

Federation Forum on Research Management (FORM)

“Decision-Making: Making Good Decisions Under Conditions of Uncertainty”

11/21/03

TALK ABSTRACTS

Eric Johnson

Constructing Constructive Preferences

Do people know what they want? We will briefly review evidence that some preferences are constructed, and can be thought of as errorful predictions of what a decision-maker wants. We will review evidence from demonstrations of anchoring and the role of default effects. In application, we will look at the role of default effects in societally important decisions such as the decision to become an organ donor. We will also examine decisions of how to invest one's retirement savings as a case study.

Ronald E. Myers

Decision Counseling and Preventive Health Behavior: The Case of Prostate Cancer Screening

Decision counseling is a method of facilitating informed, value-based decision making about behavioral alternatives through a process of preference clarification. This process involves providing information, identifying and weighing decision factors, measuring decision preference, and validating measures, and encouraging the selection from available alternatives. This approach was used to facilitate decision-making about scheduling a prostate cancer screening examination among men who were patients in four primary care practices who were 40 to 69 years of age and had no history of prostate cancer. A total of 441 men were randomly assigned to receive either a mailed informational brochure on prostate cancer screening (N=221) or a mailed brochure plus decision counseling (N=220). Among men in the latter group, 129 (59%) participated in a decision counseling session with a trained health educator. Men who participated in the session identified and valued cognitive, affective, and social factors (decision factors) they thought were likely to influence decision making about screening. A personal decision preference score, based on values assigned by the men to elicited decision factors, was computed for and was validated with each participant. At the end of the session, the men were asked to decide whether or not they wanted to schedule a prostate cancer screening exam. Preference scores showed that 93 (72%) men preferred to schedule an exam, 29 (23%) were undecided about scheduling an exam, and 7 (5%) preferred to not schedule an exam. In terms of actual decision-making, 85 (66%) of the men decided for scheduling a prostate cancer screening exam and 44 (34%) decided against scheduling an exam. The association between personal decision preference score and decision making was strong and statistically significant ($p < .001$).

Annette O'Connor

Progress and Prospects in Developing and Evaluating Patient Decision Aids

The goal in decision making is to select options that increase the *likelihood* of *desired* health outcomes and minimize the chance of *undesired* consequences according to the best available scientific *evidence*. Unfortunately, many decisions in health care do not have clear answers because the benefit/harm ratios are uncertain, marginal, or dependent on how people value benefits versus harms. The discretionary nature of these decisions often leads to: a) wide regional practice variations in health care systems; b) public debate from advocacy groups, professional organizations, insurers and industries; and c) practitioner and patient uncertainty about the best course of action. As a consequence, there may be a mismatch with what is chosen and what a person values and lower satisfaction with decision support.

In order to optimize the rates of discretionary health care practices, so that options are taken up only by informed individuals who value the benefits more than the harms, clinical guideline groups advocate a “shared-decision making” or “evidence-informed choice” style of counseling. This involves practitioners communicating personalized information on options, outcomes, probabilities, and uncertainties and people communicating the personal value or importance they place on benefits versus harms so that agreement on the best strategy can be reached. To streamline the process, evidence-based decision aids have been developed as adjuncts to counseling. These aids differ from conventional education materials by providing personalized information about options, outcomes, probabilities, and uncertainties in sufficient detail for decision-making, and by helping individuals to clarify the personal desirability of potential benefits relative to potential harms. Many aids include balanced examples of how others deliberate about options and also guide people in the steps of collaborative decision-making.

This presentation will focus on two issues. First, the evidence on the efficacy of decision aids from nearly 30 randomized trials will be presented. Second, the prospects of wide-scale implementation of decision support systems in health services will be examined.

Marc Schwartz

Decision Support for BRCA1/BRCA2 Mutation Carriers

Shared decision making between patients and providers is becoming increasingly common, particularly when there is no clear preferred course of action. As a result, decision aids are being adopted with growing frequency and have been applied to a wide variety of medical decision-making issues. One such issue in which there is tremendous uncertainty is decision making surrounding genetic testing for breast cancer susceptibility. Several decision aids have been developed focusing on the decision about whether or not to undergo genetic testing. However, there has been less attention paid to decision-making following the receipt of a positive genetic test result. Women who learn that they carry a BRCA1 or BRCA2 mutation are at tremendously increased risk for breast cancer. As a result, they must make consequential medical management decisions under a high degree of uncertainty. In the present study, we developed a CD-ROM decision aid designed to facilitate management decision making for this high-risk group. The development of the decision aid was guided by key constructs of the Ottawa Framework for Informed Decision Making as well as Multiattribute Utility Theory. This decision aid had the explicit goal of improving overall adherence to management guidelines by helping participants decide among the various management options. The CD-ROM decision aid is offered as an adjunctive intervention following the completion of standard genetic counseling. The CD-ROM is a multimedia, interactive intervention that provides information about breast cancer, risks associated with BRCA1 and BRCA2 mutations, risk management options, and a risk management decision task. The goal of the CD-ROM is to foster adherence to management guidelines, reduce decisional conflict, increase satisfaction, and improve quality of life for BRCA1/BRCA2 mutation carriers. We are currently conducting a randomized trial comparing the decision aid to usual care.

Baruch Fischhoff
Integrating Normative, Descriptive, and Prescriptive Decision Research

Applying behavioral decision research involves an iterative process of normative, descriptive, and prescriptive research. Investigators must, first, formally analyze the decision, in order to identify the considerations most critical to individuals' understanding -- regarding both the situation that they face and their own goals for it. They must then characterize decision makers' current understanding, followed by attempts to improve that understanding. Following this process often prompts refinements in the analysis, requiring additional descriptive and prescriptive research. Applications are essential to the progress of the basic science, insofar as they bound its generalizability, while revealing new phenomena meriting systematic study. The talk will consider these processes, in the context of several applications to decisions under adverse circumstances, as well as the organization of research programs serving these interdependent objectives.

Paul Slovic
Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality

Modern theories in cognitive psychology and neuroscience indicate that there are two fundamental ways in which human beings comprehend risk. The "analytic system" uses algorithms and normative rules, such as the probability calculus, formal logic, and risk assessment. It is relatively slow, effortful, and requires conscious control. The "experiential system" is intuitive, fast, mostly automatic, and not very accessible to conscious awareness. The experiential system enabled human beings to survive during their long period of evolution and remains today the most natural and most common way to respond to risk. It relies on images and associations, linked by experience to emotion and affect (a feeling that something is good or bad). This system represents risk as a feeling that tells us whether it's safe to walk down this dark street or drink this strange-smelling water. Proponents of formal risk analysis tend to view affective responses to risk as irrational. Current wisdom disputes this view. The rational and the experiential systems operate in parallel and each seems to depend on the other for guidance. Studies have demonstrated that analytic reasoning cannot be effective unless it is guided by emotion and affect. Rational decision-making requires proper integration of both modes of thought. Both systems have their advantages, biases, and limitations. Now that we are beginning to understand the complex interplay between emotion and reason that is essential to rational behavior, the challenge before us is to think creatively about what this means for managing risk. On the one hand, how do we apply reason to temper the strong emotions engendered by some risk events? On the other hand, how do we infuse needed "doses of feeling" into circumstances where lack of experience may otherwise leave us too "coldly rational." This paper addresses these important questions.

Michael Stefanek
Basic and Applied Decision-Making Research in Cancer Control: Funding Opportunities

This presentation will cover some basic funding mechanisms used by the National Cancer Institute, noting specific budgetary and eligibility issues. In addition, areas of research of interest to the Basic Biobehavioral Research Branch (BBRB) of the National Cancer Institute will be highlighted.

Finally, the BBRB is promoting the area of decision-making in cancer control, including the spectrum of work from basic psychological processes to more applied research. This initiative will be described as it attempts to encourage work that bridges the gap between research that has historically been viewed as basic in nature with work that has direct application in cancer control.

Ellie Ehrenfeld
NIH Investment in High Risk/Innovative Research

The NIH Director's Innovator Award is one of three programs designed to foster high-risk research recommended by the High Risk Research Roadmap Working Group, one of 9 groups commissioned by the NIH Director to chart a "roadmap" for medical research in the 21st century (<http://nihroadmap.nih.gov/overview.asp>). The need to facilitate high-risk research was highlighted given the perception, if not the reality, that the NIH peer review system is excessively conservative and discourages many investigators from submitting innovative* applications to the NIH. This untoward consequence threatens to deplete the NIH portfolio of the long-term investments critical to the organization's future success.

To address this issue, the Working Group proposed that NIH implement a separate and completely different program targeted specifically to identify, encourage, and support the people and projects that will produce tomorrow's conceptual and technological breakthroughs within three specific programs. Two are project based: the Exceptional Projects Program (to support individual projects with exceptional promise) and the Grand Challenges Program (to support broad, new program areas that are of interest to multiple ICs because of their scope, complexity and cost.) One is people based: The Director's Innovator Award Program (to support individuals with exceptional promise).

Candidates for this award must be nominated. Mentors, colleagues, institutional officials or the nominees themselves may submit a nomination package consisting of a letter supporting the nominee's exceptional creative abilities and prospects for making critical biomedical breakthroughs, and the nominee's curriculum vita. A broadly constituted panel will evaluate nomination packages to identify candidates, who will be invited to submit a 3-5-page essay, a copy of their most seminal publication, and 3 references. An elite panel will in turn evaluate these candidates, interview the top applicants, and recommend 10 awardees. The Advisory Committee to the NIH Director will provide secondary review. Awardees of this new K mechanism will report on progress and attend a meeting of fellow awardees annually. Importantly, a blue ribbon panel will evaluate this experimental program in 2008.

* While the terms high-risk and innovative sometimes have the same intended meaning and at others times are distinct, for simplicity, they are used here interchangeably.