

Journal of Law and Policy

Volume 14

Issue 2

SCIENCE FOR JUDGES VI:

Techniques for Evidence-Based Medicine

Article 2

2006

Helping Public Officials Use Research Evaluating Healthcare

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Recommended Citation

Daniel M. Fox & Lee Greenfield, *Helping Public Officials Use Research Evaluating Healthcare*, 14 J. L. & Pol'y (2006).

Available at: <https://brooklynworks.brooklaw.edu/jlp/vol14/iss2/2>

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HELPING PUBLIC OFFICIALS USE RESEARCH EVALUATING HEALTHCARE

*Daniel M. Fox, Ph.D. & Lee Greenfield, B.S.**

INTRODUCTION

In the health sector, “evidence-based research” refers to the methods, findings and potential uses of research evaluating the effectiveness of healthcare interventions in populations. For almost two decades, the authors of this article have been introducing legislators and senior officials of the executive branches of state governments to this body of research. In November 2005, we joined colleagues from research organizations and state governments to introduce evidence-based healthcare research to 35 federal and 37 state court judges at the sixth session of *Science for Judges*, a program of the Center for Health, Science and Public Policy at Brooklyn Law School. To our knowledge, the workshops we describe here were the first sustained effort to communicate to public officials the basic concepts of state-of-the-art research evaluating health services. This article summarizes the history and significance of evidence-based healthcare research, and then describes and evaluates our experience of communicating basic knowledge about its scope and methods to public officials.

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I. THE DEMAND FOR CREDIBLE RESEARCH EVALUATING HEALTH SERVICES

Research findings about the effectiveness and quality of health services have had a growing influence on policy for financing and regulating health care for two decades.¹ These findings derive from rigorous, quantitative analysis of events in populations. Previously, population-based research—with the significant exception of clinical trials of new drugs—had much less significance for policymakers than research conducted by health scientists in laboratories which clinical scientists then applied to small numbers of patients in the hospitals and clinics of academic health centers.

The rising cost of healthcare led decision makers in government and private organizations that insure and provide care, such as HMOs, to demand reliable information about the quality and effectiveness of the services used by large groups of patients. The cost of care has been a growing burden on purchasers, payers, providers, and consumers since the 1960s. Although some of the cost increase resulted from advances in science and technology, expanded health coverage by the public and private sectors caused much of it. Expanded coverage raised costs in part because more people now had access to a greater variety of services. However, the primary reason that expanded coverage inflated costs was because public and private payers reimbursed hospitals and physicians generously while rarely, until the past decade, holding them accountable for the quality and effectiveness of care.²

Since the 1960s, however, improvements in research methods, coupled with increased funding, have made researchers better

¹ RAY MOYNIHAN, EVALUATING HEALTH SERVICES: A REPORTER COVERS THE SCIENCE OF RESEARCH SYNTHESIS (2004), available at <http://www.milbank.org/reports/2004Moynihan/040330Moynihan.html>; Iain Chalmers, *Trying To Do More Good than Harm in Policy and Practice: The Role of Rigorous, Transparent and Up-to-Date Evaluations*, 589 ANNALS OF THE AM. ACAD. OF POL. & SOC. SCI. 22, 22-40 (2003).

² See generally DANIEL M. FOX, POWER AND ILLNESS: THE FAILURE AND FUTURE OF AMERICAN HEALTH POLICY (1995). See also RICK MAYES, UNIVERSAL COVERAGE: THE ELUSIVE QUEST FOR NATIONAL HEALTH INSURANCE 81 (2004).

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equipped to meet the rising demand from decision makers for rigorous evaluation of health services. The quantity and quality of research on populations that had the potential to inform policy actually began growing in the 1940s. By the late 1960s, the federal government had begun to finance the new field of health services research. This field is comprised of persons trained in epidemiology, biostatistics, economics, sociology, psychology and related disciplines of the social and management sciences. Before the 1960s, most researchers in these disciplines who studied health services had been advocates: some for universal coverage, and others for the policy preferences of the hospitals, medical associations, or public agencies that employed them. By the 1970s, as a result of federal funding and growing demand for faculty in the disciplines of health services research to carry out the missions of new and reorganized academic health centers, most researchers in the field exchanged advocacy for objectivity.³

In the 1980s and early 1990s, advances in the methodology for research on the effects of health services on populations made it possible to evaluate with growing rigor the quality of care.⁴ Prior to these advances, evaluation of healthcare effectiveness was limited to the opinions of physicians about their peers. These opinions were almost always grounded in personal experience of practice and in extrapolation from observational research on small cohorts of patients.

The new, population-based research on the effectiveness of health services was instantly controversial. For example, an early use of population-based analysis of medical records was to compare mortality rates for particular surgical procedures among hospitals. In the late 1980s, the New York State Department of Health began to conduct and publish an annual study of hospital mortality rates for heart bypass surgery. State officials explained

³ Daniel M. Fox, *From Reform to Relativism: A History of Economists and Health Care*, in 79 MILBANK MEMORIAL FUND Q: HEALTH & SOC'Y 297, 297-336 (1979); Daniel M. Fox, *Health Policy and the Politics of Research in the United States*, 15 J. HEALTH POL. POL'Y & L. 481, 481-99 (1990).

⁴ MAYES, *supra* note 2, at 109. See generally ANDREW STEVENS ET AL., THE ADVANCED HANDBOOK OF METHODS IN EVIDENCE-BASED HEALTH CARE (2001).

the methodology for taking account of variation in severity and case mix among hospitals; the media reported on these adjustments. Nevertheless, many hospital executives and surgeons claimed that the adjusted mortality rates did not take full account of the complexity of their cases, and cited the study as an intrusive and arbitrary interference by state government.⁵

The New York State research and its publication was, however, a success. Hospitals with the worst adjusted mortality rates recruited more skillful surgeons and improved the efficiency of their operating room teams. Those with the lowest mortality rates accepted with due modesty evidence that their rank improved their revenue. While some surgeons alleged that hospitals rejected complicated cases in order to improve their rates, evidence of such gaming was scarce.⁶

More precise measures of the effectiveness of health services became available in the late 1980s and early 1990s. The availability of these measures was the basis of what researchers and policymakers called the “outcomes movement.” Some of these measures relied, like the New York State bypass surgery study, on the retrospective study of administrative data. Other measures were based on data for populations that researchers acquired prospectively in randomized controlled clinical trials and then synthesized using the methodology of “systematic reviewing” which had been introduced to health services research in the late 1980s. Systematic reviews were more compelling than previous methods of summarizing research for two reasons. First, the reviewers reduced bias by subjecting studies of primary data to rigorous criteria for inclusion. Second, they compiled the results of the trials that met these criteria using a statistical procedure called meta-analysis. By the mid-1990s many people used the phrase “evidence-based medical (or healthcare) research” to describe both prospective and retrospective studies; others limited the phrase “evidence-based” to prospective studies and systematic reviews of

⁵ Edward L. Hannan et al., *Improving the Outcomes of Coronary Artery Bypass Surgery in New York State*, 271 JAMA 761, 761-66 (1994).

⁶ Edward L. Hannan et al., *The Decline in Coronary Artery Bypass Graft Surgery Mortality in New York State. The Role of Surgeon Volume*, 273 JAMA 209, 209-13 (1995).

them.⁷

In particular, two aspects of this research had increasing relevance for policy makers. The first was mounting evidence that processes of care were often flawed, especially for patients with chronic disease; the second was the importance of patients' opinions in conducting research on healthcare systems. Regarding flaws in medical care, research revealed that many patients suffered unnecessary pain or required hospitalization for acute manifestations of their diseases because physicians failed to order routine tests or to prescribe drugs that were the standard of care. Many more patients than had been expected died as a result of inappropriate care and medical errors. By the end of the 1990s, concern about this evidence stimulated reports, notably by the Institute of Medicine of the National Academies of Science, and activities that came to be called the "quality movement."⁸

The quality movement, using evidence from the overlapping methods of outcome and evidence-based research, challenged a century of conventional wisdom about the causes of progress in healthcare. Since the late nineteenth century, most decision makers in government, business, hospitals, and clinics had assumed that the findings of research in the basic biomedical sciences benefited patients by flowing down a hierarchy of organizations: from research laboratories to teaching hospitals to community hospitals and to ambulatory care. Physicians acquired new knowledge as medical students and house staff, through their required participation in programs of continuing medical education, and, perhaps most importantly, in conversations with colleagues. Physicians assured quality—that is, they policed the healthcare system—by reviewing the work of their peers as members of medical licensing boards (which certified specialists to practice) and hospital review committees. Physicians also had the power to police informally by choosing the specialists to whom they

⁷ See *supra* notes 1, 2, 4 and accompanying text.

⁸ INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMIES OF SCIENCE, CROSSING THE QUALITY CHASM: A NEW HEALTH SYSTEM FOR THE TWENTY-FIRST CENTURY (2001) (Executive Summary), *available at* http://www.astro.org/pdf/GR/IOM_Quality.pdf.

referred patients.⁹

Evidence has mounted since the 1980s to contradict this conventional wisdom about medical progress. As a result, quality ceased to be a set of standards based on the opinions of leading physicians and assured by peer review. The impetus for the quality movement has been unassailable evidence that many physicians do not meet the standards of quality derived from research on interventions in populations. Many decision makers in the public and private sectors began to suspect that medical education, peer review, and prudent referrals may be less effective methods of improving the quality and safety of practice than incentives and disincentives that were communicated through reimbursement and regulatory policy. Economists, encouraged by decision makers, began to propose incentives and disincentives that could be adopted by purchasers in the public and private sectors as well as by groups of physicians, professional associations, hospitals, health plans, and regulatory agencies.

The second significant result of evidence-based research in the policy arena was that it demonstrated the value of patients' opinions about their care. Physicians had traditionally rejected or discounted patients' opinions as, in a phrase many of them used, "merely subjective" in contrast to their supposed objectivity, based on knowledge of the basic and clinical sciences and experience in practice. But researchers concerned about outcomes found that patients' evaluation of their care offered evidence about its quality.¹⁰ As a result, elected officials and corporate executives no longer had to be ambivalent or apologetic about heeding the opinions of their constituents or employees about their care. The first published "report cards" on health plans, in the early 1990s, summarized data about patients' satisfaction with their care as well as objective measures such as the appropriate use of retinal screening for persons with diabetes.

The backlash against managed care in the tight labor market of the late 1990s made it difficult for public and private purchasers of

⁹ See generally DANIEL M. FOX, *HEALTH POLICIES, HEALTH POLITICS: THE BRITISH AND AMERICAN EXPERIENCE, 1911-65* (1986).

¹⁰ Paul D. Cleary & Barbara J. McNeil, *Patient Satisfaction as an Indicator of Quality*, 25 *INQUIRY* 25, 25-36 (1988).

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care to use information about outcomes to improve the quality of care. Large public and private sector purchasers had encouraged or required beneficiaries to enroll in health maintenance organizations mainly to contain costs, but also because these organizations could monitor what physicians did and the physicians' results. They encouraged managed care organizations to use this evidence to improve the quality of care, mainly by restricting access to inappropriate treatment and emphasizing preventive services. Unfortunately, many Americans, firm believers in the conventional wisdom about the progress of medical science, complained when managed care organizations restricted their choice among physicians and denied coverage for care their physicians recommended. Many believed that managed care organizations often denied coverage for expensive services in order to increase their earnings.

The backlash against managed care interrupted, but did not reverse, the commitment of purchasers in the public and private sectors to contain cost and improve quality. Healthcare cost inflation, which had slowed as a result of managed care, has again exceeded the national rate of inflation in recent years. Nevertheless, the quality movement has grown. One indicator of that growth is the media coverage of medical errors and other lapses in patient safety. In addition, fraud and abuse among providers has attracted growing attention from the public and, as a result, from leaders of the medical profession and hospitals.

The supply of persuasive, strong findings from population-based research on the effectiveness of health services is also growing. There continues to be an increase of "evidence-based research" studies being published in major academic journals, notwithstanding legitimate complaints that researchers are underfunded, especially by the National Institutes of Health. Currently, more than 2,000 systematic reviews of healthcare interventions that meet international methodological standards are available; approximately 500 new or updated reviews are published each year.¹¹

¹¹ Daniel M. Fox, *Evidence of Evidence-Based Policy: The Politics of Systematic Reviews in Coverage Decisions*, 24 HEALTH AFF. 114, 115, 121

Most importantly, there is growing evidence that evidence-based research is informing decisions by policymakers in many countries, including the United States. Systematic reviews are the most influential products of this research because of their high credibility, as described above.¹²

II. INTRODUCING PUBLIC OFFICIALS TO EFFECTIVENESS RESEARCH

For two decades, the authors of this article have helped to introduce policymakers to the methods and uses of research on the effectiveness of health services. Most of our efforts involved policymakers in state government. Each of us has considerable experience in state government. Greenfield was a legislative leader in Minnesota; Fox served in the executive branches in Massachusetts and New York.

Moreover, each of us has firsthand knowledge of the communication problem between policymakers and researchers. These problems caused many on each side to be dismissive of those on the other. Some researchers did not describe their evidence and conclusions in language that was accessible to lay audiences. Others wanted policymakers to accept their authority as learned experts without much explanation of the basis of their knowledge. Many researchers believed that, absent experience, policymakers would be unable to appreciate or even understand their explanations. Worse still, other researchers found it easier to answer questions from policymakers that went beyond their knowledge by volunteering answers to questions that had not been asked. Moreover, researchers often recommended new policy with considerable conviction but then reminded policymakers that science is uncertain and probabilistic; that is, they became advocates who were willing to transfer the risk of error to public officials.

Because of our interest in using the best available evidence to inform state policy, the authors welcomed invitations in the mid-1980s to plan workshops in which state officials would learn about

(2005) [hereinafter Fox, *Politics of Systematic Reviews in Coverage Decisions*].

¹² See MOYNIHAN, *supra* note 1; Chalmers, *supra* note 1.

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the methods, uses, and results of the latest research on health services. These invitations came from Robert A. Fordham, Director of the User Liaison Program (ULP) of what was then the National Center for Health Services Research (NCHSR) in the Department of Health and Human Services. Fox had helped Fordham to plan and initiate the ULP when he was Associate Director of NCHSR for Academic and Inter-Governmental Affairs in the mid-1970s. In the early 1980s, after Greenfield began to attend ULP workshops, Fordham asked him to join the informal group of state officials who advised on the content and conduct of the workshops.

The NCHSR was the principal source of federal support for research on the organization, delivery, and financing of health services. NCHSR was established in the late 1960s, in response to the increasing responsibilities of government at all levels for health planning, regulation, and direct services, to combat the rising costs of health care to government and private sector employers. The establishment of NCHSR was the first recognition by the federal government of the multi-disciplinary (and sometimes inter-disciplinary) field of health services research.

In the late 1970s, when Fordham initiated the ULP in his capacity as Associate Deputy Director of NCHSR, Congress had recently stripped NCHSR of much of its funding. At the time, members and staff of the House and Senate committees and sub-committees responsible for financing healthcare regarded research sponsored by NCHSR or conducted by its staff as generally irrelevant to policy. Moreover, NCHSR had accorded priority in research to access rather than to cost containment since its inception through 1974, when economist Gerald Rosenthal was appointed Director of NCHSR. Rosenthal endorsed Fordham's proposal to create ULP as one of a variety of projects to improve the reputation of NCHSR in Congress and in the health sector more generally.¹³

Fordham relied almost entirely on state policymakers for

¹³ Daniel M. Fox, *The Development of Priorities for Health Services Research: The National Center, 1974-76*, 54 MILBANK MEMORIAL FUND Q: HEALTH & SOC'Y 237, 237-48 (1976).

advice on topics and methods to be dealt with by ULP workshops. Many of his senior colleagues in the NCHSR staff and many academics who did research on health services opposed ULP. They feared it would divert resources from investigator-initiated research in order to address the more pedestrian concerns of the public officials who were the “users” in ULP’s name. Moreover, when they failed to prevent the establishment of ULP, NCHSR colleagues and researchers advised Fordham to invite policy makers to attend lectures by academics instead of, as Fordham insisted, to participate in interactive discussions with them in groups limited to thirty people. This advice contradicted his experience with decision makers. During earlier service in other federal agencies, Fordham had earned a formidable reputation as an organizer of interactive workshops and he was adept at capturing the attention of policymakers. For example, in order to keep them focused on the material presented and prevent distractions from either business or pleasure, Fordham convened workshops at isolated sites, often with limited telephone lines. His favorite conference sites were the Rensselaerville Conference Center (forty-five miles from Albany, New York, over mountain roads) and Timberline Lodge, on Mt. Hood in Oregon. The postal address for Timberline, “Government Camp,” reassured public officials that they would not be accused of being on a junket when attending a ULP workshop.

Fordham was also adept at holding policymakers’ attention in large part because of his meticulous planning for the ULP workshops. For example, he relied on the policymakers who advised ULP to help him set priorities for workshops and to review the content of each session of each workshop, often in several drafts, as well as each presenter’s performance at a rehearsal. Fordham and his advisers insisted that each speaker be knowledgeable about his or her subject and also be a skilled presenter. They believed that once a presenter lost a participant, that participant was usually lost for the rest of the workshop. The rehearsals minimized the loss of participants’ attention. Fordham required presenters at each new workshop and new presenters at repeated workshops to perform for a group of his advisers from state government. On their advice, he replaced the occasional weak

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presenter. The advisers made suggestions about improving most presentations. As a result of this careful planning, officials who participated in ULP programs and evaluated various aspects of the workshops often described the quality of the presentations as the most significant characteristic of the ULP workshops.

For example, ULP convened a workshop in the fall of 1990 to describe the latest findings from research on the effectiveness of health services, typically referred to at the time as “outcomes research,” and to discuss the relevance of these findings for state policy. Three distinguished researchers, all physicians, reluctantly and without doing much preparation appeared for a rehearsal about a month before the workshop: Elliott Fisher of Dartmouth College, Sheldon Greenfield,¹⁴ then of Tufts University (now University of California, Irvine), and J. Sanford Schwartz of the University of Pennsylvania. Participants found their presentations to be superb, most of all because of their active participation in group discussions, which followed another of Fordham’s rules that presenters should participate throughout a workshop. Afterwards, each of these researchers told Fordham’s advisers that their advice had improved their performance. All three subsequently participated in many ULP related activities.

This workshop contributed another lesson about how to communicate the methods and results of research to policymakers since it provided the first opportunity to present the results of systemic reviews to health policymakers in the United States. During a visit to the United Kingdom several months earlier, one of us (Fox) met Iain Chalmers, who led an international group of researchers that had refined the methodology of research synthesis and applied it to perinatal care, in the first systematic reviews of an entire area of health services. A two-volume treatise based on this work was published in 1989 and was attracting considerable attention in Western Europe, Australia and Canada, but hardly any in the United States. In the final session of the ULP workshop, Fox presented slides of the first page of each of the appendices to *Effective Care in Pregnancy and Childbirth*.¹⁵ He asked the

¹⁴ No relation to the co-author of this paper.

¹⁵ See generally IAIN CHALMERS ET AL., *EFFECTIVE CARE IN PREGNANCY*

participants to assume, for a moment, that the findings reported on the slides were based on the most sophisticated methodology for assessing the effectiveness of health services. Then he asked them to comment on the significance of the findings for policy.

The slides arrayed interventions in perinatal care according to whether they were 1) effective, 2) ineffective, or 3) required additional research with primary data. Lee Greenfield was the first policymaker to speak. "These findings," he said, "if they hold up, are an answer to a policymaker's prayer." After Fox outlined the methodology of systematic reviews, other participants concurred. As a result of the encouraging response at this workshop, the Milbank Memorial Fund (the Fund), which Fox had joined as President earlier that year, organized presentations about the methodology and findings of systematic reviews for other policymakers and for journalists.¹⁶

Another result of this workshop was that two years (and many ULP presentations) later, Sheldon Greenfield volunteered to help the Fund assist decision makers to understand and use the new tools for evaluating the appropriateness and quality of health services. Fox convened Sheldon Greenfield, Lee Greenfield, who was then chair of the Health and Human Services Finance Division of the Minnesota House of Representatives, and Paul Cleary, an outcomes researcher then at the Harvard Medical School who was also the Editor of the *Milbank Quarterly*. They asked policymakers whether a report describing the methods and uses of outcomes research would be useful in their work and, if it would, what issues the report should address. Lee Greenfield moderated meetings of policymakers in both the legislative and executive branches of a representative group of states to discuss the feasibility and contents of such a report. Then he coordinated reviews of several drafts of the report by policymakers as well as researchers, and wrote its introduction. The Fund commissioned B.D. Colen, a *Newsday* columnist who had also reported on health policy for the *Washington Post*, to write the section of the report describing the

AND CHILDBIRTH (1989).

¹⁶ See Earl Ubell, *Are Births as Safe as They Could Be?*, PARADE MAGAZINE, Feb. 7, 1993, at 9.

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methods and uses of outcomes research. Cleary and Sheldon Greenfield wrote the concluding section, "Judging Quality Measures," in response to requests from policymakers for a guide to assessing measures of quality presented to them by experts.¹⁷

The Fund sent the completed report, *Evaluating the Quality of Health Care: What Research Offers Decision Makers*, to policymakers across the country. Their response to it was encouraging and several years later the Fund used a similar process to commission, review and publish *Evaluating Health Services: A Reporter Covers the Science of Research Synthesis*, by Ray Moynihan, an Australian journalist who had been covering evidence-based research for more than a decade.¹⁸

By 1999, so many physicians were interested in the methods and uses of evidence-based healthcare research that the School of Medicine of the University of Colorado began to offer what became an annual five-day intensive workshop on the subject. Andy Oxman led the project, titled the Rocky Mountain Workshop on How to Practice Evidence-Based Health Care. It was supported by participants' fees and the Agency for Healthcare Research and Quality in the federal Department of Health and Human Services. Oxman is an American physician who, in mid-career, entered government service in Norway to lead health services research. Before going to Norway, he was a faculty member in the Department of Clinical Epidemiology and Biostatistics at McMaster University in Ontario for 18 years. That department, chaired by David Sackett and then by Peter Tugwell, was the leading research group in North America in developing and applying the methodology of evidence-based research. Indeed, Oxman says that a McMaster colleague, Gordon Guyatt, invented the phrase "evidence-based medicine" one morning while the two of them were running.

At the time of the inaugural Rocky Mountain Workshop, Oxman was also halfway through his term as Chair of the Steering Group of the Cochrane Collaboration, founded in Oxford, England

¹⁷ See generally LEE GREENFIELD ET AL., *EVALUATING THE QUALITY OF HEALTH CARE: WHAT RESEARCH OFFERS DECISION MAKERS* (1996).

¹⁸ MOYNIHAN, *supra* note 1.

in 1992 by Iain Chalmers and colleagues from several countries. Members of the Collaboration conducted, coordinated, and published systematic reviews. By 2005, the Collaboration counted more than 12,000 members in more than 80 countries. The Cochrane Library, an electronic journal, was, and remains, the world's largest source of systematic reviews.¹⁹

Oxman and his colleagues brought to the Rocky Mountain Workshop the problem-based interactive pedagogy used with medical students and house staff at McMaster, and in training new systematic reviewers by the Cochrane Collaboration. The most important learning experiences during the workshop occurred in groups of eight persons, each led by the same two faculty members for the entire five days. Researchers on the faculty of the workshop presented the methodology of evidence-based health care to all the participants in plenary sessions. The groups applied the information presented at the plenaries, usually by analyzing a published article based on primary data or a systematic review. During the last seven years, the Rocky Mountain Workshop has helped to convert many physicians and policymakers into informed champions and users of evidence-based healthcare research. Since the early 1990s, moreover, the Milbank Memorial Fund had helped to disseminate information about the promise of systematic reviews to influence policy and practice in the United States. The Fund had also helped the founders of the Cochrane Collaboration make their case for funding to public agencies in the United Kingdom and the United States. Between 1994 and 1999, staff members of the Fund watched Cochrane develop, waiting to offer further assistance until the Collaboration was publishing a sufficient supply of new and updated systematic reviews to justify routine attention to its work by policy makers and members of their staff. By 1999, the collaboration was mature; the Cochrane Library had published 1,200 reviews, and researchers organized in fifty international groups were adding approximately 400 new reviews and updates each year. The Fund told Iain Chalmers, founder of the Collaboration, and Oxman, its chair, that it wanted to help broker systematic reviews to policy makers. As a result, in

¹⁹ See www.cochrane.org.

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October 1999, Fox described reasons for miscommunication between policymakers and researchers at the opening plenary of the international Cochrane Colloquium in Rome, Italy.

A few months after the international Colloquium, Oxman asked if the Fund could support the Rocky Mountain Workshop. Fox noted the similarity between the methods used at the workshop and those developed by the ULP and by the Fund on other projects. He suggested that Lee Greenfield become a faculty member for the workshop, and recommended that Greenfield and Oxman meet in Oslo to discuss a modified curriculum for policymakers.

Greenfield and Oxman decided that policymakers attending the workshop would use the same basic text on methods and applications as the physician participants. This text had been written by faculty at McMaster for practitioners and teachers of evidence-based health care. But for policymakers' work in their group, the two chose the scenarios, studies, and systematic reviews for group discussion on the basis of their experience of what they believed would interest policymakers. Greenfield then recruited eight policymakers for the workshop in August 2000.

Since then, Greenfield has recruited six groups of policy makers to attend the Rocky Mountain Workshop. By 2005, eighteen legislators and twenty-two members of the executive branch from twenty-three States and one Canadian province had participated. These participants strongly approved of the workshop. A legislator told Greenfield, "I just can't wait for someone to bring a phony study before my committee." A participant from the executive branch reported that a colleague told him, "If I had known that the program was as good as it is, I would have read a lot more of the material in advance." Another legislator asked to attend the workshop for a second time "because it has changed how I think about all policy, not just health policy."

The evaluation forms submitted by the policymakers after each workshop tell a similar story. Participants have consistently rated both the plenary sessions, in which faculty presented advances in methodology or new approaches to communicating research findings to various audiences, and the group sessions highly, often emphasizing that they learned a great deal in a very short amount of time. Many said that the groups and the computer labs were the

high points of the workshop. The researcher faculty members assigned to the group by Oxman, who change each year, consistently received the highest possible ratings and positive comments. Participants also rated Greenfield highly as the other faculty member for the group and wrote that they appreciated his ability to use and relate his experience as a policymaker in state and county government.

Most of the policymakers who participated were also members of the Reforming States Group (RSG), a voluntary bipartisan organization of senior members of the executive and legislative branches of government of the fifty states and several Canadian provinces. RSG members meet regularly to exchange recent experience in the politics of policymaking for health under a non-attribution rule. They also conduct projects to discover the best available evidence bearing on particular policies for healthcare and population health.

At the three regional meetings of the RSG in 2003, members who had attended the Rocky Mountain Workshop, and several researchers who had served as their faculty, compressed the material in its textbook and the group discussions into a four-hour meeting that was attended by fifty of their colleagues who had not yet participated in the full workshop. A researcher introduced the methods of evidence-based research. Then Greenfield described principles of statistics, guiding them through a one-page list of concepts in about twenty minutes. RSG members who had attended the Rocky Mountain Workshop led small groups to analyze an article and then a systematic review.

The systematic review discussed in the groups had been produced by the Drug Effectiveness Review Project (DERP). This project is currently governed and financed by seventeen states, the Canadian Coordinating Office for Healthcare Technology Assessment, and the California Health Care Foundation. The DERP produces systematic reviews comparing the effectiveness, safety and effect on sub-populations of competing drugs, in the therapeutic classes, that are among the most widely prescribed for beneficiaries of publicly funded health programs in the states and

provinces.²⁰

The DERP, a program that now informs policy for prescription drug coverage for more than half the enrollees in Medicaid nationally, vividly illustrates the central points in this article because it is a result of the convergence of the events we have described and of the network of persons who participated in them. Its inspiration was the policy of reference drug pricing introduced by the provincial government in British Columbia in 1994. Fox and Oxman had commissioned a case study of this policy for a meeting of policymakers and researchers who discussed how evidence informs policy in six countries.²¹ This meeting occurred in conjunction with the Cochrane Colloquium in Cape Town, South Africa in 2000. Fox and Oxman insisted that a policymaker be a co-author of each case in order to emphasize the relevance of research for decisions about policy. At an RSG meeting six weeks later in December 2000, an Oregon official asked if anyone knew about evidence-based pharmaceutical policy in British Columbia. Fox gave him a draft of the case study written for the meeting in Capetown which he was editing for publication. A month later, Mark Gibson, an Oregon policy maker, who had been an adviser to the ULP as well as a participant in the Rocky Mountain Workshop, invited the policymaker who was a co-author of the British Columbia case study to visit the Governor's office in Salem, Oregon. By July 2001, the Oregon legislature had enacted legislation signed by the Governor, creating an evidence-based preferred drug list. Policymakers from the first two states to join Oregon in financing the DERP, Idaho and Washington, had also participated in the Rocky Mountain Workshop. Other participants subsequently encouraged their states to join the DERP.²²

²⁰ See, e.g., OREGON HEALTH AND SCIENCE UNIVERSITY HOME PAGE, www.ohsu.edu/drugeffectiveness (last visited Apr. 24, 2006).

²¹ INFORMING JUDGMENT: CASE STUDIES OF HEALTH POLICY AND RESEARCH IN SIX COUNTRIES (Daniel M. Fox & Andrew D. Oxman, eds., 2001), available at <http://www.milbank.org/2001cochrane/010903cochrane.html>.

²² Fox, *Politics of Systematic Reviews in Coverage Decisions*, *supra* note 11, at 119.

III. EVIDENCE-BASED HEALTHCARE RESEARCH AND THE JUDICIARY

These converging individuals and events began to include the judicial branch of government in the spring of 2004. Margaret Berger, Suzanne J. and Norman Miles Professor of Law at Brooklyn Law School and organizer of a series of workshops titled *Science for Judges*, described the difference between legal and medical definitions of evidence at a meeting of the Cochrane Collaboration. Mark Gibson, now the director of the DERP, and based at the Oregon Health and Science University, spoke on the same panel.

Fox soon asked Berger for advice about introducing judges to the methods and uses of evidence-based healthcare research. Berger suggested that this research could be the subject of *Science for Judges VI*, in November 2005, and she introduced Fox to senior officials of the Federal Judicial Center (FJC). FJC sponsors *Science for Judges* with the National Center for State Courts and the Committee on Science, Technology and Law of the National Academies of Science, and with financial support from the Common Benefits Trust established in the Silicone Breast Implant Products Liability Litigation.

Science for Judges VI used the methods developed by the ULP and then elaborated in the activities described in this article. Most of the faculty, both researchers and policymakers, had participated in the Rocky Mountain Workshop. Two were leaders of the Cochrane Collaboration. One of them, Peter Tugwell, had chaired the pioneering Department of Clinical Epidemiology at McMaster University. The other, Lisa Bero, is a leading methodologist. Two researchers, Jeffrey Lerner and Diane Robertson, are at ECRI, a non-profit research organization that assesses healthcare technology and is also one of thirteen Evidence-Based Practice Centers in North America designated by the federal Agency for Healthcare Research and Quality (successor to the previously mentioned Agency for Healthcare Research and Policy). Mark Helfand, a researcher who leads the preparation of systematic reviews for DERP, joined Mark Gibson in presenting and leading groups. Groups were also lead by Fox and Richard Gottfried, a New York State Assembly Member and Health Chair. Greenfield

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helped compile a briefing book based on materials used at the Rocky Mountain Workshop and, with Mark Gibson, prepared the leaders of the small groups.

The federal and state judges who attended *Science for Judges VI* reported that they had enjoyed and learned from the experience. Berger wrote that the immediate “feedback had been terrific.” Analysis of the evaluation forms had not been completed at the time of this writing but anecdotal evidence is strongly positive. A Virginia judge wrote Berger that the workshop “has given me an entirely new way to think about and question counsel who appear before me concerning many complex legal and science matters.”²³ A federal judge from New York City, David G. Trager, told Fox that he was likely to make greater use of court-appointed experts as a result of the workshop. Several judges expressed interest in the commissioning of bench books to inform them and their colleagues about the methods and uses of evidence-based healthcare research.

Science for Judges VI reinforced the central argument of this article, that a participant-centered approach to informing government officials of the value of evidence-based research can assist those individuals who make decisions relevant to healthcare policy or adjudication. The initial responses of *Science for Judges VI* suggest that members of the judiciary can acquire useful information by experiencing a participant-centered methodology that was developed to inform policymakers in the executive and legislative branches of government about the methods and uses of research on the effectiveness of health services. This methodology is effective mainly because it accords priority to explaining how the best available scientific findings can inform significant decisions by judges and policy makers. It is also effective because it makes transparent the assumptions and methods of the research that yields the best findings.

Science for Judges VI may also offer evidence about improving the relationship between the professions of law and medicine. Physicians and lawyers frequently disagree with each other. Some authors have characterized the relationships between these

²³ Letter from the Hon. John J. McGrath, Jr. to Margaret A. Berger (Nov. 9, 2005) (on file with author).

professions as a “conflict of cultures” that is rooted in different assumptions about how knowledge is acquired, what evidence is, and how to evaluate it.²⁴ As law professors Peter Jacobson and M. Gregg Bloche have recently argued, however, “viewing physicians and attorneys as adversaries risks overlooking their shared values as professionals.”²⁵ Deeper understanding of the methods and uses of evidence-based healthcare research and demonstrations of the relevance of its findings for decisions in all three branches of government may enable members of the health and legal professions to reason together on behalf of the public interest.

CONCLUSION

In sum, a positive result of changes in the cost and organization of healthcare in the United States during the past generation has been growing interest by decision makers in all three branches of government in a new body of research. This research is the basis of enhanced accountability of health professionals and provider organizations for the quality of care. We began this article by describing the economic and political circumstances that stimulated demand for this research by decision makers. Then we described what the authors and their colleagues have done to increase the access of decision makers to this research by informing them about its methods and findings. We also briefly described the Drug Evaluation Review Project (DERP) because it exemplifies how the process of informing decision makers we have described is contributing significantly to both improving the quality of healthcare and containing its cost.

²⁴ Daniel M. Fox, *Physicians versus Lawyers: A Conflict of Cultures*, in *AIDS AND THE LAW* 367-76 (Harlan Dalton et al. eds., 1987).

²⁵ Peter D. Jacobson & M. Gregg Bloche, *Improving Relations Between Attorneys and Lawyers*, 294 *JAMA* 2083, 2083-85 (2005).