PROLOGUE: Notwithstanding the epidemic of hype that surrounds and obscures the concept of evidence-based medicine (EBM), increased efforts to systematically collect and disseminate clinical research results to practitioners are a necessary and appropriate response to the contemporary challenge of exploding biomedical knowledge. But the struggle to tame this unruly frontier is a contentious business. Basic agreement about the proper organization of its boundaries and infrastructure remains to be achieved. Some parties to the medical enterprise question the fundamental thrust of EBM and suspect it to be a Trojan horse concealing an intent to industrialize and cheapen medicine. For others, that debate is over, and the only question is how more and more EBM can be implemented.

But even among those who agree that a more robust and better-organized flow of scientific information is the key to improved safety, quality, and efficiency, many questions remain about how to evaluate, grade, prioritize, and use clinical research results in practice. With thousands of new studies appearing every month, how can clinicians weed out specious or misleading findings? How are credible studies with nuanced differences to be organized and applied? What innovative approaches to clinical trial design and analysis show the most promise for bridging the gaps between bench and bedside?

The following papers present a variety of approaches to sorting and evaluating evidence. Earl Steinberg and Bryan Luce review the many diverse contextual factors that may enter into the evaluation and application of clinical research evidence. They conclude that despite the availability of rigorous methods for weighing evidence about the effects of medical interventions, these methods are not always applied and interpreted correctly, and not all “evidence-based” practices have equal claim to validity. Karl Claxton and colleagues propose a pragmatic framework in which evidence of variable strength and quality can be set to inform rational decision making. Their approach, illustrated by the British National Institute for Clinical Excellence (NICE), centers on “value-of-information analysis.”

It is a paradox for policymakers that two different medical judgments may conflict even though both have plausible claims to be evidence based. David Atkins and colleagues explain how such conflicts may be understood not as a confounding of EBM but as the application of evidence in the tacit context of differing assumptions about underlying values and purposes. Finally, Dan Fox reviews the historical development of the discipline of systematic research synthesis, which has been the cornerstone of the EBM movement in recent years. Fox uses the example of the Drug Evaluation and Review Project (DERP) in Oregon to explain the promise and pitfalls of systematic reviews. Following these papers are three Perspectives on evaluating evidence by Mark Helfand, Steve Teutsch and colleagues, and Dan Mendelson and Tanisha Carino.