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# Do we need an ethical framework for hospital infection control?

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**Summary** Strategies for the control of the spread of infection in hospitals may lead to constraints on individual autonomy, freedom of movement, or contact with others. Codes of (ethical) practice for healthcare professionals tend to emphasise responsibilities to individual patients. Ethical frameworks for public health focus on groups of individuals (populations), the majority of whom are relatively healthy and empowered. Hospital infection control professionals must take account of both of these perspectives, sensitive to the care of infected and potentially infectious individuals, while protecting the vulnerable and relatively dependent population of hospital patients from further compromise to their health. A number of frameworks for an ethics of public health have been proposed over the last few years but there are sufficient differences in ethical considerations between collective interventions that aim to protect and promote the health of the public and interventions taken in the context of hospital infection control to justify a distinctive ethics of hospital infection control. Professional bodies may be best placed to lead the development of such a framework.

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## Introduction

Infectious diseases raise a number of difficult ethical issues (for an overview see Francis *et al.*<sup>1</sup>).

For example, tuberculosis (TB) is a major global cause of illness and death. The World Health Organization estimates 1.6 million deaths attributable to TB in 2007, yet major challenges remain with respect to defining ‘individual obligations to avoid infecting others, coercive social distancing measures, third-party notification, health workers’ duty to treat contagious patients, and international justice.’<sup>2</sup> **Box 1** lists some infection control scenarios with ethical considerations.

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**Box 1** Some infection control scenarios with ethical considerations

- A. *Acinetobacter baumannii* is isolated from six of the 20 patients admitted to an intensive care unit (ICU) over a one-month period. Molecular studies show that this is an indistinguishable strain from one that has caused outbreaks in the ICUs in neighbouring hospitals. Control of the outbreak has required closure of those units for up to two weeks and those closures have taken place in the context of a regional shortage of ICU beds. The lead ICU physician asks if the ICU should be closed to control the outbreak.
- B. Repeated hand-washing compliance audits for a period of 12 months have shown compliance of 50–60% in the care of the elderly wards in a large district general hospital with persistent meticillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* problems. The chief executive officer asks for information to be collected on the names of staff who fail to comply, so that he can discipline those staff failing to comply at the next audit. How will you respond to this request?
- C. The eye surgeons in a teaching hospital had noticed an increase in postcataract surgery infection. This had led to closure of the eye theatre for major remedial work to be carried out on a faulty air-handling unit. When the theatre is to be reopened the eye theatre sister asks if the patients who will be operated on should be told of the previous problems, particularly as there is no certainty that the deficiencies in the air-handling plant were sufficient to explain the high infection rate. Do the patients have a right to know?
- D. The strategic health authority offers your National Health Service trust £100 000 to 'improve infection control'. The head of infection control wants to prioritise rapid methods for the detection of MRSA because of ongoing public concerns with MRSA infection. There are several competing priorities, which include higher than expected death rates from fungal infection in the bone marrow transplant unit, increasing numbers of extended-spectrum  $\beta$ -lactamase-producing *Escherichia coli* infection in the renal unit, and concerns about the adequacy of facilities available for isolation of patients with diarrhoea. How should priorities be decided?
- E. An elderly man is admitted to an isolation ward following a hernia repair and the development of a postoperative wound infection from which MRSA has been isolated. During his stay in the isolation ward he develops norovirus infection, then *C. difficile* diarrhoea, and after a protracted stay he dies. The death certificate gives *C. difficile* as a contributory cause of death. His family ask for justification of the decision to place him in a ward with patients with infectious diarrhoea. How will you respond?

**Infection control strategies may impose upon individuals for the greater good**

Isolation of patients to prevent the spread of infection is not always in the best interests of the isolated individual, even if concerns are restricted to those directly related to health.<sup>3</sup> The prevention of ill-health is not the only thing that people may value. Freedom of movement, privacy, companionship and many other goods are valued by patients, staff and visitors. Frequently, methods for the control of the spread of infection involve constraints on individual freedoms, for example through restricting contact with others (isolation), restricting access to education (children in the USA cannot attend school without vaccinations), and restrictions on travel [as happened during the severe acute respiratory syndrome (SARS) outbreak]. The Public Health (Scotland) Act 2008 gives statutory powers forcing quarantine in their own home on individuals with some types of serious infection and expanded requirements for compulsory notification.<sup>4</sup> Both of these powers potentially bring the principles of respect for the individual (autonomy and privacy) into conflict with the

greater good (preventing the spread of infection). To quote Selgelid: 'The goal to minimize (infectious) disease burden should not be the sole aim of public health policy, because human rights and liberties matter too.'<sup>2</sup>

**Justification of hospital infection control goals and recommendations**

We need to be able to justify infection control recommendations or courses of action to patients, public, healthcare professionals, managers, and the media. Some actions or recommendations such as advocacy of high standards of hand hygiene are not particularly controversial. Other courses of proposed action, particularly when those actions are likely to impose constraints on individuals in order to protect the 'public' good, do need to be justified, whether this is at the level of national policy or local practice.<sup>5</sup>

A framework for ethical hospital infection control practice has the potential to underpin the justification of practice. Other benefits of such a framework are listed in [Box 2](#).

### Box 2 Benefits derived from an ethical framework for hospital infection control

- To support national and local strategic decisions such as those related to priority setting.
- To identify relevant principles to support local decision-making and resolution of dilemmas.
- To underpin the goals and recommendations that hospital infection control professionals undertake to enhance the control of infection.
- To identify explicit arguments (facilitating a wider debate).

### Do professional codes of practice provide adequate frameworks?

Codes of practice for healthcare professionals (for example the General Medical Council Code of Conduct, and the American Medical Association code) tend to emphasise responsibilities to individual patients but say little about the appropriate balance between the care of individual patients and prevention of harm to other patients, staff or visitors.<sup>6,7</sup> Medical codes generally also say little about the duties of healthcare workers to treat patients with infections (such as SARS, drug-resistant TB) that may have serious consequences for healthcare workers.

Of the codes covering healthcare professional practice that are accessible on the Internet, there are few which include standards specific for infection control professionals. One example is from APIC/CHICA, which does include a section on ethics (PS5) but the advice is limited to professional standards criteria: '... maintains confidentiality; practices in a non-judgmental, non-discriminatory manner and is sensitive to diversity; recognizes and resolves conflict of interest situations; and supports the profession's code of ethics'.<sup>8</sup>

### Are existing frameworks for public health ethics adequate?

The control of infectious diseases has always been a key activity for public health professionals. Many consider hospital infection control to be a natural extension of control strategies applied in the wider community for the control of spread of infectious diseases. So for example, the role of the English Health Protection Agency (HPA) is to provide an integrated approach to protecting UK public health. The HPA has taken a substantial role in overseeing the surveillance and strategic direction of infection control in National Health Service (NHS) trusts. The HPA website describes its function as 'to protect the community (or any part of the community) against infectious diseases and

other dangers to health.' The HPA acknowledges that 'decision makers must balance individual freedom against the common good, fear for personal safety against the duty to treat the sick, and short term economic losses against the wider implications of the potential spread of serious diseases', but it says little about the principles to be used in balancing these requirements. More detailed guidelines have been produced by the US Public Health Leadership Society, by other recent reports, and by a number of books, some of which have proposed a change in the definition and emphasis of public health.<sup>9–12</sup>

Many of the actions available to public health professionals are also used in hospitals. These include surveillance, education, isolation of individuals, cohorting, treatment of infectious individuals, vaccination, and actions to contain risks associated with food, water, and airborne transmission of agents of infection. However, there are important differences in ethical considerations between collective (infectious diseases control) actions undertaken to protect and promote the health of the public, and infection control in hospitals.

### Infection control in hospitals and the community: ethically relevant differences

Public health focuses on protecting a relatively healthy and empowered population from infection, whereas hospital infection control focuses on protecting a vulnerable, dependent and unwell population of (relatively) identifiable individuals from further compromise.

The emphasis of public health has been on the prevention of disease, whereas the emphasis of those involved in patient care is on the treatment of disease, so there is a potential conflict arising from the different perspectives of professionals involved in public health and those involved in patient care. The focus of public health is on population health and not on the health of particular identifiable individuals. Hospital infection control professionals have to take account of the

health (and arguably other) needs of individuals and groups (in wards, theatres, those with infection and those at risk of infection), and of future patients (many of whom cannot be identified at the time). This difference is well illustrated by the definition of public health as 'Collective interventions that aim to protect and promote the health of the public', and key features of 'public health':

'First it should aim at protecting and promoting the health of a large group or population (*this excludes individual clinical encounters between doctors and patients*). Second, public health actions will involve collective activities by, for example, governments, health care systems, or even society as a whole (*this excludes action to improve the health of a particular individual unless it is within the context of a campaign targeted at a group or population*).' <sup>13</sup>

Hospitals are dominated politically and numerically by healthcare professionals. Professional codes of ethics emphasise responsibilities to individual patients, so potential and actual conflicts arise between those responsible for individual patient care and 'public' good. Hospital infection control professionals work in the interface between individually focused care, and the health of the present and future hospital population. 'Taking infectious diseases into account requires understanding of the patient as victim as well as vector.'<sup>1</sup> Patients who acquire healthcare-associated infection (HCAI) may be both victims of failure(s) to control HCAI and also potential reservoirs and vectors for ongoing transmission.

Public health is about protecting and improving the health of populations in which the majority are relatively 'healthy' – having a capability to function within the 'normal' range for their age group – whereas hospital infection control is about reducing the burden of disease associated with preventable infection in a population of individuals, many of whom already have reduced capabilities. Some are already at the margins of a minimum capability to function and these individuals are particularly vulnerable to falling below a minimum threshold following HCAI. Some individuals (such as infants undergoing intensive care) in early stages of growth and development may never achieve a full range of capacities to function, and HCAI adds significantly to this burden of reduced capabilities. Low virulence agents of infections may become endemic, and outcomes for patients are more likely to be compromised for those who are infected. Agents of hospital infection may also have unusual characteristics such as an increased resistance to treatment with

antibiotics, and these may add further to the compromise of patient outcomes.

Patients admitted to hospital may have limited information and/or choice with respect to the potential infection risks to their own health associated with hospitalisation. The implications of this dependency are that hospital managers have a heightened responsibility to reduce the burden of adverse consequences attributable to preventable infection, and that healthcare institutions have a high level of obligation to protect the health of patients, visitors and staff from preventable infection.

A recent proposal illustrates some of the difficulties with applying public health frameworks with hospital infection control. Munthe developed a model for the goals of public health within a European Public Health Network (EuroPHEN) project which was funded by the European Commission.<sup>14</sup> Munthe suggested that 'The most basic problem ... seems to be the tension between the population perspective of public health and the individualistic perspective of traditional medical ethical notions of autonomy.' He proposed a population approach to autonomy, and an integrated multidimensional model of public health goals including consideration of autonomy (with respect to health opportunity choices), and equality (of health states and distribution of health opportunities). He proposed an integration of these goals with the traditional goal of public health – which is the promotion of population health – into the integrated goal of 'the promotion of equal (and real) opportunities of everyone to be more healthy.' In discussing how this model might work in guiding decision-making in practice, he argues that the relative importance of the traditional goal increases when population health is poorer. As population health rises, further gains in population health could be traded for gains in autonomy and equality. It is difficult to see how this approach could be applied in a hospital context. Levels of health (of hospital patients) are low (otherwise they would not be hospital patients), the capacity for autonomous decision-making may be impaired (because patients are ill), and the consequences of actions taken to control (hospital) population health may have impact not just on autonomy but also on the health of individuals – for example, on those placed in isolation.

The Nuffield Council on Bioethics has recently published proposals for a framework for public health ethics. This framework is based on a stewardship model.<sup>11</sup>

The concept of stewardship is intended to convey that liberal states have a duty to look after

important needs of people individually and collectively. It emphasises the obligation of states to provide conditions that allow people to be healthy and, in particular, to take measures to reduce health inequalities.

The aims of this model include the reduction in the risks that people might impose on each other, and the minimisation of interventions that are introduced without the individual consent of those affected, or without procedural justice arrangements (such as democratic decision-making procedures) which provide adequate mandate, and minimisation of interventions that are perceived as unduly intrusive and in conflict with important personal values. Many (if not all) of these aims are relevant to infection control in hospitals and also national strategy such as mandatory universal meticillin-resistant *Staphylococcus aureus* (MRSA) screening.

The proposed model makes use of the harm principle, a precautionary approach, and is prioritarian (giving priority to the most disadvantaged). The harm principle is derived from John Stuart Mill. 'The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not sufficient warrant.'<sup>15</sup> There are degrees of harm to others and degrees to which constraints are applied to individuals. The acceptability or otherwise of various degrees of harm and constraints on individuals needs to be specified in the context of applying this principle either in the community or hospital.

The precautionary principle is derived from the Rio Declaration made at the United Nations

Conference on Environment and Development.<sup>16</sup> 'Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' This principle has been extended to many other areas of regulation. The application of this principle as a single principle to decision-making in public health is fraught with difficulties and is also potentially self-contradictory.<sup>17</sup> Instead the Nuffield Council draw on European Commission advice that decisions based on this principle require integration of at least five dimensions which include risk assessment (including acknowledgements of areas of uncertainty), attention to fairness and consistency, costs and benefits of different course of action, transparency, and proportionality (actions taken should be in proportion to the risk).<sup>18</sup> The Nuffield Council refer to this as a precautionary approach. This type of approach (particularly risk assessment, proportionality) will be familiar to many working in hospital infection control even though perhaps not formally defined in this way.

### Development of an ethical framework for hospital infection control

Some broad ethical questions (by no means inclusive) that are relevant to an ethical framework for hospital infection control are listed in [Box 3](#). Proposed steps in the development of an ethical framework are shown in [Box 4](#). Much work remains to be done in specifying principles, determining their

#### Box 3 Some broad ethical questions relevant to hospital infection control

- How do we balance the risks and benefits for individuals against those of others, over the range of common scenarios found in day-to-day hospital infection control practice?
- What are our responsibilities to those coming into hospital with respect to reporting the risks of healthcare-associated infection (HCAI) and actions taken to control HCAI? When do we require patient consent?
- To what extent do healthcare workers have a duty to put themselves at risk of serious adverse outcomes through treating patients with potentially transmissible infectious diseases?
- Does the causal relationship between healthcare institutions and HCAI impose a moral responsibility on hospitals to prioritise the prevention and treatment of HCAI above diseases for which the institution has less causal responsibility, or to compensate patients for preventable HCAs?
- How do we choose priorities in infection control, taking account of fairness and cost-effectiveness? To what extent should future, potentially very serious, problems (such as pandemic influenza) be prioritised alongside existing problems?
- What is the extent of the obligation on patients and visitors to take responsibility for preventing the spread of infection to others?
- What are the virtues and vices of a 'good' infection control professional?
- What should be the frequency and severity of risk, and whose risks should be taken account of, when making key decisions such as those related to closure of a facility for patient care, such as an intensive care unit, in order to control an outbreak of infection?

**Box 4** Steps in the development of an ethical framework for hospital infection control

- Identify ethical challenges in hospital infection control and illustrative scenarios (identify the issues, and outline possible options).
- Identify relevant existing ethical frameworks.
- Evaluate the arguments for particular choices and courses of actions derived from use of professional and public health ethical frameworks for key scenarios, identifying omissions, consistencies, commonalities and differences.
- If existing frameworks are considered insufficient then go on to consider whether they can be adapted for hospital infection control or whether another approach should be considered.
- Identify areas for further work.

relevance to and implications for hospital infection control practice and in the development of the dialogues required to obtain both individual and group mandates for particular courses of action.

Ethical dilemmas can provide a starting place in helping to identify important areas of concern and uncertainty. A number of examples of infection control ethical dilemmas are given by Bryan *et al.*<sup>19</sup> and in [Box 1](#). An example of a situation with considerable ethical tensions is that of decision-making with respect to the closure of an intensive care facility with the objective of controlling an outbreak of infection such as caused by *Acinetobacter baumannii* (see example A in [Box 1](#)). There is much uncertainty concerning the impact of *A. baumannii* infection on overall patient outcomes in intensive care; and uncertainty with respect to the effectiveness of control strategies; closure of the facility has considerable potential to impact on patients who require intensive care (but for whom facilities may not be available if the unit is closed to new admissions); failure to control the outbreak may lead to spread to other units, and may lead to future problems such as the development of increasing antibiotic resistance.

In considering this problem we can start with the precautionary approach from the Nuffield Council. This approach requires risk assessment (including acknowledgements of areas of uncertainty), attention to fairness and consistency, estimation of the costs and benefits of different course of action, transparency, and proportionality of the response. Acknowledgement of the uncertainties and transparency particularly with respect to the assumptions that have been made are important considerations in this context. The decision to close an intensive care unit as a strategy to control an outbreak requires justification and an ethical framework for decision-making can only support this type of difficult decision.

Although the precautionary approach as advocated by the Nuffield Council has relevance to this

problem, it is less helpful when considering some of the other areas mentioned in [Box 3](#), for example the virtues and vices of a 'good' infection control professional. A virtue-ethics framework may be more appropriate for this problem.

Professional societies may be best placed to support the development of a framework for ethical decision-making in hospital infection control, perhaps through the establishment of a working group with expertise from infection control professionals, and those with a background in medical ethics. Development of an ethical framework for hospital infection control would lend support to those involved in infection control whether at national, NHS trust or local levels of practice.

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