This article reviews the 2009 APA President’s initiatives and recommendations for the future of psychology practice and science. The future of psychology practice requires that we expand the focus of traditional practice; become health care providers, not just mental health providers; use evidence-based practice, assessment, and outcome measures; incorporate technology into our practices, including electronic health records; and change training and focus to meet the needs of our diverse society. The future of psychological science requires that we train and work in multidisciplinary teams, employ different methods and approaches, and shift our focus to translational science. The future of our profession requires substantial changes in graduate education to prepare our students for science and practice in the 21st century. In light of advances in science and practice that reveal the critical importance of psychosocial and behavioral factors in health and disease, I call for the creation of a department of behavioral health within the federal government.

Keywords: health care, psychology practice, training, psychological science

“The best way to predict the future is to create it.”

The theme of my 2009 presidential year was the Future of Psychology Practice and Science. My overarching goal was to create a new vision and future for our profession and the people we serve. Psychology is in the process of evolution and change to meet the needs for practice and science in the 21st century. Our current models and practices, while excellent, are often not acceptable in our current environments. This situation requires that we generate new and innovative ideas and methods for our practice and science. With advances in neuroscience and genetics, the expansion of translational research, sweeping demographic changes, and an increase in international business opportunities, psychology is becoming more relevant than ever, and there are many new opportunities for our profession. We need to take advantage of these opportunities by collaborating with other disciplines and integrating scientific and technological advances into our work.

The Context of My Presidency

While running for president of the American Psychological Association (APA) in 2006–2007, I talked with hundreds of psychologists—practitioners, scientists, and educators—who told stories of struggling to make a reasonable living while being apprehensive about their own futures in psychology. These psychologists were concerned with, among many other issues, decreasing reimbursements for psychological services, the lack of resources for science initiatives, the high costs of doctoral training, problems with the annual convention, difficulties in attracting young psychologists to the field, and the cost of APA membership in relation to the cost of membership in specialty societies. Although National Institutes of Health (NIH) budgets are at record high levels, many psychologists cannot get their research funded, and some psychology laboratories are challenged to stay in operation. Psychological science makes life-changing contributions to our society, but psychologists often are not recognized for these contributions.

Between the time I was elected in 2007 and the time I became president in 2009, APA underwent significant change, change that was both planned and a response to the economic climate of the times. One of the worst recessions in U.S. economic history occurred during the fall of 2008, and the downturn in the stock market and economy had significant negative effects on the finances of APA. The attendant escalation in the numbers of homeless people happened to coincide with one of my presidential initiatives: Psychology’s Contribution to End Homelessness (Bray, Milburn, et al., 2009). However, the economic crisis resulted in opportunities for much-needed change in the Association and our profession.

Inside APA, the financial crisis caused us to reexamine the entire budget and all of our programs and to make significant cuts in many of them, even some that were considered “sacred cows.” It also opened the door to consideration of new ways of doing business and facilitated the creation of APA’s first-ever Strategic Plan. New opportunities for the profession were created by the change in U.S. presidential administrations, the focus on health care re-

Editor’s note. James H. Bray was president of the American Psychological Association (APA) in 2009. This article is based on his presidential address, delivered in Toronto, Ontario, Canada, at APA’s 117th Annual Convention on August 7, 2009.

Author’s note. I want to thank my colleagues who participated in the 2009 presidential task forces (see Bray, 2010, for a list of names of task force members and descriptions of the task forces). Our accomplishments in 2009 could not have happened without their many contributions.

Correspondence concerning this article should be addressed to James H. Bray, Department of Family and Community Medicine, Baylor College of Medicine, 3701 Kirby Drive, 6th Floor, Houston, TX 77098. E-mail: jbray@bcm.edu
Concerns about the future of clinical and scientific psychology are not new. Many former APA presidents have written about these issues, and some of their views were truly prophetic. Over 40 years ago, George Albee (1970) stated in his presidential address, “Clinical psychology has entered a paradoxical phase in its development where its problems of identity and relevance threaten it with extinction at the same time that its opportunities seem boundless” (p. 1071).

While psychologists are experts at change, it appears that we are not unlike other humans in our resistance to changing our ways and evolving to meet the current needs of our profession and the people we serve. A recent example of such intransigence is the fight for and against prescriptive authority for appropriately trained psychologists. This debate seems similar to the fights that occurred during my early training between psychoanalytically oriented psychology and the move toward behaviorally oriented psychology. In both cases psychologists who voiced opposition to change argued that it would ruin our profession and destroy our field. Too often we block our own progress with this type of infighting. As William James, an early APA president, stated in 1879, “A new idea is first condemned as ridiculous and then dismissed as trivial, until finally, it becomes what everybody knows.” I wonder what he would say about our profession as we move into the 21st century!

The APA is in the process of transformational change: a shift in the culture of the profession resulting from a change in the underlying strategy and processes that the profession has used in the past. There are several major shifts and transformations occurring in psychology—some proactive and some reactive to changing environments. APA recognized that it could no longer afford to “do everything for everybody” and developed a Strategic Plan to guide its future. The plan includes three initiatives: maximize APA’s organizational effectiveness, expand psychology’s role in advancing health, and increase recognition of psychology as a science. Psychology practitioners are faced with declining income and increased competition from other professionals and recognize that they must change the way they practice to survive and thrive. Psychological scientists recognize that the landscape for all of science is rapidly changing and that they must modify their methods and areas of study to be competitive in the future.

According to futurist Ian Morrison (1996, 2000), whenever there are major shifts in a profession or business, these changes can be understood as a shift from a first curve to a second curve (see Figure 1). The first curve is the established way of doing business—it is where one’s current activities and profits are derived; however, in the long run it slows and runs its course. The second curve represents a new way of doing business—often radically different from the first curve—and the source of future growth. The move from print to electronic publishing and the move from paper to electronic health records are examples of shifts from a first curve to a second curve. One does not want to get out ahead of the curve, as relevant ideas and profits can be lost, but organizations that do not recognize the need for change and that simply continue doing more of the same will slide down the first curve, and some will go out of existence.

According to consulting psychologists Gibson and Billings (2003), some change is fairly easy (reorganizing people and offices, conferring new titles, etc.), and some change is extremely difficult, such as changing core behaviors and mindsets. In the first kind of change, one is
changing something inside an existing system, such as changing billing systems or getting new office furniture (Watzlawick, Weakland, & Fisch, 1974). In the second kind of change, one is changing the system itself. Trying to effect this second kind of change is where we find ourselves at this point in our profession. Second-order change is necessary given the dramatic shifts in the economy, advances in neuroscience and genetics, and changes in societal demands and public policies.

In response to these changing environments, many areas of study are dropping the word psychology from their names—for example, developmental science, cognitive science, neuroscience. Other areas are using the principles of psychology in creating new and innovative fields, such as behavioral economics. Working in a medical school, I frequently hear my colleagues talking about their neuroscience research, but they identify themselves as members of their professions—biologist, physician—not as generic neuroscientists. Why don’t psychologists do this?

At the same time, clinical and counseling psychologists compete directly with generic mental health practitioners who perform counseling, psychotherapy, and assessments without our extensive training or unique skills. This change can be seen in job advertisements, where psychologists are equated with social workers, counselors, and other master’s-level providers. Consulting and industrial–organizational (I/O) psychologists often are not licensed as psychologists and are referred to as business and organizational consultants. Many of these psychologists are also teaching in business schools rather than in psychology departments. Thus, one can ask, where have all of the psychologists gone (Bray, 2009b)?

What distinguishes psychologists from other practitioners is our strong scientific base. While there is significant variation in the level of scientific training required for practicing psychologists (i.e., PhD and PsyD), our scientific foundation and reliance on empirical evidence make us unique among mental and behavioral health practitioners (Peterson, 2003). Failure to recognize this fact in training programs and practice makes us vulnerable to being lumped together as generic mental health providers or business consultants, and we will be less competitive in the marketplace. What is clear is that future forms of psychological practice and science will require much more multidisciplinary training as we move forward with more integrated health care models and research based on a biopsychosocial model that integrates neuroscience, genetics, and behavior.

**Current Context of Health Care in the United States**

As we consider changes in psychological practice, we must balance the needs of the current generation of psychologists with those of our early career psychologists and graduate students. The needs of these groups may be different, as older psychologists tend to provide traditional psychotherapy and assessments in individual or small group practices, but newer practices are more integrated into general health care settings and utilize more technology in their work. In addition, the current generation of psychologists does not reflect the ethnic diversity of the world, while the next generation needs to take into account the increasingly ethnically diverse and multicultural nature of our nation and the world. There is a strong move toward evidence-based practice and assessments and away from psychodynamic and psychoanalytic approaches. Managed care has significantly constrained the use of long-term therapies, although there are still substantial numbers of psychologists who practice these approaches, and these psychologists are strongly represented within APA by Division 39 (Psychoanalysis).

Regardless of changes brought about by health care reform, psychologists and their clients/patients will continue to practice in traditional ways for at least another generation or two. Why? Because many psychologists and their clients continue to find value in these approaches and people are willing to pay for these services now, even when not fully covered by their health insurance. People always seem to be willing to pay for things they value, and we need to remember this in planning our future.

Where does psychology fit within the current health care system? John Saultz (2008) developed a health care pyramid to describe our current system (see Figure 2). At the base of the pyramid are primary care, mental health, and public health. At the next level are hospital care and secondary or specialty care. At the top of the pyramid is tertiary care. Specialization, costs, and funding for health care increase as one goes up the pyramid. Psychologists typically practice only in the mental health arena, yet our skills and services are applicable to all of the areas—and these areas are for future growth. One of the major shifts

---

**Figure 2**

**Health Care Pyramid**

Advocated by those promoting health care reform is to move more resources into the base of the pyramid, especially into primary care. This shift includes increased funding for primary care practitioners and for training more primary care providers.

During 2009, the federal government engaged in a massive process to reform our health care systems that ultimately resulted in the passage of the Patient Protection and Affordable Care Act (2010), commonly known as the health care reform bill, which was signed into law by President Obama on March 23, 2010. The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008, implemented in 2010, represents a major shift in health care provision, and its passage ensured that mental health parity was included in the 2010 health care reform bill. The parity law specifies that mental and behavioral health problems are to be treated and reimbursed the same as other health problems. The hope is that the parity and health care reform bills will end mental health carve-outs, in which people with mental and behavioral health problems are treated differently and in separate systems of care than those with other types of health problems. The only way for integrated primary care to work effectively and efficiently is if we end mental health carve-outs.

The federal health care reform focus in 2009 was on four areas: increasing access for uninsured and underinsured people, creating a 21st-century health care system, revitalizing primary care, and using comparative effectiveness research to inform and drive practice (Clancy, 2009). The mantra from federal policymakers is providing health care “faster, better, and cheaper.” However, the real driver of change is economics and money, money, money. President Obama clearly stated that what is driving health care reform is economics. He stated that our economy cannot be “fixed” until we get health care costs under control. Managed care and other health care options have clearly failed in these efforts. Other aspects of reform seem to be secondary to the economics.

At the 2009 APA Presidential Summit on the Future of Psychology Practice, Richard Frank, a health care economist from Harvard, presented a strong argument for why President Obama’s focus is on economics (Frank, 2009). First, spending on all health care has risen over the past 30 years to record levels. Yet the dramatic rise in costs is seen in general health care and not mental health care. Mental health care costs have stayed at roughly about 1% of the gross national product (GNP), while spending on other health care has doubled to over 17% of GNP in 2009. There has also been a dramatic shift in who provides mental health services and what services are provided (Frank, 2009; Kessler et al., 2005; Wang et al., 2006). Table 1 shows that overall spending on mental health care has increased. However, the increases in spending are for psychiatry and general medicine, and there has been a decrease for other types of mental health treatments, such as psychotherapy provided by psychologists. What do the increases represent? Figure 3 demonstrates that costs for inpatient treatments have declined, while costs for mental health treatments, such as psychotherapy, have remained generally constant. The exponential growth has been in the use of psychotropic medications for treatments by both psychiatrists and general physicians (Agency for Healthcare Research and Quality, 2009; Frank, 2009). This situation presents a strong argument for psychologists’ gaining prescriptive authority, both to be able to prescribe medications (or take people off of medications) and to use psychological interventions.

Revitalization of primary care is also a high priority in health care reform, and there is consensus on how to accomplish it: through the Patient-Centered Medical Home (PCMH; Patient-Centered Primary Care Collaborative, 2007). The PCMH is a model for providing comprehensive primary care for children, youth, and adults that facilitates partnerships between individual patients and their personal physicians and, when appropriate, the patient’s family.

### Table 1
Distribution of Mental Health Care Users by Spending

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td>19.6%</td>
<td>25.8%</td>
</tr>
<tr>
<td>Other mental health providers</td>
<td>35.4%</td>
<td>29.5%</td>
</tr>
<tr>
<td>General medical providers</td>
<td>27.1%</td>
<td>40.5%</td>
</tr>
</tbody>
</table>

Note. Data are from Kessler et al., 2005, and Wang et al., 2006.

---

Figure 3
Mental Health Spending Growth by Treatment Sector, 1996–2006

Note. MH = mental health outpatient; MH IP = mental health inpatient; MH RX = pharmacotherapy. Source: Data are from Medical Expenditure Panel Survey 1996–2006 (Agency for Healthcare Research and Quality, 2009) and Frank (2009). Spending index (y axis) was constructed through regression analysis, available in online appendix (Agency for Healthcare Research and Quality, 2009). 100 represents mean spending in 1996 for each group. Regression included sex, race/ethnicity, region of the country, medical spending account status, health and mental health self-reported status, and age as controls. Reported values are the regression analysis coefficients for each year, with 1996 normalized at 100 as a three-year average.
21st-century PCMH should include interdisciplinary teams, care management and care coordination programs, quality assurance mechanisms, and health information technology systems, and these should lead to improved quality of and better access to health care while containing costs (Clancy, 2009; McDaniel & Fogarty, 2009; Patient-Centered Primary Care Collaborative, 2007). I prefer the term patient-centered health care home, rather than medical home, but it appears that this term is not open for change at this time.

The question is, “Where do psychology and behavioral health fit in the PCMH?” As Frank deGruy (1996), an MD, stated in his report for the Institute of Medicine, “Mental health care cannot be divorced from primary medical care, and all attempts to do so are doomed to failure” (p. 288). Similarly, Joe Scherger (2004), another MD and a former president of the Society of Teachers of Family Medicine, argued,

Someday, the U.S. health care system will get it. Integrating psychologists into primary care makes the system more effective, allows for early recognition and intervention in the pervasive psychosocial nature of health and illness, and will save a ton of money by avoiding needless tests and treatments. (p. xi)

There are compelling data on why psychologists and behavioral health need to be key components of any health care reform system. The determinants of health are behavioral factors (50%), genetics (20%), environmental factors (20%), and access to care (10%) (Centers for Disease Control and Prevention, National Center for Health Statistics, 2003). Research indicates that behavioral factors such as diet, stress management, exercise, and lifestyle account for the largest proportion of variance in health, and over 50% of visits to primary care providers are for psychosocial problems, not biomedical problems (Blount et al., 2007). However, less than 10% of the NIH budget goes to researching social and behavioral factors in health. This is a clear growth area for psychological research.

In addition, comorbidities among health problems and mental health problems are common (Petterson et al., 2008). According to data from the Medical Expenditure Panel Survey (Agency for Healthcare Research and Quality, 2009), more than half of patients with chronic medical diseases meet criteria for a coexisting mental disorder. As shown in Table 2, costs for taking care of patients with a comorbidity are much higher than those for taking care of patients without an accompanying mental health problem. The data also demonstrate that if you treat both problems together, it is less expensive and the health outcomes are better (Petterson et al., 2008). If you treat someone for depression who has diabetes and depression, the diabetes is better controlled.

In most cases, changing health behavior is more important to health than anything else. Whether the focus is on prevention or chronic disease management, it takes health behavior change to improve health. This is why psychologists need to be more involved in the primary care health system and patient-centered medical homes (Bray, 1996; Frank, McDaniel, Bray, & Heldring, 2004; McDaniel & Fogarty, 2009).

<table>
<thead>
<tr>
<th>Chronic health condition</th>
<th>Cost without a mental health condition ($)</th>
<th>Cost with a mental health condition ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All adults$^a$</td>
<td>1,913</td>
<td>3,545</td>
</tr>
<tr>
<td>Heart condition</td>
<td>4,697</td>
<td>6,919</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>3,481</td>
<td>5,492</td>
</tr>
<tr>
<td>Asthma</td>
<td>2,908</td>
<td>4,028</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4,172</td>
<td>5,559</td>
</tr>
</tbody>
</table>

Data are from the Medical Expenditure Panel Survey for 2002 and 2003 (Agency for Healthcare Research and Quality, 2009).

$^a$ Refers to all adults with and without chronic health conditions.

Future of Psychology Practice Initiative

There are an estimated 750,000 mental health and substance abuse providers in the United States, most of whom are master’s-level or bachelor’s-level providers, not doctoral-level psychologists (Substance Abuse and Mental Health Services Administration, 2007). Much of the public, however, does not understand the difference between these providers. Thus, traditional psychotherapy practice is challenged by reimbursement policies and encroachments from other mental health professions. Psychologists are in danger of losing our unique place and becoming generic mental health providers. We need to reaffirm our identities, clearly brand our work as psychologists, and evolve our practices to utilize the unique training and skills that we have acquired. To facilitate this process, I convened the APA Presidential Task Force on the Future of Psychology Practice.

The Presidential Task Force on the Future of Psychology Practice

The task force was created to respond to requests by APA members to address the needs of practitioners and the future of psychology practice. The goals of the task force centered on identifying the following: (a) opportunities for future practice to meet the needs of an increasingly diverse public and to integrate an emerging science; (b) strategies and tactics to effectively address these opportunities; and (c) sustainable partnerships to implement new opportunities for practice and to develop a common public policy agenda. Margaret Heldring, Carol Goodheart, and I chaired the task force (see Bray, 2010, for further details on the task force).

2009 Presidential Summit on the Future of Psychology Practice

To help develop a plan for the future of practice, APA convened the Presidential Summit on the Future of Psy-
The Practice Summit was designed and organized by the aforementioned task force. One of my pet peeves about psychologists is that we spend too much time talking and interacting with each other and not enough time talking and interacting with other professionals and the public we serve. Thus, the design of this conference was unique for psychology, as we invited a substantial number of people from outside of psychology to help us create our future. This meeting brought together 150 thought leaders from psychology, business, consumers of services, economics, insurance, medicine, and politics to transform the practice of psychology. The Practice Summit was a vehicle for consideration of new types of psychological practice, settings, and partnerships for practice; the translation of science into psychological practice; expanded thinking about practice trends; and conceptualizations of practice that cross traditional lines.

On the basis of work by the task force members and participants at the Practice Summit, a number of recommendations for the future of psychology practice were offered for transforming the profession (Bray, Goodheart, Heldring, et al., 2009). Table 3 provides a list of the recommendations. The creation of clinical treatment guidelines was approved by the APA Council of Representatives in February 2010 and is in process within the APA Practice and Science Directorates. The implications of these recommendations are discussed in the following sections.

### Principles of Psychology Practice

**Expand the Focus of Traditional Psychology Practice**

If you ask someone off the street, “What is a psychologist?” most people will say either that they do not know or that we are mental health professionals. This was confirmed by the research completed during APA’s strategic planning process. As our consulting and applied psychologists know, psychologists do much more than provide mental health services. Helping business and industry cope with the uncertainty caused by global changes in the world economy and helping them maintain psychologically healthy workplaces and workforces present extraordinary opportunities for our profession (Banks & Brannick, 2009). Psychological practice also includes applying our research to improve patient safety, designing better airplane cockpits, and devising better ways to teach students (Durso & Drews, 2010; Newcombe et al., 2009). In addition, with the competition from master’s-level providers, it is important that as doctorally trained psychologists we become clinical leaders and use our expertise in research and evaluation to develop and implement evidence-based psychological services and programmatic changes in health service delivery systems and business practices.

The Task Force on the Future of Psychology Practice found that health service provider psychologists are strug-

<table>
<thead>
<tr>
<th>Area</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic viability</td>
<td>Advocate for adequate and appropriate payment for services on par with that for other health professionals. Ensure inclusion of psychologists in the Medicare definition of physician.</td>
</tr>
<tr>
<td>Accountability measures</td>
<td>Develop treatment guidelines and accountability measures. Develop framework for collection of outcome measures for psychological services.</td>
</tr>
<tr>
<td>Psychological models for integrated and primary health care</td>
<td>Develop retraining for current psychologists. Ensure inclusion in the Patient-Centered Medical Home. Create tools for access to research on health promotion, disease prevention, and management of chronic disease.</td>
</tr>
<tr>
<td>Mobility and licensure barriers to practice</td>
<td>Partner with Association of State and Provincial Psychology Boards and State, Provincial, and Territorial Psychological Associations to address barriers. Develop resources for licensure for applied psychologists.</td>
</tr>
<tr>
<td>Public education and branding</td>
<td>Change the face of psychology with the public. Develop branding of psychology with the public. Increase public education efforts. Collaborate with other professions on public education.</td>
</tr>
<tr>
<td>Use of technology</td>
<td>Advocate for inclusion of psychology practice in electronic health records. Promote delivery of services via the Internet and other electronic means. Develop a “PsychTube” for training and dissemination.</td>
</tr>
<tr>
<td>Education, training, and lifelong learning</td>
<td>Revamp training programs for the needs of the future. Seek parity for training of psychologists in federal programs. Prepare workforce analysis of psychologists in health care and organizational practice.</td>
</tr>
</tbody>
</table>

gling economically more than other applied psychologists with regard to payment for services, competition with other professionals, and educational debt. Consulting, I/O, and applied psychologists are expanding their work into many new areas, including into health service delivery systems. For example, research on airplane pilot safety systems and training is being adapted to improve patient safety and medical team functioning (Carayon, 2006; Durso & Drews, 2010).

There are legal and regulatory barriers to the expansion of these types of practices, as licensure is based on a state regulatory model, and many of these activities require practicing in multiple states with national and multinational companies and organizations. The lack of national licensure and limitations on the application of technologies across state lines are areas that need attention if we are to facilitate this growth for applied psychologists. There are international models for such facilitation, as Australia implemented a national licensure process for psychologists in 2009–2010 (Littlefield, Stokes, & Voudouris, 2009).

From Mental Health to Health Care Providers: Provide Integrated Health Care

To succeed in the future, we psychologists need to broaden our perspectives to be full partners in the health care system, and we need to identify ourselves as health care providers (Bray, 1996; Frank et al., 2004). Psychologists are the only health professionals who are not always trained in biomedicine, and that lack of understanding can interfere with our participation in these systems of care. We need a psychologist for every medical exam room to help with the behavioral aspects of health and disease (Farley, 2009). This will require us to practice side by side with our medical colleagues and in medical systems of care.

Currently, primary care providers treat over 70% of mental health problems without assistance from psychologists or any other mental health providers (Blount et al., 2007). Primary care providers are the de facto mental health system, a situation due to managed care, changes in reimbursements, and overreliance on medications (Bray, 1996). Despite our medical colleagues’ best efforts, patients frequently do not receive adequate care for mental and behavioral health problems from primary care providers. They often are undiagnosed or undertreated for their mental and behavioral health issues (Blount et al., 2007; deGruy, 1996).

Research indicates that major health problems, such as diabetes, heart disease, and obesity, are due to psychosocial and lifestyle problems—issues that are not effectively addressed by the medical profession or allied health providers. Minority, underserved, and elderly patients suffer even more from these systems of care and experience significant health disparities (Agency for Healthcare Research and Quality, 2010; Institute of Medicine, 2003). We are the profession that knows the most about human behavior and how to change it, yet psychologists are often not involved in preventing and treating these problems because we are not always seen as an integral part of the health care team. There are obvious exceptions to this, health and rehabili-

tation psychologists being prime examples. The need for changes in this situation points to many growth areas for psychology practice: primary care psychology, integrated health care systems, community health systems, institutional practice systems, and clinical leadership.

Primary care psychology is the provision of health and mental health services that involves the prevention of disease and the promotion of healthy behaviors in individuals, families, and communities (Bray, Frank, McDaniel, & Heldring, 2004). Primary care psychologists have a basic understanding of the common biomedical conditions seen within primary care and of the medical and pharmacological treatments for those conditions and how they interact and impact the psychosocial functioning of patients and their families and communities. Practice in primary care is very different from practice in usual mental health settings (Bray & Rogers, 1995; Robinson & Reiter, 2007). Rather than being seen for the traditional 50-minute psychotherapy hour, patients are often seen more quickly in time frames varying from a few minutes’ consult to 15–20-minute sessions, with brief interventions and a focus on symptom resolution. Providing such care requires specialized training and experience in these settings (Bray, 2004; McDaniel, Belar, Schroeder, Hargrove, & Freeman, 2002; Robinson & Reiter, 2007).

International Efforts

There are positive examples of these kinds of changes in other countries. While attending the 2009 European Congress of Psychology, Tor Levin Hofgaard, president of the Norwegian Psychological Association, discussed how evidenced-based research was used to expand psychologists’ scope of practice in Norway. Norwegian psychologists have treatment rights equal to those of physicians, except they cannot yet prescribe medications. Norwegian psychologists convinced their government to require psychotherapy for the treatment of mild to moderate anxiety and depression before medications can be used and to fund psychologists to work in primary care to provide psychological services. Likewise, in Australia, psychologists are funded to provide collaborative care in general medical practice through the Australian Medicare program (Winefield, & Chur-Hansen, 2004). We in the United States have a lot to learn from collaboration with our international colleagues.

Integrate Technology Into Practice

The U.S. government is committed to transforming health care through the application of health information technology (Domestic Policy Council, Office of Science and Technology Policy, 2006; Health Information Technology for Economic and Clinical Health [HITECH] Act, 2009). Through the HITECH Act, Congress specifically directed established programs under Medicare and Medicaid to provide incentive payments for the “meaningful use” of certified electronic health records (EHR) technology and provided billions of dollars to implement the changes. To participate in these changes and, more specifically, to participate in integrated health care systems, psychologists
will be required to use EHR and other technological advances. There are hundreds of EHR systems in the marketplace; one standard has yet to be adopted. The major concerns about EHR are protection of private and sensitive patient information. APA is working diligently to provide policies to protect patient information. What is clear is that if psychologists are to practice in integrated health care systems, we must participate in and use EHR systems in our practices.

Providing services via the Internet (e.g., Skype) and other electronic means of telehealth is likely to be part of the future of our practice. As Dr. Larry Kutner stated at the Practice Summit, “Imagine Debbie in Mumbai, India, providing psychotherapy via the Internet for $15 a session.” Currently, licensure limitations, confidentiality standards, and other ethical issues limit this type of practice for U.S. psychologists, but this may not stop providers in other countries from providing psychological services in this manner.

Apply Basic and Applied Scientific Evidence to Inform Practice

Evidence-based practice, including prescriptive authority, is the future of psychology practice. The APA has a broad definition of evidence-based practice (EBP; APA Presidential Task Force on Evidence-Based Practice, 2006) that includes the use of all available evidence to inform psychology practice. As mentioned earlier, the development of clinical treatment guidelines will help psychologists integrate EBP into their work. Consistent with this policy, we also need to integrate basic scientific evidence, such as neuroscience, and couple and family process research into our regular practices, not just treatment research. Further, we need to ensure that the unique psychological aspects of assessment and treatment are included in our work. For example, Norcross (2002) reviewed the scientific literature and found that the therapeutic relationship accounts for the most variance in psychotherapy outcome studies, not specific techniques such as cognitive behavior therapy or other therapies.

Demonstrate Accountability

Because of the health care reform legislation, there will soon be changes in health care payments and reimbursements that require practitioners to demonstrate accountability for their work and to assess outcomes from their treatments. This was a clear message from the insurance, business, and legislative delegates at the Practice Summit. We have the opportunity to define how we will be evaluated by developing our own psychology clinical treatment guidelines and methods to assess our work. In other countries, such as Australia and Britain, outcome assessments are a routine part of practice. In Australia, psychologists used the data from these assessments to argue for increased psychological services (Winefield, & Chur-Hansen, 2004).

Other medical groups, such as psychiatrists, have developed clinical treatment guidelines that are used by the insurance industry and policymakers to determine treatments and reimbursements for services. According to the Practice Summit’s insurance and legislative delegates, there are not currently any clinical treatment guidelines used for psychotherapy and psychological services (Bray, Goodheart, Heldring, et al., 2009). The time has come to define psychological practices, or others will do it for us. The APA Council approved a process for the development of clinical treatment guidelines at the 2010 February Council meeting.

Meet the Needs of a Diverse Society

Our society is becoming much more culturally and ethnically diverse, and psychologists must be adequately prepared to provide services to all. There are important cultural differences with implications for our work (APA, 2003). For example, the cluster of behaviors that we label as an anxiety disorder includes psychological symptoms such as feelings of anxiety and fear of the unknown and of death. In addition, there are the somatic symptoms such as heart palpitations, tachycardia, and breathing changes. In the United States, many people focus on the somatic symptoms but eventually admit to the psychological symptoms as well. However, in Mexico and Latin America, it is socially unacceptable to admit to a mental disorder; therefore, many people with a Mexican or Latin American cultural background will not tell their doctors about the psychological symptoms and will only admit to the somatic symptoms—unless one uses their terminology—“ataque de nervios.” Understanding these cultural factors is critical for providing high-quality care (APA, 2003).

While many are fortunate to have access to health care through private or government-sponsored programs, many people have no health insurance or regular access to health care. Even when access is available, there are often clear health disparities for ethnic minorities, the poor, and homeless people (Agency for Healthcare Research and Quality, 2010; Institute of Medicine, 2003). The number of people without access to health care is on the rise, and ethnic minorities are less likely to have access to care. In the United States and many other countries, this lack of health care access is causing a significant economic challenge, as the rising costs of health care are creating an economic crisis. People often resort to emergency rooms and community health centers for their care—again, places where psychologists frequently do not practice. We need to ensure, through multicultural education and policy changes, that psychologists are properly trained to work with diverse populations and that psychologists are included in funding for services designed to reduce health disparities. It is hoped that the implementation of the Patient Protection and Affordable Care Act (2010) by the U.S. Congress will reverse this unfortunate trend of poor access to services and health disparities.

In all of these recommendations and changes, psychological science plays an important role and distinguishes psychologists from other professionals.

Future of Psychological Science

What will the future of psychological science look like? Will there be a unique “psychological” science? Psycho-
logical science is becoming more interdisciplinary, and traditional areas of science are decreasing while new areas are developing—without psychology explicitly included. For example, the Federation of Behavioral, Psychological, and Cognitive Sciences changed its name in 2009 to the Federation of Associations of Behavioral and Brain Sciences. Many psychology departments classified as Research 1 institutions in the Carnegie Classification of Institutions of Higher Education are changing their names to Departments of Psychology and Brain Sciences, and many psychologists are leaving traditional psychology departments to join others.

These changes beg the question of what the core identity of a psychologist is. Kazdin (2009) noted in his APA presidential address, “The public as well as policymakers do not consistently recognize our science. The challenge for public recognition is illustrated by the dominance of nonscientific depictions of psychology in everyday life” (p. 340). Although there are many types of psychologists, our common core includes our methods and scientific rigor. Our methods and scientific rigor are a double-edged sword, however, as many of our methods (e.g., measurement models and assessments) are strong on internal validity issues while ignoring external validity and application to the solving of social problems. This distinction is exemplified by the efficacy and effectiveness debate in psychotherapy research (Nathan, Stuart, & Dolan, 2000).

A second element of our common core is our reliance on strong measurement principles. Psychologists have been leaders in test development, and assessment is a core competency for applied psychologists. Yet our research in tests and measurement development is complicated by changes in immigration and multicultural perspectives. For example, over 50 languages are spoken in the cities of New York, Toronto, and London, and developing valid tests and measures for use among such diverse groups is a challenge. We need to collaborate with those from other disciplines, such as linguists, anthropologists, and biological scientists, to deal with these demographic and multicultural differences. However, while multidisciplinary research is essential for our future, it does not require that we give up our identities as psychologists.

### Growth Areas for Psychological Science: Intersections of Science

With the advances in genetics, neuroscience, and computer technology and the current emphasis on translational science, the psychological sciences have many areas for potential growth that are outside of our usual spheres of research. Psychological science is likely to intersect with other disciplines such as biology, economics, genetics, mathematics, computer science, sociology, anthropology, and political science. Table 4 lists a number of these growth areas, and there are many other possibilities. I discuss some of these in the next sections. There are some overarching changes in funding and policies that will impact the conduct of psychological science in the future.

The major trend is the increase in multidisciplinary research, *big science* that includes multisite projects with large population-based samples followed over longitudinal periods to address major health problems (NIH, 2009a; Zerhouni, 2003). As former NIH director Elias Zerhouni (2003) stated, “The scale and complexity of today’s biomedical research problems increasingly demand that scientists move beyond the confines of their own discipline and explore new organizational models for team science” (p. 64). This perspective also certainly applies to behavioral and psychological research, as most health problems have a behavioral component or cause.

This shift is exemplified in the development of the Clinical and Translational Science Awards (CTSA) Consortium in 2006. The CTSA Consortium set forth this effort to

1. captivate, advance, and nurture a cadre of well-trained multidisciplinary investigators and research teams;
2. create an incubator for innovative research tools and information technologies; and
3. synergize multi-disciplinary and inter-disciplinary clinical and translational research and researchers to catalyze the application of new knowledge and techniques to clinical practice at the front lines of patient care. (NIH, 2006a, para. 4; NIH, 2006b)

Funding through NIH almost requires a multidisciplinary team, and the days of solo, single-discipline research labs are declining. In addition, the large clinical trials and outcome studies funded by NIH and the Department of Defense require multidisciplinary teams and often use medical, public health, and epidemiological models and methods. For psychologists to be competitive in these areas, we must train our students in these models and methods. However, psychological methods also can be critical to advances in these areas, as our strengths in theory development, measurement, and complex statistical modeling hold great promise for understanding the interrelationships among behavioral, genetic, and biomedical fac-
tors. The National Institute on Drug Abuse (NIDA) Clinical Trials Network is a prime example of how behavioral interventions are being studied together with psychopharmacological treatments (NIDA, 2010).

**Translational Research and Comparative Effectiveness Research**

Improving the health of our nation requires taking new discoveries from basic “bench science” and translating them into practical applications that can be used with people for disease prevention and health promotion at the “bedside” (NIH, 2006a, 2006b). Psychologists are involved in many areas of this work, from treating alcohol and drug abuse and childhood problems to preventing and helping people adapt to HIV/AIDS.

The government is also providing billions of dollars to fund comparative effectiveness research (CER) through the American Recovery and Reinvestment Act of 2009 (Clancy, 2009; Institute of Medicine, 2009). CER is designed to inform health care decisions at both individual and population levels by providing evidence on the effectiveness, benefits, and harms of different treatment options. The evidence is generated from research studies that compare existing drug therapies, medical devices, tests, surgeries, or ways to deliver health care. CER is designed to compare the effectiveness of different treatments for the same problem and to determine which treatment works best, for whom, and under what circumstances. APA proposed (Bray, 2009a) a number of areas for CER behavioral research to the Institute of Medicine’s Committee on Comparative Effectiveness Research Priorities; these included determining the most cost-effective treatment for use in school-based interventions for preventing and treating overweight and obesity in children and adolescents and finding the best treatment strategies (e.g., symptom management, cognitive behavior therapy, biofeedback, social skills, educator/teacher training, parent training, pharmacologic treatment) for attention deficit hyperactivity disorder in children. The results of such studies could be used to guide future practice and reimbursement policies for treatments (Patient Protection and Affordable Care Act, 2010).

Behavior and climate change research is also a new area for our work. The APA Task Force on Psychology and Global Climate Change detailed many areas where psychologists can contribute to the study of this important issue (Swim et al., 2009). Kazdmi (2009), in his presidential address, also suggested many areas in which psychologists can provide important answers for people wishing to change their behaviors to create a more sustainable climate. These areas include conservation psychology, ecopsychology, environmental psychology, and population psychology, to name a few. Members of Congress have proposed new funding sources for psychological and behavioral research, such as the U.S. Departments of Energy and Commerce. In 2009, under the leadership of Congressman and psychologist Brian Baird (D–WA), H.R. 3247, a bill to create a social and behavioral sciences program within the Department of Energy, was introduced. This bill passed through the House Science Committee and is awaiting full passage by the House and Senate. Even without the passage of this important bill, the APA Science Directorate is working with the Departments of Energy and Commerce to provide new funding for psychological and behavioral research in these areas (Breckler, 2009).

**Behavioral Aspects of Genetics Research**

With the mapping of the human genome, there are incredible possibilities for understanding the behavioral components and ethical implications of genetics (Miller, McDaniel, Roland, & Feetham, 2006; Plomin, Defries, Craig, & McGuffin, 2003). The current NIH director, Francis Collins, understands and supports this type of research (Collins, 2006, 2010), in which the behavioral aspects of genetics are explored and utilized to create new health treatments and applications. Psychologists can contribute to important basic research on the interactions between behavior and genetics, the applications of these discoveries through genetic counseling, and ethical considerations in their study and application.

The advent of “personalized medicine,” in which an individual’s genome is used to determine specific treatments, needs to include behavioral and psychological determinants (Collins, 2010). Even if a genetic analysis determines what medicine will work best for a given problem, there is still the issue of patient understanding and motivation, which determines whether the patient will actually take the medicine and comply with treatment recommendations. Behavioral and psychological factors cannot be divorced from such advances, and psychologists are well trained to improve compliance with these types of treatments (National Institutes of Health, 2009b).

**Human Engineering and Human Factors**

Human factors psychologists have already made major advances through research in aviation safety and training, human–machine computer interfaces (e.g., Google), and traffic safety (Durso, DeLucia, & Jones, 2010). An exciting and promising development is the application of safety research conducted in aviation to the health care arena to improve patient safety during medical procedures. Both human factors and I/O methods in team building and functioning are improving medical outcomes through increased patient safety (Durso & Drews, 2010). A case in point involved the implementation of a computerized physician order entry system that was designed to decrease child mortality. Mortality actually increased from 2.8% to 6.6% with the implementation of the new system because there was not sufficient training of the staff in how to properly use the system. The increased mortality was attributed to a lack of attention to human factors (Han et al., 2005). However, when a similar system was introduced in a Seattle hospital but implementation involved training that attended to “psychological” aspects of using the system, there was a subsequent substantial reduction in infant mortality (Seattle Children’s Hospital, 2006).
Psychological Science as a Core STEM Discipline

STEM (science, technology, engineering, and mathematics) is the term used to refer to basic science disciplines. Although psychology is a STEM discipline and contributes to STEM education in other science disciplines, it is not always considered a core STEM discipline (Domestic Policy Council, Office of Science and Technology Policy, 2006). The lack of recognition of psychology as a core STEM science has major implications for funding and policy development (Dovidio et al., 2010; Newcombe et al., 2009). For example, the America COMPETES Act of 2007 was a large funding bill authorizing a variety of federal science, technology, and research programs. This legislation doubled the funding for the National Science Foundation and the Department of Energy’s Office of Science. After the House version (H.R. 2272) of it was passed, the Senate attempted to exclude psychology and behavioral science from this funding, because they were not considered core STEM disciplines. In its final report, the 2009 APA Presidential Task Force on the Future of Psychological Science as a STEM Discipline articulated the rationale for identifying psychology as a core discipline; this report (Dovidio et al., 2010) will be used to advocate for changes to enhance psychology as a core STEM discipline and to ensure that psychological research is included in all future STEM funding opportunities. Further, advocating for psychology as a core STEM discipline is part of the 2009 APA Strategic Plan.

To solidify psychological science as a core STEM discipline, the task force recommended increased support for STEM training of graduate students and early career professionals. To create a pipeline of students, we need to increase the resources for teaching psychology as a laboratory science at the high school, community college, and college levels. Psychology can be a gateway to increasing the participation of women and minorities in STEM activities. To further funding opportunities for psychological scientists, we need to increase our presence in STEM agencies such as the U.S. Departments of Commerce, Energy, and Transportation and within the National Academies of Science. We need more psychologists who do STEM work on the boards and review panels of these institutions as well as serving as senior staff members.

With increased multidisciplinary training and work, the focus in future research needs to change from a discipline-based orientation to a problem-based orientation. For example, the treatment of people with cocaine addiction could benefit from multidisciplinary teams that include biomedical and psychological scientists, who understand the physiological and behavioral aspects of the substance; geneticists, who can develop markers for addiction; and clinical psychologists and physicians, who can develop and apply successful treatments. Utilizing the strengths of psychological methods and theories can enhance the work of many basic sciences, as there is almost always a human and psychological component in applying new scientific and technological advances (Dovidio et al., 2010).

Newcombe and colleagues (2009) articulated how advances in psychological sciences, from developmental to cognitive psychology, are converging to create a new science of learning. They argued that psychological science can enhance other STEM disciplines through our work on (a) children’s early understanding of mathematics; (b) student’s understanding of the nature of science and its methods; (c) the application of psychological principles to social and motivational influences on learning; and (d) the application and development of assessments to evaluate the progress or lack thereof in STEM educational efforts. The role of psychology in the education and training of students in other STEM disciplines has a promising future. Newcombe et al. (2009) concluded that psychology is a key discipline along with cognitive science, neuroscience, computer science, and other fields in the establishment of a new science of learning that has exciting potential to provide deep insights into the nature of human learning and how best to enhance it at all ages and in a variety of disciplines. (p. 548)

Moving Forward Into the Future

In some respects, we as a profession are in uncharted waters, often unable to see ahead because of the huge economic forces and policy changes at work. Do we remain static and slide down the end of our current curve, drifting into oblivion, or do we make the leap to new curves that have the potential to revitalize and transform our profession for the 21st century? In the next few decades we have great opportunities, and psychology is well positioned to take advantage of them, but it will require that we change—and make a leap to second curves. Those second curves are likely to be in areas of work very different from our work in the first 100 years of our profession. We need to engage and embrace these changes so that we can influence their processes and outcomes and ensure a vital profession. Multiple levels of engagement are necessary.

Public Policy Engagement

At the highest level of engagement is the need to be more active in policy development and political processes that determine policy. Without this form of engagement, we are often left out of critical political decisions that determine funding for our work and policies that support our practice and science (DeLeon, 2002). There are many examples of policies that have the potential to undermine our work, from legislation that would have required written parental informed consent for children and adolescents to participate in school surveys (called the Family Protection Act) to the exclusion of psychology from funding at the National Science Foundation because we were not considered a core STEM discipline.

Unfortunately, psychologists are less likely to be involved in the political process and political giving than are members of other related professions, and we suffer as a result of this lack of involvement. We need more psychologists to serve in elected positions in the U.S. Congress and state legislatures and in high-level positions in federal agencies, such as NIH and the Departments of Defense and Health and...
Human Services. We need to branch out into new areas of government to secure funding for work in climate change and other applied areas that are governed by the Departments of Commerce, Energy, Transportation, and Housing and Urban Development (HUD). HUD changed its policy in 2009 to spend 1% of its budget on research to evaluate the effectiveness of its programs. This opens the door for psychologists to engage in program development and evaluation to improve the lives of the poor and homeless.

We need more psychologists employed by or as consultants to agencies that are tackling global problems such as environmental change, war, displacement, manmade and natural disasters, and famine (Bray, Goodheart, Heldring, et al., 2009). We can spend billions of dollars to develop new technologies, but in the end, if people do not use them correctly they will be underutilized, will not work, or will contribute to further problems (cf. Han et al., 2005). This is another area of research in which psychologists can play important roles.

More psychologists should be appointed or elected to honorary professional societies and academies. In 2009 there were more anthropologists in the National Academies of Science (NAS) than there were psychologists despite the fact that there are substantially more psychologists than anthropologists (Dovidio et al., 2010). As a result, anthropology and economics are more often included as core STEM disciplines or professions than is psychology. We need more psychologists appointed as full members to the NAS, the Institute of Medicine, the National Research Council, and other groups. Once again, it appears that psychologists are responsible for this state of affairs, as we often do not nominate or stand up for our fellow psychologists to be part of these groups. We should double the number of psychologists in the NAS over the next five years to reflect the growing importance of psychological science to our nation’s economic success and to the health of our population.

Department of Behavioral Health

I call for the creation within the federal government of a new Department of Behavioral Health headed by a senior director. This department could be located within the Department of Health and Human Services (DHHS) or within the Surgeon General’s Office. The data to support this call are compelling, as behavioral and psychosocial factors account for the largest amount of variance in health and disease. It is time to recognize this reality with a high-level position and department within our government, similar to what has been done with the Office for Minority Health and its undersecretary within the DHHS.

Further, NIH funding to investigate behavioral and psychosocial factors and to develop interventions that prevent the development of chronic health problems such as diabetes and heart disease should be dramatically increased. The success of behavioral interventions that foster behavior change has been clearly demonstrated in the prevention of HIV/AIDS, and similarly effective interventions can be developed and applied for other health problems (National Institutes of Health, 2009b; Pequegnat, 2009).

Transitioning to New Opportunities in Integrated Health Care

For many established practicing psychologists, making a change to work in integrated health care systems or primary care will require some retraining. This can be accomplished through continuing education, independent study, and practicum training in these systems. This was a recommendation of the APA Presidential Task Force on the Future of Psychology Practice, and it is being implemented within APA. Training institutions, such as universities and postdoctoral training institutes, are also needed to help psychologists move into integrated health care systems. These training opportunities may increase as federal training dollars, such as those provided by the Centers for Medicare and Medicaid Services (CMS), the Graduate Medical Education program, or the U.S. Public Health Service, become more available to psychologists. Once again, political advocacy by APA and individual psychologists is required to secure these policy changes.

The federal government is moving to a different system of reimbursement and away from fee-for-service models. Although the public may continue to value psychological services and pay out of pocket for them, psychologists who choose to practice in traditional independent practices will face increasing pressures from the federal government to join organized systems of care and will face additional competition from master’s-level providers, who will provide similar services for reduced costs. Unless we can clearly brand psychology practice and justify higher rates because of our uniqueness among mental health providers, reimbursement rates from insurance companies are likely to converge among all providers.

Although prescriptive authority for psychologists is in its early stages, this is another area of growth for our profession. Every health service psychologist should have basic training in psychotropic medications and common medical conditions that are related to mental and behavioral health. Some psychologists resist acquiring this authority, as they claim that embracing prescriptive authority will undermine our behavioral methods and profession, make us “junior psychiatrists,” or challenge our independent professional status from medicine. However, human beings are biopsychosocial creatures, and to fully understand and properly treat people with behavioral and mental health problems, a broader understanding and knowledge base is needed. Advances in neuroscience clearly substantiate this perspective, as psychotherapy and medications change brain functioning and behavior.

Psychology Training for Practice in the 21st Century

Current graduate programs in clinical, counseling, and school psychology need to revamp their curricula to train students for practice in the 21st-century health care system of interdisciplinary teams, care management, and care coordination programs; quality assurance mechanisms; evidence-based practice; and health information technology systems. Education delegates to the APA Summit on the
Future of Psychology Practice recognized this and are currently discussing needed changes for future graduate training in professional psychology (Chin, Eby, Rollock, Schwartz, & Worrell, in press).

For health service practice, we need to adopt some of the language and methods of biomedicine, epidemiology, and public health while retaining our distinctive psychological perspectives and methods. For example, in most of medicine, the World Health Organization’s (2007) *International Classification of Diseases (ICD-10)* is used for diagnosis, rather than the American Psychiatric Association’s (2000) *Diagnostic and Statistical Manual of Mental Disorders (DSM–IV–TR)*. Primary care providers do not generally use the DSM. Demonstrating foresight, the APA has invested substantial resources into the development of the next ICD revision because of its increased importance for future psychology practice.

Training of psychologists needs to be undertaken with other health professionals, such as physicians, nurses, and clinical pharmacists, and in integrated and primary care settings. In medical and nursing schools, students receive training in the basic sciences and methods of medicine during their early years and then move to multidisciplinary clinical settings for training. Psychologists need more joint training with other health professionals, not just mental health professionals, throughout their programs. Having more clinical psychology programs located within primary care departments, rather than psychiatry departments, will help facilitate these types of changes.

While there will continue to be a need for specialty and traditional mental health services, the clear growth areas are in the broader health care arena and in other areas outside of mental health. The growth areas for practice are in all of the sectors of health care (see Figure 2), especially in primary-care, patient-centered medical homes and public health; forensic practice, which includes evaluations, expert testimony, and parenting coordination programs; clinical and team leadership; and coaching and personal growth services through the application of positive psychology (Bray, Goodheart, Heldring, et al., 2009; Munsey, 2009; Scott et al., 2010; Seligman, 1999).

General health care settings are quite different in practice styles and methods from traditional mental health settings (Bray & Rogers, 1995; Frank et al., 2004; Robinson & Reiter, 2007). It is essential for psychologists to have opportunities to train side by side with other health professionals in a variety of public and private settings. In addition, the use of electronic health records is essential to this type of practice, as EHR technology will be the method that links health care across disciplines. In addition, the delivery of services through the Internet and the use of other technologies are likely to impact all types of psychology practice, whether traditional mental health services or behavioral health services within integrated and primary care systems. Similar technologies likely will be used for the practice of applied psychology and business consulting.

Funding for interdisciplinary training is currently available through grants from the Health Resources and Services Administration for graduate psychology education and through CMS for graduate medical education. However, the current Medicare reimbursement rules interfere with the training of psychologists in most primary care settings because services for trainees cannot be reimbursed. Primary care disciplines have the “primary care exemption,” which allows primary care residents to see patients independently, with supervision, and have the services reimbursed. A similar rule change is needed for psychology trainees.

**Training for the Future of Psychological Science**

We need to change the way we train our students and, most likely, the places in which we train them. These types of changes necessitate that we collaborate with professions outside of psychology while maintaining our unique identity as psychologists. For science, we need to collaborate more with economists, engineers, neuroscientists, and computer scientists and to set up joint training programs to take advantage of each discipline’s unique strengths. Such changes may require that psychologists have more undergraduate training in other areas of science, such as biology and chemistry. Psychological scientists who want to obtain federally funds for research need training in the process and methods of “big science,” which means they will need some knowledge of epidemiological and public health approaches, multidisciplinary teams, longitudinal clinical trials, translational science, and secondary data analysis of large data sets. This may require new and additional interdisciplinary training programs that are funded by the National Science Foundation and other agencies.

In summary, our profession can make a difference *that makes a difference*, and we can create a future in which our nation benefits from the application of our rich and varied science to the grand challenges of our society and the individuals we serve. I end this article where I started: “The best way to predict the future is to create it.” I look forward to seeing what futures we create and how psychology will evolve as we progress into the 21st century.

**REFERENCES**


