Ethical Practice in Nuclear Medicine Technology

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American society is currently placing great emphasis on ethics. Mass media, journals, and trade papers are giving consideration to ethical issues not only in the areas of business and government but in the sphere of the professions as well. The medical profession has its share of ethical issues and, although the average nuclear medicine technologist is not directly affected by some of the more controversial topics such as genetic counseling or reproductive technology, the principles of confidentiality, autonomy, beneficence and justice are very much a part of everyday practice in the nuclear medicine department.

Ethics is often confused with the concepts of values or professionalism. There is a distinct difference between ethics and professionalism, yet, to act in a non-professional manner may be unethical. Also, a close relationship exists between ethics and law, and unethical practice is often equated with, but not always, illegal practice. Ethics is, however, a unique and specific entity often described as a conduct or morality, or how people behave in respect to the standards of right or wrong that have been established by their society. A more precise meaning of ethics is that it is a philosophical study of morality. It is an examination of the right or wrong, or good or bad, results of an action. That which is considered to be unethical by a society is dependent upon that society's standards of morality and the value that society places on the rights and privileges of the individual (*1*).

Philosophies of ethics cover a wide range of ideas about the rightness or wrongness of certain acts. The earliest writings of man are laced with ethical dilemmas and how man interacted with his fellow man in their resolution. The more popular ethical theories that have been developed in recent times and are most often used in the debate of medical ethics include those of deontology and utilitarianism. Emmanuel Kant (1724–1804), a German philosopher, is credited with the development of deontology as an ethical theory. Kant held that the moral rightness or wrongness of a human action is independent of the goodness or badness of the consequences. Deontological theories are based on the sense of duty one individual (human being) holds with respect to another. Its premises are that certain duties and rights must always be upheld and certain laws or rules must always apply, without regard for circumstances, in order for justice to be served. Respect for persons, as persons, is a requirement (*2*). Two English philosophers, Jeremy Bentham (1748–1832) and John Stuart Mill (1806–1873), are credited with the classical formulation of utilitarianism. Utilitarianism is a teleological or consequentialist theory that is based on examination of the consequences of an act, then taking the action that will lead to the greatest benefit to the greatest number, everything considered. That action or rule that maximizes value (benefits) and minimizes disvalue (harm) would be the more ethical action according to this theory. In choosing the greatest balance of good over evil or allowing the end to justify the means, there is potential for allowing some individuals to suffer for the greater good of a larger number of individuals (*2*). Therefore, the utilitarian ethicist must apply the theory with caution in order to respect the rights of the individual. On the other hand, the deontologist's applying a rule strictly in certain cases may lead to a lesser good for certain individuals. There are desirable points and weak points in both theories, and philosophers continue to debate as they seek to find the more perfect formula that can be ethically applied to describe man's interactions with his fellow man. Many other ethical theories including "natural law" (*3*), "situation ethics" (*4*), and "Christian ethics" (*5*) have been expounded, and each theory has points of merit but no one theory has been found that will universally satisfy all criteria of ethical behavior.

Ethical standards vary from one society to another and from one individual to another. It is important that individuals from different socio-ethical backgrounds who are members of the same profession have a common set of ethical standards to guide their practice of the profession. For that reason, most professions have developed a set of ethical standards or a code of ethics that can be used by the members of that profession to guide their application of ethical principles that reflect the organization's acceptance of an ethical theory. In many cases, it appears that both deontological and utilitarian principles may be embodied by an organization as it attempts to define the way its members interact with patients, clients, other health care professionals, and each other. The Society of Nuclear Medicine-Technologist Section developed and adopted such a code at their Winter Meeting in 1985 (Appendix).

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Noted ethicist and philosopher Paul Ramsey says those "guidelines" or codes of ethics, present a professional ethic that can be profoundly respected and admired, yet, unless their "principles are constantly pondered and enlivened in their application they become dead letters" (*6*). It is the application and use of a principle rather than its philosophical placement within a particular ethical theory that proves its value as an ethical guideline. There are certain principles that are commonly addressed in any ethical theory. They include autonomy, beneficence, confidentiality, justice, and truth. These five principles can be found in nearly every code of ethics that has been adopted by a health care agency or profession and form the basis of the professionals' moral obligation and personal responsibility to the patient.

AUTONOMY

Autonomy has been defined as self-directing or self-controlling, and in the medical sense of autonomy, it is the right of the individual patient to make decisions regarding personal medical care. To be autonomous is to be given the right to choose between two or more alternatives. The concept of autonomy then requires that the patient be given adequate knowledge about the alternatives so that an intelligent decision can be made. Also, autonomy requires that the health care worker respect the decision of the patient, whether or not he believes it to be the best decision for the patient, everything considered. Autonomy is guaranteed in the U.S. Constitution under the concept of right of privacy (*7*), yet it is a relatively new ethical principle in the practice of medicine. We have a long history of paternalism in which the doctor made decisions in the best interest of the patient and the patient accepted the greater knowledge and authority of the doctor without question. When the doctor wrote a prescription or ordered a test, the patient complied (*8*). This is not so today. We live in the age of litigation, lack of trust, second opinions, and patient independence.

The issue of abortion is often considered to be an ethical issue based on the principle of autonomy. Actually, abortion is not an ethical issue because the 1973 Supreme Court action in Roe versus Wade (*9*) made it a legal issue. Autonomy, or the right of a woman to make a decision regarding what happens to her body (and therefore to the fetus) is the ethical issue. The debate on this issue asks whether the woman has autonomy over the fetus as well, or whether the rights of the fetus should carry greater importance.

The right of autonomy rests with the individual as long as that individual is an adult with the physical and/or mental capacity to act on his own behalf. If the patient is judged not to fit those criteria, there must be an individual such as a family member or guardian who will act on behalf of the patient in the exercise of autonomy. The right of autonomy has become grounds for legal action in numerous well publicized cases in recent years. These include the Quinlan case in which the parents brought suit against a hospital in an attempt to gain autonomy for an unconscious daughter (*10*) and the Baby Jane Doe case in which the State of Indiana brought suit against the parents to obtain custody of a newborn in order to protect her autonomy (*11*). In another case, Elizabeth Bouvia brought suit against a hospital in an attempt to gain autonomy that would allow her to choose death by starvation (*12*). It is interesting to note that Ms. Bouvia, once given the right to autonomy, chose to accept treatment and to continue her life.

Autonomy in the nuclear medicine department creates a simpler but equally important scenario. Principle 1 of the NMT Code of Ethics addresses autonomy indirectly through the requirement that the technologist "respect the rights of the patient." The patient has the right to refuse to have any diagnostic procedure done. If a patient should refuse to have a study done, it is the responsibility of the nuclear medicine staff and the primary care physicians to assure that the autonomous patient has been given adequate information about the procedure, how it will be done, and what side effects might result. Comparative data about alternative procedures that might be used to make the diagnosis and possible adverse consequences of not having the procedure done should be discussed with the patient. If the patient still refuses, the nuclear medicine staff must respect the patient's right of autonomy in making the final decision.

BENEFICENCE

Beneficence is that principle embodied in the duty of the health care worker to perform those acts or administer care that will be of benefit to the patient. In order to discuss beneficence, one must also consider the concept of "nonmaleficence" or "do no harm." The entire medical profession exists for the purpose of providing beneficence to the patient. One frequently hears, however, of cases where medical treatment has caused a patient undue suffering and pain without relieving the original symptoms. Questions have been posed regarding the multiplicity of diagnostic procedures that are currently available and their value of providing accurate diagnosis. A medical student who entered the hospital as a patient with abdominal pain described the ordeal during which he underwent blood tests, numerous X-ray exams, nuclear scans, endoscopy, barium enemas, an upper gastrointestinal series, ultrasound, computed tomography with and without contrast, and magnetic resonance imaging. After four weeks of examinations a ruptured retrocecal appendix was discovered during surgery for a bowel resection. None of the diagnostic procedures had proven beneficial to the diagnosis and had served only to cause the patient added discomfort and misery (*13*). What would have happened had the patient not been adequately insured? Would the doctors have continued their quest to make a diagnosis or would the patient have been sent home without a diagnosis? The cost of medical care is such that over 33 million Americans cannot afford health insurance (*14*). For those patients the principle of beneficence takes on a dollar value. Hospitals are cutting back on expenses, and doctors are placed in a position where the decisions have to be made, not on principles of beneficence to the patient, but on availability of resources.

Another application of beneficence versus nonmaleficence can be made in the use of ionizing radiation for diagnostic and therapeutic purposes. The benefit versus risk concept is used in determining the value of a procedure for an individual patient. The decision making process should include decisions about the comparative benefit of alternative procedures and the age and condition of the patient. Once a nuclear medicine procedure has been selected and ordered, the technologist should apply the ALARA (as low as reasonably achievable) principle in the calculation, preparation, and administration of the dose to assure the patient's ethical right of beneficence. While the patient is in the department it is the responsibility of the staff to monitor the patient to assure that no unforeseen incident brings harm to the patient. Maintenance of intravenous lines, catheters, and oxygen is the responsibility of the nuclear medicine technologist. The patient's physical safety must be assured and the staff must be prepared to administer first aid and/or CPR if required.

Principles 4 and 5 of the nuclear medicine technology Code of Ethics can be applied to the principle of beneficence. Principle 4 states that "the nuclear medicine technologist should be responsible for competent performance of assigned duties." Duties include the proper performance of patient studies and performance of patient care. This principle can be extended to include all duties having to do with patient record keeping and reporting, quality control, and quality assurance. Principle 5 states that "the nuclear medicine technologist should strive continuously to improve knowledge and skill." Improvement of knowledge and skill makes the technologist more capable of performing procedures with greater accuracy and understanding of how patient conditions may necessitate modification of standard practices in order to obtain the desired information. Keeping up with "state of the art" practices enables the technologist to provide appropriate technological advances for improvement of diagnostic information. That is the substance of ethical practice.

CONFIDENTIALITY

The principle of confidentiality is embodied in the constitutional right of privacy, first explicated in the case of Griswold versus Connecticut, 1965 (*15*). Privacy relates to the physical, social, and psychological aspects of patient care and includes case discussion, examination, treatment and consultation. All patient records are confidential material and cannot be released in any form to any source other than those possessing proper authorization. Only those individuals who have direct responsibility for a patient's diagnosis, treatment, and or care have the "need to know" and should have access to the patient's chart. Third party payers such as Medicare/Medicaid and private insurers also have the "need to know" certain types of information. The long-standing concept of physician-patient privilege has established that the patient has the right to expect anything revealed to the doctor during the course of treatment to be held confidential. This includes not only the notes and reports in the patient's chart but also any confidences given verbally to the physician during the course of treatment. This same concept applies to the relationship between the health care worker and the patient since the health care worker is an extension of the physician and the course of treatment. There are, however, certain cases in which the patient's right to confidentiality may be a lesser good to the patient than the right to know to a greater number of individuals. For example, a carrier of AIDS or venereal disease might not wish to have his family know the diagnosis, yet for the health and well being of the family members, there is a "need to know." Ethicists L. Walters and T.L. Beauchamp wrote that there are three reasons for breaking patient confidentiality: conflict with the best interest of the patient; conflict with the best interest of the third party; and conflict with the rights and interests of society in general (*16*). Principle 2 of the Code of Ethics is that principle having to do with confidentiality: "The nuclear medicine technologist should hold in strict confidence all privileged information concerning the patient."

JUSTICE

Justice invokes the concept that all men are created equal and, therefore, should be treated as equals. Such a concept implies the right to receive medical care. The question arises: at what level should medical care be available to all, and who will pay? We have made tremendous advances in the technology of diagnosis and nuclear medicine has remained at the forefront of that advance. Yet, not every patient whose diagnosis could be made or enhanced from a nuclear medicine scan is financially able to benefit from the technology. A recent report by the National Citizens Board of Inquiry into Health in America stated that there are 33 million Americans without health insurance and in one year (1982), over 800,000 patients were denied routine hospital care because they had no means to pay their bills (*14*). In addition to the high cost of medical care, there is an acute shortage of health care personnel in many fields, including nuclear medicine technology. An April 1989 report released by the Summit on Manpower concluded that the data indicates a 45% supply/demand deficit for nuclear medicine technologists (*17*). It is tempting for health care workers to accept positions on the basis of salary without concern for the employer, moving from one position to another as salaries continue to climb. Such action may seem right at the time but it indicates a lack of professional pride or commitment to the welfare of the patient.

Justice also relates to the way the health care worker interacts with the individual patient. It is the duty of the nuclear medicine technologist to treat all patients with the same level of courtesy and respect without concern for the physical, social, economic, or psychological factors that may make the patient "different" or difficult to work with. Principle 1 applies to the principle of justice with regard to "service with compassion and respect."

TRUTH TELLING

Veracity, or truth, has not been emphasized in codes of ethics or treatises on doctor-patient relationships until rela-

tively recent years. The paternalistic attitude that patients do not want to know the truth or will be unable to accept the truth has prevailed. "Benevolent deception" in which the doctor told the patient only that which was necessary but not enough to cause added concern about a physical condition was the accepted practice. More recently, studies have been conducted to determine patients' desire for truth about their diagnosis. The American Hospital Association's *Patients' Bill of Rights* (*18*) stresses the patient's right to a truthful diagnosis and prognosis. Principle 6 of the Code of Ethics states that the nuclear medicine technologist should not engage in fraud or deception. The health care worker, however, may be caught between the patient's desire to know the truth and the doctor's failure to truthfully answer the patient's questions. As it is the right of the patient, it is the responsibility of the physician rather than of the health care worker to discuss the patient's diagnosis and prognosis with the patient. The Privacy Act of 1974 (*19*) safeguards the confidentiality of the medical record, but at the same time, gives individuals access to records concerning themselves. The nuclear medicine technologist may be caught in a situation where the patient seeks to obtain information at the time the images are being obtained. It is not the professional responsibility or even within the professional capability of the technologist to discuss findings with the patient. Technologists do not make diagnoses; rather, they obtain the information that enables the physician to contribute to the diagnosis. Therefore, the patient must be told that the information obtained will be transmitted, after physician interpretation, to the physician from whom the request for the study came.

INFORMED CONSENT

Informed consent involves telling the patient what is to be done and, in general, how it is to be done. It also requires telling the patient the risks of side effects and/or complications that may accompany the procedure. Consent must be obtained from the patient or, in the case of a patient who is not of legal age or competent to give consent, a person authorized to act on behalf of the patient. Legal requirements concerning the adequacy of disclosure of information about a specific procedure vary from state to state. In the absence of specific legislation, the subjective test or the objective test may be applied. The objective test is based on giving the patient as much information about a procedure as is provided by other physicians in the community. The subjective test requires the physician to provide information based on the patient's mental and physical condition and the ability to understand the explanation of risks and possible consequences (*19*). Procedures for which written consent is required are those of an experimental nature (research, new drug trials, etc.) and those that carry an element of risk such as surgery, special radiographic procedures using iodinated contrast media, or invasive and high-risk procedures. The use of radidopharmaceuticals for diagnostic purposes does not generally fit the requirements for written consent; however, treatment with iodine-131, cardiac stress-testing, and the use of certain drugs for intervention do require written consent.

When immediate action is required in order to save the patient's life, implied consent is extended under the assumption that the patient would approve medical care that appears to be necessary, had he or she been conscious and competent. Obtaining consent is at times a task given to the technologist at the time the patient arrives in the nuclear medicine department to have a procedure done. The primary components one must remember are: (1) the patient must have adequate information about the procedure in order to be able to make an informed decision; (2) truth telling must be practiced in the discussion of procedures with the patient; and (3) the patient must be allowed autonomy. Coercion and/or intimidation cannot be used in order to obtain patient compliance. Principle 6 of the Code of Ethics is most appropriate in applying to the concept of informed consent, in that fraud and deception cannot be used in the process of obtaining consent.

ETHICS OF PROFESSIONAL INTERACTIONS

Ethical practice is a component of those characteristics often attributed to professionalism since professional responsibility requires that one practice within ethical standards or guidelines that have been accepted by the profession. Professional ethics applies to the interactions between the health care worker within one's own profession, with those in other professions, and with the patient. Conflicts may arise when one's personal or professional ethics are at a different level of moral/ethical acceptance or when two or more individuals embrace opposing ethical views. It is important that the health care worker understand there can be conflicts between personal or professional ethics and organizational authority, even when the ultimate goals are the same.

Professional responsibility has taken on new meaning in recent years as accreditation agencies and government funding agencies have demanded greater accountability from those in the medical profession. Peer review and quality assurance are the primary mechanisms recognized by various health care professions as mechanisms for internal evaluation of quality of performance. Peer review is the evaluation of the work of one health care professional by another at or near the same level of responsibility. It is for the dual purposes of identifying both weak points that need to be improved and strong points that merit recognition. Peer review encourages "whistle blowing," or the act of reporting unacceptable (unethical or incompetent) actions by a fellow employee. Quality assurance is the parameter that measures both the technical components of quality control and the personnel components of accepted standards of practice.

Health care workers are likely to encounter other issues of professional responsibility that require ethical decision making within the organizational setting. Loyalty to a profession may bring conflict with loyalty to an organization when organizational goals conflict with professional goals. Chains of authority may not allow professional autonomy or depart-

mental autonomy. An example of one such conflict in nuclear medicine is the placement of nuclear cardiology within the organizational structure—whether authority lies with nuclear medicine or with cardiology, and from whom does the nuclear medicine technologist take instruction when the authority is shared?

Ethical responsibility in research is another area of concern. The development of new protocols and approval of new radiopharmaceuticals requires a significant research base which must be obtained in the clinical setting. Establishment of rules for selection of patients, value or risk of the protocol to patient care, and impact of research time on the routine work load are factors that may lead to conflict between a commitment to professional responsibility and requirements of the organization.

ETHICS AND THE LAW

In the practice of nuclear medicine technology, it is unethical to administer radiopharmaceutical doses that exceed the established requirements for the procedure. It is also unlawful to exceed dosages beyond the limitations described in 10 CFR 35 and such action is called a misadministration (*20*). The CFR defines the practice of the profession and can be considered a legal document. It is the responsibility of the professional to uphold the guidelines therein.

Another area of ethical/legal consideration is the copyright law. Photocopiers are almost as necessary to a nuclear medicine department as a film processor. Technologists have become accustomed to copying articles and even books or sections of books without giving thought to the legal implications. Not only is it unethical to copy the work of another without permission: it is also a violation of the copyright law (subject to civil court action) to copy certain items at all while other items allow copying under specified circumstances. Copying of film falls into the same category since patient studies are the property of the hospital and their safekeeping is the responsibility of the hospital/department. Copies can be provided to a primary care physician or other designated person who has the "need to know." In the case of malpractice where patient studies are subpoenaed as evidence, only original films are acceptable. For educational purposes, copyright laws generally allow the copying of no more than two copies of journal articles but copying of books or sections from books should be done only upon permission of the publisher. It is unethical to copy patient cases for educational purposes unless all identifying data that would allow association of that case to a particular patient is obliterated, according to the ethical principle of confidentiality.

Ethics in research and publication is a growing concern among professionals who are associated with academic or research institutions. Most institutions where patients may be the subject of research have set up internal guidelines and review committees that assure compliance of its members. Granting agencies also have certain requirements for assuring ethical standards of research and writing. It is the responsibility of the individual researcher to practice ethical research and reporting of findings. Not only is it unethical to plagiarize, or use without giving credit, the works of others—it is illegal. Howwever, it is accepted practice to quote or reference the work of others, and the citation of one's work by another researcher gives credence to that work when due credit is given.

SUMMARY

Knowledge about ethics is as important to the practice of nuclear medicine technology as is knowledge of radiopharmaceuticals or instrumentation. Without consideration for the rights and expectations of the patient, high standards of quality cannot be met in the department. It is the professional and moral duty of a health care worker to abide by standards that have been set for the profession. Likewise, it is the moral duty of the individual to abide by standards that have been set for society. When ethical standards and professional standards are interposed with a high quality of technical practice, one can anticipate that the patient will receive excellent care and diagnostic information will be delivered with assurance of quality. It is to that end that the Society of Nuclear Medicine-Technologist Section adopted a Code of Ethics.

APPENDIX

CODE OF ETHICS NUCLEAR MEDICINE TECHNOLOGY*

PRINCIPLE 1: The nuclear medicine technologist should provide service with compassion and respect the rights of the patient.

PRINCIPLE 2: The nuclear medicine technologist should hold in strict confidence all privileged information concerning the patient.

PRINCIPLE 3: The nuclear medicine technologist should comply with the laws and regulations governing the practice of nuclear medicine.

PRINCIPLE 4: The nuclear medicine technologist should be responsible for competent performance of assigned duties.

PRINCIPLE 5: The nuclear medicine technologist should strive continuously to improve knowledge and skill.

PRINCIPLE 6: The nuclear medicine technologist should not engage in fraud or deception.

PRINCIPLE 7: The nuclear medicine technologist should be willing to assume responsibility to participate in activities that promote community and national response to health needs.

*Adopted by the Society of Nuclear Medicine, Technologist Section, at the Winter Meeting, 1985.

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