

A Unifying Vision for Scientific Decision Making: The Academy of Nutrition and Dietetics' Scientific Integrity Principles



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ABSTRACT

In 2014, recognizing the need to have a single document to guide scientific decision making at the Academy of Nutrition and Dietetics (Academy), the Council on Research was charged with developing a scientific integrity policy for the organization. From the Council on Research, four members volunteered to lead this workgroup, which reviewed the literature and best practices for scientific integrity from well-respected organizations, including federal funders of research. It became clear that the scope of this document would be quite broad, given the many scientific activities the Academy is involved in, and that it would be unreasonable to set policy for each of these many situations. Therefore, the workgroup set about defining the scope of scientific activities to be covered and envisioned a set of guiding principles, to which policies from every organizational unit of the Academy could be compared to ensure they were in alignment. While many relevant policies exist already, such as the requirement of a signed conflict of interest disclosure for Food & Nutrition Conference & Expo speakers, the Evidence Analysis Library funding policy, and the Academy's sponsorship policy, the scientific integrity principles are unique in that they provide a unifying vision to which future policies can be compared and approved based on their alignment with the principles. The six principles outlined in this article were approved by the full Council on Research in January 2015 and approved by the Academy's Board of Directors in March 2015.

This article covers the scope of the principles, presents the principles and existing related resources, and outlines next steps for the Academy to review and revise current policies and create new ones in alignment with these principles.

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BACKGROUND AND SCOPE

SCIENTIFIC INTEGRITY ENSURES the high quality and objectivity of scientific activities conducted at or funded by the Academy of Nutrition and Dietetics (Academy) and its Foundation. Science is the foundation of the profession of dietetics and is at the center of the Academy's mission and vision.¹ To maintain the trust of the public and the profession in the science of nutrition and dietetics, care must be taken to ensure that scientific activities are funded, conducted, and disseminated in an ethical, credible, and transparent way.

Scientific activities include the conduct of research, both generating data de novo and aggregating existing data, as well as conducting quality-improvement projects and disseminating scientific information. These

principles should* apply to the scientific activities conducted directly (intramural research) and funded (extramural research) by the Academy's many units, including dietetic practice groups and the Academy Foundation. Figure 1 provides examples of ongoing initiatives at the Academy that fall into these groupings of scientific activities. Academy members, registered dietitian nutritionists (RDNs), and nutrition and dietetics technicians, registered, might also wish to use these six principles when faced with issues of scientific integrity in their own workplace and practice.

SCIENTIFIC INTEGRITY PRINCIPLES

The scientific integrity principles and the categories of activities (I=intramural

research, E=extramural research, D=dissemination) they are most likely to relate to are presented as follows, with discussion of the literature reviewed, the Council's reasoning on the importance of each principle, and any resources for further understanding the principle or developing relevant policies.

I. Ethical Conduct of Research and Protection of Human Subjects (I, E)

Research conducted or funded by the Academy or its foundation should be held to the highest ethical standards.

Research is defined by the Code of Federal Regulations as "a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to generalizable knowledge."² While quality-improvement work is not considered to be generalizable beyond the facility or institution at which it occurred, setting it apart from research, there is often a fine line between research and quality improvement.

**Note that throughout the document "should" is used—there may already be policies in place to ensure the principles are applied; however, for consistency with those policies that require development, "should" is used throughout.*

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Conducting research (intramural research)

- Dietetics Practice Based Research Network (DPBRN) research projects
- Evidence Analysis Library (EAL) systematic reviews
- Aggregation of data within the Academy of Nutrition and Dietetics Health Informatics Infrastructure (ANDHII)
- Surveys by marketing, membership, committees, and dietetic practice groups (DPGs)
- Quality-improvement projects by the Nutrition Services Coverage unit
- Program evaluation by the Academy Foundation

Funding scientific activities (extramural research)

- Grants to graduate students, independent researchers, and Academy researchers by the Academy Foundation
- Grants to graduate students, independent researchers, and Academy researchers by DPGs
- Contracts by Academy teams to contract research organizations to conduct surveys and professional evaluations

Disseminating science (to the public and the profession)

- Media contacts by Academy spokespeople
- Academy Positions/Practice Papers
- Continuing professional education (CPE) opportunities approved by the Center for Professional Development including Food & Nutrition Conference & Expo (FNCE) and DPG meetings/conferences and newsletter articles
- Publication and presentation of research findings conducted or funded by the Academy
- Development of evidence-based nutrition practice guidelines by the EAL
- Development of nutrition education for the public, including eatright.org and Kids Eat Right.

Figure 1. Examples of scientific activities currently occurring at the Academy of Nutrition and Dietetics.

Therefore, quality-improvement activities initiated or funded by the Academy should adhere to the same standards as research. An entity independent of the investigator (often an Institutional Review Board) should determine whether human subjects' protections are required. Policies to support the ethical conduct of research are laid out by the Code of Federal Regulations.² Research misconduct (falsification, fabrication, plagiarism) must be avoided.³ Protection of human subjects is paramount; like the federal agencies,² the Academy should require that research be reviewed and approved by an Institutional Review Board and/or ethics committee (international equivalent of Institutional Review Board) before initiating the work. Also in keeping with federal funders and conductors of research,⁴ the Academy should require that investigators and grantees be trained in the protection of human subjects, using either Collaborative Institutional Training Initiative training⁵ (if accessible through their home institution) or the Academy's research ethics for the RDN modules.⁶

II. Publication of Research (I, E)

Every effort should be made to publish research conducted or

funded by the Academy, regardless of funding source or outcome. No funders or funding agreements may limit the ability to publish.

Negative findings add to the literature as much, or more than, positive findings. Publication in peer-reviewed journals is encouraged, but other outlets, such as dietetic practice groups' newsletters, can also be appropriate for smaller projects and those that are not accepted for major journals. Authorship guidelines for work conducted by the Academy have been established and are based on the International Committee of Medical Journal Editors guidelines.⁷ Publication should clearly follow principle VI, disclosure of funding source and conflicts of interest, also covered by the International Committee of Medical Journal Editors.⁷

III. Funder's Influence on Research Question/Education Content (I, E)

The influence of the funder on the research question and methodology must be differentiated and disclosed. Policies must be developed to determine where on this continuum is acceptable, which may vary for the type of project proposed.

While industry funding of research and resulting reporting bias, particularly by pharmaceutical companies, was of major concern in the early 2000s,⁸ recent meta-analyses have more mixed results,⁹⁻¹¹ suggesting that the influence of funding source on research outcome may have lessened over time.¹² An analysis of all articles reviewed in the Academy's Evidence Analysis Library suggests that funding source does not affect research outcomes in nutrition studies.¹³ Some have suggested that one reason for early data showing differences in industry-funded studies is that industry is likely to "ask the right questions" and design methodologically sound studies that are more likely to obtain the outcomes they hope for.¹⁰ There is a continuum in this relationship/influence. This continuum is outlined in [Figure 2](#). The type of relationship should be established early on, formalized in a contract, and disclosed. It is generally appropriate that agreements be developed as grants; that is, the recipient receives funds or support to complete a project with little involvement from the funder.¹⁴ However, in some cases, cooperative agreements—in which both the funder and the grantee remain involved—may be more appropriate.¹⁴ Developing a standardized

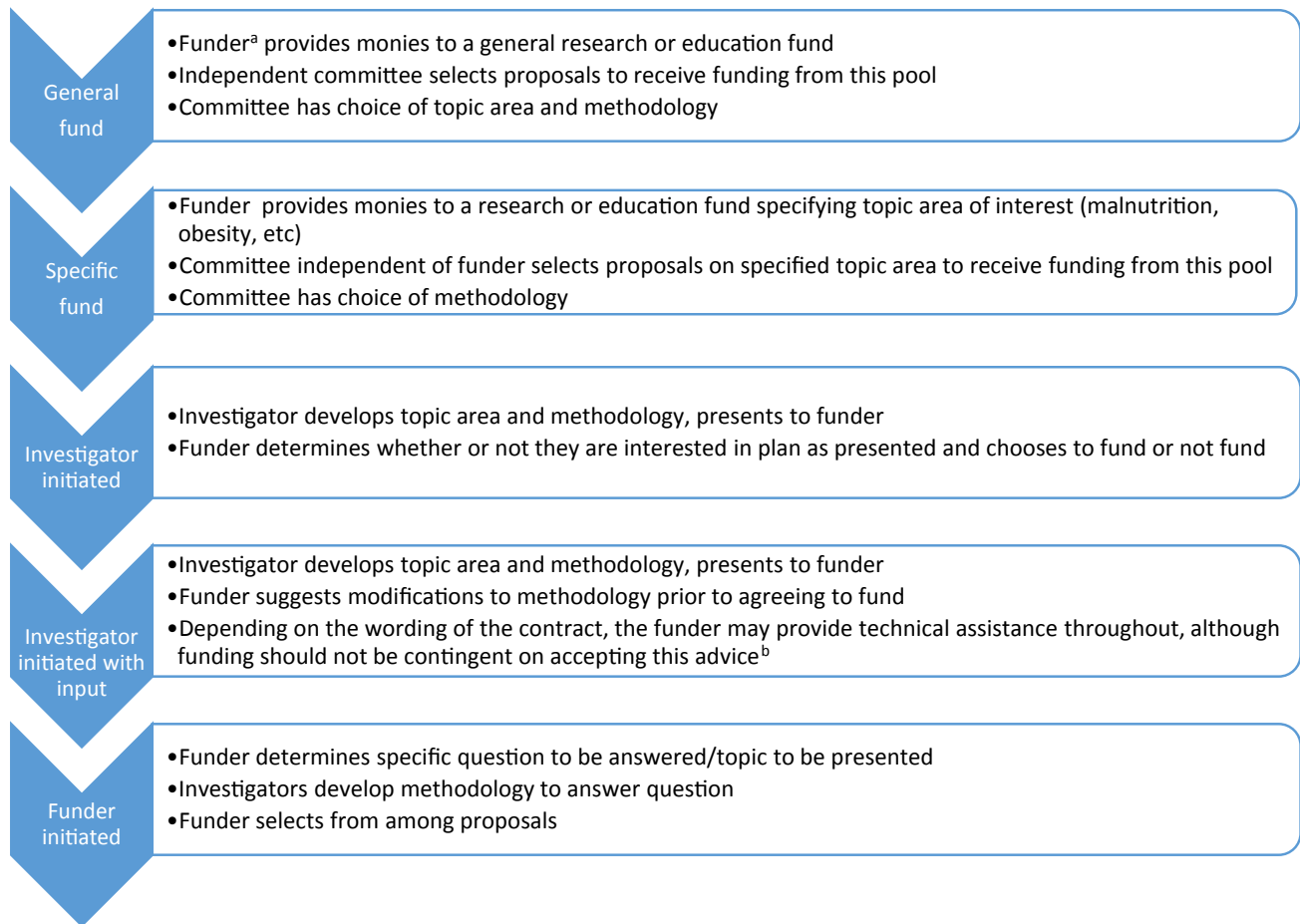


Figure 2. Methods of funding for scientific activities along a continuum from least opportunity for influence to most opportunity. This continuum is equally relevant to professional and public education; substitute the word *educator* (an individual or group) for investigator and substitute the words *educational topic/content* for research question and consider methodology to mean the method in which the education is delivered and by whom (webinar, handout, etc). The funding or contribution might also be material support, such as direct donation of a product to be used in the education or research intervention. ^aFunder can be an individual, foundation, or industry. ^bIf technical assistance is included, this must be clearly disclosed.

reporting method for describing the influence of the funder on question development and execution can be beneficial.

A unique type of relationship is the public–private partnership. In this relationship, groups representing government (public), industry (private), and academia (scientific societies) join together to answer a research question that is for the broad benefit of the public.¹⁵ Public–private partnerships rely on a large number of partners to decrease the risk of undue influence and are generally conducted in topics deemed “precompetitive.”¹⁵ Public–private partnerships are relatively rare, and a key consideration is whether the project can only be carried out by this method.¹⁵ A framework for these relationships in food and

nutrition research has been outlined and was approved by the Academy and several other nutrition societies in 2015.¹⁶

IV. Funding of Professional/ Practice Education (D)

Funding of professional education should be considered on a continuum similar to that presented for research projects. Policies must be developed to determine where on this continuum it is acceptable. Disclosure is of critical importance.

Another area of concern in the medical field has been the funding of professional education by industry, particularly in areas where professional education can influence practice. In the

case of physicians, this is usually drug prescription or device selection, but for RDNs and nutrition and dietetics technicians, registered, topics such as which nutrition supplement or food product to recommend can be equally fraught. Research suggests that practitioners are influenced by professional education provided by industry, even subconsciously.^{17,18} Industry should not directly influence practice, such as through the funding of evidence-based practice guidelines. However, because of the broad range of nutrition practice, it can be difficult to determine what activities influence practice and what types of professional education are basic, or pre practice. In addition, it is critical to ensure that research data being presented conform to Principle I and is carried out after ethical review

and had appropriate human subjects' protections.

V. Funding of Public Education (D)

Funding sources for public education should be disclosed in a way that is understandable to the public.

Public education (programs, handouts) may also be funded by industry, and this presents an equivalent conflict of interest to that of professional education. Funders should not control the content of the materials, unless their expertise or instructions are the best source of information or are required by the patient (eg, dosing instructions on a dietary supplement).¹⁹

VI. Disclosure of Funding Source and Conflicts of Interest (I, E, D)

All scientific activities should have a clear disclosure of funding source and the influence the funding source had on all aspects of the project, as well as potential conflicts by presenters and developers.

Disclosure is a theme that runs throughout all six principles. Disclosure should be made to research participants and in presentations and publications.²⁰ Although disclosure is currently required by certain committees and presentation venues, the reporting requirements should be strengthened and made consistent across all scientific activities of the Academy. The Accreditation Council on Continuing Medical Education requires submission of a signed disclosure form by speakers, as does the Academy's Committee on Professional Development; this may be a helpful template for developing a disclosure policy.²¹

It is important to note that perceived conflicts of interest can be just as important as financial conflicts, and that conflicts are posed by family-member relationships as well as those of the individual. Intellectual conflict of interest, such as being involved in a competing project or idea, can be important to disclose by those making a presentation or reviewing applications for extramural funding. Conflicts of interest should be considered on a

personal, project, and institutional level. Because the Academy is a science-based organization, committees related to the scientific activities described here, as well as the Board of Directors, should complete a thorough conflict of interest disclosure form annually. The National Institutes of Health require training on conflict of interest by all research investigators,²² and this training, or a newly developed educational model, should be required before completing the disclosure.

CONCLUSION AND RECOMMENDATIONS

In order to support the six principles outlined here, Academy units will need to review and/or develop policies to address these topics as relevant in their areas.

Relevant policies should be developed by the Academy staff and committees most applicable to the area or collaboratively between multiple organizational units. For example, professional development would develop or review the policy on funding professional education, while the Foundation would handle training requirements for grantees. All policies will be reviewed by the Council on Research for alignment with these principles before approval by the Academy's Board of Directors. Council on Research members and/or Academy Research, International, and Scientific Affairs staff members may also sit on policy making work groups if requested by the initiating committee. This process allows experts in the area most affected by the policy to create the guidelines, ensuring that the context of past, current, and future activities and opportunities is considered. The Academy's Code of Ethics²³ should also be considered when developing and approving policies related to scientific integrity.

The principles of scientific integrity presented in this article provide a framework for the Academy to ensure that research and education are conducted in a transparent manner, while not limiting opportunities for funding and partnerships. A common vocabulary to describe these relationships is critical and has been laid out here in the continuum of funding. Future policies must determine where on the

continuum is acceptable for each scientific activity in order to ensure the trust of members, other professionals, and the public.

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AUTHOR INFORMATION

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