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NNRA EVALUATION

From its inception, the development and implementation of the NNRA by the NCNR have been guided by an iterative process of evaluation. The NCNR long-range plan, of which the NNRA is one component, is designed to use both formative (ongoing) and summative (outcome) evaluation to increase planning effectiveness (Patton, 1982). Program evaluation at the NCNR is the responsibility of the Office of Planning, Analysis and Evaluation. The evaluation of the NNRA has been carried out in collaboration with the entire NCNR staff, as are all evaluations within the NCNR. The essential measure of the NNRA "success" is the quantity and quality of the science stimulated by the agenda setting and implementation processes.

Evaluation Framework

The formative evaluation of the NNRA provides iterative feedback on the structure and processes as the agenda is set and implemented and is the basis for periodic modification and identification of issues and policy concerns regarding implementation. The summative evaluation of the NNRA measures the extent to which the NNRA objectives are being met.

The NNRA has three objectives:

- Provide structure for selecting scientific opportunities and initiatives.
- Promote depth in developing a knowledge base for nursing practice.
- Provide direction for nursing research within the discipline.

Phases of the NNRA

The three objectives are being met in two phases: Phase I, the agenda-setting phase, and Phase II, the implementation phase (Figure 1). Phase I occurred in two steps. First, a diverse group of nurse scientists representing the breadth of nursing research was invited to identify broad priority areas through structured, interactive, analytical processes at a Conference on Research Priorities (CORP) (Hinshaw, Heinrich & Bloch, 1988). Additional nurse scientist experts with similar breadth, as well as scientists from disciplines related to nursing research, were then asked to serve as members of Priority Expert Panels (PEPs) for each of the seven priority areas identified by the CORP. Each PEP reviewed the state of nursing-related science and research and elaborated comprehensive recommendations for its priority area. The second phase, implementation of recommendations, has now been undertaken to build scientific knowledge in the priority areas. There are three objectives for the NNRA implementation: 1) to disseminate information about the NNRA through multiple channels; 2) to attract quality applications through NNRA-related extramural research initiatives supported alone or in collaboration with other NIH institutes, centers, or divisions (ICDs); and 3) to develop NNRA-related intramural initiatives. Phase II is followed by dissemination of research findings made by investigators in the priority areas.

Phase I: Agenda Setting
Conference on Research Priorities

Priority Expert Panel Recommendations

Phase II: Implementation--Dissemination of NNRA Information
Extramural initiatives
Intramural initiatives

Post-Phase II: Dissemination--Advances in Science
Dissemination of research findings

Figure 1. NNRA Phases and Activities

Organization of Data

Before analysis of the NNRA could begin, it was necessary to create a framework to guide the collection of data. A number of conditions were considered in the construction of the framework: the interdependence of the phases; the overlapping dimensions within the phases; the concurrent conduct of the formative evaluation and activities of the NNRA; the use of multiple data types and data sources; the use of data collection for evaluation and other reporting needs; and the roles and perspectives of key audiences. The choice of data for the formative evaluation was guided by the following questions, which reflect the concerns of both the NCNR and the nursing research community.

- Were all major areas of nursing science represented by the scientists who participated in the CORP?
- How can the PEP process be changed to increase efficiency?
- Are NIH peer review groups aware of the NNRA priorities?
- Do the NNRA priorities stimulate research of national health problems as defined by the USPHS, NIH and other public health institutions?
- Does the NNRA process result in science for nursing practice in the areas of highest priority for nursing and critical health care problems?
- How is the NCNR collaborating with other ICDs in joint sponsorship of NNRA-related initiatives?
- How have perspectives of CORP and PEP participants and NCNR staff been solicited to refine processes for future NNRA priority deliberations?
- How is feedback concerning the NNRA solicited from the nursing research community at conferences attended by NCNR staff?

Data for the formative evaluation are systematically collected from minutes, formal reports, and publications. The primary users of the answers from the formative evaluation are the NCNR staff and NACNR members. Feedback is both informal and formal, such as informal discussions and formal periodic reports.

The following questions guided choices of data collected for the summative evaluation:

- Should the program be continued? Expanded?
- Is this an effective method for priority setting?
- What conclusions can be made about the effects of the NNRA and its components?
- Do the priorities reflect key areas of research based on societal and health care needs?
- To what extent have the three objectives of the NNRA been met?

The questions identified for the summative evaluation include critical science indicators. These indicators reflect the degree to which the science emanating from the NNRA is cutting edge, the

existence of a critical mass of scientists in similar areas of research, and the application of the knowledge to patient outcomes. Data collection and analysis for the summative evaluation focus on responses of nurse researchers and the nursing community to dissemination activities, extramural initiatives, and outcomes of intramural research. Users of the summative evaluation results are the Congress, the NACNR, the NIH, and the NCNR as policy makers, and the research and practice community as the consumers of the NNRA implementation.

Once collected, evaluation data are organized into inputs, processes, or outcomes for meaningful analysis (Shadish, Cook & Leviton, 1991) of Phase I and Phase II. Measurability issues are considered in setting up these analytical categories (Rossi & Freeman, 1989). Inputs are defined as the recorded decisions concerning courses of action and the recorded advice upon which those decisions are based, as well as the various types of resources used to develop and act on the decisions. Processes are the policies and procedures put into place and the activities carried out. Outcomes are the products and consequences of dissemination of the NNRA and enactment of the PEP recommendations. Listed below are examples of inputs, processes, and outcomes that will be addressed in the two phases.

Phase I: Agenda Setting

Inputs -- research priority designations by the CORP; detailed recommendations for each priority area by PEPs; time frame; financial resources.

Processes -- selection of conference participants; selection of PEP members; formulation of recommendations; preparation of reports.

Outcomes -- priorities and related recommendations; formal panel reports; congressional action; response from the scientific community.

Phase II: Implementation

Inputs -- Human resources allocated to manage implementation; program decisions concerning methods of implementation; financial resources each fiscal year; manpower to conduct intramural research; USPHS and NIH strategic plans.

Processes -- selection of communication channels for dissemination; feedback processes; development and execution of initiatives; contacts with other ICDs for collaborative intramural and extramural initiatives.

Outcomes -- Congressional action; grant applications, reviews, and awards; scientific investigations; research findings; reports of research findings; and utilization of findings in nursing practice.

Data Sources

Evaluation data are obtained from a variety of sources. Information can be obtained from federal sources, such as records of applications and funding decisions and progress reports submitted by principal investigators. Discussions with and records from the PEP members and NCNR staff can yield substantive information about the identification and development of research priorities. Analysis of NIH peer review outcomes, surveys of the scientific community and health professional organizations, queries of bibliographic systems such as citation indexes, evidence of a scientific base for practice, and external studies of manpower development are other sources of information.

Methods of Evaluation

Standard methods are used to collect both qualitative and quantitative data and to analyze data for both ongoing and summative assessment (Herman, Morris & Fitz-Gibbon, 1987). Strategies for both methods are summarized in Table 1.

Methods for formative evaluation include content analysis of minutes and agendas, interviews with participants using an interview schedule, and a timetable. The flow of events and the problems that ensue from timing, resources, structuring of events, and intervening events are analyzed. The effectiveness of each of these strategies is also assessed in terms of achieving the NNRA objectives. For a broader discussion of the NCNR's long-range plan and how the NNRA fits within it, see Chapter 1.

Specific methods for summative evaluation include construction of line and bar graphs to illustrate application rates by NNRA priority, application rates at specific intervals following announcement of initiatives, or funding rates for NNRA-related versus non-NNRA-related applications. NNRA priorities are compared with those of other NIH ICDs and with initiatives of professional nursing organizations. Research program development within each NNRA priority will be monitored.

The evaluation also includes periodic external summative evaluation of implementation outcomes of the NNRA. These external examinations take the form of additional priority-setting conferences. Such conferences provide fresh perspectives that can enhance current efforts and provide direction for future activities. External evaluators for the NNRA may include representatives from other components of NIH and other federal agencies, from the nursing research community and other scientific disciplines, and from consumers, including both caregivers and care recipients. The conferences are convened when the implementation processes are well under way in the previous group of priorities.

Table 1
NNRA Evaluation Strategies
Using Formative and Summative Methodologies

Evaluation Activity	Formative	Summative
Timing of data collection	Ongoing qualitative and quantitative	Periodic at stated intervals
Data to be collected	Minutes, personal perspectives, pre-liminary reports, reports, publications, program announcements and requests for applications, applications, NCNR procedures and policies, planning documents	Reports, NACNR recommendations, funding rates, advances in science, joint initiatives, NCNR policies
Methods and analyses	Micro-level analyses of each phase and recommendations for input and process changes	Macro-level analyses of outcomes of each phase by objectives and seren-dipitous findings
Feedback audiences	NNRA Subcommittee, PEP members, extramural staff, intramural staff, NACNR members	Congress, USPHS, NIH, NACNR, nursing researchers, practicing nurses, public
Feedback mechanisms	Meetings, informal conversations, agenda discussions, task forces, formal reports and recommendations	Formal reports such as CORP reports, PEP publications, reports to NACNR, recurring reports, NIH reports and briefings, congressional reports and briefings, media information, nursing journals, conference proceedings, and evidence of scientific advances applied to practice

Audiences

The evaluation plan was also designed to answer questions likely to be posed by audiences identified as having a "stake" in the choices of priorities of the NNRA and the means to implement them (Veney & Kaluzny, 1984). These audiences, such as the Congress, the NACNR, and NIH and NCNR officials, hold positions of authority that influence the scope of NCNR activities and therefore are interested in information about the NNRA that will assist with policy formation and decision-making.

Scientists who are involved in identifying knowledge gaps, developing depth in the knowledge base for nursing practice, and seeking support for studies to address NNRA priorities will be interested in assessments of implementation strategies and the state of the science. Health-care practitioners will be concerned with the effectiveness of dissemination and the quality of research because they must apply the knowledge. Health-care recipients, whose health status can be influenced by the results of nursing research and who provide support for federally funded research through their tax dollars, also have vested interests in the evaluation results of the NNRA.

Summary

The evaluation of the NNRA provides both ongoing guidance and a systematic determination of the extent to which the objectives of the NNRA are being met. It addresses the two phases of the NNRA, agenda setting and implementation, in terms of inputs, processes, and outcomes. Both formative and summative evaluation methods, using a range of data sources, are employed to answer questions of interest to several constituencies. Evaluation results assist in decision-making regarding further agenda-setting and implementation activities for nursing research, as well as the status, needs, and future directions of nursing research and NCNR programs.

References

Herman, J., Morris, L.L., & Fitz-Gibbon, C.T. (1987). *Evaluators handbook, Volume 1.* Beverly Hills, CA: Sage.

Hinshaw, A.S., Heinrich, J., & Bloch, D. (1988). Evolving clinical nursing research priorities: A national endeavor. *Journal of Professional Nursing,* 4(6), 398, 458-459.

Patton, M.Q. (1982). *Practical evaluation.* Beverly Hills, CA: Sage.

Rossi, P. H. & Freeman, H.W. (1989). *Evaluation: A systematic approach.* Beverly Hills, CA: Sage.

Shadish, W.R. Jr., Cook, T.D., Leviton, L.C. (1991). *Foundations of program evaluation: Theories of practice.* Beverly Hills, CA: Sage.

Veney, J.E., & Kaluzny, A.D. (1984). *Evaluation and decision making for health services programs.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

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