

9-2007

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Recommended Citation

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REVIEW ARTICLE

The Ethics of Infection Control: Philosophical Frameworks

Charles S. Bryan, MD; Theresa J. Call, BS; Kevin C. Elliott, PhD

Recent developments that are relevant to the ethics of infection control include the patient safety movement, the appearance of new diseases (notably, severe acute respiratory syndrome) that pose threats to healthcare workers, data confirming the suspicion that infection control measures such as isolation may compromise patient care, and, in philosophy, renewed interest in virtue ethics and communitarianism. We review general ethical frameworks and relevant vocabulary for infection control practitioners and hospital epidemiologists. Frameworks for the ethics of infection control resemble those of public health more than those of clinical medicine but embrace elements of both. The optimum framework, we suggest, takes into account a virtue-based communitarianism. The virtue ethics movement stresses the need to consider not only rules and outcomes but also the character of the individual(s) involved. Communitarianism emphasizes the well-being and values of local communities, best determined by shared, democratic decision making among stakeholders. Brief discussions of 15 consecutive cases illustrate the extent to which the daily practice of infection control poses problems heavily freighted with ethical overtones.

Infect Control Hosp Epidemiol 2007; 28:1077-1084

An ethical problem exists when there is uncertainty about the best course of action from a moral perspective. Most problems encountered by infection control practitioners (ICPs) and hospital epidemiologists carry ethical overtones, although these might not be readily apparent to those involved. In 1996, Herwaldt¹ reviewed infection control ethics and offered a practical framework for decision making. She pointed out that among the 4 well-known principles of biomedical ethics articulated by Beauchamp and Childress² (beneficence, non-maleficence, justice, and autonomy; Appendix), the ethics of infection control emphasizes justice, whereas clinical ethics underscores patient autonomy. Little has been written on this topic in recent years. However, there has been a burgeoning literature on the closely related ethics of public health.³⁻¹⁷ Meanwhile, in general philosophy, there has been a resurgence of interest in virtue ethics,^{18,19} which stresses the need to consider not only rules and outcomes but also the character of the individual(s) involved, and a renewed interest in communitarianism, which places special focus on community values and the common good.²⁰⁻²²

Our purpose in this brief review is to familiarize ICPs and hospital epidemiologists with some general philosophical frameworks and a selected vocabulary for decision making at the local level. In the text that follows, we introduce terms useful for framing ethical dilemmas (Appendix and Figure 1). These frameworks and terms are illustrated in the context of 15 representative problems encountered at our institution (Table). We suggest that the optimum framework for infection

control ethics takes into account a virtue-based communitarianism pursued with the goal of decreasing the incidence of healthcare-related infections and problem pathogens to an irreducible minimum.

HISTORICAL OVERVIEW

In 1970, infection control came into its own as a formal discipline with an international conference sponsored by the Center for Disease Control (as it was then known).²³ That same year, the term "bioethics" was coined in 2 radically different contexts. The politician Sargent Shriver, during a conversation with Kennedy relatives that took place in his Bethesda, Maryland, living room, used "bioethics" to denote the application of moral philosophy to problems in clinical medicine. Also in 1970, Van Rensselaer Potter, an American biochemist, used "bioethics" to denote a science of human survival in which biological facts must be taken into account.^{24,25} Since 1970, bioethics, including clinical ethics, has thrived almost exclusively in the sense used by Shriver, and its focus has been mainly, though not exclusively, on individual well-being. ICPs and hospital epidemiologists will, however, recognize the relevance of Potter's definition as it applies to problems such as bioterrorism, pandemic influenza, the increasing resistance of common pathogens to available drugs, and the emergence of new diseases, such as severe acute respiratory syndrome (SARS). ICPs and hospital epidemiologists will also note that, aside from a period of intense debate during the late 1980s and early 1990s about the ethics

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Received February 9, 2007; accepted April 26, 2007; electronically published July 6, 2007.

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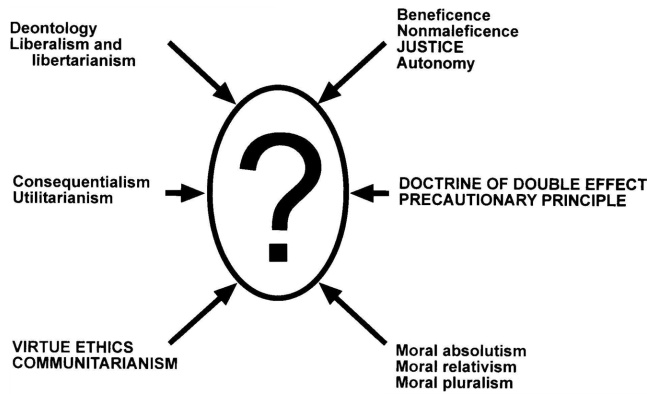


FIGURE 1. A wide variety of ethical concepts and terms can be brought to bear on problems encountered in the daily practice of infection control. Terms emphasized in this review are shown in capital letters. See Appendix for details.

of managing human immunodeficiency virus infection,^{26,27} bioethicists have largely ignored infectious diseases, concentrating instead on headline-grabbing topics such as euthanasia, futility, truth telling, and stem-cell research.^{28,29}

Most ICPs and hospital epidemiologists enter infection control from clinical medicine, a discipline in which the welfare of individual patients nearly always trumps broader social concerns. In contrast, infection control measures, like public health measures, often infringe on individual rights and liberties; examples include disease surveillance and reporting, the use of isolation precautions, and the restricted use of certain antimicrobial agents. Infection control ethics, like public health ethics, requires balancing the utilitarian goal of promoting public health against the libertarian goal of protecting individual rights, such as privacy and freedom of movement. It has, for example, been shown that infection control measures—most notably, the barrier precautions inherent to patient isolation—can negatively affect the welfare of individual patients by causing nurses and physicians to make fewer bedside visits.^{30,31} Restricting antimicrobial agents limits physicians' options for individual patients. The appearance of SARS renews issues raised during the early years of the human immunodeficiency virus infection epidemic, such as the duty of healthcare workers (HCWs) to assume personal risks on behalf of individual patients and the community.³² To assist ICPs and hospital epidemiologists in making these difficult decisions, and with reference to the Appendix and Figure 1, we will briefly review 3 frameworks for ethical and political reasoning, several strategies for balancing benefits and burdens, and a working approach to decision making in infection control.

FRAMEWORKS FOR ETHICAL REASONING AND DECISION MAKING

Discussions of ethical problems tend to be long, tedious, and inconclusive because parties bring to the table competing ethical frameworks in which they remain firmly entrenched. The most common frameworks involve rights- or duty-based (ie, deontological) ethics and results-based (ie, consequentialist) ethics. Utilitarianism is a well-known example of a results-based ethical theory. It judges actions by the extent to which they promote the overall well-being (ie, utility) of society or, as the theory's great proponent Jeremy Bentham (1748-1832) famously put it, promote "the greatest happiness of the greatest number." Libertarianism and liberalism, which are often derived from duty-based ethical theories, judge actions by the extent to which they respect individuals' rights even when such respect may compromise society's well-being overall. Libertarianism focuses especially on negative rights, such as privacy and freedom from government interference. In addition to negative rights, liberalism also supports positive rights to such basic goods as education and health care. ("Liberalism" as used here differs from the common usage in the United States, where it is used as a synonym for the political left; in most countries, liberals belong to the political right or center.) Let us briefly examine how deontological and consequentialist ethical theories might clash in infection control, as they do in public health.^{7-9,32}

A deontologist might argue that infection control strategies such as disease reporting, screening, and patient isolation compromise individual rights and freedom of movement. Such consequentialist approaches, the deontologist might worry, pay insufficient attention to distributive justice and respect for individuals. A consequentialist might counter that promoting the interests of individuals (as is common in libertarianism and liberalism) compromises the greater good of society, and that good citizenship matters more than individual rights and entitlements. The deontologist might next point out that the consequentialist cannot anticipate the full range of potential harms resulting from a given infection control strategy, much less state their probabilities. The consequentialist would respond that the deontologist's rules (principles from which rights and duties are derived) may be insensitive to particular circumstances. Also, who makes the rules? An emerging viewpoint in philosophy holds that such conflicts might be ameliorated by calling into play a third framework: communitarianism reinforced by virtue ethics.^{20-22,33}

A renaissance in virtue ethics began in 1954 when English philosopher Elizabeth Anscombe argued that ethical theories focusing on duty (deontology) or results (consequentialism) tend to neglect virtue, character, and the emotions.³⁴ Virtue ethics rests on the premise that, in weighing an action, we must consider not only the relevant duties and results but also the character of the actor (or, in technical terms, the

TABLE Fifteen Cases That Illustrate Ethical Problems in Infection Control

Case	Problem
Case 1	Should a postpartum woman being treated for a breast abscess due to MRSA be allowed to visit her infant in a busy neonatal intensive care unit in which MRSA has not yet emerged as a significant problem?
Case 2	Should the new tetanus, diphtheria, and pertussis vaccine be offered to all HCWs and not just those who work with infants and young children, at a cost of nearly \$250,000 to a financially strapped hospital system? (For a preliminary approach to this problem, see Figure 2.)
Case 3	What steps should be taken by ICPs and hospital epidemiologists to prevent inappropriate use of surveillance data in the wake of new state legislation mandating public availability of these data?
Case 4	Given that 3 of her patients have had MRSA infections within the past year and that nasal culture reveals she has MRSA carriage, should an implant surgeon cancel scheduled procedures at the first symptoms of a common cold because of the possibility of the “cloud adult” phenomenon?
Case 5	How should ICPs and hospital epidemiologists respond to administrators who insist that the costs of maintaining negative air pressure in a dusty construction area adjacent to the hospital’s linen processing unit would be prohibitive?
Case 6	What statement, if any, should ICPs and hospital epidemiologists make to a pandemic preparedness committee concerning the duties of HCWs to care for patients with emerging deadly diseases such as SARS and avian influenza?
Case 7	How should the infection control department address a proposal to install a decorative waterfall in the lobby of a children’s hospital given the potential risk of <i>Legionella</i> infection?
Case 8	How should the infection control department address a request from the quality assurance department to promote improved hand hygiene and observe the use of precautions among physicians?
Case 9	Should the infection control committee endorse a recommendation from another committee that all patients admitted to the hospital have nasal cultures for MRSA performed, given the problematic implications that positive results might have for individuals?
Case 10	How should the infection control department respond to the hospital administration’s mandate (after the visit from a consultant) that zero is the only acceptable rate for central catheter–related bloodstream infection and ventilator-associated pneumonia?
Case 11	Which hospital personnel should be given priority in the distribution of influenza vaccine in the event of an approaching pandemic of influenza and a real or perceived vaccine shortage?
Case 12	Should use of the antibiotic linezolid be liberalized rather than continuing a requirement for written justification based on the potential development of resistance?
Case 13	Should vancomycin be used only for those cases of <i>Clostridium difficile</i> colitis with systemic toxicity or that have failed to respond to metronidazole, on the basis of expert opinion that vancomycin is perhaps more effective than metronidazole, especially in cases of severe disease? ⁵⁹
Case 14	How should the infection control department best respond to a complaint by hospital personnel that certain radiologists and cardiologists do not observe optimum sterile technique when performing procedures?
Case 15	Should a patient with known bronchiectasis and multiple cultures positive for acid-fast bacilli and cultures positive for <i>Mycobacterium avium-intracellulare</i> over the past 10 years, and who now has a smear positive for acid-fast bacilli and a new, small lower lobe infiltrate, be kept under respiratory isolation precautions until a current culture specimen has been shown not to contain <i>Mycobacterium tuberculosis</i> ?

NOTE. HCW, healthcare worker; ICP, infection control practitioner; MRSA, methicillin-resistant *Staphylococcus aureus*; SARS, severe acute respiratory syndrome.

agent; see Appendix). An emerging perspective holds virtue ethics to be complementary to deontological and consequentialist frameworks. What, then, do we mean by “virtue”? In classic philosophy, virtue was often understood as *aretê*, or excellence in function. The 7 classic virtues consist of the 4 cardinal virtues from Plato’s *Republic* (practical wisdom, justice, temperance, and courage) and the 3 transcendent virtues from St. Paul in 1 Corinthians 13:13 (faith, hope, and love). Some maintain that these 7 virtues, when combined with their associated traits and derived virtues, suffice for the individual project of building character.^{35–38} These 7 virtues serve, in a sense, as “ethical primary colors.” For example, humility can be viewed as temperance combined with justice,

resolve as courage combined with hope, and honesty as justice combined with courage and faith.

Practical wisdom and love are, respectively, the key virtues for competence and caring—the twin pillars of clinical medicine. ICPs and hospital epidemiologists need practical wisdom to guide them in making decisions in the face of uncertainty, justice to seek a balance between individual rights and the common good, temperance to seek restraint in the use of healthcare resources, courage to engage busy and politically powerful physicians and administrators in dialogue, and the transcendent virtues—faith, hope, and love—to assist them toward actions that are supererogatory, ie, above and beyond the call of duty. The virtuous ICP or hospital epi-

demologist strives constantly to improve his or her performance, character, and credibility. In the healthcare environment, ICPs and hospital epidemiologists are unique in that they bring (or should bring) special expertise in the recognition and prevention of infections. From this position of epistemic authority they should share with their colleagues not only the most recent data and knowledge but also the limitations of current understanding.^{39,40} The virtuous ICP or hospital epidemiologist exercises his or her epistemic authority wisely to promote virtuous behavior intrinsic to the practice of medicine: adherence to measures known to reduce the likelihood of disease transmission, including the observance of precautions and the maintenance of scrupulous hand hygiene.⁴¹

Communitarianism is, in brief, an emerging ethical and political philosophy, closely allied with virtue ethics, whereby stakeholders formulate policies based on their shared vision of the optimum society. We should emphasize "shared," because communitarianism functions best in the context of a participatory (not merely representative) democracy. Communitarianism is best viewed as a way of thinking that honors the ability of people to seek mutually satisfactory solutions to their common ethical problems. An infection control committee that functions well, with its broad representation of stakeholders (physicians, nurses, administrators, pharmacists, laboratory personnel, environmental services, and many others), thus represents an exercise in communitarianism. ICPs therefore have the opportunity to work with others toward defining what constitutes an optimum communitarian vision of a safe hospital environment that also respects individual rights and freedoms.

The shared values developed by the community of ICPs and hospital epidemiologists can and should promote conflict resolution. These values should not be exempt from outside evaluation and critique, and indeed ICPs and hospital epidemiologists should recognize that others may legitimately hold quite different perspectives (see the definitions of moral absolutism, moral pluralism, and moral relativism in the Appendix). We believe that a virtue-based communitarianism steeped in the shared values of ICPs, hospital epidemiologists, and other stakeholders constitutes a logical starting point for institutionwide ethical deliberation.

THE DOCTRINE OF DOUBLE EFFECT AND THE PRECAUTIONARY PRINCIPLE

ICPs and hospital epidemiologists should be aware of 2 additional principles pertaining to ethical issues in infection control: the doctrine of double effect and the precautionary principle. Both of these principles, which are discussed and debated at length in the biomedical and general ethics literature,⁴²⁻⁵² involve trade-offs between beneficence (doing good) and nonmaleficence (avoiding harm).

The doctrine of double effect justifies the possibility of harming certain individuals to bring about other goods. This

doctrine stipulates 4 conditions for justifying an action that may cause harm: (1) the action itself must be morally good or at least indifferent, (2) the bad effect should not be intended but merely foreseen as a possibility, (3) the good effect must not be produced by means of the bad effect, and (4) there must be a proportionality between the good and bad effects that justifies the good effect.⁴² In the context of infection control, for example, one might appeal to the doctrine of double effect to justify barrier precautions for the sake of protecting others, despite the possibility that some patients may receive less attention from nurses and physicians as an inadvertent side effect.

The precautionary principle, in its simplest form, justifies anticipatory preventive action despite incomplete scientific evidence.^{13,47} For example, John Snow invoked the precautionary principle when he advised removing the handle from the public water pump on Broad Street to halt the 1854 London cholera epidemic. Yet how much scientific evidence must one have to invoke the precautionary principle? How much do we know about the risks, and how much do we know about the costs of preventive measures, including harm to certain individuals? (We can only imagine the wrath of inconvenienced individuals had John Snow been wrong about the Broad Street pump.) The precautionary principle, at its best, summons us to a "best practices" approach to participatory and democratic decision making under uncertainty.

To summarize ideas covered to this point, we suggest that a virtue-based communitarianism should complement infection control policies and procedures based on rules (deontology) and results (consequentialism). ICPs and hospital epidemiologists should (1) exercise their epistemic authority wisely to (2) seek communitarian solutions that address conflicts between deontological and utilitarian concerns with careful consideration of the local context, in an effort to (3) advance the social and moral good of decreasing the incidence of healthcare-related infections and their associated problem pathogens to an irreducible minimum. As part and parcel of this communitarian approach, ICPs and hospital epidemiologists should promote those virtues (that is, the various character traits and behavioral strengths) that reduce the likelihood of disease transmission. The doctrine of double effect and the precautionary principle illustrate types of concerns that ICPs and hospital epidemiologists may need to address when analyzing moral problems. Let us now review briefly how ICPs and hospital epidemiologists optimally make decisions.

WORKING APPROACHES TO ETHICAL DECISION MAKING

Kass⁵ proposed the following questions for evaluating the extent to which public health measures simultaneously promote not only the general good but also social justice and protection of individual liberties, and the questions seem equally applicable to infection control. (1) What are the spe-

cific goals of a proposed program? (2) How effective is the program for achieving its stated goals? (3) What are the known or potential burdens of the program? (4) Can the burdens be minimized, and are there alternative approaches? (5) Is the program being implemented fairly? (6) How can the benefits and burdens of the program be fairly balanced? ICPs and hospital epidemiologists should strive toward helping everyone in their healthcare system to feel confident that their programs will promote the welfare of patients (and HCWs), that the measures are minimally burdensome, that a fair procedure has determined the extent of any given problem, and that the benefits of a proposed program override competing desiderata. To illustrate these considerations and other concerns that come into play (Appendix), let us consider briefly 15 cases that arose in the daily practice of infection control at our institutions (Table).

ICPs and hospital epidemiologists will perceive that some of these problems invite prima facie solutions. For example, in Case 4, the surgeon could be treated with mupirocin; in Case 5, reference could be made to hospital accreditation standards; and in Case 7, the issue could be referred to design engineers. Virtuous ICPs will nevertheless demonstrate their epistemic authority with humility, recognizing the complexity of problems that initially seem straightforward. The downsides to denying the postpartum woman access to her newborn infant (Case 1) and to keeping the patient with bronchiectasis on respiratory isolation (Case 15) illustrate the doctrine of double effect. To what extent, if any, does the postpartum woman, gowned and gloved, with her abscess drained and dressed, pose a danger to others (Case 1)? What is the likelihood that the new acid-fast bacillus culture will reveal *Mycobacterium tuberculosis* when multiple cultures over the past 10 years have consistently shown *M. avium-intracellulare* (Case 15)? The potential for litigation tempts ICPs and hospital epidemiologists, as it does other HCWs, to brush aside the golden rule (what they would want for themselves if they were the patient) in deference to policies and procedures (deontic pronouncements). Writing and disseminating a well-reasoned opinion based on clinical facts, relevant literature, and appropriate ethical frameworks constitutes a better approach. A documented judgment that incorporates up-to-date information and shows sensitivity to competing ethical concerns seldom, if ever, constitutes the grounds for a successful theory of negligence; attorneys call this due diligence.

Some of the cases cited in the Table likewise elicit prima facie responses that promote infection control measures at the expense of the healthcare system as a whole. Offering the tetanus, diphtheria, and pertussis vaccine to all HCWs, as opposed to just those who work directly with pediatrics patients (Case 2, which is illustrated in Figure 2); raising the costs of new construction (Case 5); and opposing decorative fountains (Case 7) all have sound theoretical justifications, but are they beneficial to the healthcare system and its constituencies? What data support these decisions? A growing

body of data supports obtaining nasal specimens to check for methicillin-resistant *Staphylococcus aureus* (MRSA) in patients admitted to intensive care units, but are such cultures warranted for all patients admitted to the hospital (Case 9)? Identifying individuals as MRSA carriers brings into play the doctrine of double effect and the precautionary principle. Here, ICPs and hospital epidemiologists should remember the clinical motto, "Don't order a test unless you plan to act on it." Can we minimize the stigma of being labeled an MRSA carrier? Can we deal with the likelihood that the number of patients under contact precautions will be quadrupled, and that such patients can anticipate, according to 3 studies and a recent review, a 50% reduction in visits by nurses and physicians?⁵³ Issues of antibiotic restriction (Cases 12 and 13) raise questions about the moral defensibility of denying patients what we would want for ourselves. Many jeremiads against overuse of antibiotics fail to address adequately the issue, "Is it good enough for Mom?" Nevertheless, there are obviously some situations in which responsibility for the common good overrides prima facie obligations to individual patients.

Most ICPs and hospital epidemiologists, harkening back to nineteenth-century breakthroughs by the likes of Ignaz Semmelweis, Oliver Wendell Holmes, and Joseph Lister, consider their most basic ongoing challenge to be promotion of such general measures as hand hygiene, standard precautions, and aseptic technique (Case 8). Addressing the suspect behaviors of individuals requires courage (Case 14). ICPs and hospital epidemiologists also address issues that challenge the supererogatory ideals of HCWs, the concept of health care as a higher calling in which service to others transcends self-interest.⁵⁴ Should ICPs and hospital epidemiologists proclaim the duty of HCWs to care for patients with deadly conditions,

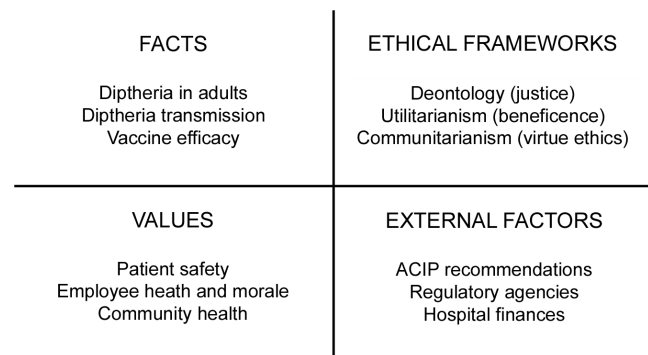


FIGURE 2. A "4-quadrant" approach to ethical deliberation involves (1) dividing the facts and concepts to be addressed into 4 categories, (2) listing facts and concepts without discussion, and (3) group discussion with the aim of finding a mutually satisfactory solution. In this figure, this approach is applied to the question, "Should the new tetanus, diphtheria, and pertussis vaccine be offered to all healthcare workers?" (Case 2, Table). ACIP, Advisory Committee on Immunization Practices.

such as SARS, or for patients known or suspected to be victims of bioterrorism (Case 6)? How and to what extent should ICPs and hospital epidemiologists recommend priorities for vaccination in the face of shortages (Case 11)?

In these and similar dilemmas that crop up in daily practice, ICPs and hospital epidemiologists recognize that national guidelines and recommendations sometimes fail to offer tidy solutions. It may comfort ICPs and hospital epidemiologists to know that some philosophers feel that, in most situations, ethical precepts and principles are of less importance than the particular details of a case (see the definition of particularism in the Appendix).⁵⁵ To summarize the procedure suggested by Soskolne⁵⁶ and endorsed by Herwaldt,^{1,57} the process of arriving at decisions in infection control should include a careful review of relevant facts, values, and external factors, as well as awareness of the relevant ethical frameworks (Figure 2). Acknowledging the give and take between and among deontological, consequentialist, and communitarian frameworks can, potentially, help stakeholders recognize why they differ and, in recognizing their differences, seek common ground.⁵⁸

NEW CHALLENGES

W. Edwards Deming, in his System of Profound Knowledge, argued that leaders must constantly put their credibility on the line. The current patient safety movement will tax both the leadership ability and the epistemic authority (credibility) of ICPs and hospital epidemiologists. Mandatory reporting of surveillance data (Case 3) will tempt administrators to misuse such data to gain competitive advantage. Administrators may in turn tempt ICPs and hospital epidemiologists to underreport data, as indicated by one administrator's impression that zero is the only acceptable rate for ventilator-associated pneumonia and central catheter-related bloodstream infection (Case 10). This may change the entire paradigm of infection control surveillance, which heretofore has emphasized liberal case criteria so that sufficient data can be obtained to determine whether problems exist. At our institutions, we witness not only other committees' concerns with infection control issues (eg, Cases 8 and 9) but also the creation of new committees, such as a Central Venous Catheter Committee, a Ventilator-Associated Pneumonia Committee, and an MRSA Committee. We have chosen not to address power differentials but rather to formulate proactive recommendations for definitions of disease and collaboration in and among institutions. These new challenges reinforce our conviction that a virtue-based communitarianism is essential to ensuring the safety of current and future patients in the difficult and changing context of contemporary medical practice.

ACKNOWLEDGMENTS

Potential conflicts of interest. All authors report no conflicts of interest relevant to this article.

APPENDIX

This Appendix defines general concepts and relevant terms used in this article.

Frameworks for Ethics

Deontological ethics. A theory according to which the morality of actions is based on their accordance with duty and respect for persons (developed influentially by Immanuel Kant).

Consequentialist ethics. "Results-based" ethics, according to which the morality of actions depends on their consequences (with utilitarianism being a particularly influential version).

Virtue ethics. "Character ethics," a theory that focuses on developing agents (that is, persons who act or have the power or authority to act) with virtuous character traits.

Utilitarianism. A consequentialist ethical theory according to which the morality of actions is determined by the total utility (classically interpreted as happiness) that they produce.

Liberalism. A political viewpoint focused on neutrality among competing conceptions of the good and on individual rights and liberties, including positive rights to goods such as health care.

Libertarianism. A political viewpoint (sometimes known as classical liberalism) that accepts only negative rights to be free of outside interference (such as force, fraud, or theft).

Communitarianism. A political and ethical viewpoint that emphasizes community values as the ground for ethical reasoning and the good of communities as a primary focus.

Perspectives on the Universality of Ethical Conclusions

Moral absolutism. The perspective that there is only one true moral system; contrasted with relativism (see below).

Moral pluralism. The perspective that there are multiple, equally fundamental moral principles and systems that are in conflict with one another.

Moral relativism. The perspective that all moral principles and systems are valid only relative to a particular culture (conventionalism) or to the choices of an individual (subjectivism).

Some Relevant Principles

Principles of clinical ethics. Four foundational principles articulated by Beauchamp and Childress²: beneficence (the duty to do good), nonmaleficence (the duty to avoid doing harm), justice (the duty to treat equals equally), and autonomy (the duty to respect the patient's ability to control his or her life).

The doctrine of double effect. A principle for weighing good and bad consequences of an action, focusing on the distinction between intended and foreseen effects.

The precautionary principle. A principle with diverse for-

mulations, focusing on the legitimacy of taking action to prevent harm in the absence of complete scientific information.

Some Nouns and Adjectives

Deontic. Of or pertaining to duty.

Epistemic. Of or pertaining to knowledge.

Epistemic authority. Expertise with respect to a particular body of knowledge.

Moral particularism. The position that moral analysis should rest not on general moral principles but rather on a careful examination of the salient considerations in particular cases.

Prima facie. "At first glance"; refers to duties that hold all else being equal, in the absence of overriding considerations.

Rights. Claims that obligate others to benefit an individual (positive rights) or to abstain from hindering an individual (negative rights).

Supererogatory. "Above and beyond the call of duty," applied to good actions that go beyond what is required by duty.

Virtues. Excellences in function that promote the good. The 4 cardinal virtues (from Plato) are wisdom, justice, temperance, and courage; the 3 transcendent virtues (from Saint Paul, 1 Corinthians 13:13) are faith, hope, and love.

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