

✧ EDITORIAL ✧

## *The challenge for nursing research: Scientific integrity*

The new millennium in the region of the Americas finds a number of countries actively developing the research base for nursing practice, and politically positioning nursing for greater influence in health-care decisions and for evidence-based practice.

More opportunities now exist for the exchange of nurses across national boundaries, opening the possibility for testing the same research hypothesis in different countries and settings. This approach promises to enrich nursing science, enable cross-national comparisons and generate culturally sensitive and relevant nursing knowledge.

In some countries, such as the USA, the pace and growth of nursing research has been faster than our understanding of ethical issues and social considerations that are of paramount importance in the conduct of science.

Scientific norms have evolved over centuries, and adherence to these norms enhances our confidence in the outcomes of science; most importantly, the credibility of science and scientists' behaviour either increases or diminishes the public confidence in the scientific enterprise. Among these values and principles are respect for truth and the integrity of knowledge, honesty, openness, trust and collegiality, among others.

In order to ensure that science is conducted with the highest ethical standards, governmental and funding agencies are now requiring training of scientists and graduate students receiving governmental support. In addition, a number of professional and scientific organizations are developing guidelines to aid the work of investigators.

The Midwest Nursing Research Society (MNRS), the largest regional nursing research society in the USA, has developed guidelines that are being widely promulgated and used by investigators, faculties and students.<sup>1</sup> The domain of scientific integrity encompasses several areas under its rubric. A number of ethical principles underlie the guidelines, including justice, autonomy, beneficence

and non-maleficence. The most critical areas in scientific integrity are briefly described below.

**1. Data stewardship and access.** Guidance is provided in relation to how data are handled, managed or shared: (i) data are privileged until they are published; (ii) authors may share data with responsible individuals for secondary analyses or verification following publication; (iii) all team members should have equal access to data provided that they assume responsibility for its confidentiality; and (iv) if editors request original data, authors should provide these.<sup>1</sup>

**2. Data management.** (i) Data are to be collected with consistency, according to stated protocol, and in a manner that minimizes sources of bias; (ii) data are reported accurately, following agreed-upon rules; (iii) data are to be preserved for 5–7 years; (iv) data are of high quality, in that there should be no intentional withholding or selective reporting that may be contrary to expectation; and (v) if errors are discovered, they should be promptly corrected and made public.<sup>1</sup>

**3. Authorship.** Authorship establishes accountability and responsibility, and enables allocation of credit for scientific contribution. An author is a person who contributes substantively to published work and who assumes public responsibility for it. Substantive contribution entails responsibility for two or more of the following areas: (i) conception and design; (ii) execution of the study; (iii) analysis and interpretation of data; and (iv) preparation and revision of manuscript. Providing financial or technical support is not basis for authorship, but may be acknowledged.<sup>1</sup>

**4. Protection of the rights of human subjects in research.** Guidance regarding the protection of humans in research is embedded in a number of international documents as well as national reports (in the USA) following major abuses. All institutions within the USA receiving government funding have to follow stated policies and procedures, or lose their funding. Thus, while measures to protect

research subjects are critical, they are not included in professional organization guidelines in order to avoid redundancy.

Persons being asked to participate in research must be treated with the highest respect, with full explanation provided, and should participate voluntarily. Assurances of confidentiality are to be provided. They may refuse or discontinue participation at any time, without the risk of jeopardizing their care. The study must involve research, and must be fruitful to society so as not to waste important human and financial resources. The explanation given should include the following elements: (i) description of any benefits, risks or discomforts; (ii) if risk is involved, outline steps to be taken to minimize these or treat untoward injury; (iii) any burden on patient or insurer. The investigator should also be prepared to discontinue the research if there is probable cause that continuation will result in injury.

At the present time, many institutions have developed guidelines for monitoring and overseeing violations in areas of scientific integrity. Educational institutions are

teaching students the principles and practices of conducting sound science. Professional organizations, on the other hand, are focusing on educating their members and promoting guidelines as widely as possible so the members may debate and actively use them. Scientific publications, similarly, serve an educational function for their readership. In addition, journals, through their publication practices, take steps to ensure that scholarly works published adhere to the highest standards.

Multiple avenues should be used to give visibility to the ethical conduct of science to increase awareness and to instruct members of the nursing community.

## REFERENCES

- 1 Midwest Nursing Research Society. *Guidelines for Scientific Integrity*. Glenview, IL: Midwest Nursing Research Society, 1996.

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