Fair Testing: The Science And Politics Of Effective Health Care

by Daniel M. Fox

Testing Treatments: Better Research for Better Healthcare

by Imogen Evans, Hazel Thornton, and Iain Chalmers

(London: British Library, 2006), 116 pp., $19.95, and at no cost at http://www.jameslindlibrary.org

This slim book is a trenchant guide to the methods, uses, and politics of "fair tests" of the effectiveness of interventions for preventing, diagnosing, and treating disease. By fair tests the authors mean research that evaluates interventions by identifying bias and taking proper account of the laws of chance. The authors avoid the ambiguous and often embattled phrase "evidence-based" in discussing this research.

The methodology of fair testing, elaborated over many years, has advanced especially rapidly since the 1970s. These methods are now being used globally to evaluate drugs, diagnostic and screening tests, and surgical procedures. In the United States, national policy to prioritize, subsidize, and disseminate the results of fair tests that compare the clinical and cost-effectiveness of competing interventions has recently become politically plausible.

The best-known fair-test methodologies are randomized controlled trials (RCTs) and systematic reviews. These reviews, which are currently the most rigorous fair tests, once only aggregated and evaluated data from RCTs. In recent years, however, reviewers have been taking account of data from less rigorous trials, as well as from observational and even qualitative studies. Other approaches to fair testing are evolving: for example, simulations, patient registries, and the development of evidence as a condition of coverage.

Effective Care in Pregnancy and Childbirth (ECPC), two volumes published in 1989, applied the methodology of fair testing to an entire field of patient care for the first time. Iain (now Sir Iain) Chalmers, a coauthor of *Testing Treatments*, was a principal organizer and author of ECPC. Several years later Chalmers took the lead in organizing an international collaboration to set standards for systematic reviews, as well as to conduct and publish them. More than 14,000 reviewers in about ninety countries now participate in the Cochrane Collaboration (named after Archie Cochrane, a pioneer of fair testing). In 1987, two years before the publication of ECPC, fewer than 100 systematic reviews appeared in the international literature of the health sector; in 2006, around 2,500 did.

Many other organizations also promote, conduct, and sponsor fair tests of interventions to maintain and improve health. For most of the 1990s the United States lagged behind Australia, Canada, and the United Kingdom in developing and applying the methods of fair testing. During the current decade, however, attention to fair tests in the United States has increased, especially among agencies of the federal government and the states, integrated delivery systems and insurers, nonprofit research organizations, and the pharmaceutical industry.

Testing Treatments is the best available introduction to the methods, uses, and value of fair testing. The authors draw most of their exam-

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DOI 10.1377/hlthaff.27.2.581

ples from the United Kingdom, but they cite considerable evidence from other countries, including the United States. The book has seven analytical chapters, a final "Blueprint for Revolution," and extensive citations to a rich literature on the history, methods, and uses of fair testing. In each analytical chapter the authors lucidly present and support their arguments. They assist readers by adding box inserts and summaries of key points.

Early in the first chapter, the authors declare their profound respect for biomedical science and its applications. "Modern medicine has been hugely successful," they write (p. 1). But medicine frequently fails: "Some new treatments have had harmful effects that were unexpected whereas the hoped-for effects of others have failed to materialize" (p. 79).

The next six chapters describe the causes of this failure, how fair testing has mitigated some of it, and why it is in the public interest to spend more on fair testing. Chapter 2 offers examples of many "commonly used treatments and screening tests" that have not been "adequately evaluated." Chapter 3 introduces readers to "technical issues" in the methodology of fair testing. In just sixteen pages the authors present, elegantly, the scientific principles on which the methodology rests. In the fourth chapter they describe "some of the numerous uncertainties that pervade almost every aspect of health care and how to tackle them" (p. 80). They also explain why "some prevailing attitudes actually discourage [prospective] policy" requiring that treatments about which there is insufficient information only be "offer[ed] within the context of a formal evaluation" (p. 55).

Chapter 5 describes the characteristics of good, bad, and unnecessary research on the effectiveness of interventions. The authors end this chapter with a horrific example of why, as a matter of policy, "new research should only proceed if an up-to-date review of preceding research suggests that it is necessary." Thousands died after bowel surgery between the mid-1970s and early 1990s because researchers "did not review the accumulated evidence [of the use of antibiotics] systematically, or present the results of new research in the context of an up-to-date review of all the relevant evidence" (p. 68).

In later chapters the authors consider the obstacles to fair testing and strategies for overcoming them. They note that "much of the research that is (currently) done is distorted by commercial and academic priorities and fails to address issues that are likely to make a real difference to the well-being of patients" (p. 80). They explain why "improving tests of treatment is everybody's business" (p. 79) and make a strong case for involving patients and the public in setting priorities and research questions for fair tests. The authors' Blueprint is a seven-point program to address these distortions.

Much of this program will be unobjectionable to Americans who worry about scientific misconduct and conflict of interest in the health sector. But although many Americans are eager to expand fair testing, and especially testing the comparative effectiveness of interventions, they are likely to reject the authors' recommendations about the redistribution of funding for research. The authors complain that the "portfolios of research funders and academic institutions are dominated by basic research that is unlikely to benefit patients in the foreseeable future, and by research directed at maximizing profits for industry" (p. 100). It is likely to be smarter politics in this country to promote increased financing for fair testing without demanding that it be obtained by redistributing current spending for biomedical research. It will also be politically wise for supporters of fair tests to argue that it is desirable to maximize profits and the price of the shares of companies that manufacture drugs and medical devices, within the constraints of regulation, in the public interest.