training and the subsequent discussions could be better used in improving the quality of care.

Such practice, provided in a context of generally increased public awareness of the issues surrounding resuscitation, would be ethical and potentially achievable in practice. Potential clients or their representatives could be given a statement explaining the non-resuscitation policy of the institution. They would then be able to choose whether to accept or decline. When choice is more limited, such as in community hospitals, individual autonomy would inevitably be compromised by distributive justice.

### Individuals

Of course, some institutions (care homes or community hospitals) may decide to continue to provide resuscitation. Such institutions might allow healthcare professionals to make an informed decision, albeit uncertain, on the likelihood of success of cardiopulmonary resuscitation. If the chances of success were low (perhaps less than 2% or 5%), a do not resuscitate order could be issued without further discussion, unless the patient or resident requested it. In this case the discussion would largely be an explanation of "why not," rather than a negotiation about "whether." If the chances of success were thought to be higher, resuscitation would be attempted unless the patient had indicated that he or she did not want it after discussions initiated by either the healthcare professional or the patient.

## Summary points

Guidance currently requiring all NHS facilities to have policies on cardiopulmonary resuscitation implies a default blanket provision of resuscitation

Resuscitation will be unsuccessful in most people in care homes and community hospitals

The cost of providing resuscitation to all requires scrutiny

When a treatment is unlikely to succeed, a presumption of intervention is inappropriate

We believe the current guidelines should be reviewed. Future advice should have more regard to the needs of non-acute settings.

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## Health economics

### Using economics to set pragmatic and ethical priorities

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Doctors and managers have to make tough decisions about what services to provide from their budgets. Economic approaches can help, but they also need to take into account the practical and ethical challenges faced by healthcare professionals

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Doctors and managers in hospitals and primary care have to manage competing claims on their limited budgets. They have to decide what services to fund and what not to fund as well as the extent of funding. Extra resources will not remove the fundamental need to make such choices because healthcare needs and wants will always outstrip the resources available. Economic approaches to resource management at the local level have had limited success, partly because economists have failed to consider properly the practical challenges that managers and doctors face in making rational priority setting decisions.<sup>1</sup> Ruta and colleagues described an approach called programme budgeting and marginal analysis, which they argue recognises the need to balance clinical autonomy with financial responsibility.<sup>2</sup> We describe two checklists to aid managers and doctors in implementing local frameworks for resource management based on this approach. These checklists deal with pragmatic and ethical considerations that are central to the successful design and implementation of priority setting processes.

#### Why do we need an economic approach?

The challenge of setting health service priorities is greater than ever. In the United Kingdom, despite the Wanless recommendation for up to a £29bn (43%) real increase in health spending over five years<sup>3</sup> many primary care trusts are overspent, with the total deficit estimated to be £500m (\$870m; €727m) in 2005.<sup>4</sup> At the same time, important questions remain as to what managers and doctors are meant to do with national health technology guidance in their local contexts of resource management.<sup>5</sup> There is a missing link between priority setting at national and local levels. This is highlighted in the United Kingdom by the absence of guidance on how managers and doctors are to commission effectively<sup>6</sup> and by the relatively poor record of the NHS in implementing evidence from economic appraisals at the local level.<sup>7</sup>



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#### Setting local priorities

Economists' approaches to setting priorities are based on the costs and benefits of health services, using the principles of opportunity cost and marginal analysis.<sup>8</sup> The basic principle is that to do more of some things we have to take resources from elsewhere, by either doing the same things at less cost or reallocating resources from other areas of care. This requires accurate measurement of the costs and benefits of healthcare programmes.

These approaches have been applied to some degree at the national level, such as in the health technology appraisals of the UK's National Institute of Health and Clinical Excellence and the pharmaceutical benefits scheme in Australia. However, surveys in the United Kingdom, Canada, and Australia have shown local managers and doctors have limited awareness of economists' tools that could help them set priorities, although they would prefer to work with such tools.<sup>9-11</sup>