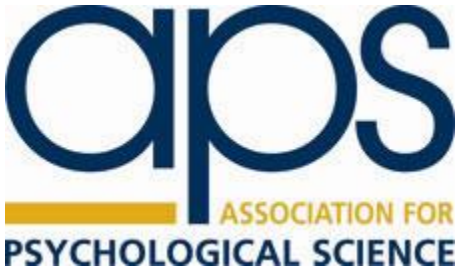

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Current Status and Future Prospects of Clinical Psychology

Toward a Scientifically Principled Approach to Mental and Behavioral Health Care

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SUMMARY—*The escalating costs of health care and other recent trends have made health care decisions of great societal import, with decision-making responsibility often being transferred from practitioners to health economists, health plans, and insurers. Health care decision making increasingly is guided by evidence that a treatment is efficacious, effective–disseminable, cost-effective, and scientifically plausible. Under these conditions of heightened cost concerns and institutional–economic decision making, psychologists are losing the opportunity to play a leadership role in mental and behavioral health care: Other types of practitioners are providing an increasing proportion of delivered treatment, and the use of psychiatric medication has increased dramatically relative to the provision of psychological interventions.*

Research has shown that numerous psychological interventions are efficacious, effective, and cost-effective. However, these interventions are used infrequently with patients who would benefit from them, in part because clinical psychologists have not made a convincing case for the use of these interventions (e.g., by supplying the data that decision makers need to support implementation of such interventions) and because clinical psychologists do not themselves use these interventions even when given the opportunity to do so.

Clinical psychologists' failure to achieve a more significant impact on clinical and public health may be traced to their deep ambivalence about the role of science and their lack of adequate science training, which leads them to value personal clinical experience over research evidence, use assessment practices that have dubious psychometric support, and not use the interventions for which there is the strongest evidence of efficacy. Clinical psychology resembles medicine at a point in its history when practitioners were operating in a largely prescientific manner. Prior to the scientific reform of medicine in the early 1900s, physicians typically shared the attitudes of many of today's clinical psychologists, such as valuing personal experience over scientific research. Medicine was reformed, in large part, by a principled effort by the American Medical Association to increase the science base of medical school education. Substantial evidence shows that many clinical psychology doctoral training programs, especially PsyD and for-profit programs, do not uphold high standards for graduate admission, have high student–faculty ratios, deemphasize science in their training, and produce students who fail to apply or generate scientific knowledge.

A promising strategy for improving the quality and clinical and public health impact of clinical psychology is through a new accreditation system that demands high-quality science training as a central feature of doctoral training in clinical psychology. Just as strengthening training standards in medicine markedly enhanced the quality of health care, improved training standards in clinical psychology will enhance health and mental health care. Such a system will (a) allow the public and employers to identify scientifically trained psychologists; (b) stigmatize ascientific training programs and practitioners; (c) produce aspirational effects, thereby enhancing training quality generally; and (d) help accredited programs improve their training in the application and generation of science. These effects should enhance the generation, application, and dissemination of experimentally supported interventions, thereby improving clinical and public health. Experimentally based treatments not only are highly effective but also are cost-effective relative to other interventions; therefore, they could help control spiraling

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health care costs. The new Psychological Clinical Science Accreditation System (PCSAS) is intended to accredit clinical psychology training programs that offer high-quality science-centered education and training, producing graduates who are successful in generating and applying scientific knowledge. Psychologists, universities, and other stakeholders should vigorously support this new accreditation system as the surest route to a scientifically principled clinical psychology that can powerfully benefit clinical and public health.

INTRODUCTION

The principal goals of clinical psychology are to generate knowledge based on scientifically valid evidence and to apply this knowledge to the optimal improvement of mental and behavioral health. The primary aims of this monograph are to assess where we stand as a field in achieving these goals and to identify factors that might have limited progress toward their attainment. A secondary aim is to suggest one strategy—the development of a new accreditation system—that might help clinical psychology advance more quickly as an applied science. Undoubtedly, other steps will foster this advance; the discussion of a new accreditation system is offered merely as one example of the bold action that is needed for clinical psychology to meet its obligations to the public. Finally, although we use the term *clinical psychologist* throughout, our remarks are relevant to all psychologists concerned with clinical service delivery (e.g., assessment or intervention) in the service of clinical and public health.

CLINICAL PSYCHOLOGY IN THE CONTEXT OF PUBLIC HEALTH: ADDRESSING SOCIETY'S NEEDS

The status of clinical psychology cannot be evaluated in isolation; to be understood, it must be viewed in the broader context of contemporary health care. The evidence is clear that we are facing a health care crisis in the United States, and that the nature of health and mental health care has changed dramatically since clinical psychology began in this country. These changes have clear implications for the future of clinical psychology.

- Health and mental health care costs have escalated dramatically over the past 30 years (Centers for Medicare and Medicaid Services, 2006; Mark, Levit, Buck, Coffey, & Vandivort-Warren, 2007; National Center for Health Statistics, 2006; Poisal et al., 2007), and there is little reason to believe that this trend will slow even with greater government intervention and control. This is because these escalating costs reflect somewhat refractory influences: people living longer and requiring greater levels of care, new medical procedures, and a growing number of treatable conditions.
- The rising costs of health and mental health care mean that individuals no longer pay for such care directly: Costs are being diverted to insurers and the government. This means that providers and consumers are losing control over health care decisions; such decisions increasingly are influenced by other stakeholders: for example, health care administrators, purchasers of health plans (e.g., businesses), and insurers.
- Cost pressures and new pharmacotherapies have changed the face of mental health care. The proportion of the population receiving mental health care has almost doubled in the past 20 years (Druss, 2006; Kessler et al., 2005), but increasingly this care is delivered by primary care (medical) practitioners and involves pharmaceuticals (Mark et al., 2007; Olfson, Marcus, Druss, & Pincus, 2002; Zuvekas, 2005).
- While the demand for mental health care is growing, psychologists are being bypassed as practitioners (e.g., Clay, 1998; Committee on Redesigning Health Insurance Performance Measures Payment and Performance Improvement Programs, 2006; Hanrahan & Sullivan-Marx, 2005; Mark et al., 2007). Clinical psychologists are being "crowded out" of service delivery roles by primary care physicians, on one side, and by lower-cost practitioners, such as social workers, on the other side (Scheffler, Ivey, & Garrett, 1998). The training of psychologists has continued apace, however, with some 2,400 new doctoral-level providers being produced each year (Scheffler et al., 1998).

The combination of unmet mental health needs, the escalating costs of mental health treatment, and the use of public monies, puts tremendous pressure on those who make health care decisions to pay careful attention to evidence of costs and effectiveness. Stakeholders in mental health care systems increasingly are using health economic evidence to guide their decision making (Beecham et al., 1997). The professional disciplines and treatments that flourish in the future will be those that are relatively cost-effective, that demonstrate a clear cost–benefit payout on important objective measures over the relatively short term, and that earn endorsement by clinical practice guidelines in support of their standardization and use. Use of such criteria has led to improved cost-effectiveness in diverse fields of medicine, and a recent Institute of Medicine report stressed that similar quality-improvement strategies must be used in future decisions about mental health care (Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders, 2006). Indeed, the mix of expenditures and delivery systems that has evolved over the past 20 years reflects attention to costs and has increased the reach and cost-effectiveness of mental health treatment (Berndt, 2004; Druss et al., 2006; Frank, Salkever, & Sharfstein, 1991; Mark et al., 2007; McKusick et al., 1998).

Health care has changed dramatically and will change even more. Current trends suggest even greater shifts toward managed care versus fee-for-service, generalist medical providers versus psychologists, general medical hospitals and clinics versus mental health programs, and so on. These trends suggest that psychology, and psychologists, will make *decreasing* contributions to mental and behavioral health, because psychologists have not made good business and clinical cases for the value of their services and interventions and have not made these cases to the right audiences. The current monograph argues for fundamental reform of psychology and psychological training programs to achieve constructive adaptation to the seismic changes in the nature of health care.

The goal of reform would not be to secure employment for psychologists. Rather, it would be to increase the number of people who are helped by effective psychological interventions. Further, the goal would not be to deprive psychologists of their professional autonomy by encouraging passive acquiescence to the decisions of others. Rather, it would be to encourage a more proactive role for psychologists, one that would generate superior and more compelling research evidence for current and yet-to-be-developed psychosocial treatments.

It is true that clinical psychologists almost certainly will lose battles over professional autonomy. Indeed, they already have. Psychologists should take solace, however, in any effort that generates new knowledge about how to help patients more effectively. This sentiment was voiced by Archie Cochrane, a pioneer British clinical epidemiologist and physician who championed empirical medicine. Early in his career, Cochrane was involved in the care of prisoners with tuberculosis and was troubled by the lack of research on that condition and by the absence of evidence on the effectiveness of treatment:

> What I decided I could not continue doing was making decisions about intervening (for example pneumothorax and thoracoplasty) when I had no idea whether I was doing more harm than good. I remember reading a pamphlet (I think from the BMA) extolling the advantages of the freedom of British doctors to do whatever they thought best for their patients. I found it ridiculous. I would willingly have sacrificed all my medical freedom for some hard evidence telling me when to do a pneumothorax. (Cochrane & Blythe, 1989; cited in Hill, 2000, p. 1190)

Cochrane's emphasis on evidence-based medicine was harshly criticized by his medical colleagues who preferred freedom to do what they wanted over the need to demonstrate effectiveness (Hill, 2000). However, the weight of evidence and perceived responsibility for public health has largely held sway in medicine. The current context of health care in America (and beyond) demands a higher level of accountability than in the past. Health care decisions should reflect cost-effectiveness data, which index the intervention strategies that reduce human suffering most efficiently, rather than by guild interests or by an unskeptical reliance on customary practices. In this way, the emerging focus on accountability should be welcomed by psychologists, as it is consistent with and supportive of clinical psychology's two principal goals, as stated at the beginning of this monograph: generating scientific knowledge and applying this knowledge to the optimal improvement of mental and behavioral health.

CRITERIA FOR DATA-DRIVEN DECISION MAKING IN MENTAL HEALTH CARE

In the context we have just described, the future of clinical psychology will be dictated largely by what data show regarding the relative cost-effectiveness of psychosocial and behavioral interventions compared with other competing intervention options in mental health care. Before we can make sense of these data, however, we first must understand clearly the criteria by which such evaluative comparisons are made. Clinical psychologists must offer compelling evidence relating to these criteria if they expect their psychosocial and behavioral interventions to have a fair chance of gaining widespread support, to be adopted in the health delivery system, and to be funded via health coverage mechanisms (e.g., insurance reimbursement). At present, there is significant variation in how health care decisions are made across the various health care entities (e.g., preferred provider organizations, HMOs, insurance companies, and state and federal health programs; e.g., Drummond et al., 2003). However, there is considerable evidence that the data for the four classes of criteria we discuss below—efficacy, effectiveness, cost-effectiveness, and scientific plausibility—already significantly influence health care decisions (e.g., for the impact of health economic analyses, see Grizzle, Olson, & Motheral, 2000; Hoffman & Graf von der Schulenberg, 2000; Luce, Lyles, & Rentz, 1996; Steiner, Powe, & Anderson, 1996; Steiner, Powe, Anderson, & Das, 1996). We believe that as health care dollars become increasingly precious and as health care funding increasingly falls within the province of governmental and insurance entities, coverage decisions will be dictated largely by evidence bearing on these four criterion categories. Psychosocial interventions simply will not achieve greater penetration into the health care delivery market if they do not compare favorably with competing interventions on these criteria.

Efficacy

The concept of efficacy should be familiar to clinical psychologists (Chambless & Ollendick, 2001). Efficacy research is aimed at determining whether patient outcomes result from a specific, often experimental intervention. Efficacy studies are those in which an intervention's effects are estimated under conditions of optimal control and standardization. In general, efficacy research obtains high levels of experimental control and internal validity through the use of strict inclusion and exclusion criteria, random assignment, use of placebo or other comparison conditions, and thorough assessment procedures. The sorts of

efficacy data that are commonly gathered and analyzed by clinical psychologists are germane to health care decisions (e.g., covered benefits, treatment approaches). However, health care decisions often depend on evidence that goes beyond what most small-scale efficacy studies target: symptom reduction. The likelihood that an intervention will be adopted may depend on whether the intervention has effects on other outcomes, such as health care utilization, increased compliance with other interventions, and work absenteeism and productivity (e.g., Lo Sasso, Rost, & Beck, 2006; Wang et al., 2006). For instance, a recent study demonstrated that a chemical dependence intervention produced substantial reduction in patients missing work, being late for work, and being less productive at work (Jordan, Grissom, Alonzo, Dietzen, & Sangsland, 2008). Such data would be of interest to employers considering mental health insurance coverage for their employees. Managed care organizations are interested in computer-based eHealth interventions, for example, because they have the potential to reduce utilization of more expensive health care options (Boberg et al., 1995). Data relevant to these kinds of outcomes are of special interest to insurers or HMOs struggling to contain costs and maintain clinician and patient satisfaction.

Ultimately, the adoption or utilization of an intervention may depend on its effects on a broad range of outcomes that are of interest to a variety of parties or stakeholders. The health care system will be interested in the extent to which the intervention reduces utilization of other health care services and whether the intervention affects patient satisfaction with the health care system. The payer (e.g., an employer) will be interested in whether an intervention affects productivity. These sorts of outcomes typically are not tracked in most efficacy studies, but they are the very outcomes that will be critical to stakeholders in the decision-making process (e.g., Fiore et al., 2008; Murray, Burns, See, Lai, & Nazareth, 2005). Efficacy effects are highly persuasive to decision makers when they reflect direct impact on the health care system or purchaser and are objective and denominated in tangibles (Fals-Stewart, Yates, & Klostermann, 2005).

Whereas objective outcomes are important to the evaluation of efficacy, health economists and others recognize that subjective outcomes also have value. They have value not only to patients, clinicians, and physicians but also to health care plans and society. Patients' subjective evaluations not only are intrinsically important but also may affect satisfaction with the health care plan and system and may mediate other important outcomes such as service utilization. It is clear that subjective outcomes with direct disease relevance (e.g., important disease symptoms) may be persuasive to health care decision makers (Drummond et al., 2003). A preference-based measure of quality of life (e.g., the Health Utilities Index 2/3: Feeny et al., 2002; EQ-5D: McDonough & Tosteson, 2007) will provide a comprehensive index of treatment effects and also will permit evaluation of diverse interventions denominated in a common metric. For instance, a managed care plan may be interested in determining which intervention—say, a psychosocial intervention for panic disorder versus a new medication for diabetes—produces greater increases in quality of life. The interventions, patient populations, and diseases may differ, but use of a preference-based quality of life measure permits comparison on a common measure of factors that are important to the patient, clinician, and society.

Effectiveness and Dissemination Potential

The distinction between the commonly encountered terms *efficacy* and *effectiveness* relates to the well-known scientific concern with establishing the external validity or the generalizability of empirical evidence (Campbell & Stanley, 1963). The term *effectiveness* is typically used to refer to the effects of an intervention when it is applied in a context that is highly similar to the context(s) of its intended real-world use (Glasgow, Klesges, Dzewaltowski, Bull, & Estabrooks, 2004). *Efficacy*, as noted earlier, typically refers to an intervention's effects under conditions of optimal control and standardization. Efficacy research, for example, often takes place in specialized clinics or research programs, with specially recruited volunteers participating in treatment as part of a research study, with the interventions delivered by specially trained individuals who do not have broader clinical duties or competing time pressures, and with special incentives for treatment participation (e.g., Ramsey et al., 2005). Of course, most interventions evaluated in such efficacy studies are intended to be delivered, ultimately, in very different circumstances. Effectiveness research is designed to bridge the gap between the specialty research clinic setting and the real-world clinical setting. In effectiveness research, the intervention typically takes place in more representative clinical settings or programs, is delivered via normal clinical delivery routes (by the clinic's own personnel), is delivered to relatively unselected patients with no added extrinsic motivation to comply with treatment, and so on. Of course, it is important to note that the efficacy–effectiveness distinction is a false dichotomy, as studies lie on a continuum with regard to the dimension of generalizability. Nevertheless, this terminology is widely used and highlights important variations in the evaluation of clinical services.

A particular treatment may produce poorer overall outcomes in an effectiveness study than in an efficacy study (e.g., Curtis, Ronan, & Borduin, 2004; Stevens, Glasgow, Hollis, & Mount, 2000). This discrepancy could be due to a variety of factors such as recruitment of less motivated clients or greater variability in treatment delivery. However, there is often considerable correspondence between the relative effectiveness of treatments (e.g., their *effect sizes*) across efficacy and effectiveness contexts (Addis et al., 2004; Barlow, Allen, & Basden, 2007; Fiore et al., 2008; Henggeler, 2004; Revicki et al., 2005; W.A. Wade, Treat, & Stuart, 1998). The degree of convergence in results arising from efficacy studies and effectiveness studies most likely

reflects the fact that the two sorts of studies often are more alike than not (e.g., sharing change mechanisms, similar treatments, essential nature of the disorder, general patient factors).

Even though efficacy and effectiveness studies often yield similar effect sizes, it nevertheless is vital that both types of studies be undertaken. Establishing a treatment's generalizability through effectiveness research, in particular, yields evidence on absolute levels of effectiveness of interventions in real-world settings. Such data are critical for making the business case for an intervention (e.g., generating optimal cost-effectiveness data; Ramsey et al., 2005). Moreover, although research often suggests good translation of treatment effects across contexts, no intervention may be assumed to be effective unless it has been validated in a variety of settings and populations (Collins & MacMahon, 2001; Glasgow et al., 2004; Woolf, 2008). Even the results of so-called effectiveness studies demand generalization to multiple real-world contexts.

If a treatment is effective and reliable in real-world settings, then its reach and dissemination potential are critical determinants of its clinical and public health impact. *Dissemination* refers to the likelihood that a treatment can be implemented widely and easily, and *reach* refers to the proportion of a target population that will be exposed to treatment. Important determinants of dissemination and reach include treatment complexity, treatment intensity, training needs, costs, time commitments for the patient and clinician, safety, and the delivery mechanism. Clearly, dissemination is easier when interventions can be delivered by low-cost providers, can be standardized (e.g., manualized), and are readily accessible (e.g., can be delivered via self-help materials or electronic media). Outstanding examples of such interventions include telephone help lines, such as smoking cessation quit lines that now are available nationwide and are supported by state and federal funding. The dissemination potential and reach of this intervention approach are high because it can be provided at low cost (the quit line is staffed by bachelor-level health educators), it can be highly standardized (quit lines typically follow a computer-guided branching script), and it can be highly accessible (the quit line can be accessed by any smoker throughout the day from his or her own home, and all it requires for delivery is phone access). Dissemination also is enhanced by evidence that the intervention delivery system is highly effective (Borland & Segan, 2006; Centers for Disease Control and Prevention, 2004; Fiore et al., 2008; Stead, Perera, & Lancaster, 2006). For instance, eHealth interventions are highly disseminable because of their replicability and portability (e.g., via PDAs and cell phones). Further, they permit both tailoring based on myriad patient features (Strecher et al., 2005) and exposure to diverse realistic contexts achieved via virtual reality capabilities (Bordnick et al., 2008).

Costs and Cost-Effectiveness

Costs refer to all those monetary and nonmonetary resources expended in the delivery of treatment, and *cost-effectiveness* refers to a relation between monetary costs and outcomes. Costs may be determined from multiple perspectives. From the clinician's perspective, costs may include the time taken to deliver the intervention, patient resistance, and training needed to develop expertise as well as overhead costs. From the health care system's perspective, costs may include opportunity costs (what else could have been done if resources were not devoted to the intervention), the actual costs of the intervention, and training needed to deliver the intervention (direct and indirect costs). From the patient's perspective, costs might include unpleasantness, side effects, travel costs, and time and effort. Nonmonetary costs for the patient could include medication side effects, loss of other activities or options, or the discomfort and work associated with a psychosocial intervention.

Costs need to be considered outside of their relation with effectiveness because costs have intrinsic significance. For instance, the pain or risks to which a patient is exposed need to be analyzed separately, even if a treatment is highly effective. Monetary costs also have to be considered in their own right. Drummond et al. (2003) noted that "Indeed, a hospital or health plan could get into financial difficulties by adopting too many cost-effective interventions" (p. 409; e.g., see Foster & Jones, 2007). In short, some interventions may be too costly or time consuming even if highly effective, because the available resources are finite. Budgetary impact analysis has become an integral part of the health economic appraisal of new interventions (Mauskopf et al., 2007) in an effort to focus on monetary costs incurred by a particular health care entity.

Cost-effectiveness may be reflected in various indices: for example, cost per quality adjusted life year saved, cost per positive outcome, and return on investment. Managed care organizations often assess costs in terms of per member per month (PMPM). Return on investment calculators are available that allow businesses, policy makers, insurers, and health plans to determine the return on investment PMPM for various sorts of interventions versus no care or usual care (e.g., www.businesscaseroi.org/roi/default.aspx). Newer approaches compute acceptability curves based on net monetary benefits or net health benefits (Foster & Jones, 2007).

As with the determination of costs per se, cost-effectiveness estimates can be computed from the perspectives of diverse stakeholders: the patient, the clinician, the health care plan, the purchaser or employer, and society. It sometimes is important to determine cost-effectiveness separately for distinct subpopulations of patients because cost-effectiveness can differ greatly as a function of risk factors. For example, whereas smoking cessation treatment tends to be highly cost-effective relative to other sorts of interventions (Cromwell, Bartosch, Fiore, Hasselblad, & Baker, 1997; Solberg, Maciosek, Edwards, Khanchandani, & Goodman, 2006), it is especially cost-effective for pregnant smokers. One study showed that a smoking cessation program would result in a savings of some $8 million in neonatal costs alone (Ayadi et al., 2006). For each low-income pregnant

smoker who quits smoking, Medicaid would achieve net savings of about $1,274 after deducting the costs of intervention (Thorsen & Khalil, 2004). Thus, interventions may need to be "sold" to health care systems and other decision makers for specific populations and problems because intervention effectiveness and the monetary costs of treatment or failure to treat may vary greatly across different patient groups and problems (e.g., Kent & Hayward, 2007).

Attending to cost-effectiveness is crucial for many reasons. First, as noted earlier, there is strong evidence that cost-effectiveness/health-economic evidence is influential with decision makers (Drummond et al., 2003; Grizzle et al., 2000; Hoffman & Graf von der Schulenberg, 2000; Luce et al., 1996; Steiner, Powe, & Anderson, 1996; Steiner, Powe, Anderson, & Das, 1996). In addition, attending to such information can alert researchers and others to important determinants of the relative value of competing intervention approaches. For instance, cost-effectiveness analyses often contain discount rates that devalue outcomes that are very delayed. Thus, delaying a preventive intervention until benefits are more apparent could make a significant difference in cost-effectiveness (Foster & Jones, 2007). Similarly, focusing on a population extreme in disorder severity also could affect cost-effectiveness, even though effect sizes in efficacy analyses might not be affected. What is important is that cost-effectiveness data often provide very different information than what is supplied via the efficacy analyses that are more familiar to psychologists, and some treatments will appear highly cost-effective on some outcomes and with some patient groups but not others (Stant, Buskens, Jenner, Wiersma, & TenVergert, 2007).

Formal health economics modeling allows the integration of information across the multiple domains needed for an informed and comprehensive evaluation of the use of an intervention in a particular context: incidence of the target disorder, its responsiveness to treatment, multiple outcomes as they would occur with and without treatment over different time frames, the costs of interventions and necessary diagnostic tests, and so on (Weinstein et al., 2003). Such modeling can have considerable clinical value, because it promotes a clearer understanding of the circumstances in which an intervention exerts its greatest benefits (in terms of timing, incidence of symptoms, subpopulations) and also because it provides information relative to resource expenditures and how the value of an intervention changes with setting or context, the population available for treatment, and so on. Psychological clinical scientists should be involved directly in the formal decision analytic modeling for health care evaluation (Fals-Stewart, Yates, & Klostermann, 2005). They should have the expertise to make informed evaluations and decisions about issues such as prevalence, downstream societal costs of different conditions and symptoms, utilization rates, likely responsiveness to treatment in different populations, clinically based value judgments, and so on.

Whereas clinical psychology has been slow to respond to this need for health economic data (Fals-Stewart, Yates, & Klostermann, 2005), other fields have not been. Currently, there are at least 25 guidelines for the conduct and reporting of health economic analyses to make them useful to decision-making bodies (Hjelmgren, Berggren, & Andersson, 2001). Many of these guidelines have been sponsored by professional groups with strong interests in pharmaceutical and other medical interventions (e.g., the International Society for Pharmacoeconomics and Outcomes Research). Thus, health care decision makers are getting the information they need to make informed decisions about some types of interventions. Psychology must follow suit to remain viable and relevant.

Scientific Plausibility

Scientific plausibility refers to the extent to which an intervention makes sense on substantive bases and whether there is formal evidence regarding its mechanisms. Such information is not required for an intervention to be considered useful; many psychiatric medications are used widely despite very little understanding of their specific mechanisms of action. However, the absence of a demonstrated or plausible specific mechanism of action, especially for a psychosocial intervention, leaves open the possibility that the intervention may merely be capitalizing on nonspecific, credible ritual, or placebo effects. Health care plans and purchasers are loath to pay for treatments that can be cast as placebo treatments, no matter how much clinicians may argue for the role of hope and optimism in therapeutic effects.

Mediational analyses of treatment actions are persuasive not only because they provide key scientific knowledge (i.e., how the treatment works) but also because they provide information that is vital to the efficient use of treatments (McCarthy, Bolt, & Baker, 2007; Piper et al., 2008). For instance, identifying specific mediators of treatment effects suggests which patients need the treatment (e.g., those with low pretreatment scores on the mediator) and when therapeutic response has occurred.

Finally, scientific plausibility is important because treatments with no plausible mode of action (e.g., chaotic meditation therapy, facilitated communication, dolphin-assisted therapy) simply are more likely to fail to hold up well over time. They are introduced with enthusiasm and heartfelt testimonials but ultimately fail to deliver benefit on any objective criteria (e.g., Marino & Lilienfeld, 2007).

Summary

The support and use of psychosocial interventions will be determined by status on a host of dimensions that typically are not considered in debates about psychotherapy effectiveness and empirically supported therapies. These debates often have been self-absorbed and focused on issues that will not earn psychosocial interventions greater adoption and implementation regardless of their outcome. As a field, we have not done adequate

market research; we have not asked ourselves what decision makers need to know as they decide which interventions to support. Decision makers need to know the broad ranges of costs and benefits of an intervention, how easily and reliably it can be implemented, how its benefits generalize across a host of contextual dimensions, how scientifically plausible it is (reflecting its credibility), and how it stacks up on all these dimensions against a range of competing options, including doing nothing.

An emphasis on cost-effectiveness does not belie the fact that some patients may benefit greatly from lengthy, costly, complex psychosocial interventions delivered by highly trained and experienced clinicians. Rather, cost-effectiveness is just one yardstick that will be used to evaluate interventions if they are to be funded with other people's money (other than the patient's). Even then, such analyses ultimately may support the choice of costlier interventions for high-risk populations (e.g., Henggeler, Melton, & Smith, 1992). Also, these criteria are largely blind to the clinician's professional identity—except as might be manifested in costs and cost-effectiveness. The future of clinical psychology and its ethical stature as a field require that its training, research, and recommendations emphasize the ultimate goal of promoting patient and public health, as opposed to striving to protect, restore, or secure a privileged place for clinical psychologists as service providers.

Although the criteria enumerated above may seem daunting, we believe that many psychosocial interventions stack up quite well on these dimensions when relevant data are marshaled effectively (e.g., see certain types of marital and family therapy, Fals-Stewart, O'Farrell, & Birchler, 1997; Fals-Stewart, Yates, Klostermann, 2005; Henggeler et al., 1992). If evidence on psychosocial interventions can satisfy these major evaluative criteria in a systematic, formal manner, then this should result in greater adoption of these interventions and produce greater patient and public health benefit. If the evidence is not there, however, self-promotion is unlikely to help. This is the objective reality that clinical psychology faces.

MERITS OF PSYCHOSOCIAL INTERVENTIONS AND FUTURE PROSPECTS OF CLINICAL PSYCHOLOGY

We have described both the emergent mental health care system and the criteria by which policy makers increasingly will make choices among competing interventions. Now we can ask how psychosocial interventions fare when evaluated against these criteria.

We have both good news and not-so-good news to report. The good news is that multiple psychosocial interventions for specific problems fare very well on critical criterion dimensions such as efficacy, effectiveness, dissemination, cost-effectiveness, and scientific plausibility. The not-so-good news is that despite compelling research support for the merits of specific interventions for specific problems, clinical psychology, as a field, has failed to embrace these treatments, to standardize their use through formal practice guidelines, to promote and disseminate them widely through training, or to ensure that they are available to the patients who need them. In addition, the field too frequently has not addressed questions of central concern to health care decision makers. As a consequence, the field of clinical psychology is at risk of becoming a marginal player in the future of mental health care. Such an outcome would be ironic, given the substantial contributions of psychological clinical scientists to the development of potent psychosocial interventions and the value of psychology's potential contributions to public health.

In the following two subsections, we first review the good news—the research evidence demonstrating the benefits of specific psychosocial interventions for specific mental and behavioral health problems. Because of space limitations, we only briefly review global evidence of the research support of key psychosocial interventions that address different levels of impairment, populations, and diagnoses. After presenting the good news, we review the not-so-good news—psychology's failure to capitalize on these interventions—and discuss possible reasons for this disturbing failure. Finally, in the concluding section, we offer specific steps that clinical psychology can take to rectify its failures and to become a more positive force in advancing public health. Despite psychology's current limitations, we believe that its future could be bright, if such steps were taken.

The Good News: Empirical Support for Psychosocial Interventions

The following sampler highlights several types of psychosocial interventions that already have secured outstanding evidentiary support. We review this evidence to demonstrate the feasibility of such a research agenda and to encourage research that more aggressively develops similar evidence bases for other types of interventions. This overview of empirically supported treatments (ESTs) highlights the sorts of research evidence that we believe should foster greater use of psychosocial interventions by clinicians and should result in greater preference for such interventions among policy makers. In addition, we hope that our review of the evidence provides insight into why health care purchasers, health care systems, and other stakeholders are turning increasingly to evidence-based interventions to meet the mental and behavioral health needs of their enrollees–patients. Widespread demand for such interventions, and the persuasiveness of the evidence per se, ought to enhance the development of a science-based practice and application of psychology.

We review psychosocial interventions for tobacco use because research on these interventions has been highly persuasive in increasing support and implementation of these interventions across diverse health care systems. That is, the supporting evidence was persuasive when evaluated by such diverse audiences as clinicians (e.g., physicians), insurers, purchasers (business entities), and so on. Therefore, clinical tobacco control

provides an example of the sorts of evidence that we must marshal to spur adoption and support of psychosocial interventions for other sorts of disorders.

Interventions for Tobacco Use

Despite the noted harms caused by tobacco use, until the mid-1990s, public health advocates and tobacco researchers had little success in winning support for tobacco interventions and in spurring physicians and other clinicians to intervene in tobacco use. It was clear that the harms caused by tobacco use did not by themselves prompt meaningful levels of intervention. As noted in the 1996 Public Health Service Guideline (Fiore, Bailey, & Cohen, 1996),

> The evidence reviewed above suggests that tobacco use presents a rare confluence of circumstances: (1) a highly significant health threat; (2) a disinclination among clinicians to intervene consistently; and (3) the presence of effective, preventive interventions. . . . Indeed, it is difficult to identify a condition in developed countries that presents such a mix of lethality, prevalence, and neglect, despite effective and readily available interventions. (pp. 5–6)

The situation has changed dramatically over the past decade. The 2008 Public Health Service Clinical Practice Guideline on *Treating Tobacco Use and Dependence* (Fiore et al., 2008) documents the progress made:

> The scant dozen years following the publication of the first Guideline have ushered in similarly impressive changes. In 1997 only 25% of managed health care plans covered any tobacco dependence treatment; this figure approached 90% by 2003 (Tobacco Cessation Leadership Network, 2006). Numerous states added Medicaid coverage for tobacco dependence treatment since the publication of the first Guideline so that by 2005, 72% offered coverage for at least one Guideline recommended treatment (Bellows, McMenamin, & Halpin, 2007; National Center for Health Statistics, 2007; Tobacco Cessation Leadership Network, 2006). In 2002, the Joint Commission (formerly, JCAHO), which accredits some 15,000 hospitals and health care programs, instituted an accreditation requirement for the delivery of evidence-based tobacco dependence interventions for patients with diagnoses of acute myocardial infarction, congestive heart failure or pneumonia (www.coreoptions.com/new_site/jcahocore.html; hospital-specific results: www.hospitalcompare.hhs.gov). Finally, Medicare, the Veteran's Health Administration, and the United States Military now provide coverage for tobacco dependence treatment. Such policies and systems changes are paying off in terms of increased rates of assessment and treatment of tobacco use.
>
> Data show that the rate at which smokers report being advised to quit smoking has approximately doubled since the early 1990s (Centers for Disease Control and Prevention, 1993, 2000; Chase, McMenamin, & Halpin, 2007; Denny, Serdula, Holtzman, & Nelson, 2003). Recent data also suggest a substantial increase in the proportion of smokers receiving more intensive cessation interventions (California Department of Health Services, 2005; Quinn et al., 2005). The National Committee for Quality Assurance (NCQA) reports steady increases for both commercial insurers and Medicaid in recommending both medications and empirically supported strategies for smoking cessation (National Committee for Quality Assurance, 2007). Finally, since the first Guideline was published in 1996, smoking prevalence among adults in the United States has declined from about 25% to about 19.8%. (Centers for Disease Control and Prevention, 2008, p. 1221)

What has led to this sea change in support and implementation of tobacco interventions? Although the change no doubt reflects multiple factors, we believe it is due in large part to the evidence base that was made available to decision makers. This evidence is well captured by the 2008 Public Health Service Clinical Practice Guideline on *Treating Tobacco Use and Dependence* (Fiore et al., 2008). The sorts of information that would be most vital for health care decision makers are listed below (all findings may be found in Fiore et al., 2008, unless otherwise indicated).

Efficacy. There is compelling evidence that psychosocial interventions for tobacco use are efficacious. These interventions have been shown to increase long-term abstinence rates in a dose-related manner, and their efficacy has been traced to two particular components: skill training and intratreatment support. Moreover, research also shows not only that psychosocial interventions are effective when used by themselves but also that they significantly boost the efficacy of cessation medications when used as adjuvants.

Effectiveness and Dissemination Potential. Psychosocial interventions have been shown to boost cessation outcomes significantly in real-world settings with diverse, unselected groups of tobacco users (Hollis et al., 2000; Zhu et al., 2002). In addition, whereas medication has been shown not to be effective in certain groups of tobacco users (e.g., adolescents, pregnant smokers, smokeless tobacco users), psychosocial intervention has been shown to be effective in virtually all populations of tobacco users. The dissemination potential of psychosocial tobacco intervention is high because it is effective in the absence of pharmacologic treatment, it can be delivered effectively by telephone (Zhu et al., 2002), and it can be delivered effectively at relatively low cost by diverse types of clinicians.

Cost-Effectiveness. Research shows that tobacco cessation interventions, both medication and psychosocial interventions, are cost-effective in relation to other medical interventions such as treatment of hypertension and hyperlipidemia and to other preventive interventions such as periodic mammography (Cromwell et al., 1997; Maciosek et al., 2006; Quist-Paulsen, Lydersen, Bakke, & Gallefoss, 2006; Shearer & Shanahan, 2006; Solberg et al., 2006). For example, the cost per life year saved via tobacco dependence treatment has been estimated at

$3,539 (Cromwell et al., 1997), which compares favorably to hypertension screening for men, ages 45–54 ($5,200), and annual cervical screening for women, ages 34–39 ($4,100; Tengs et al., 1995). In addition, tobacco dependence treatment compares quite favorably, on the basis of quality adjusted life years saved, with other treatments such as those for hypertension and hypercholesterolemia as well as with preventive screening (e.g., mammography, Pap smears; Brandon et al., 2004; Chirikos, Herzog, Meade, Webb, & Brandon, 2004; Croghan et al., 1997; Feenstra, Hamberg-van Reenen, Hoogenveen, & Rutten-van Molken, 2005; Johansson, Tillgren, Guldbrandsson, & Lindholm, 2005; Parrott & Godfrey, 2004; Raw, McNeill, & Coleman, 2005; Solberg et al., 2006; Stapleton, Lowin, & Russell, 1999).

From the perspective of both employer and health plan, treatment adoption may depend on showing a favorable return on investment through reduced health care consumption and costs (Foulds, 2002; Javitz et al., 2004; Warner, Mendez, & Smith, 2004). Studies have documented that tobacco use treatment for employees often produces increased health care savings, increased productivity, reduced absenteeism, and reduced life insurance payouts (Halpern, Dirani, & Schmier, 2007; Halpern, Khan, Young, & Battista, 2000; Halpern, Shikiar, Rentz, & Khan, 2001; Warner, Smith, Smith, & Fries, 1996). Demonstration of employer savings rarely is evaluated with psychological interventions and could be an important benefit of such interventions given the loss of productivity caused by many mental disorders. Finally, managed care organizations often assess the PMPM cost of a benefit. The PMPM for tobacco use treatment has been assessed in a variety of settings. One recent effort to simulate the financial implications of covering tobacco use treatments by managed care organizations found that at 5 years, coverage of tobacco use treatment cost a managed care organization a modest $0.61 PMPM, with quitters gaining an average of 7.1 years of life and a direct coverage cost of about $3,500 for each life year saved (Warner et al., 2004).

These findings represent only a portion of those that have been produced by recent tobacco science. They show that intervention is highly effective, which components are effective, that interventions can be delivered in highly cost-effective ways, the cost–benefit advantage of the interventions relative to other interventions that compete for health care dollars, and the costs of intervening versus not intervening on health and health care utilization. Recent research also has started to uncover the mechanisms of action of tobacco interventions (McCarthy et al., 2007; Piper et al., 2008).

Other Psychosocial Interventions

Tobacco intervention is not unique. Strong public health and business cases also have been built for other psychosocial interventions, leading to those interventions becoming more widely supported by health care systems, purchasers, and other stakeholders (National Institute for Health and Clinical Excellence [NICE], 2004). The interested reader may consult the Appendix for a presentation of some of the research and business cases that can be made for an impressive range of psychosocial interventions. However, the gist of the literature reviewed in the Appendix can be communicated quite concisely: A host of psychosocial interventions fare quite well on the basis of the four major criteria introduced earlier—efficacy, effectiveness, cost-effectiveness, and scientific plausibility.

The number and range of such interventions are impressive, with the interventions including cognitive therapy (CT) and cognitive behavior therapy (CBT) for depression, panic disorder, bulimia nervosa, and posttraumatic stress disorder (PTSD); behavioral couples therapy for alcohol and substance use disorders; exposure therapy with response prevention and CT for obsessive compulsive disorder; family therapy for schizophrenia; and family-focused treatment for bipolar disorder. Strong cases can be made for other interventions as well (e.g., behavioral treatment of insomnia).[1] The evidence suggests that these interventions not only are effective relative to a variety of comparison psychosocial interventions but also are effective and/or cost-effective relative to alternative intervention approaches such as pharmacotherapy.

All of the interventions listed above have been shown to be efficacious relative to a variety of comparison or control conditions. For instance, there is evidence from multiple clinical trials that CT and CBT for depression yield more durable benefits than does antidepressant medication; that is, once treatment is discontinued, relapse rates for CBT are about half those for medications (DeRubeis & Crits-Christoph, 1998; Gloaguen, Cottraux, Cucherat, & Blackburn, 1998; Hollon et al., 2005). Similarly, CBT for panic disorder is either similar or superior to pharmacotherapy in efficacy (Otto, Pollack, & Maki, 2000), and its effects appear to be more durable (Craske, Brown, & Barlow, 1991; Pollack & Otto, 1994). With regard to CBT for bulimia nervosa, a systematic review of 47 studies suggested that whereas both medication (fluoxetine) and CBT exerted comparable short-term effects, only CBT yielded long-term effects (Shapiro et al., 2007). On the basis of strong support from multiple well-conducted randomized trials, the NICE (2004) guideline gave a 16- to 20-session course of CBT for bulimia nervosa their highest ("A" grade level) recommendation. This was the first time that NICE concluded that a psychological intervention is the treatment of choice for a psychiatric disorder (Wilson, Grilo, & Vitousek, 2007). There is little evidence that adding pharmacotherapy or any other treatment augments the effectiveness of CBT for bulimia nervosa (Wilson et al., 2007). In

[1]Many of these treatments are behavioral or cognitive–behavioral. Such treatments do, in fact, enjoy relatively strong support in terms of their cost-effectiveness, ease of dissemination, and so on. This finding may be a result of their natures (e.g., it is easy to train and standardize them, they more efficiently affect change mechanisms, they are cheaper to implement). Or, they may enjoy greater support than other types of interventions on targeted criteria because they are easier to research or because researchers who are interested in these techniques are more likely to perform relevant analyses (e.g., cost-effectiveness analyses). It certainly is possible, and indeed highly likely, that future research will identify additional types of treatments that perform well against the suggested benchmarks.

summary, across the listed interventions, substantial evidence shows that the interventions not only were efficacious but were efficacious relative to pharmacotherapy, the major competitor for mental health care dollars.

Many of the listed interventions have been shown to be more effective and/or cost-effective than pharmacotherapy and alternative psychosocial interventions. For instance, evidence shows that CT and CBT for depression compare favorably to medication and other psychosocial approaches (Antonuccio, Thomas, & Danton, 1997; Revicki et al., 2005). CBT is cost-effective relative to existing community intervention resources (Revicki et al., 2005). CBT and CT may be most cost-effective in the treatment of severe depression when used with an antidepressant adjuvant (Simon, Pilling, Burbeck, & Goldberg, 2006). Similarly, the long-term cost and cost–benefit profiles of CBT for panic disorders are more favorable than those of pharmacotherapy (McHugh et al., 2007; Otto et al., 2000). Recent research with primary care patients shows that the combination of pharmacotherapy and CBT for panic disorder produces increased quality adjusted life years saved at a cost that is comparable to that achieved by such common preventive interventions as the pharmacologic treatment of hypertension and hypercholesterolemia (Katon et al., 2006; also cf. Heuzenroeder et al., 2004). The listed interventions also have been shown to be cost-effective relative to alternative psychological interventions. Fals-Stewart, Klostermann, Yates, O'Farrell, and Birchler (2005) found that, compared to individual based therapy, a brief version of behavioral couples therapy was as efficacious and more cost-effective. Family-therapy methods have been shown to be cost-effective relative to other psychosocial intervention approaches in the treatment of schizophrenia (Faloon, Boyd, & McGill, 1984; Penn & Mueser, 1996; Tarrier et al., 1989), with comparative cost analyses suggesting savings of 19% (Cardin, McGill, & Faloon, 1986) to 27% per patient (Tarrier et al., 1989), with the latter computed on patients whose family functioning was especially compromised. Family-focused therapy for bipolar disorder also has been shown to be cost-effective relative to other psychosocial programs (Miklowitz & Johnson, 2006; Wolff et al., 2006).

Note that many of these interventions can be disseminated without highly trained and expensive personnel or delivery systems. CBT for depression can be delivered effectively in primary care settings and other real-world settings with diverse patient groups (Barrett et al., 2001; Revicki et al., 2005) and even can be delivered effectively via telephone (Mohr, Hart, & Vella, 2007). CBT for panic disorder also has been shown to be effective in real-world health care settings and with highly diverse patient groups (Addis et al., 2004; Barlow et al., 2007; Roy-Byrne et al., 2005; W.A. Wade et al., 1998). In such real-world applications, CBT is effective even when delivered by nondoctoral therapists or by health educators with little or no prior experience with CBT who received only a modest level of training in that technique (e.g., Addis et al., 2004; Roy-Byrne et al., 2005). Similarly, exposure treatments for PTSD remain effective when implemented in real-world settings (Foa, Hembree, et al., 2005), and effective application does not require doctoral-level clinicians or even therapists with specific expertise in CBT. Research suggests that behavioral couples therapy can be delivered effectively in methadone clinics and other real-world community treatment programs (Fals-Stewart, O'Farrell, & Birchler, 2001) and with diverse patient groups such as couples involved in domestic violence interventions (Fals-Stewart, Kashdan, O'Farrell, & Birchler, 2002; O'Farrell, Murphy, Stephan, Fals-Stewart, & Murphy, 2004). Detailed manuals and workbooks are available on user-friendly Web sites.

Finally, there is growing evidence for the scientific plausibility of the listed interventions. CT–CBT treatment for depression may mitigate cognitive reactivity to negative moods or depressive symptoms, an outcome that does not occur with other types of psychosocial interventions or with pharmacotherapy (Beevers & Miller, 2005; Segal, Gemar, & Williams, 1999; Segal et al., 2006). CBT for panic disorder may operate via specific changes in fear cognitions (Hofmann et al., 2007), changes that are not seen with imipramine treatment. CBT for bulimia may operate via increased self-efficacy and decreased dietary restraint. Foa and Rauch (2004) found that CBT for PTSD decreased negative cognitions and that these cognitive changes predicted reduction in the severity of PTSD. Moreover, increased organization of the trauma narrative over the course of therapy predicted patient outcome (Foa, Molnar, & Cashman, 1995). Finally, between-session habituation to the feared stimuli predicted reduction in symptoms of PTSD (e.g., Kozak, Foa, & Steketee, 1998; van Minnen & Hagenaars, 2002). Only recently have improved statistical tools and analytic models become available to detect mediation sensitively (Cole & Maxwell, 2003; MacKinnon, Fairchild, & Fritz, 2007; Piper et al., 2008). Presumably, much more will be learned about the mediation of these effective interventions over the next several years.

In summary, the evidence reviewed above suggests that multiple psychosocial interventions now have the evidentiary support to promote their widespread adoption and use by health care organizations and other relevant decision makers. Not only are these interventions effective, but they improve quality of life in a cost-effective manner. Increased use of, and support for, these interventions not only will demonstrate the potential for psychological research to benefit public health but also will serve as signal evidence that a scientifically principled approach to psychological intervention has gained ascendancy over intuitive and experiential approaches. The development of a compelling database should provide a key spur to the adoption of evidence-based intervention. We believe that research support for many psychosocial interventions is becoming so persuasive that they will be (or certainly should be) adopted preferentially by health care systems and providers. This process will benefit public health and will increase the prominence of science-based practice within psychology. However, as we

report in the next section, this research-driven process is not enough; other steps must be taken to expand psychology's contributions to public health, and these steps require a fundamental reform of clinical psychology. One sign of the need for reform is that despite the availability of highly effective interventions, relatively few psychologists learn or practice these interventions, rendering them fairly inaccessible to patients who need them (e.g., Dixon, Lyles, Fahey, Skinner, & Shore, 1997).

The Bad News: Psychology's Failure to Develop as an Applied Science

The problems plaguing current mental health care are patent: Too many individuals are not getting treatment for their mental health needs (e.g., Hanrahan & Sullivan-Marx, 2005; Howard et al., 1996). Those who do get mental health care are unlikely to get specialty behavioral or psychosocial intervention, as opposed to, say, medication prescribed by a primary care physician (e.g., Howard et al., 1996; Mechanic, 1990), unless they are affluent (Cooper-Patrick, Crum, & Ford, 1994; Mechanic, Angel, & Davies, 1992; Sturm, Meredith, & Wells, 1996). Even if people receive specialty psychosocial intervention, they are unlikely to receive an optimal, evidence-based intervention (Barlow, Levitt, & Bufka, 1999; Crow, Mussell, Peterson, Knopke, & Mitchell, 1999; Dixon et al., 1997; Haas & Clopton, 2003; Hollon, Thase, & Marcovitz, 2002; Phillips & Brandon, 2004). That is, the evidence base for the interventions that currently are offered most often is weak.

Clinical psychologists are failing in two important missions: Effective psychosocial interventions are not being used adequately, and psychologists are losing the opportunity to play a leadership role in the delivery of these interventions. The unmet mental health needs that currently exist can be attributed to many factors, but we believe that one of the major factors is psychology's failure to develop as an applied science. Why has psychology failed?

We propose that clinical psychology has not fulfilled its obligations to public health because, as a field, it is deeply ambivalent about the role of science and research in dictating the course and content of its practice. In this sense, it resembles medicine at a point in history when its practitioners were operating in a largely prescientific manner. We believe that the current conflicts and weaknesses in psychology can be understood from a broader and more informed perspective if they are examined in the light provided by the history of medicine. The parallels are striking and illuminating. The stage of scientific development that now characterizes psychology appears to be one that is typical of a field that assumes responsibility for exigent highly significant problems (indeed emergencies) but that also has an inadequate evidence base to deal with those problems. The comparison with medicine not only normalizes psychology's ambivalence about science and research but also points to the ultimate resolution of the current conflicts over research and suggests mechanisms that can help build the scientific basis of practice and application.

Medicine

Copious evidence suggests that many clinical psychologists today, perhaps the majority, are deeply ambivalent about the role of science in informing their practice. For instance, they value personal clinical experience over research evidence (Groopman, 2007), tend to use assessment practices that have dubious psychometric support (Garb, Wood, Lilienfeld, & Nezworski, 2005), and tend not to use procedures for which there is the strongest evidence of efficacy (Barlow et al., 1999; Crow et al., 1999; Haas & Clopton, 2003; Hollon et al., 2002; Motta, Little, & Tobin, 1993; Phillips & Brandon, 2004; Thomas & Jolley, 1998; T.C. Wade & Baker, 1977). Thus, the current practices and views of clinical psychologists are very similar to those of physicians in the early 1900s.

At that point in its developmental trajectory, medicine was at equipoise between an intuitive enterprise that largely depended on personal experience and clinical folklore and an enterprise founded on the rational application of scientific evidence. In fact, for much of its history, medicine resembled clinical psychology as it currently exists—that is, experiencing spirited debate about and resistance to the idea of accepting scientific research and theory as the preeminent arbiter of psychological practice (reflecting a schism dating back at least to the conflict between Empiricists and Rationalists in the first century BC; e.g., Porter, 1997). There are other similarities between clinical psychology and prescientific medicine. Like clinical psychology, for much of its evolution, medicine intended to apply research findings to the resolution of exigent problems that the individual clinician encountered. The clinician (be it a barber, surgeon, or physician) presented himself or herself as having the knowledge, skills, and responsibility to ameliorate or treat a host of problems, but in fact, the clinician often did not have any specialized knowledge or tools that would be effective in this regard (see the arguments for nonspecific effects of psychotherapy below). Similarly, at various points in the past, we clinical psychologists have presented ourselves as having the knowledge and skills to treat conditions such as schizophrenia, bipolar illness, and autism when, in fact, we had no scientific basis for entering the fray. What else does the history of medicine reveal about clinical psychology's plight? For much of its existence, medical training occurred in free-standing programs outside of universities. Notable tension existed between those who believed that medical decisions should be based on science and those who valued traditional empiricism (i.e., informal individual observation), personal clinical experience, and tradition. This debate regarding the proper basis of medical practice played out for much of the last 2,000 years.

In its earliest incarnations, medicine was viewed as a craft or an art (see Numbers, in press, for a fascinating review of the conflict between scientific and nonscientific approaches to

medicine, which informed the review below). For instance, both Aristotle and the Hippocratic writers labeled medical practice as *techne*—that is, an art. However, by the time of the Roman Empire, the dispute over the proper role of science was ongoing, with Pliny regarding it as part of natural history and Galen viewing it as akin to archery, benefiting more from practice than from reasoning (French, 1994; Talbot, 1978). In the 12th century, the esteemed "medicus" William of Malmesbury endorsed practice, not "scientia," as the basis of his skills. Conversely, Taddeo Alderotti, a highly respected 13th-century physician from Bologna, stressed that the proper basis of medicine was theoretically inspired science; without such grounding, medicine could not be distinguished from "the usual practice that old women carry on" (Siraisi, 1977, p. 30). Similarly, the 14th-century French physician Guy de Chauliac observed, "If the doctors have not learned geometry, astronomy, dialectics, nor any other good discipline, soon the leather workers, carpenters, and furriers will quit their own occupations and become doctors" (Bullough, 1966; quoted in Numbers, in press). This point–counterpoint reverberated well into recent times. August Comte rejected the proposition that clinical decisions should be based on empirical, probabilistic grounds. As recently as the 1930s, the eminent historian of science Henry Sigerist proclaimed that medicine was neither an "applied science" nor a "branch of science" (Sigerist, 1936). Thus, throughout much of its history, medicine was beset by debate about whether science or clinical experience and intuition should guide practice (Numbers, in press). Those who championed clinical experience often noted that probabilistic science could not be applied successfully because each person is unique, the clinical encounter is too complex to be captured by formulas, and sufficient scientific evidence did not exist.

Accepting that the current scientific grounding of medicine is a virtue, it seems instructive to identify those events that secured its current status. A historical review reveals that proclaiming that medicine should be scientific counted for very little. Indeed, these proclamations had negligible impact despite their repetition over the ages. Moreover, an individual's own avowals that his or her approach to medicine was scientific seem to be similarly inert; calling something scientific does not make it so. In fact, the cloak of scientific respectability has been so appealing that even such "healers" as Mary Baker Eddy, the founder of Christian Science, stressed repeatedly that her healing system was scientific in nature (Glover, 1875). Similarly, Palmer, who advocated "the science of magnetic healing" prior to ultimately founding chiropractic, proclaimed, "I ascertained these truths, acquired instruction, heretofore unrecognized, regarding the performance of function in health and disease. I systematized and correlated these principles, made them practical. By doing so I created, brought into existence, originated a science, which I named Chiropractic; therefore, I am a scientist" (Peterson & Wiese, 1995; quoted in Numbers, in press). Thus, throughout the evolution of scientific medicine, many doctors or "healers" paid lip service to science but failed to base their work on science, or they generated ad hoc explanations for why their practices were valuable despite an absence of scientific support.

If not lip service and public proclamations, what did foster a more scientific approach to medicine? A crucial element in the evolution of medicine, certainly in the United States, was the transfer of medical training from free-standing proprietary schools to ones formally housed within universities (Bullough, 1966). Until the early 1900s, the majority of doctors trained in the United States were trained in proprietary medical schools that emphasized practice and tradition and deemphasized basic science. As one observer noted, "it is vain to expect that medicine, as a science, can be widely known and diffused, when it is not taught as a science in the schools" (Jackson, 1849, p. 361). It is not surprising, therefore, that doctors trained in free-standing, for-profit schools contributed little to scientific knowledge and also continued the practices of bleeding, blistering, purging, and puking (Numbers, in press), despite no scientific evidence of efficacy.

What actually brought about this radical transformation in medical education starting in the early 1900s—a shift from nonempirical training in free-standing, proprietary medical schools to science-based training within established universities? The change often is attributed to a single event: the publication of the Flexner report in 1910 (Flexner, 1910). However, the full story is more complex and illuminating. Prior to the Flexner report, the American Medical Association (AMA), at the urging of high-profile academic physicians, already had launched a campaign to transform medical education from arts-and-crafts training into formal training in applied science. The AMA appointed five prominent clinical scientists to its Council of Medical Education and asked the Council to review and evaluate medical education. In 1906, there were 162 medical schools in the United States; the Council examined all the medical schools and found only 82 to be acceptable. The AMA chose not to publish these findings, however, choosing instead to ask an outside agency—the Carnegie Foundation for the Advancement of Teaching—to conduct a similar, independent review. This review, which yielded similar results, culminated in the publication of the influential Flexner report.

Even prior to the Flexner report, however, state medical licensing boards, with the AMA's backing, had begun to increase their licensing requirements, asking applicants to document that they had been trained adequately in the basic sciences. In addition, the AMA Council began grading medical schools on a clear, quantitative outcome criterion: their graduates' scores on state licensing examinations. This grading system made it difficult for most free-standing, proprietary, tuition-driven medical schools to compete and survive. Not only did their students earn lower scores on the exams, but the programs did not provide their students with the required training and resources specified in the licensing requirements—that is, a science-based curriculum, adequate faculty, high admission

standards, and essential facilities (e.g., libraries, laboratories, and physical resources). According to Starr (1982), "proprietary medical colleges faced a Hobson's choice" (p. 119). Complying with the new requirements meant higher admission standards, which meant fewer tuition-paying students, higher costs per trainee, and lower profits. However, disregarding the requirements meant being stigmatized publicly, which meant fewer applicants, hence lower profits. Some proprietary schools simply went out of business or merged with university-based programs. Others, however, attempted to survive by pretending to comply with the higher requirements. As a result, when Flexner visited programs during his review, he uncovered a host of misrepresentations, such as "libraries" with no science books, ghost "faculty members" who spent most of their time away from the program pursuing their private practice, "laboratories" that amounted to little more than a few test tubes, and "admission standards" that would be waived for any student able to pay the fee. The combination of higher licensing requirements and the Council's grading system ultimately led to a dramatic reduction in the number of medical schools, from 162 in 1906 to 95 in 1915. Starr (1982) concluded that "changing economic realities, rather than the Flexner report, were what killed so many medical schools in the years after 1906" (p. 118).

Still, reform did not occur overnight. Inferior medical schools survived, and charlatans continued to practice. (Of course, medicine is not entirely free from such problems even today.) In the 1920s and well into the 1930s, for instance, Morris Fishbein, editor of the *Journal of the American Medical Association*, pursued an aggressive and persistent campaign of attacks on unfounded medical practices and fraudulent practitioners. He filed charges against unscrupulous practitioners with state licensing boards and even testified in person, urging boards to revoke the licenses of individuals he regarded as charlatans, hucksters, and flimflam artists (e.g., see Brock, 2008, for a lively account of Fishbein's pursuit over many years of one colorful, high-profile charlatan, John R. Brinkley).

All of these events, in combination, contributed to the dramatic reform of medicine—a reform that promoted a scientific approach to education and practice. All medical students were expected to receive broad training in science, not just training in the application of interventions or narrow training in "medical sciences." Moreover, most medical training was expected to take place in university-based medical schools that had high admission standards and had adequate resources. A cornerstone of the university-based medical school training was a curriculum that comprised scientific training in biology, chemistry, physiology, anatomy, and so on. Today much of this training occurs in the undergraduate curriculum that precedes medical school, and considerable additional basic science training continues to be offered in the first years of medical school.

Finally, a critical element in the development of medicine as a scientific enterprise was the demonstration of notable successes that were widely and clearly attributed to the scientific study of disease and its treatment. That is, the scientific approach to medicine was demonstrated by success stories such as those produced by Virchow, Bernard, Fleury, Lister, Pasteur, Koch, and others. Although the particular discoveries made by these pioneers (related to germ theory, penicillin, inoculation, etc.) were highly significant, even more significant was the vindication of the scientific approach. These discoveries were revolutionary, but not because they rendered a significant proportion of disorders tractable. Rather, such discoveries changed the face of medicine because they illuminated the route to cumulative progress.

Medicine, like any human enterprise, is not perfect; occasionally, mindless tradition, human error, fear of lawsuits, ignorance, and cost factors negatively influence medical decisions. Physicians often practice in a manner that is inconsistent with research evidence, and they often are lax in the application of clinical practice guidelines (Hepner et al., 2007; McKinlay, McLeod, Dowell, & Marshall, 2004; Spranger, Ries, Berge, Radford, & Victor, 2004). In addition, physicians frequently use medications for off-label indications, and when they do so, there typically is scant research evidence to support such use (Radley, Finkelstein, & Stafford, 2006).

However, there are important differences between physicians and clinical psychologists in regard to empirically supported practice. For instance, when physicians diverge from empirically based medicine or guideline recommendations, it often is because of factors such as treatment costs, treatment availability, strong patient resistance to recommended treatments, and uncertainty about how to apply guidelines (Farquhar, Kofa, & Slutsky, 2002; Grol, 2001; Rello et al., 2002). Fundamental conflict with the value or appropriateness of evidence-based practice, built on rigorous randomized controlled trials (RCTs), tends not to be an important factor. In fact, physicians see guidelines and other initiatives based on experimental medicine as appropriate and clearly consistent with the intended nature of practice (Malacco et al., 2005; Shea, DePuy, Allen, & Weinfurt, 2007). In one survey, only 3% of family practice physicians disagreed in principle with evidence- or guideline-based practice and indicated resistance to such practice (Wolfe, Sharp, & Wang, 2004). In summary, physicians have positive views regarding experimental evidence and recognize that it constitutes the preeminent touchstone regarding practice (e.g., Farquhar et al., 2002; Schaafsma, Hulshof, van Dijk, & Verbeek, 2004). This fact may explain why physician adherence to evidence-based practice recommendations is often high. In one study, approximately 85% of patients seen at an internal medicine clinic were receiving care that constituted good evidence-based practice (Lucas et al., 2004; also Grol, 2001).

Physicians' openness to scientific evidence also may explain why they are relatively responsive to new research evidence or corrective feedback. This responsiveness can be seen in changes in practice that follow the publication of new data (Bush et al., 2007) and new findings from health task forces (Asano,

Toma, Stern, & McLeod, 2004). Prompting physicians to conduct literature searches prior to making care decisions also leads to significant change in practice patterns (Lucas et al., 2004). Certainly some of physicians' tractability can be attributed to the fact that their practice increasingly is monitored (e.g., via electronic medical records), which provides contingent feedback and incentives for adherence. Nevertheless, there is considerable evidence that physicians highly value scientific evidence regarding practice and generally are open to altering their practice in reaction to evidence.

One way to appreciate this evolution in medicine is to understand it as a transformation from credential-based practice to procedure-based practice. The former characterized early medicine and still describes contemporary practice in clinical psychology. In the credential-based model, once individuals earn the critical diploma (MD or PhD) and are granted state licenses to practice, it is assumed that they are competent to (a) diagnose clients' problems accurately, (b) decide on the most appropriate and effective interventions for these problems, and (c) deliver these interventions faithfully and efficiently. On the basis of the assumption that "credentials equal competence," the practitioners, in this model, have nearly complete autonomy; essentially, they are free to do whatever they think best, are not accountable to anyone, and are unconstrained by procedural guidelines or practice standards (except, perhaps, for the prohibition regarding sexual relations with a patient). In the procedure-based model, in contrast, credentials alone do not give practitioners the freedom to operate without constraint; rather, practitioners are expected to know and follow scientifically based practice guidelines, are expected to be trained in the specific procedures they undertake, and often have their practice monitored to ensure their adherence to good standards of practice. In short, the procedure-based model uses scientific evidence as an ongoing yardstick for the evaluation of practice, whereas the credential-based model does not.

Psychology's Ambivalent Relationship With Science

Consider the situation of the individual who needs psychological clinical services. In most cases, the individual does not know the odds that his or her psychological disorder will improve with treatment as opposed to without it. The individual does not know the extent to which treatment will produce relief that goes beyond that produced by a placebo or a credible ritual. In most cases, the average clinical psychologist cannot enlighten the person because the clinician himself or herself does not know. In some cases, the clinician's ignorance is due to a lack of information (the data simply do not exist), but certainly in many cases, if not most, the average clinician is not motivated or trained to seek such information.

The typical clinical psychologist also is unlikely, or unable, to tell the patient (or health care decision makers or payers) how the treatment she or he favors compares with others on the bases of efficacy and cost–benefit (with cost being defined on the basis of either patient or institutional costs). In fact, the individual seeking help does not even know whether a clinician she or he sees in therapy views scientific data or evidence as relevant to assessment and treatment. In fact, considerable evidence indicates that many, if not most, clinicians view science or research as having relatively little relevance to their practice activities and decisions (e.g., Elbogen, Mercado, Scalora, & Tomkins, 2002; Lucock, Hall, & Noble, 2006; Nunez, Poole, & Memon, 2003). That is, they privilege their intuition and informal problem solving over what the research literature has to offer (e.g., Silver, 2001). For instance, over the past 30 to 40 years, surveys have found consistently that clinicians value experiential factors over research in guiding their assessment activities and decisions, and their assessment practices often conflict with the best available research information (Motta et al., 1993; Thomas & Jolley, 1998; T.C. Wade & Baker, 1977). Similarly, most clinicians give more weight to their personal experiences than to science in making decisions about intervention (e.g., Stewart & Chambless, 2007). Thus, although it is patent that impressionistic, clinical judgments are prey to numerous biases and clearly are inferior to more systematized decision-making strategies, clinicians continue to use the former and eschew the latter (Garb, 1998). The upshot is that the person seeking psychological services from a clinical psychologist cannot assume that his or her treatment will be informed by the fruits of the inferential, deductive discipline known as science. In summary, the consumer of medicine and the consumer of applied psychological clinical science most likely will encounter clinicians at very different stages of scientific evolution: The medical consumer is much more likely to receive care that is guided by the best available science.

Clinicians' devaluing of available scientific evidence, and their refractoriness to new findings, is so well known that this schism between scientists and clinicians has been the focus of numerous books and articles over the past half century (e.g., Cook, 1958; Kimble, 1984; Lilienfeld, Fowler, Lohr, & Lynn, 2005; Lilienfeld, Lynn, & Lohr, 2003; Rice, 1997; Tavris, 2003). Clinical psychologists often practice in a manner that conflicts with considerable research evidence or at least is not clearly supported by research evidence (Faust & Ziskin, 1988; Hollon et al., 2002). Furthermore, practitioners often say they do not care, because they consider the available scientific evidence to be relatively uninformative or irrelevant to their practice decisions (Palmiter, 2004; T.C. Wade & Baker, 1977).

It is easy to be transfixed by the many issues that have served as foci of the science–practitioner debate. The debate has been played out over such issues as, for example, whether prediction should be intuitive (i.e., clinical) versus based on statistical formulae (see Dawes, Faust, & Meehl, 1989; Holt, 1970, 1986), the validity of clinicians' expert judgment and its proper role in court testimony (Faust & Ziskin, 1988; Matarazzo, 1992), and the use of particular psychological tests (e.g., Draw-a-Person, early Rorschach test use; Silver, 2001). Throughout these

debates over the years, clinicians repeatedly have made the same sorts of arguments as to why their practices are valid despite little research support: For example, the complexity of the subject matter, science has not yet "caught up" to the clinicians' insights, each patient or prediction problem is unique, clinical experience is the most valuable source of information, and so on. The striking similarity in the arguments made over the years, however, suggests that the identified issues are superficial manifestations of a more fundamental conflict: Specifically, clinical psychologists' struggle to justify practices that they rightfully acknowledge do not arise from science or research. Moreover, these arguments are eerily reminiscent of those of nonscientific physicians who defended the practice of medicine as a craft.

The most recent issue that illuminates the clinician's ambivalence about science is many clinicians' reaction to the effort to identify ESTs (empirically supported treatments). We review this debate about ESTs because it reflects psychology's latest attempt to strengthen the science base of clinical psychology, and it shows that the schism between science- and practice-oriented psychologists is very much alive at the start of this new millennium. This issue also shows how far we are from building a clinical psychology that can address today's mental and behavioral health needs in an optimal manner.

ESTs

ESTs are interventions that have been singled out as having substantial evidence of effectiveness or efficacy as indicated, for example, by their performance in RCTs. Although these treatments have been singled out as empirically supported by groups such as the task force of American Psychological Association (APA) Division 12, there is considerable debate about the accuracy and meaning of such designation (e.g., Wampold, 2001). The EST debate, in very simple terms, involves, on one side, EST supporters who assert that sufficient evidence exists to identify effective treatments and that these should be designated as such and their use promulgated and, on the other side, critics who express concerns about this effort and oppose it. Most of the critics' objections are very similar to those expressed in previous debates about the relevance of science to practice; that is, they focus on the match between the context of research and the context of application. Examples of these objections are that (a) RCTs tend to use unrepresentative subjects—that is, inclusion–exclusion criteria result in samples that lack some features of real clinical cases (e.g., comorbidity) that may affect the treatment outcomes in unknown ways; (b) RCTs typically use treatment manuals, and these may produce treatments that are artificial and unrepresentative of actual clinical practice; and (c) RCTs do not address the issues or problems most frequently encountered in clinical practice. In general, criticisms of this nature stress that RCTs typically are conducted in the efficacy context, which is artificial and does not reflect treatment effects as they would occur in real-world contexts. The implicit message of these criticisms is that current research evidence is flawed and largely irrelevant to clinical practice; that is, current clinical practice cannot be guided strongly by science, because the available research is so inadequate.

Other major concerns revolve around the importance of specific therapeutic techniques. Critics argue that most benefits of therapy are produced by factors other than specific procedures; that is, benefits are general or nonspecific (Wampold, 2001) due to such variables as qualities of the therapist, characteristics of the patient, and the nature of the therapist–patient relationship (e.g., Grencavage & Norcross, 1990; Norcross & Lambert, 2006). The critics ask, "Why designate or privilege specific techniques when there is little evidence that they significantly boost benefits beyond those produced by these nonspecific effects?"

Evaluation of these concerns illustrates some of the problems and challenges currently facing clinical psychology. Our perspective is that RCTs convey a great deal of valid information about the effects of treatments even when they are exported to real-world clinical settings (as reviewed above). Indeed, there may be some change in overall level of treatment success when treatments are translated into the clinic but generally no dramatic differences in relative success (Fiore et al., 2008; Franklin & DeRubeis, 2006; Warren & Thomas, 2001). In addition, there is ample evidence that many psychological interventions produce effects that are superior to those produced by leading alternatives such as pharmacotherapy.

The EST Debate: Beyond the Confines of Science

We tend to agree with EST critics that there are many cases in which we still do not have a very good database for informing policy and decision makers, for guiding clinicians, and for intervening optimally in mental and physical health conditions in which psychological interventions might be helpful. In other words, the debate has helped expose inadequacies in the evidence base for current psychotherapeutic practice. As noted above, there certainly is strong evidence that particular therapeutic strategies are highly efficacious (e.g., Franklin & Foa, 2002) and that their beneficial effects translate well into the real world (e.g., Franklin & DeRubeis, 2006). However, the EST critics are correct in saying that there are gaping holes in the evidence base for much of what we do in the applied context (Norcross & Lambert, 2006).

A review of evidence highlighted by this debate yields the following: (a) The critics are correct that the field needs additional therapeutic techniques that consistently produce strong effects over and above those produced by general relationship-based interventions or other sorts of generic therapeutic strategies (e.g., Wampold, 2001; Wampold, Ollendick, & King, 2006; Westen, Novotny, & Thompson-Brenner, 2004). In other words, in some cases, the evidence for the relative effectiveness of ESTs is not clearly established. (b) Clinical psychologists are faced with some clinical disorders or sets of problems for which the extant research base does not provide proven strategies; thus,

the clinician either turns to clinical intuition and surmises how to address these challenges or does nothing (Reed, 2006; Westen et al., 2004). (c) The critics are correct that nonspecific or general factors such as features of the clinician and the nature of the patient–clinician relationship are meaningfully related to outcomes, although these factors probably account for a relatively small percentage of variance in change (Bourgeois, Sabourin, & Wright, 1990; Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000). (d) For some disorders, we do not have definitive knowledge about dose–response relations for treatment and outcomes, about how therapeutic effects (including nonspecific effects) can be produced so as to be optimally cost-effective relative to competing interventions, about how to enhance the reach (population penetration) of our interventions, and so on. (e) The critics do not contend that ESTs are ineffective but rather question the extent to which ESTs are effective due to unique mechanisms or procedures. However, our view is that if an EST performs well relative to other competitors for the health care dollar (e.g., pharmacotherapy), this finding retains public health and clinical significance. If there are other interventions that produce similar effects, then it would be important to learn how clinicians can achieve those effects reliably, cheaply, and quickly—so that these interventions can also be designated as ESTs. These might also become strong competitors for the nation's health care dollars. It makes no sense to beggar effective interventions simply because others may also work.

The limits to our knowledge have profound implications for our field. However, not one of the limitations noted above challenges the notion that the greatest benefits from psychological intervention will occur if that intervention is based on the best available science rather than on hunch or surmise. Moreover, these concerns do not undercut the fact that there currently are numerous psychological interventions that are strongly supported by research and yet greatly underused. In other words, clinicians have numerous opportunities to apply experimentally supported interventions, but many choose not to do so.

Some clinicians might take solace in findings that nonspecific effects often are correlated with outcomes; they may be tempted to use such effects to justify an eclectic or nonspecific approach to therapy; one that is based on no specific techniques, hypotheses, or putative mechanisms. Research on nonspecific effects provides little support for the current practices of psychology, however. Legitimate and important issues surround nonspecific effects, but the resolution of the debate about nonspecific effects has little potential to validate a science-based practice of clinical psychology. In theory, some aspects of nonspecific effects are malleable or teachable: for example, behaviors that contribute to the *therapeutic alliance* (the therapist–patient relationship). Even these hold little promise that they represent special opportunities for clinical psychology, however.

Before becoming too enamored of nonspecific or therapeutic alliance factors, it is important to note the marginal scientific status of those constructs. An appraisal of the extant literature on the therapeutic alliance leaves unanswered a host of fundamental questions: (a) whether observed relations with outcomes in uncontrolled studies reflect a causal effect on outcome (Castonguay, Constantino, & Holtforth, 2006; Crits-Christoph, Gibbons, & Hearon, 2006); (b) whether the major sources of variance in these factors reflect enduring person variables that are not affected by concentrated scientific training or even therapy training (Hardy et al., 2001; Hilliard, Henry, & Strupp, 2000; Muran, Segal, Samstag, & Crawford, 1994; Zuroff et al., 2000; although cf. Klein et al., 2003); (c) whether contributory skills can be isolated, and if so, to what extent they can be trained or enhanced effectively via practice so that they are disseminable and cost-effective relative to brief behavioral interventions (e.g., Andres-Hyman, Strauss, & Davidson, 2007; Blatt, Sanislow, Zuroff, & Pilkonis, 1996; Castonguay et al., 2006; Crits-Christoph et al., 2006; Stein & Lambert, 1995; Yalom, 1980); and (d) whether intense, science-based training, or even prolonged graduate training, is helpful or relevant to skill acquisition or delivery (Stein & Lambert, 1995). Indeed, the evidence regarding therapeutic alliance and nonspecific effects is sufficiently ineffable that no set of procedures can be distilled into any specific therapeutic techniques and thereby earn EST status. At present, there is little basis for assuming that the induction of nonspecific effects will constitute a special province of scientifically trained psychologists or constitute a central basis of psychological practice. However, it may constitute a basis of practice of low-cost providers who do not need intensive training or a complex skill set.[2]

It also is important to note that nonspecific factors are central to all sorts of professional functions, not just psychotherapy, yet they hardly constitute a sufficient basis for science-based intervention. The doctor–patient relationship is very important to the practice of medicine. However, the status and perceived value of medicine are not based primarily on the physician's ability to listen sympathetically, be nonauthoritarian, and so on (although there is recognition of the importance of a good doctor–patient relationship). The role of medicine and its stature would be very different if it involved all bedside manner and no procedures. The rigorous standards used to select medical students and the challenging and extensive training required are based on the notion that complex, science-based procedures are essential.

To the extent that the debate surrounding ESTs focuses on what it is about therapy that is effective, the debate is interesting and probably helpful. However, the debate, or its resolution, holds little prospect for salvaging the field as a practice discipline. Even if EST supporters mount effective, cogent arguments, as they already have (e.g., Franklin & DeRubeis, 2006;

[2]Many clinicians would reject the notion that a trained paraprofessional could deliver psychotherapy effectively. There is little evidence that compels this view, however.

Hollon, 2006; Sher, 2006), a great many clinicians will not be receptive, which is suggested by their resistance to scientific evidence and by the fact that most clinicians are not using the interventions that currently are supported most powerfully by research (e.g., Barlow et al., 1999; Crow et al., 1999; Haas & Clopton, 2003; Hollon et al., 2002; Phillips & Brandon, 2004). The open resistance to research evidence, and the frank acknowledgment that much of practice is ascientific, is not a good basis for asking society to support the practice of clinical psychology as it currently exists (Nathan, 2000).

So, our review of the EST controversy suggests the following: (a) By clinicians' own admission, much of what they do is little informed by scientific evidence; (b) many leading proponents of psychotherapy doubt whether much of the extant scientific evidence is valid or relevant; (c) although there are specific interventions that have relatively strong research support, these are seldom used; and (d) the factors that many practitioners point to as constituting the core of their therapeutic armamentarium (i.e., nonspecific factors) are poorly understood, may not be teachable, and almost certainly do not require extensive science-based training or highly privileged status for their delivery. All these things are occurring in a societal context of growing mental health needs, unprecedented constraints on health care resources, and a growing recognition that health care decisions must be informed by the best available research and economic evidence.

CONCLUDING ANALYSIS AND RECOMMENDATIONS

In the preceding sections, we described the challenges facing the evolving health care system in the United States and considered their implications for mental and behavioral health care. Then we outlined the multifaceted criteria that increasingly are governing the decisions and policies within this evolving system. When we applied these criteria to a critical evaluation of several psychosocial interventions for specific mental and behavioral health problems, we found consistent empirical support for the value of these interventions. Finally, we described the growing disparity between scientific clinical psychology's potential contributions to improving public health, as reflected in these experimentally supported interventions, on the one hand, and the declining status and dimming prospects of current professional practice in clinical psychology, on the other hand. This disparity appears to be related to considerable disregard of scientific evidence by the majority of clinical psychologists. In this concluding section, we examine possible strategies for enhancing the scientific status of clinical psychology, and we focus on one option that seems promising, based on our analysis of historical evidence and the current state of clinical psychology. This option, a new clinical psychology accreditation system, is intended to exemplify the sort of bold steps that must be taken to salvage the field. Other options certainly will be needed as well.

Analysis

In many respects, clinical psychologists today are practicing their profession much as they did in 1948, when the field was just emerging and the first 29 doctoral training programs in clinical psychology were accredited by APA. Little has changed over these 60 years in the way clinical psychology defines its professional domain—its activities, focus, and boundaries. Although psychological science has made enormous strides over this period, these advances have had little influence on contemporary clinical practice, in which most practicing psychologists adhere to an eclectic mosaic of loosely integrated techniques. As we have shown, clinical scientists have developed multiple cost-effective interventions for many of the most pressing mental and behavioral health problems, yet most patients do not get to benefit from the fruits of this science (e.g., Barlow et al., 1999; Becker, Zayfert, & Anderson, 2004; Hollon et al., 2002; Stewart, Makwarimba, Barnfather, Letourneau, & Neufeld, 2008). Moreover, while health care delivery systems are changing rapidly and substantially, many clinical psychologists are unable or unwilling to adapt to these changes. At a time when psychological science has unprecedented potential to advance public health, such inertia constitutes not only a lost opportunity for psychology but also a disservice to the public. The failure to translate science into practice has marginalized clinical psychology within the emerging health care system and limited the public's access to beneficial interventions.

Clinical psychologists' insouciance to science is multiply determined. Like physicians in an earlier time, clinical psychologists had assumed clinical responsibilities that outstripped their knowledge and acumen. Well-intentioned psychologists faced with a public demand for their services, especially in the aftermath of World War II, simply had to improvise, doing the best they could by resorting to prescientific methods. Unfortunately, the prescientific practices that emerged during these early years gradually became codified and incorporated into the curricula of most doctoral training programs and the practices of most clinics, even as psychological researchers were building firmer foundations.

Regardless of the reasons, practice has remained largely a craft, not a science. A recent survey of 591 psychologists in private practice (Stewart et al., 2008) found that psychologists continue to rely more on their own and their colleagues' clinical experience than on the scientific literature when selecting treatment strategies. Also, an alarming number of clinical psychologists are unaware of experimentally validated treatment approaches (Boisvert & Faust, 2006). In a survey of practicing clinical psychologists, Addis and Krasnow (2000) found that 23% had not heard of treatment manuals, and 38% of those who were aware that such manuals exist were unclear as to what such manuals are. In summary, we are now in a situation in which many or most clinical psychologists appear strikingly unreceptive to science, incapable of taking advantage of scientific research (Tavris, 2003), and unprepared to adapt to the changing health care system.

Search for Solutions

This situation is unacceptable and calls for dramatic reform. How might clinical psychology be changed? What are the strategic options for achieving reform, and what does history teach us about the likely success of these various options?

One option would be for state licensing boards to raise their standards on science-based training and practice, as happened in medicine. However, history suggests that licensing boards were influential in medicine largely because they influenced training. Actions by state licensing boards could result in piecemeal change as some states might strive to enhance the quality of clinical psychology practiced in their state, but this strategy seems unlikely to substitute for a coordinated nationwide approach directly generated by clinical science faculty members themselves. Whereas changing the licensing requirements could be an important contributing element in the eventual solution, it probably cannot substitute for directly improving clinical training.

Another option for reforming the field would be to retool the current cadre of practicing clinical psychologists. Continuing education programs have been offered for many years and are now required by some state licensing boards. History teaches us, though, that periodic exhortations, lecturing, and information about research advances are unlikely, by themselves, to modify the current practice patterns of clinical psychologists significantly. Most practitioners give greater weight to their own clinical experience and judgment than to logical arguments and empirical evidence from controlled research. It is not clear what kind of retooling would work with unreceptive individuals.

There are no shortcuts to training clinical scientists, however, and retooling would face a sizable proportion of clinicians who probably would not be receptive or capable of benefiting from such training. The overwhelming evidence of the refractoriness of practicing clinicians (e.g., Addis & Krasnow, 2000; Stewart & Chambless, 2007) provides a powerful argument against a focus on *retraining* (a reclamation of "*une génération perdue*," a lost generation of clinicians) and argues, instead, for an overhaul of doctoral training programs, with a focus on producing a new cadre of psychological clinical scientists who are selected on the bases of an interest in science-based training and an intellectual aptitude for it. We believe that a new science-centered accreditation system is essential for achieving such a change.

The Need for a New Science-Centered Accreditation System

We believe that the field needs a new accreditation system to achieve fundamental reform. What is the evidence that the current system is not working? This evidence can be derived from a critical review of the current accreditation system and from an appraisal of its consequences. Regarding the current accreditation system, it is important to note that the APA system is a generic, one-size-fits-all accreditation approach that has evolved and survived over 60 years by serving (and satisfying) a wide variety of constituent groups, specialties, training models, and theoretical perspectives. This single system is broad enough to cover doctoral training programs in clinical, counseling, school, and combined specialties. Within the clinical–counseling areas, APA accredits nearly 300 doctoral programs with divergent and often contradictory philosophies and goals: that is, scientist–practitioner programs, clinical science programs, and scholar–practitioner programs. It is important to note that the scholar–practitioner programs are explicitly intended to replace an emphasis on controlled experimental or field research with disciplined inquiry at the level of the client (Cherry, Messenger, & Jacoby, 2000; R.L. Peterson, Peterson, Abrams, & Stricker, 1997). All accredited programs receive the same accreditation designation within the system, despite their substantial differences. To accommodate such heterogeneity, the accreditation system cannot use criteria and standards that favor clinical science training.

Because APA-approved programs have very divergent training goals, the accreditation system cannot evaluate programs on the basis of their training outcomes. Instead, the system focuses on readily quantified input variables, such as the distribution of types of courses. These accreditation standards and criteria have evolved into input checklists that programs must satisfy. Thus, the APA has not adopted demanding outcome criteria that reflect faculties' or students' likelihood or ability to produce or apply science; instead, APA criteria concern basic program features (number of faculty members, distribution of courses, etc.). One consequence of this situation is that the APA is relatively unable to render a negative decision regarding accreditation as long as a program meets the checklist criteria, which are not tied directly to clinical or research outcomes. Finally, there is no evidence that the APA is attempting to reestablish a strong science base to training. Recently formulated policy by the APA, titled "Evidence-Based Practice in Psychology" (APA Presidential Task Force on Evidence-Based Practice, 2006), actually equates the personal experiences of the clinician and client preferences with scientific evidence—a striking embrace of a prescientific perspective.

It would be all but impossible to reform or upgrade the APA criteria, at this point, because the majority of currently accredited programs prefer the status quo, would object to an increased emphasis on science training, and probably could not meet such new standards if they were adopted. In effect, APA's accreditation system is boxed in by its diffuse mission and its commitment to serving the interests of a constituency that not only is heterogeneous but increasingly is oriented toward an experientially based model of practice. Indeed, unlike the AMA in the early 1900s, there is no clear evidence that the APA sees a need to enhance the scientific basis of training or practice.

This analysis of the nature of APA accreditation suggests that there should be hard evidence that this system is failing the field. Indeed, there is ample evidence, much of it coming from

APA's own database. In the following analyses, we focus on the PsyD degree as an index of the trajectory of clinical psychology training. This is a rough index because PsyD degree status does not map onto training quality precisely; a small percentage of PsyD programs offer high-quality, science-based training, and a substantial number of PhD programs probably pay only lip service to science training. However, even this error-impregnated index shows a strong signal of a deteriorating trend in the scientific status of graduate education in clinical psychology. An analysis of clinical doctorates awarded from 1988 to 2001 shows little or no increase in PhD production but an increase of almost 170% in PsyD production (APA Research Office, 2005). This remarkable increase in PsyD production can be traced to multiple factors such as the rapid escalation in the number of professional schools that typically train PsyDs and the relatively small number of faculty members that such programs use to train a large number of students. There were only 4 PsyD programs accredited in the 1970s—all of them in university settings (McFall, 2006). Since then, however, the number of PsyD programs has grown markedly, with 14 added in the 1980s, 22 in the 1990s, and 17 from 2000 to 2005 (APA Office of Program Consultation and Accreditation, 2005). Most of these are free-standing, for-profit schools, not housed in conventional universities. Thus, the field is not progressing in this regard but instead is regressing to a "pre-Flexner" status. It is highly likely that a profit motive accounts for both the escalating production of PsyDs and the relatively small number of faculty members used to train them. Costs of training also are reduced, undoubtedly, by the limited scope and goals of training, with little or no emphasis given to basic science training, integrating science with clinical training, or the direct production of scientific data (e.g., McFall, 2006).

Why is the escalation of PsyD programs so important? One reason is that their very nature and goals often are antithetical to science-based training. Many, for instance, support professional models that rely too narrowly on the clinician's experience and intuitive decision-making processes in the clinical situation (e.g., Schon, 1983); admittedly, this is also true of some PhD programs. The scholar–practitioner model of training, to which most PsyD programs subscribe (cf. R.L. Peterson & Trierweiler, 1999), trains future clinical psychologists to value local knowledge over knowledge accumulated by conventional science "as the latter may have scientific currency, but it can be either misleading or useless in a particular local situation" (Stricker & Trierweiler, 1995, p. 997). Also, as a result of their numbers, PsyD programs and their graduates increasingly are dictating the face and nature of clinical psychology. Although PsyD programs represent about 20% of the clinical and counseling programs accredited by APA, they produce over 40% of all the graduates entering the health care field. Therefore, they serve as a proxy and bellwether for the status of clinical psychology. What do they tell us about our field?

First, it is important to note that about 80% of PsyD programs are accredited by APA (McFall, 2006). Therefore, although in the great majority of cases their features and graduates differ significantly from those of PhD programs, they have earned an APA stamp of approval that is indistinguishable from that awarded to PhD programs. We do not dwell on the evaluation of PsyD programs, but an examination of a few features conveys a disturbing picture. A distillation of data from multiple sources by McFall (2006; e.g., Norcross, Castle, Sayette, & Mayne, 2004; D.R. Peterson, 2003; Yu et al., 1997) reveals that compared with PhD programs, PsyD programs are much less selective, accepting a mean of 41% of applicants (50% in independent programs, with some programs up to 80%) versus 11%. Thus, PsyD programs recruit an average class size of 33 (48 in independent programs) versus 9 for PhD programs. Given these data on admissions and class sizes, it is not surprising that the student–faculty ratios in PsyD programs are less favorable. In comparison to PhD students, PsyD students have markedly lower undergraduate grade point averages and Graduate Record Examination scores. After graduation, their scores on the Examination for Professional Practice in Psychology (the licensing exam) are significantly lower (Yu et al., 1997). Moreover, in light of the training goals of PsyD programs, they do not train their students to produce science, and they tend to devalue science as a vital touchstone for their applied training (D.R. Peterson, 2003).

The ascendance of PsyD programs and the evidence regarding their quality raises multiple concerns. The first is that because of lower admission standards, PsyD students may not have the aptitude to succeed in a rigorous, science-centered training program even if it were offered to them. A second concern is that because of the nature of PsyD training, these students will not engage in or apply science, thereby missing a great opportunity to enhance public health. A further concern is that these data argue compellingly that APA accreditation is ineffectual: It will not be a lever to hoist the quality of clinical training programs, and it certainly has not prevented a slide in quality. Such accreditation does not discriminate programs that are focused on science from those that are not.

It is possible to use means other than PsyD status to classify clinical psychology programs, confirm the substantial heterogeneity among them, and assess the consequences for training. A PsyD program might provide strong training in science-based practice, but it is the rare exception. For instance, Cherry and colleagues (2000) examined outcomes associated with program self-designation among 134 APA-approved clinical training programs, 20% of which were PsyD programs. Very substantial differences were found in engagement in research activities for both students and faculty as a function of program designation. About 52% of students of clinical science programs were involved in grant supported research, and 39% authored journal articles. For students of practitioner–scholar programs, the figures were about 7% for both outcomes. Similar, large discrepancies were found in other relevant outcomes such as faculty publication and grant support. Some substantial differences also

were found between clinical science and scientist–practitioner programs. Although some of these differences might be due to the presence of PsyD programs in the study, Cherry et al.'s data suggest that university-based PhD programs vary markedly in the quality of science training offered to their students. Thus, the number of PsyD programs, and their spawn of students, no doubt underestimates the number of marginal programs that exist and their impact on the field and on the nation's health.

It is important to note that our chief concern is not that PsyD programs are designed to train practitioners. After all, physicians typically are not trained to be researchers, yet they are selected and trained so that they can and do deliver sophisticated science-based interventions. Available evidence indicates that PsyD students (as well as some PhD students) are not prepared with a similar respect for, or competence in and inclination to use, science.

In summary, as a field we have not used accreditation to demand good science training from our programs, our students, and ourselves, and we have not gotten it. This situation raises the question of whether more rigorous accreditation standards and processes could improve the scientific foundation of clinical practice.

The history of medicine shows that a dramatically altered approach to training has the potential to establish scientifically principled practice in a field that has been mired in an experiential and intuitive quagmire. However, both the history of medicine and the history of clinical psychology teach that modest changes in training are insufficient to advance the field significantly. For example, numerous previous attempts to reform clinical psychology training incrementally have come to naught. Attempts to improve the scientific status of clinical psychology training at both the Salt Lake City (Bickman, 1987) and the Snowbird (Schilling & Packard, 2005) conferences on graduate education in psychology ultimately were unsuccessful (e.g., D.R. Peterson, 2003). In fact, the changes arising from the Snowbird conference may arguably erode science-based clinical training further. History suggests that the solution to the current training quagmire must be revolutionary, like the Flexner report, not evolutionary.

Any effective strategy for advancing clinical psychology as a science not only must enhance training dramatically but also must differentiate publicly between clinicians who were trained scientifically and those who were not. As noted earlier, patients, prospective students, policy makers, and others cannot make rational health care decisions under the current system because there is little quality control and virtually no informative labeling regarding the aptitude, approach, and training of today's clinical psychologists. To achieve this kind of differentiation, we believe that a new science-centered accreditation system represents the optimal strategy. The system would both identify high-quality training programs and their graduates and also serve as a positive force for improving the quality of science-centered clinical training.

A New Accreditation System

Because the prospects for APA reform look dim, the time seems right for other professional groups to pioneer a science-based training and accreditation system. Both external and internal forces propel change at this time. Undoubtedly, the most potent forces for change are external: namely, the stark realities of market economics, the rising costs of health care, and the resulting changes occurring in the health care system, as described at the beginning of this monograph.

These external forces are coalescing with other major forces that are internal to the field. The most influential of these can be traced to the birth, in 1988, of the Association for Psychological Science (APS; known as the American Psychological Society until 2006)—a vibrant professional organization that now provides a credible alternative to APA. (In its 20th-anniversary year, 2008, APS surpassed the 20,000-member milestone.) Rather than trying to serve multiple constituencies, APS is committed to advancing psychological science. From its inception, it has given vigorous and effective support to the development of psychological clinical science.

One relevant outgrowth of the APS was the establishment of the Academy of Psychological Clinical Science (APCS). In 1994, representatives from 24 major research-oriented training programs attended a conference on "Psychological Science in the 21st Century," sponsored by the National Institute of Mental Health and APS, held at Indiana University. Participants shared their visions of the future of clinical science and of doctoral training in clinical psychology. They considered ways to promote the application and training of psychological clinical science. The conference concluded by appointing a steering committee with the charge of creating a new organization for training programs dedicated to advancing clinical science. In 1995, the APCS was established officially and now (May 2009) recognizes 62 programs (52 doctoral, 10 internship) that constitute the premier science-based clinical training programs in North America.

The overarching goal of the APCS is to recognize programs that deliver high-quality clinical science training. Criteria for such training include (a) high admission standards for student applicants; (b) a faculty of accomplished and productive researchers, as evidenced by high-quality publications, grant support, and other research achievements; (c) objective evidence that students are trained in basic and applied science and in empirically supported therapies; and (d) evidence that students both apply and produce science during and after their graduate training. Another hallmark of APCS programs is the high level of integration and synergy between clinical theory and methods, on the one hand, and basic science theory and methods, on the other hand. The stress placed on this hallmark arises from the tenet that sophisticated understanding and treatment of clinical and behavioral health problems requires the application of theories and methods from such fields as behavioral and molecular genetics, social psychology, cognitive neuroscience,

learning research, pharmacology, and developmental psychology and biology. Clinical psychology does not exist sui generis. The ultimate consequence of such integration is that psychological and behavioral health problems increasingly will submit to a broadly based scientific analysis, just as have many medical disorders following the integration of science and medicine.

Such integration already is paying impressive dividends as clinical psychologists are pioneering new insights into diverse mental and behavioral health problems. This integration has resulted in important new insights based on an application of molecular and behavioral genetics (Baker et al., 2009; Conti et al., 2008; Swan et al., 2005), cognitive neuroscience and neuroimaging (Gloria et al., 2009; Schaefer, Putnam, Benca, & Davidson, 2006), developmental cognitive neuroscience (Dalton et al., 2005), learning theory (Mineka & Oehlberg, 2008), psychopharmacology and psychoneuroimmunology (Greeson et al., 2008), and so on. Such integrative science is leading to new and promising interventions for mental disorders as well as for public health problems previously considered outside the domain of clinical psychology: for example, for HIV/AIDS (Antoni et al., 2006), addiction (Hatsukami et al., 2005), and sleep disorders (Bootzin & Stevens, 2005). If future clinical psychologists are to understand and use such approaches and techniques in their research and applied activities, they must have the basic science backgrounds to understand contributions in areas such as molecular genetics and cognitive neuroscience, and they also may have to master particular related technologies, which means that accreditation policies must provide sufficient time for such training and emphasize its importance. By attempting to impose uniform training timelines, large numbers of clinical contact hours, and somewhat arbitrary breadth requirements, the APA accreditation system actually thwarts state-of-the-art science-based training.

Several factors make this a propitious time for reforming doctoral training in clinical psychology. The reform of medicine was ushered in by validation of a scientific epistemology via the identification of multiple experimentally supported treatments. As demonstrated earlier, numerous effective psychosocial interventions are now ready to be taught and disseminated. In addition, an unprecedented integration of clinical and basic science is now ushering in new strategies for understanding and treating mental and behavioral health problems. The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (Subtitle B of the Emergency Economic Stabilization Act of 2008) makes it even more important for clinical psychology to play a lead role in discovering and making available highly effective and cost-effective interventions. Further, APS's support of scientific psychology provides broad-based support for a new accreditation system. Finally, the success of APCS makes this organization an ideal platform on which to mount a new accreditation system that recognizes and fosters high-quality clinical science programs.

System Features

A new accreditation system should bestow accreditation on only the best programs—those that clearly are committed to clinical science training, that have established track records of successfully training psychological clinical scientists, and that satisfy the highest standards and criteria—thereby making them and their graduates distinctive from other programs and their graduates. The immediate aims of this accreditation system would be to create and promote a new brand of clinical science training, assure its quality, promote its improvement, and safeguard its integrity. The long-term goal of the system would be to foster a new breed of integrative clinical scientists who will work to reform the mental health care system and advance public health and promulgate the training model so that the modal doctoral programs in clinical psychology provide the best the field has to offer to the public.

The need for a new, science-centered accreditation system has been addressed by the official launching, in December 2007, of the Psychological Clinical Science Accreditation System (PCSAS; www.pcsas.org). This system, created by the APCS, establishes and brands a new type of clinical psychology, one that is designated as *psychological clinical science*. The specific criteria used by this system, which were under development even as this monograph was being written, are now completed and published on the PCSAS Web site. The criteria developed by this system are aimed at accrediting clinical psychology training programs that provide students with the skills and professional orientation to prepare them to produce and apply scientific knowledge. This system's approach to accreditation differs from that of the APA system. Whereas the APA system's focus is on a program's conformity to a checklist of input variables that are related only remotely, if at all, to the program's success at training productive clinical scientists, PCSAS's primary focus is on output evidence that indexes the program's overall quality and its success at producing graduates who produce and apply psychological clinical science.

PCSAS accreditation targets the following kinds of criterion questions:

(a) Are students sufficiently well trained and qualified to benefit from clinical science training? That is, do the students entering the clinical training program have the proper grounding in science and mathematics to demonstrate both interest in, and aptitude for, graduate science training? Does the student's academic record show a sufficiently high level of academic achievement to indicate a likelihood of successful training? This criterion can be addressed by examination of undergraduate courses taken by students, their grade point averages, the quality of their undergraduate training programs, test scores, and so on.
(b) Is the program's faculty qualified to train psychological clinical scientists? This question is answered, in part, by an appraisal of the faculty's ability to generate successful

clinical science. That is, has the faculty been successful in producing high-quality research products such as publications in top-tier journals; securing extramural research support; and developing, testing, and implementing experimentally supported interventions?

(c) Most important, is there strong evidence that the program's students and graduates can generate and apply psychological clinical science effectively? For instance, while in the program, are the students actively engaged in high-quality science? Do they show evidence of mastering science-related technologies and skills? Are they productive? Productivity can be assessed in terms of presentations at scientific meetings and publications. What kinds of positions do the students take after graduation, and how successful and productive are they in these roles? If students take positions that are largely applied in nature, are the students using science-based methods in their applications? Have they disseminated science-based interventions? Data relevant to this criterion include professional career paths, publications generated, grants obtained, and activities relevant to the application of scientifically supported strategies to benefit behavioral and mental health.

Of critical importance, PCSAS's accreditation criteria address the extent to which a program's applied training focuses on experimentally supported techniques and on the science needed to develop, evaluate, implement, and disseminate these techniques. The criteria also include measures of students' postgraduate generation, implementation, and dissemination of psychological science aimed at advancing public health. Whereas the criteria focus on translating basic science into solutions for applied problems, they also emphasize the need for these solutions to go beyond satisfying traditional efficacy standards by attending to the concerns of policy makers and other stakeholders regarding the solutions' effectiveness and dissemination potential, costs and cost-effectiveness, and scientific plausibility.

Other criteria are evaluated in addition to those listed above: Are the educational experiences likely to promote clinical science training? Are there sufficient numbers of faculty members and other resources to train students adequately? Is the breadth and depth of training sufficient to ensure that the graduates can function as independent psychological clinical scientists? PCSAS is based on the notion that such program features, ones that are not related clearly to science-relevant outcomes, are necessary but not sufficient conditions for accreditation and are ones that cannot be evaluated via a one-size-fits-all checklist.

Clearly the PCSAS evaluation of programs demands discerning judgment, not just a tabulation of scores on a checklist. In this sense, the system is similar to the evaluative process used in the review of federal grants submitted to the National Institutes of Health or the National Science Foundation. PCSAS reviews are intended to evaluate whether a program's characteristics—especially its outcomes—compellingly demonstrate that the program's graduates have been exposed to high-quality scientific training and have acquired the knowledge, skills, and commitment to apply and generate high-quality clinical science.

Mechanisms and Effects of This New Accreditation System

Why would a new accreditation system improve clinical training as well as mental and behavioral health? We anticipate that widespread adoption of this new training standard and accreditation system will have the following salutary effects:

(a) It will provide a long-overdue branding that will differentiate for the public and other stakeholders which clinical psychologists actually have succeeded in a training program that has proven itself to be rigorous and scientifically based. At present, the field of clinical psychology houses within one rubric all the variation seen in other fields addressing physical health care (e.g., homeopathy, mainstream medicine, naturopathy, chiropractic medicine, herbalism), but it lacks the branding that permits the public to understand the profound differences that exist among psychological practitioners.

(b) Because PCSAS accreditation will be a badge of distinction, it will serve as an aspirational benchmark; that is, it should attract adherents to the clinical science model, thereby increasing the number of clinical psychology training programs that offer scientifically centered training and the number of high-quality applicants to such programs. There is no doubt that one reason that reform in medicine was effective was the stigmatization of programs that failed to earn the AMA imprimatur. Certainly, the existence of a new science-centered accreditation system would produce striving among some marginal programs to achieve scientific credibility. It also will provide all programs with a clearer vision of the features and processes that promote scientifically principled training, and this, in turn, should enhance the quality of the science generated in scientifically oriented programs.

(c) PCSAS accreditation should promote more efficient clinical science training by freeing programs from the need to satisfy outmoded, irrelevant checklist criteria that consume valuable program resources and time but do not benefit training quality materially.

(d) Better training programs should produce better researchers, who should achieve more rapid progress toward illuminating the nature of mental and behavioral health problems and toward developing and validating effective assessments and interventions for such problems.

(e) Because PCSAS accredited training programs will focus on the selection, delivery, evaluation, and dissemination of experimentally supported interventions, the availability, application, and dissemination of scientifically validated treatments should expand significantly. In summary, the PCSAS will enhance psychology, benefit science, and improve the nation's public health.

A powerful positive example is often the surest route to change. It always will be difficult to achieve high-caliber clinical science training, but designating high-quality programs should provide all programs with a road map that marks the route to such training. The point is that public designation of positive exemplars will exert strong effects because it will visibly link program characteristics with publicly discernable evidence of program success.

In addition to finalizing and publicizing its accreditation criteria, the PCSAS is in the process of taking such steps as (a) applying for recognition by an established accreditation approval agency (e.g., the Council for Higher Education Accreditation), (b) inviting programs to apply for review and launching initial reviews, (c) pursuing acceptance of PCSAS accreditation by such entities as the Veterans Affairs and state licensing boards, and (e) securing the necessary financial support to guarantee PCSAS's future viability. It is likely that programs accredited by the PCSAS will maintain their APA accreditation as well, until it becomes clear that PCSAS accreditation provides them and their graduates with all the affordances that they seek through accreditation.

Other steps certainly should be adopted, in concert with PCSAS, to promote clinical science. These steps might include establishment of clinical science training grants by the National Institute of Mental Health, the National Institute on Drug Abuse, the National Institute on Alcohol Abuse and Alcoholism, or other units of the National Institutes of Health; actions to encourage a greater focus on scientific issues in licensing examinations and continuing education experiences; and improved basic science education at the college, high school, and elementary school levels. Undoubtedly, no single step will be sufficient to reform the field dramatically.

The hopes of the field—hence the future prospects for high-quality mental and behavioral health care—rest on the shoulders of a new generation of psychologists trained as clinical scientists by the best psychological science training programs in the United States and Canada. Because this new kind of training and evaluation represents a radical departure from traditional training and evaluation, it is critical that clinical scientists trained under this new system have a brand identification that allows employers, patients, students, policy makers, and the public at large to distinguish them from traditionally trained clinical psychologists. It is our belief that the psychological clinical scientists trained by PCSAS-accredited programs will become a new generation of scientists whose efforts will lead to dramatic advances in psychological science and to the application of this knowledge to the improvement of public health, ensuring at last that valid assessments and effective interventions are readily available to those who most need them.

Concluding Note

Reform of the medical sciences was precipitated by an awareness of the deficiencies of practice and training and a profound sense of professional responsibility to remediate these:

> The truth of the proposition that there are striking deficiencies in our profession, is, at this time, so generally conceded as to obviate the necessity for further demonstration. It is evident that for the accomplishment of the great object for which this society was organized, little or no legal, or other extra-professional assistance must be expected. The power lies almost exclusively within ourselves. Our own minds must suggest, our own judgments decide upon, our own energies direct and impel the means whereby that object may be attained. (Stevens et al., 1848, p. 241)

PCSAS represents an opportunity for psychologists to take responsibility for their profession and reform it for the public good. PCSAS will not eliminate less scientific models of training. Indeed, variations in approaches to training are expected to persist in mental and behavioral health intervention, much as chiropractics and homeopathy have persisted alongside modern medicine. The goal of building a new system is not to rehabilitate the old one; the goal is to create a new, better alternative that serves a vital and focused mission.

Recent trends suggest that if bold action is not taken now, the current situation is likely to worsen and scientifically trained psychologists will constitute an ever-decreasing contingent among clinicians. In such a future, each clinician's personal judgment and experiential beliefs will substitute for science, and we will have ceased to recognize the pitfalls of such an approach. Those who believe in the value of science as the surest route to cumulative progress and who see the risks of continued reliance on prescientific values, training, and practice should give their enthusiastic support to the new PCSAS accreditation system and to other reform efforts. We now have a rare and perhaps unique opportunity to reform clinical psychology and materially benefit the nation's public health.

APPENDIX

Cognitive Therapy (CT) and Cognitive Behavior Therapy (CBT) for Depression

Efficacy

CBT for depression has been shown to be efficacious relative to a variety of control conditions and alternative therapies in multiple randomized clinical trials (e.g., Butler, Chapman, Forman, & Beck, 2006; Feldman, 2007; Gloaguen et al., 1998; Kuyken, Dalgleish, & Holden, 2007). The short-term efficacy of CBT is comparable to that of antidepressant medication, even among patients with severe depression (DeRubeis, Gelfand, Tang, & Simons, 1999; DeRubeis et al., 2005). However, there is strong, consistent evidence from multiple trials that the effects of CT–CBT are more durable than are those for antidepressant medication; that is, once treatment is discontinued, relapse rates for patients receiving CBT are about half those for patients receiving medications (DeRubeis & Crits-Christoph, 1998; Gloaguen et al., 1998; Hollon et al., 2005). It is unclear whether combining CT–CBT with medications confers significant

advantage (Otto & Deveney, 2005), but there is evidence that CT–CBT is efficacious among patients who were medication nonresponders (Rush et al., 2006; Shelton, 2006; cf. Nelson, 2006).

Effectiveness and Dissemination Potential

Research suggests that CBT can be delivered effectively in primary care settings and other real-world settings with diverse patient groups (Barrett et al., 2001; Revicki et al., 2005). Supporting the feasibility of dissemination, CBT can be delivered effectively via telephone (Mohr et al., 2007), and the typical course of CBT for depression is brief, lasting between 10 and 20 sessions, with much of the benefit occurring fairly early in treatment (within 4–6 weeks; Tang & DeRubeis, 1999).

Cost-Effectiveness

There is evidence that CT–CBT is as cost-effective as or more cost-effective than antidepressant medication, especially in the long term (Antonuccio et al., 1997; Revicki et al., 2005). From the perspective of the health care system, CBT is cost-effective relative to existing community intervention resources (Revicki et al., 2005). Over a 2-year period, the expected costs of fluoxetine and CBT treatment are approximately 33% higher than for CBT alone (Antonuccio et al., 1997). The combination of CBT–CT with medication may be cost-effective in the treatment of severe depression, however (Simon et al., 2006). Although formal dose–response relations have not been established with CBT–CT, a great deal of research suggests that 10 to 20 sessions produce optimal effects (Feldman, 2007). This relatively brief exposure to therapy, and the fact that it can be delivered by nondoctoral therapists, supports its potential cost-effectiveness.

Mechanism

There is mounting evidence that CT–CBT treatment for depression may mitigate cognitive reactivity to negative moods or depressive symptoms, an outcome that does not appear to occur with other types of psychosocial interventions or with pharmacotherapy (Beevers & Miller, 2005; Segal et al., 1999; Segal et al., 2006).

In summary, available evidence shows that CT–CBT is efficacious, effective, and cost-effective relative to competing interventions for depression. Moreover, the use of these techniques is supported by emerging evidence that they yield some of their effects via a unique mechanism of action. More research is needed, however, to document how CT–CBT affects downstream health care costs and costs to employers. Also, whereas CT–CBT for depression may produce outcomes via multiple routes, including those activated by other forms of therapy (Wampold, Minami, Baskin, & Callen Tierney, 2002), this does not undercut the fact that this therapy has been shown to be efficacious and cost-effective relative to major forms of interventions (e.g., pharmacotherapy) that are competitors for support from health care systems.

CBT for Panic Disorder

Efficacy

CBT for panic disorder has been shown to be effective in multiple, well-controlled clinical trials (Mitte, 2005). In general, research shows that CBT for panic disorder is more efficacious than placebo and is similar or superior to pharmacotherapy (e.g., imipramine; Barlow, Gorman, Shear, & Woods, 2000; also cf. Otto et al., 2000). In addition, evidence suggests that CBT significantly adds to the benefits of pharmacotherapy (Craske et al., 2005). CBT alone may be as effective as the combination of CBT and pharmacotherapy (Barlow et al., 2000; Telch & Lucas, 1994), and patients with panic disorder who fail to respond to pharmacotherapy can be treated successfully with CBT (Otto, Pollack, Penava, & Zucker, 1999; Pollack, Otto, Kaspi, Hammerness, & Rosenbaum, 1994). The treatment gains produced by CBT are quite durable once treatment is discontinued. In contrast, pharmacologic intervention often requires continued application to achieve persistent effects (Craske et al., 1991; Pollack & Otto, 1994).

Effectiveness and Dissemination Potential

CBT for panic disorder has been shown to be effective in real-world settings with highly diverse patient groups (e.g., Addis et al., 2004; Barlow et al., 2007; Roy-Byrne et al., 2005; W.A. Wade et al., 1998). For instance, CBT for panic disorder has been shown to be effective relative to usual care or nonbehavioral therapy with patients presenting to primary care or managed care clinics (Addis et al., 2004; Roy-Byrne et al., 2004). In such real-world applications, CBT is effective even when delivered by nondoctoral therapists or health educators who have little or no prior experience with CBT and who receive only a modest level of training in that technique (e.g., Addis et al., 2004; Roy-Byrne et al., 2005), which enhances it dissemination potential. CBT for panic disorder is highly acceptable to patients. In contrast to antidepressant or antianxiety pharmacotherapy, patients show comparable or greater initial interest in CBT for panic disorder and significantly lower attrition after treatment initiation (Otto et al., 2000).

Cost-Effectiveness

The long-term cost and cost–benefit profiles of CBT for panic disorder are more favorable than those for pharmacotherapy (McHugh et al., 2007; Otto et al., 2000). Recent research shows that the combination of CBT for panic and pharmacotherapy, when administered to primary care patients, produces increased quality adjusted life years saved at a cost that is comparable to that achieved by such common preventive interventions as the pharmacologic treatment of hypertension and hypercholesterolemia (Katon et al., 2006; also cf. Heuzenroeder et al., 2004).

Mechanism

Recent research indicates that the improvement observed in response to CBT is mediated by targeted changes in fear cog-

nitions (Hofmann et al., 2007). That is, data indicate that CBT (and not imipramine therapy) reduces fear cognitions, and this effect is related directly to clinical benefit, suggesting a specific therapeutic mechanism.

CBT for Bulimia Nervosa

Efficacy

CBT has received consistent research support as an efficacious intervention for bulimia nervosa, producing superior outcomes relative to various control conditions and alternative therapies (Fairburn, Marcus, & Wilson, 1993; Wilson & Fairburn, 2002). A systematic review of 47 studies suggested that whereas both medication (fluoxetine) and CBT exerted comparable effects in the short term, only CBT yielded long-term effects (Shapiro et al., 2007). On the basis of strong support from multiple well-conducted randomized trials, the National Institute for Health and Clinical Excellence (NICE, 2004) guideline gave a 16- to 20-session course of CBT for bulimia nervosa their highest ("A" grade level) recommendation. This was the first time that NICE concluded that a psychological intervention is the treatment of choice for a psychiatric disorder (Wilson et al., 2007). There is little evidence that adding pharmacotherapy or any other treatment augments the effectiveness of CBT for bulimia nervosa (Wilson et al., 2007).

Effectiveness and Dissemination Potential

The effects of CBT for bulimia nervosa appear to be robust when the treatment is translated into real-world settings (Tuschen-Caffier, Pook, & Frank, 2001; Wilson et al., 2007). Its potential for dissemination is enhanced by the fact that it produces fewer adverse effects than pharmacotherapies, requires a relatively modest number of sessions, and does not require doctoral-level clinicians for its effective application.

Cost-Effectiveness

More research is needed to show that CBT for bulimia nervosa is cost-effective relative to other competing interventions such as desipramine therapy (Koran et al., 1995; J.E. Mitchell, Peterson, & Agras, 1999; Schmidt et al., 2007). The cost-effectiveness of this intervention may be enhanced considerably with further development of guided self-help CBT for bulimia nervosa, which has yielded some early favorable results (Murray et al., 2007; Sysko & Walsh, 2007). The NICE (2004) guideline noted that alternative psychosocial interventions (e.g., interpersonal therapy) typically require 8 to 12 months to achieve comparable results, suggesting that CBT is more likely to be cost-effective.

Mechanisms

There is evidence that reduction in dietary restraint is one mechanism, along with increased self-efficacy, via which CBT for bulimia nervosa produces its therapeutic effects (Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002).

CBT for Posttraumatic Stress Disorder (PTSD)

Efficacy

There is compelling evidence that prolonged exposure treatment, with or without additional components of CBT, is an efficacious psychosocial treatment for chronic PTSD and that CBT that includes an exposure component is efficacious for the acute phase of the disorder. Targeting recently traumatized patients who already have exhibited symptoms of acute stress, Bryant, Sackville, Dang, Moulds, and Guthrie (1999) conducted three well-controlled studies that showed that CBT was superior to supportive counseling over a 6-month follow-up period, a critical time for the development of chronic PTSD. Whereas 58% to 67% of the control group patients had proceeded to develop PTSD, only 8% to 19% of patients in the experimental treatment groups qualified for this diagnosis 6 months after the treatment. Although a study by Foa et al. (1995) did not show group differences at follow-up, the speed of recovery among acute-phase patients treated with CBT was higher.

Unlike immediate stress reactions in which natural recovery is the rule, PTSD symptoms that last more than 3 months are far less likely to remit without treatment. Fortunately, evidence supporting prolonged exposure treatment for chronic PTSD is even stronger than that supporting the interventions for acute stress symptoms (Foa, Cahill, et al., 2005; Foa, Hembree, et al., 2005). Moreover, combination treatments that add other CBT components (e.g., cognitive restructuring of dysfunctional beliefs, stress inoculation training) do not outperform the exposure-alone condition (Foa & Meadows, 1997). Multiple randomized controlled trials (RCTs) showed that after exposure treatment lasting between 9 and 15 sessions, 40% to 87% of patients no longer qualified for the diagnosis, whereas only 5% of patients in the various no-treatment control groups had shed the PTSD diagnosis (e.g., Foa, Rothbaum, Riggs, & Murdock, 1991; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Paunovic & Ost, 2001; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Similar patterns of recovery rates were reported in studies that followed patients for 1 year (e.g., Foa et al., 1999). Finally, although CBT for PTSD has not been compared directly with pharmacotherapy for PTSD, data suggest that CBT produces more durable effects. Pharmacotherapy trials for acute symptoms have yielded mixed results, and medications found to be efficacious for chronic PTSD (selective serotonin reuptake inhibitors such as paroxetine [Paxil]) had 25% to 50% relapse rates following a double-blind switch from active medication to placebo (Martenyi, Brown, Zhang, Prakash, & Koke, 2002).

Effectiveness and Dissemination Potential

The effects of exposure treatments for PTSD retained their robustness when implemented in real-world settings (Foa, Hembree, et al., 2005). Effective application does not require doctoral-level clinicians or even therapists with specific expertise in CBT. This treatment has been implemented successfully

in community-based clinics in the United States and around the world. However, despite high potential for dissemination and clear recommendations by practice guidelines (Foa, Keane, & Friedman, 2000), less than 30% of therapists are trained in exposure treatment and only half of those report that they use exposure techniques in therapy (Becker et al., 2004). When asked for reasons for not using their training in exposure therapy, 25% of these therapists expressed preference against using treatment manuals. This picture stands in sharp contrast to the popularity of psychological debriefing (e.g., Critical Incident Stress Debriefing; J.T. Mitchell, 1983), an intervention that despite evidence of possible harm is still the most commonly practiced crisis intervention for trauma victims (McNally, 2003).

Cost-Effectiveness

PTSD exposure treatment represents a striking example of how psychologists have not provided health care decision makers with the evidence needed to promote the greater use of this intervention. Little direct evidence currently exists regarding its cost-effectiveness, yet its likely cost-effectiveness is supported by evidence of its extraordinary effectiveness, the clinical and societal costs of PTSD, and the refractoriness of PTSD without effective intervention. With ongoing occurrences of wars, terrorist attacks, and natural disasters, the prevalence of PTSD and its costs may be expected to rise. At present, about 8% of the population suffers from PTSD (National Center for PTSD, 2006), and by some estimates, 16% to 19% of soldiers currently serving in Iraq and Afghanistan are likely to develop chronic PTSD. The disorder rarely resolves itself without treatment, as evident, for example, from a 149% increase in disability payment to Vietnam veterans in the period between 1999 and 2004, when the number of veterans receiving disability compensation for PTSD increased by 80% (McNally, 2006). People with PTSD lose an average of 3.6 work days per month, and 88% of workplace costs is attributable to lost productivity while at work (Kessler & Ustun, 2000, see also Kessler et al., 1999). Although selective serotonin reuptake inhibitor medications may be more readily available than CBT, and they work better than placebo, their effects are not as strong or as durable as those of CBT (Martenyi et al., 2002). In studies of direct comparisons, CBT outperformed pharmacotherapy with other anxiety disorders (e.g., social phobia; Clark et al., 2003).

Mechanisms

This therapy is designed to habituate patients to the feared stimuli while modifying erroneous perceptions about dangers and about one's own ability to cope (Cahill & Foa, in press; Foa & Kozak, 1986). Indeed, Foa and Rauch (2004) found that treatment decreased such negative cognitions and that these cognitive changes predicted reduction in the severity of PTSD. Moreover, increased organization of the trauma narrative over the course of therapy predicted patient outcome (Foa et al., 1995). Finally, between-session habituation to the feared stimuli predicted reduction in symptoms of PTSD (e.g., Kozak et al., 1998; van Minnen & Hagenaars, 2002).

Behavioral Couples Therapy (BCT) for Alcoholism and Substance Abuse

BCT (O'Farrell & Fals-Stewart, 2006) for alcoholism and substance abuse is a substance abuse treatment approach based on the assumptions that (a) intimate partners can reward abstinence and (b) reducing relationship distress lessens risk for relapse. In BCT, the therapist works with both the person who is abusing substances and his or her partner to build a relationship that supports abstinence. Program components include a recovery or sobriety contract between the partners and therapist; activities and assignments designed to increase positive feelings, shared activities, and constructive communication; and relapse prevention planning. Partners generally attend 12- to 20-hour-long sessions over 5 to 6 months.

Efficacy

Several randomized controlled trials (Fals-Stewart, Birchler, & O'Farrell, 1996; Fals-Stewart et al., 2000) found that male BCT clients improved significantly more than clients in individual-based therapy and/or attention control groups on measures of alcohol and substance abuse. BCT clients who used opioids had more drug-free urine samples and self-reported days of alcohol and drug abstinence over the course of treatment and up to 1 year after completing treatment (Fals-Stewart & O'Farrell, 2003). Among BCT clients on methadone maintenance, similar results at the end of treatment were obtained for cocaine and opiates, as measured by urine screens and Addiction Severity Index scores (Fals-Stewart, O'Farrell, & Birchler, 2001). Among women with alcoholism, BCT participants reported fewer days of drinking and fewer drinking-related consequences at 1-year follow-up, compared with those receiving alternative care (Fals-Stewart, Birchler, & Kelley, 2006; Winters, Fals-Stewart, O'Farrell, Birchler, & Kelley, 2002).

Effectiveness and Dissemination Potential

Research suggests that BCT can be delivered effectively in methadone clinics and other real-world community treatment programs (Fals-Stewart et al., 2001) and with diverse patient groups such as couples troubled by domestic violence (Fals-Stewart, Kashdan, O'Farrell, & Birchler, 2002; O'Farrell et al., 2004). Detailed manuals and workbooks are available on user-friendly Web sites. There are 1- and 2-day trainings available online (http://www.ireta.org/onlineEd/) and in person, and clinical supervision (up to 24 hr) is available for a reasonable fee to those who participate in 2-day training. The Web site offers information on training content and cost and examples of letters–notifications used to document treatment, which could be helpful to new practitioners of this intervention. The session-by-session format provides opportunity for detailed feedback on

therapist adherence and competence. Protocols to support fidelity of implementation also are available.

Cost-Effectiveness

In 1997, Fals-Stewart, O'Farrell, and Birchler (Fals-Stewart et al., 1997) found that although the costs involved in BCT were equivalent to those of individual-based treatment, the average reduction in aggregate costs from baseline to the 1-year follow-up was greater for BCT ($6,000 vs. $1,904). More recently, Fals-Stewart et al. (2005) found that a briefer version of BCT was as efficacious as and more cost-effective than individual-based therapy.

Mechanism

Although there are no formal mediation analyses, there is evidence that in comparison to other treatments, BCT reduces incidents of domestic violence and enhances couples' relationship quality (Fals-Stewart et al., 1996) and that couples who report fewer incidents of verbal and physical aggression and higher relational quality are better able to sustain abstinence (Fals-Stewart et al., 1996; Fals-Stewart et al., 2002). In addition, opioid dependent men who participated in behavioral family counseling were more compliant with the medication regimen (naltrexone) relative to those who participated in individual-based treatment (Fals-Stewart & O'Farrell, 2003).

In summary, available evidence shows that BCT is efficacious, effective, and cost-effective relative to competing interventions for alcohol and drug abuse.

Other Interventions

Certainly, other psychosocial interventions are amassing similar experimental support that provides strong business and clinical cases for funding and broad implementation. For instance, exposure with response prevention and CT for obsessive–compulsive disorder (either alone or combined) produce strong clinical benefit in a large portion of the patients with whom they are used (Abramowitz, 1996; Foa & Kozak, 1996; Franklin & Foa, 2007). These approaches appear to be similar in efficacy to medication (e.g., fluvoxamine), are superior to a variety of control conditions (Lindsay, Crino, & Andrews, 1997; McLean et al., 2001; van Balkom et al., 1998), appear to enhance the effectiveness of medication, and aid patients refractory to medications (O'Connor, Todorov, Robillard, Borgeat, & Brault, 1999; Tundo, Salvati, Busto, Di Spigno, & Falcini, 2007). There also is compelling evidence that these treatments are highly effective in real-world contexts with patients who have a wide variety of comorbid conditions (Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000; Rothbaum, 2000; Warren & Thomas, 2001). Promising, early research findings are being reported on methods to promote dissemination (e.g., Tumur, Kaltenhaler, Ferriter, Beverley, & Parry, 2007), dose–response relations (Abramowitz, Foa, & Franklin, 2003; Franklin et al., 2000), and cost-effectiveness and cost–benefit (Diefenbach, Abramowitz, Norberg, & Tolin, 2007). Other interventions, such as behavioral activation, also could be reviewed in the same light. There is mounting evidence that this intervention can be as effective as CT in the treatment of depression, and features of behavioral activation (ease of administration) make it ideal for dissemination (Dimidjian et al., 2006; Jacobson et al., 1996).

Evidence has shown that specific psychological interventions can be highly effective with even severe psychosis. For instance, data from a dozen RCTs strongly and consistently support the efficacy of family therapy for schizophrenia (Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998; Dixon & Lehman, 1995; Goldstein & Miklowitz, 1995; Miklowitz, Goldstein, & Nuechterlein, 1995). Adjunctive to pharmacotherapy, family treatments based on principles of behavior therapy (e.g., Faloon et al., 1984) and on structural family-systems therapy (Hogarty et al., 1991) yielded a 12-month average rehospitalization rate of 27% (ranging from 10% to 32%), whereas the average rate for respective psychopharmacotherapy-alone conditions was 64% (40%–83%; Baucom et al., 1998). Moreover, the superiority of family-focused interventions held over a 2-year follow-up period (Tarrier et al., 1989) and was as strong when the treatment was conducted in a less expensive, family-group format (McFarlane et al., 1995). In contrast, other forms of family therapy have had a much less impressive record (Kottgen, Sonnichsen, Mollenhauer, & Jurth, 1984). Given the wealth of evidence supporting behavioral family therapy for schizophrenia, practice guidelines recommend that family treatment be provided for all schizophrenia patients who have ongoing contact with their families (e.g., Lehman & Steinwachs, 1998).

Family-therapy methods are costly and require extended treatment. However, the costs of severe psychosis are higher, which makes adjunctive family treatment cost-effective relative to other psychosocial interventions for schizophrenia (Penn & Mueser, 1996). Indeed, two of the RCTs reported above (Faloon et al., 1984; Tarrier et al., 1989) included cost-effectiveness analyses and found that family treatments versus other psychosocial approaches resulted in lower overall costs, mainly as a result of reduced inpatient and day care. The comparative cost-analyses ranged from a saving of 19% (Cardin et al., 1986) to 27% per patient (Tarrier et al., 1989), with the latter computed on patients whose family functioning was more compromised.

Following the success of family-level interventions for schizophrenia, Miklowitz and Goldstein (1990) developed a family-focused treatment (FFT) adjunctive to pharmacotherapy for patients with recently episodic bipolar disorder. In addition to earlier supportive FFTs for bipolar disorder (Clarkin, Carpenter, Hull, Wilner, & Glick, 1998; Clarkin et al., 1990), a more recent RCT showed that FFT outperformed a brief psychoeducational control, yielding 5 additional months of remission over a 2-year follow-up period (Miklowitz, George, Richards, Simoneau, & Suddath, 2003). Another study by Rea et al. (2003) compared FFT with a similar dose of individual therapy and

found dramatic differences in rehospitalization rates between the FFT group (12%) and the control group (60%) during the second year of follow-up. Although FFT is costly in the short term (21 sessions over 9 months), a 50% difference in rehospitalization rates and reduced burden on patients and their caregivers is cost-effective in the long term (Miklowitz & Johnson, 2006; Wolff et al., 2006). Finally, a randomized effectiveness study showed that FFT "can be successfully exported to community settings in which clinicians have had minimal previous exposure to manual-based interventions" (Miklowitz, 2007, p. 195). Other supportive data on FFT were generated by the "Systematic Treatment Enhancement Program" study (Miklowitz et al., 2007) conducted in 15 U.S. treatment centers where a total of 293 acutely depressed patients with bipolar disorder were randomly assigned to three active treatment groups (including FFT) or to a minimal-care control group. Over a 1-year follow-up, the rate of remission among FFT patients was 77% (compared with 52% in the minimal-care condition), and remission occurred sooner in all active treatment conditions, saving an average of 110 days of severe depressive symptoms.

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